

Partisan Bias, Economic Expectations, and Household Spending

Online Appendix

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A1 Relationship to Existing Research

The study by Benhabib and Spiegel (2019) employs a two-stage least squares framework in a state-quarter panel in which they first regress *BUS5* on *congres*, where the specification includes state fixed effects.¹ The framework then regresses year over year GDP growth in a state on the predicted value of *BUS5*, again including state fixed effects.

There are four key differences between the empirical strategy in this study and that of Benhabib and Spiegel (2019). First, all of our analysis is at the individual, zip, or county level; it is at the state-level in Benhabib and Spiegel (2019). Second, we examine the effects on household spending; Benhabib and Spiegel (2019) focus on state GDP. Third, our empirical strategy uses the Republican vote share in a geographical area in the nearest Presidential election as an instrument; Benhabib and Spiegel (2019) use the *congres* variable described above. Finally, we examine the shock to expectations driven by partisan bias immediately after elections. This latter point is a crucial difference, as we explain below.

In the appendix, we compare the Benhabib and Spiegel (2019) empirical strategy to the one presented here.² In Figure A5, we show that shocks to the Benhabib and Spiegel (2019) instrument are concentrated in the six quarters after the national elections of 2004, 2006, 2008, 2010, 2012, and 2014, with the biggest shock being in 2008. In Figure A6, we show that that the shock to *congres* after the 2008 election is strongly negatively correlated with the Republican vote share in 2008 at the state level; for this year, the two instruments are correlated across states.

However, as we show in Table A5, shocks to the *congres* instrument are not a statistically robust predictor of the change in economic expectations around elections. For each national election, we estimate annual first

¹More specifically, Benhabib and Spiegel (2019) use the share of respondents answering 1 or 2 to the *BUS5* question.

²We are grateful to Mark Spiegel for making the data public and sending us the code generating the tables.

difference specifications of the following form:

$$\Delta BUS5_s = \alpha + \beta * \Delta congres_s + \epsilon_s$$

As Table A5 shows, the coefficient β is not statistically significant for any election except for 2012. This makes it difficult to compare our results to those in Benhabib and Spiegel (2019), because the *congres* instrument does not appear to generate a shock to expectations in the year after the election that is similar to the Republican vote share instrument that we use in this study. We also report in Table A4 the same specification using the Republican vote share in the state. Consistent with the results above, the Republican vote share in 2008 predicts a decline in *BUS5* from the third quarter of 2008 to the third quarter of 2009.

A contemporaneous study by Gillitzer and Prasad (2018) examines how shifts in economic expectations due to Federal elections in Australia affect household spending. They examine four elections in Australia that led to a change of government in 1983, 1996, 2007, and 2013. They also find large shifts in economic expectations around these elections based on the party supported by the individual in the survey (see in particular their Figure 3). They find an effect of shifts in economic expectations around elections on survey measures of spending on automobiles or major household items (see in particular their Figures 7 and 8).

To measure actual spending, Gillitzer and Prasad (2018) use postcode-quarterly level auto purchases for the 2007 and 2013 elections in Australia. The short-run evidence they find using actual auto purchase data is similar to the findings presented in this study. In particular, for both Australian elections, there is no relative difference in the evolution of auto sales from the two quarters before the election to two quarters after the election based on the vote share of the postal code.³ As in our analysis, Gillitzer and Prasad (2018) find a large and immediate effect of elections on economic expectations, but no effect on actual auto purchases in the six months following the election.

For both the 2007 and 2013 election, Gillitzer and Prasad (2018) find longer run effects on auto purchases that begin three quarters after the election. For the 2007 election, they find the strongest relative growth in auto sales among those supporting the Australian Liberal Party in the 2010 to 2012 period. Individuals supporting the ALP see a sharp rise in economic expectations immediately after the election in 2007 and the strongest effect on auto purchases is from 2010 to 2012. One concern is that such longer run effects shown in

³See in particular their Figure 9. Gillitzer and Prasad (2018) do not present regression estimates and statistical significance for the estimates in their Figure 9, but based on the figure there does not appear to be a short-run effect from two quarters before the election to two quarters after the election.

