Polarized Expectations

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Motivation

Big Picture:

- Nearly all economic decisions are based on agents' beliefs
- The workhorse approach to modeling beliefs has been full-information rational expectations (FIRE), but survey-based measures of beliefs systematically deviate from FIRE
- How expectations are formed is crucial for understanding macroeconomic dynamics and policy-making

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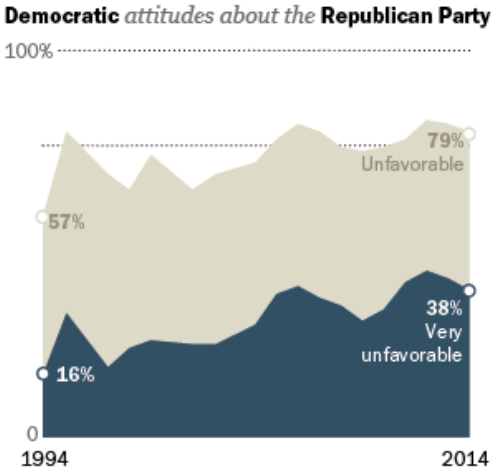