Gillitzer and Prasad (2018) could be driven by alternative factors rather than a reaction to the Federal election outcome. In our analysis, we do not find evidence of a relative change in auto sales or credit card spending for those more likely to support the winning candidate one year after each presidential election for which we have data. For the 2016 election, we do not see evidence of a relative shift in auto purchases or credit card spending through October 2017 for counties most heavily voting for Donald Trump in November 2016.⁴

⁴Gillitzer and Prasad (2018) cites an older version of this study in which partisan affiliation was imputed for the Michigan survey. In this study, partisan affiliation is measured using answers to survey questions, just as in the data set used in Gillitzer and Prasad (2018). There is no difference between the two studies in this regard. Gillitzer and Prasad (2018) also argue that the null result found in this study is due to the fact that the auto vehicle registration data is for households, businesses, and governments, whereas the auto vehicle registrations data used in Gillitzer and Prasad (2018) is for households only. It is important to emphasize that both studies find no effect on auto purchases from the two quarters prior to the election through the two quarters after the election. Furthermore, this study also finds a null result using an administrative measure of household spending based on credit card data. The data set in Gillitzer and Prasad (2018) does not contain an administrative measure for a broader set of consumer spending.

A2 Appendix Tables and Figures

Table A1: Other Measures from Survey Data

This table corresponds to Table 3 of the main draft, where we show the same regression specification for different outcome variables.

	Gallup Survey		Michigan Survey				
	Rating of current economic conditions	My financial situation, 1 year	My expected income, 1 year	Country business conditions, 12 months	Country business conditions, 5 years	Index of current economic conditions	Government economic policy
Post 2008 election	-0.155*** (0.007)	0.164* (0.067)	-0.066 (0.047)	-0.157** (0.056)	0.003 (0.062)	-0.173** (0.055)	0.240*** (0.057)
Post 2012 election	0.042*** (0.008)	0.099 (0.087)	-0.037 (0.074)	0.034 (0.101)	0.116 (0.095)	-0.041 (0.084)	0.198* (0.082)
Post 2016 election	-0.084*** (0.008)	-0.336*** (0.082)	0.025 (0.062)	-0.728*** (0.078)	-0.779*** (0.080)	-0.285*** (0.072)	-1.261*** (0.080)
× Post 2008 election	-0.303*** (0.010)	-0.216* (0.101)	-0.072 (0.068)	-0.152 (0.080)	-0.207* (0.090)	-0.069 (0.085)	-0.434*** (0.077)
× Post 2012 election	-0.129*** (0.010)	-0.067 (0.142)	0.031 (0.118)	-0.061 (0.140)	-0.209 (0.139)	0.034 (0.131)	-0.328** (0.115)
× Post 2016 election	0.424*** (0.012)	0.909*** (0.121)	0.333*** (0.090)	1.820*** (0.107)	1.834*** (0.117)	0.521*** (0.109)	2.532*** (0.108)
Observations	1034933	15270	15705	14501	15287	15789	15539
R^2	0.107	0.043	0.031	0.184	0.091	0.134	0.218

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Standard errors in parentheses.

Table A2: Exploiting the Panel Dimension of the Michigan Survey

This table corresponds to Table 3 of the main draft, where we exploit the panel dimension of the Michigan data. The sample is limited to individuals that are surveyed at least twice, and column 2 includes individual fixed effects.

	Michigan: Index of consumer expectations	
	(1)	(2)
Post 2008 election	-0.039 (0.092)	-0.073 (0.139)
Post 2012 election	0.028 (0.168)	0.137 (0.259)
Post 2016 election	-0.778*** (0.161)	-0.863*** (0.237)
Republican affiliation		
× Post 2008 election	-0.172 (0.129)	-0.112 (0.193)
× Post 2012 election	-0.023 (0.245)	-0.149 (0.370)
× Post 2016 election	2.256*** (0.218)	2.343*** (0.311)
Observations	5106	5106
R^2	0.153	0.746
Individual FE	N	Y

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Standard errors in parentheses.

Table A3: Partisan Bias: Is Your Business Hiring?

This table presents estimates of how individuals differentially respond to a question about whether their business is hiring around Presidential Elections based on the individual's party affiliation. We report β^y and γ^y from the following specification:

$$Hiring_{iym} = \alpha_m + \alpha_m * Rep_{iym} + \alpha_y + \alpha_y * Rep_{iym} + \sum_{y=08,12,16} [\beta^y * Post_y] + \sum_{y=08,12,16} [\gamma^y * Post_y * Rep_{iym}] + \epsilon_{iym}$$

where α_m are month of year indicator variables, and α_y are pseudo-year indicator variables (i.e., June to May). $Post_y$ is an indicator variable for a given pseudo-year y that is one for November through May (i.e., the six months following the Presidential election). The data set used in these regressions is from Gallup.

	Gallup: Is the business you work for hiring?		
	(1)	(2)	(3)
Post 2008 election	-0.212*** (0.011)	-0.219*** (0.012)	-0.230*** (0.014)
Post 2012 election	0.042*** (0.009)	0.041*** (0.009)	0.034** (0.011)
Post 2016 election	-0.116*** (0.008)	-0.120*** (0.009)	-0.116*** (0.010)
Republican affiliation			
× Post 2008 election	-0.040* (0.016)	-0.030 (0.017)	-0.025 (0.021)
× Post 2012 election	-0.151*** (0.012)	-0.149*** (0.012)	-0.140*** (0.015)
× Post 2016 election	0.284*** (0.012)	0.289*** (0.012)	0.279*** (0.015)
Observations	1087638	1087638	1087638
R^2	0.045	0.080	0.255
FE	None	County×month	ZIP×month

Oster (2019) test statistic for coefficient on Republican × Post 2016 election comparing columns 1 and 3 (null $\beta^* = 0$, $R_{max} = 1.5R$): $\delta = 3.18$.

* p < 0.1, ** p < 0.05, *** p < 0.01. Heteroskedasticity-robust standard errors clustered at the county level are in parentheses.

Table A4: Correlation in Measures of Expected Income Growth

This table presents the correlation between various measures of economic expectations in the Michigan Survey (Panel A) and the Gallup Survey (Panel B). Month fixed effects are removed.

Panel A: Michigan Data

	Country business conditions, 12 months	My financial situation, 1 year	My expected income, 1 year
Country business conditions, 12 months	1.000		
My financial situation, 1 year	0.290***	1.000	
My expected income, 1 year	0.187***	0.334***	1.000

Panel B: Gallup Data

	Economy getting better	Is the business you work for hiring?
Economy getting better	1.000	
Is the business you work for hiring?	0.161***	1.000

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Standard errors in parentheses.

Table A5: Partisan Bias and Administrative Measures of Spending: High Income Zip Codes

This table corresponds to Table 7 of the main draft, where the sample is limited to zip codes that are in the top quartile of the 2010 average adjusted gross income distribution.

	Economy getting better	Log auto sales	Log credit card spending
	(1)	(2)	(3)
Post 2008 election	0.054** (0.020)	-0.224*** (0.012)	-0.075*** (0.010)
Post 2012 election	-0.034 (0.018)	0.054*** (0.012)	0.011 (0.012)
Post 2016 election	-0.535*** (0.021)	-0.025* (0.012)	0.032*** (0.009)
Republican affiliation			
× Post 2008 election	-0.298*** (0.033)	-0.020 (0.023)	0.018 (0.021)
× Post 2012 election	0.017 (0.030)	-0.035 (0.022)	0.028 (0.022)
× Post 2016 election	1.397*** (0.035)	-0.028 (0.023)	-0.005 (0.019)
Observations	196901	304977	280897
R^2	0.204	0.086	0.119

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Standard errors in parentheses.

Table A6:
Benhabib and Spiegel: First Stage in First Differences

This table presents a first difference first stage specification using *congres* from Benhabib and Spiegel (2019). For each year, the first difference specification is from the third quarter of the election year to the third quarter of the following year. All specifications are at the state level.

Panel A: Using *congres*

	Δ BUS5					
	2004	2006	2008	2010	2012	2014
Δ CONGPRES	-0.649 (0.573)	-0.312 (0.412)	0.037 (0.074)	0.039 (0.280)	0.376* (0.163)	-0.026 (0.220)
Observations	49	49	49	49	49	48
R^2	0.018	0.014	0.008	0.001	0.041	0.000

Panel B: Using Republican vote share

	Δ BUS5		
	2004	2008	2012
Republican Vote Share	0.055 (0.337)	-0.702* (0.299)	-0.170 (0.258)
Observations	49	49	48
R^2	0.000	0.128	0.009

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Standard errors in parentheses.

Figure A1:
Partisan Affiliation in Gallup

This figure presents partisan affiliation as reported in the Gallup data set from 2008 to 2017.

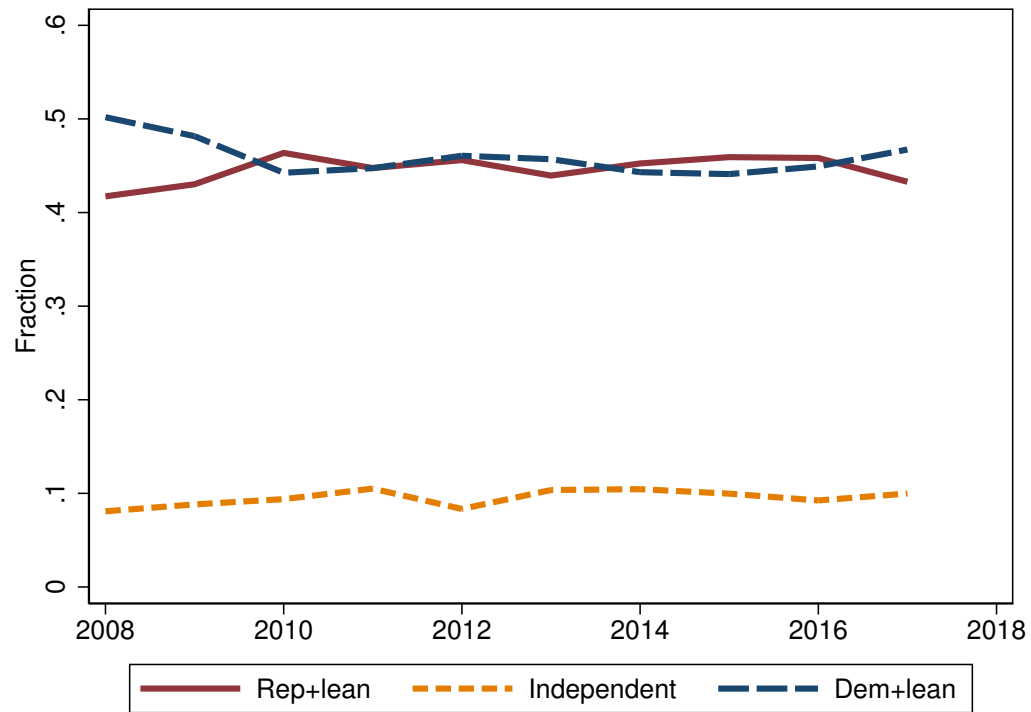


Figure A2:
Power of Party Affiliation in Explaining Economic Expectations

This figure presents the R^2 from univariate regressions relating economic expectations of an individual as measured from Gallup to an indicator variable for whether the individual is affiliated with the Republican party. We estimate the regression for each Presidential term separately, and report the R^2 below. For Presidential election years, November, December, and January are excluded.

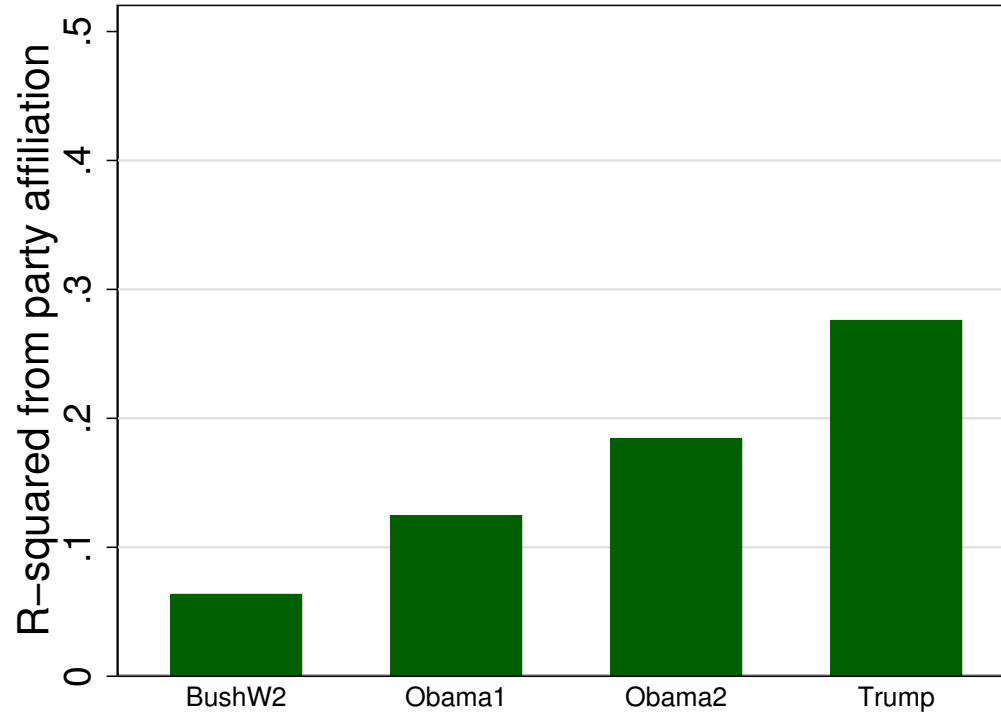
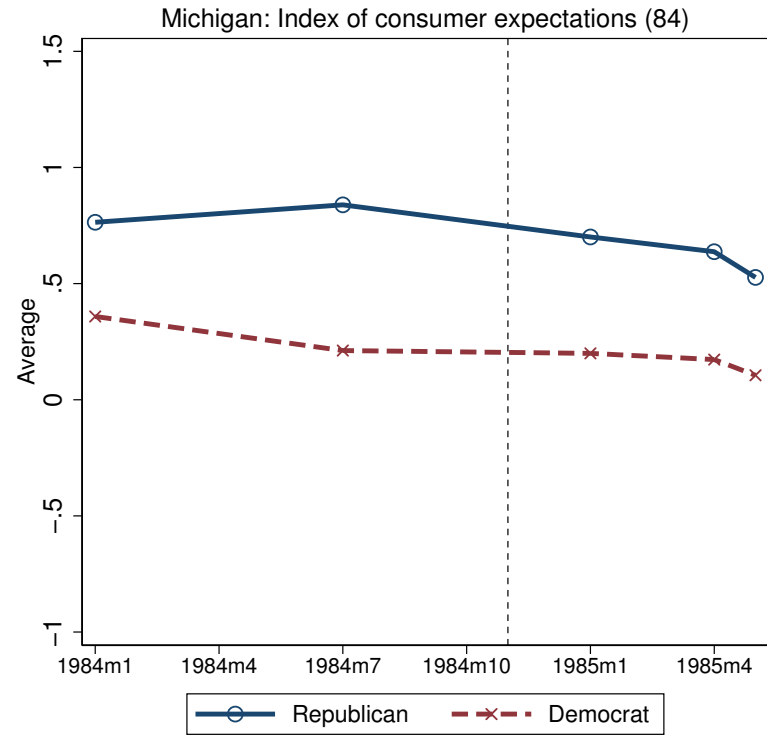
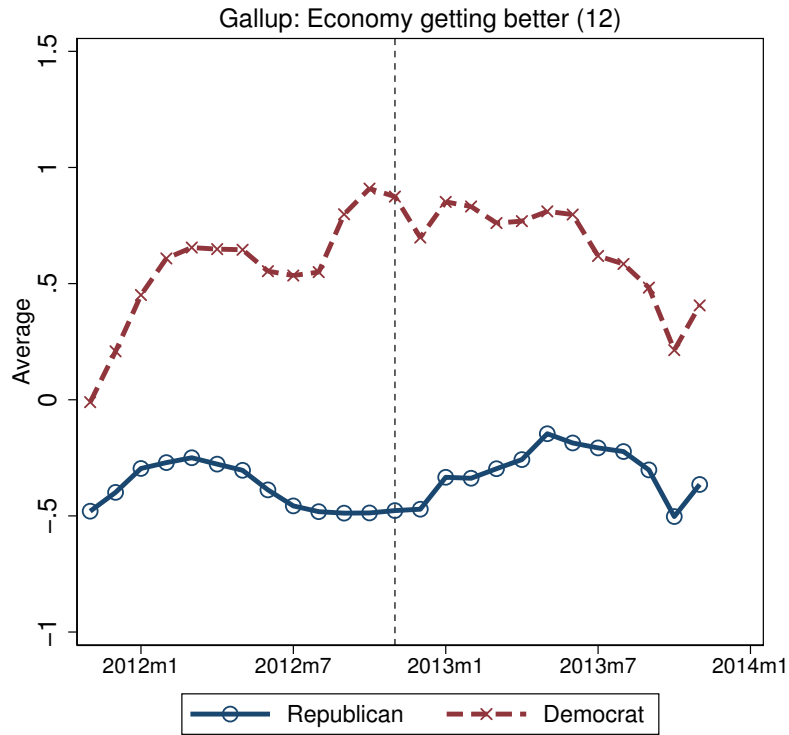


Figure A3:
Economic Expectations and Partisan Bias around Elections

This figure presents average economic expectations by partisan affiliation in the Gallup and Michigan surveys around other Presidential elections for which data are available.



**Figure A4:
Republican Vote Propensity, Transfers, and Tax Rates**

This figure presents coefficient estimates of β^y from the following specification:

$$\ln(X_{gy}) - \ln(X_{g,baseyear}) = \alpha^y + \beta^y * RepShare_{g,baseyear} + \epsilon_{gy}$$

The base year for the Bush years is 1997, and the base year for the Obama years is 2005. The coefficients in the left and right panels can be interpreted as the relative change in transfers and tax rates for geographical areas most likely to vote for the Republican candidate in the 2000 and 2008 Presidential election, respectively. The transfer specification uses county-year-level data, whereas the tax rate specification uses state-year-level data.

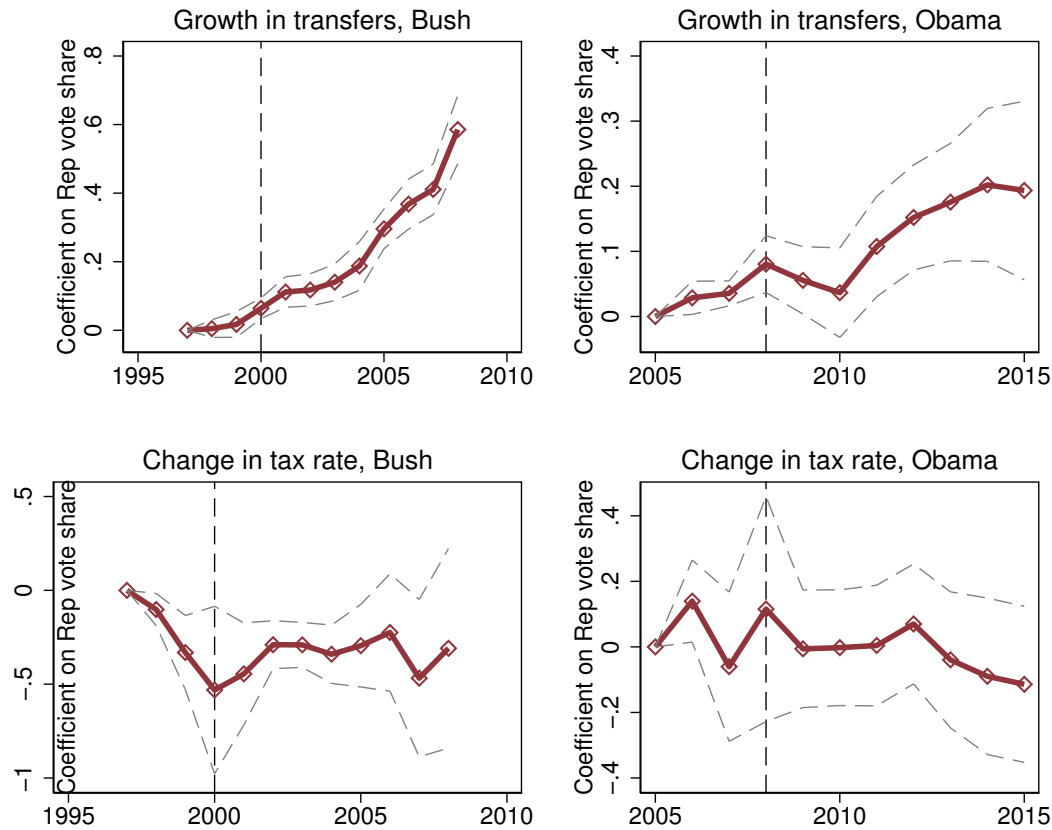


Figure A5:
Republican Vote Propensity and Personal Income Growth

This figure presents coefficient estimates of β^y from the exact same specification as Appendix Figure A4 but replacing the left hand side variable with per-capita personal income growth from the base year. The coefficients in the left and right panel can be interpreted as the relative change in per capita personal income for counties most likely to vote for the Republican candidate in the 2000 and 2008 Presidential election, respectively. This specification is based on county-year-level data.

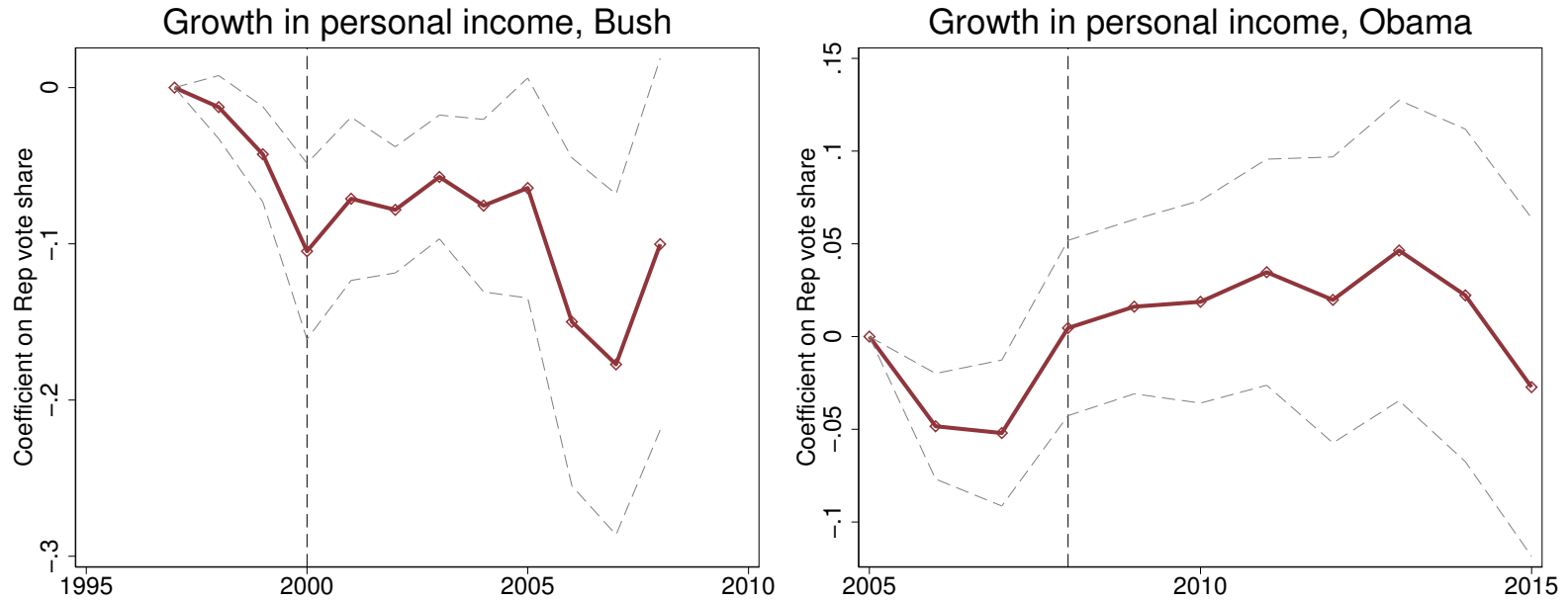


Figure A6:
Shock to Congres from Benhabib and Spiegel

This figure shows the variation of the instrument in Benhabib and Spiegel. More specifically, it shows the absolute value of the difference in Congres at the quarterly frequency.

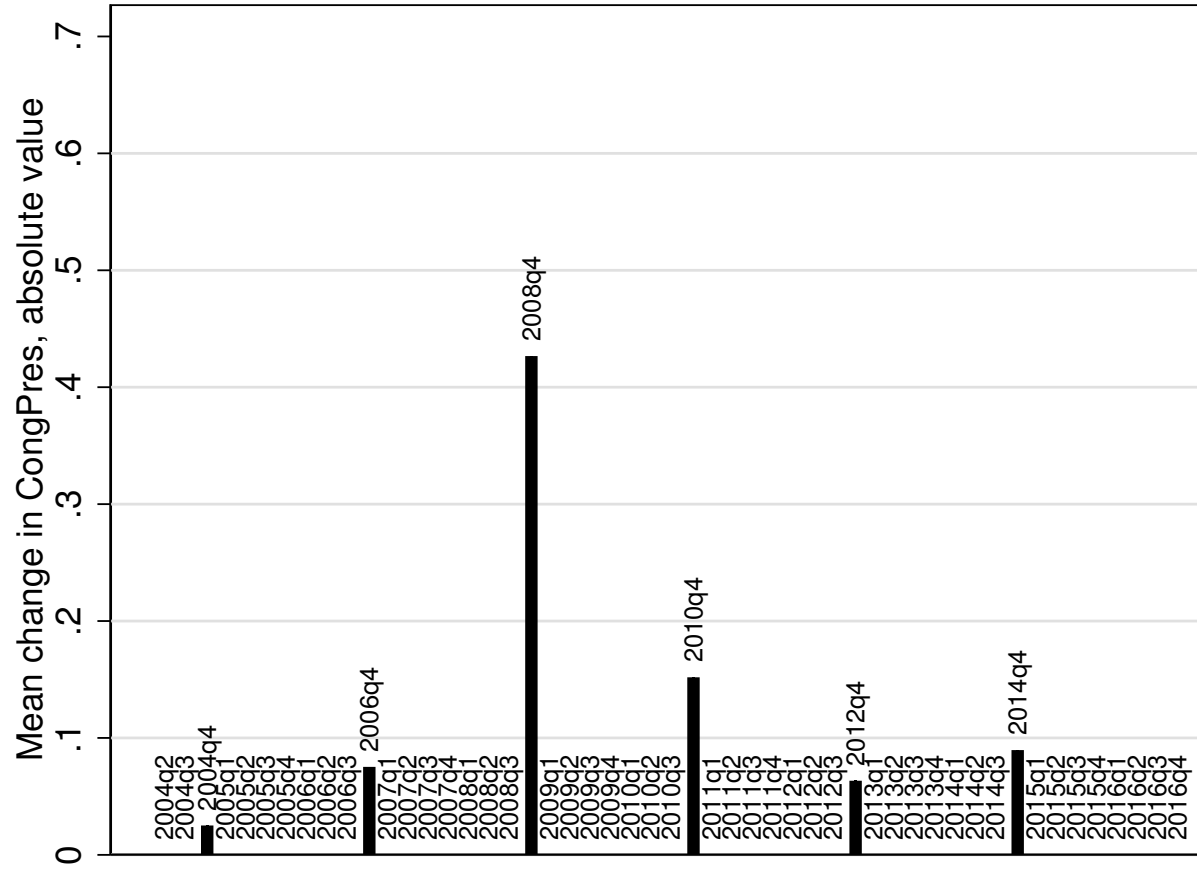
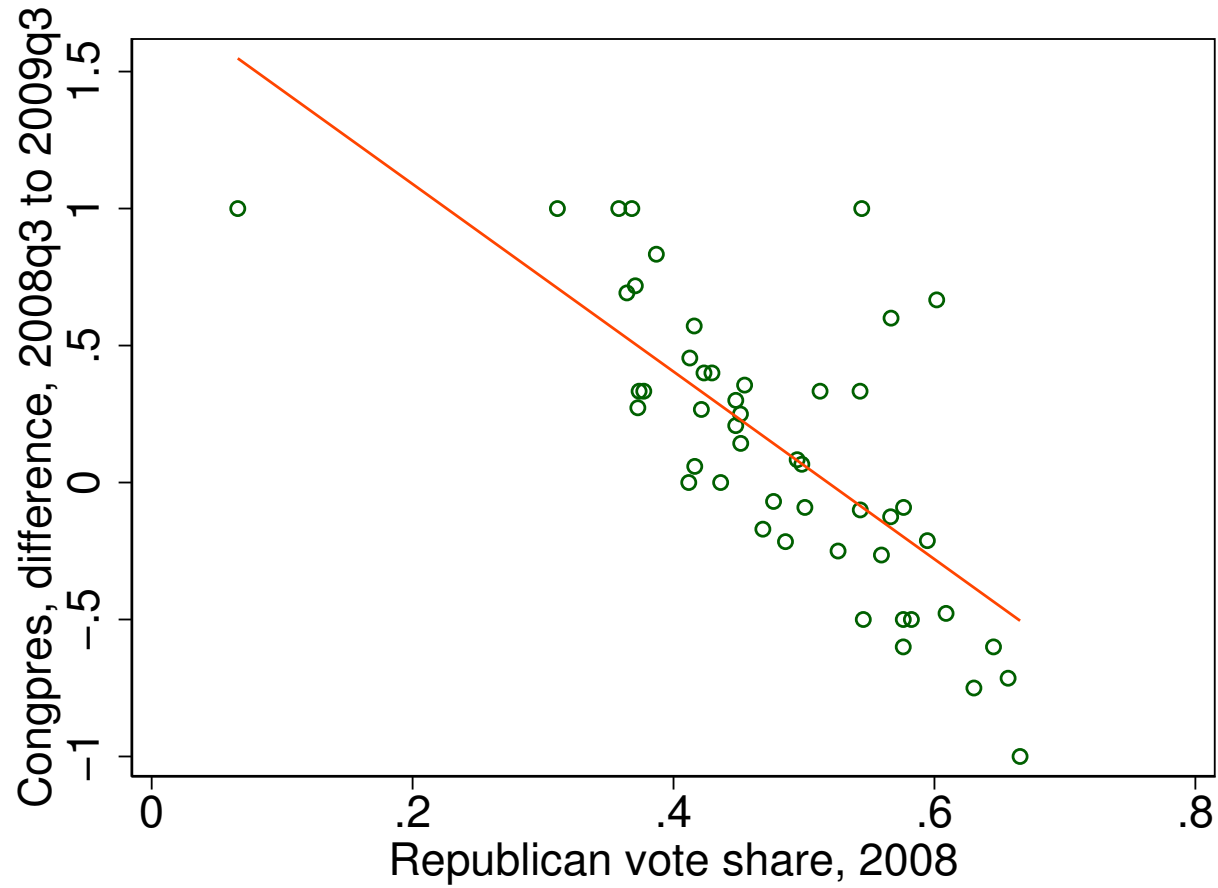


Figure A7:
Comparison of Instruments, 2008 election

This figure shows the scatter plot of Congress and the Republican vote share for the 2008 election.



References

Benhabib, Jess and Mark M Spiegel, “Sentiments and economic activity: Evidence from US states,” *The Economic Journal*, 2019, 129 (618), 715–733.

Gillitzer, Christian and Nalini Prasad, “The effect of consumer sentiment on consumption: cross-sectional evidence from elections,” *American Economic Journal: Macroeconomics*, 2018, 10 (4), 234–69.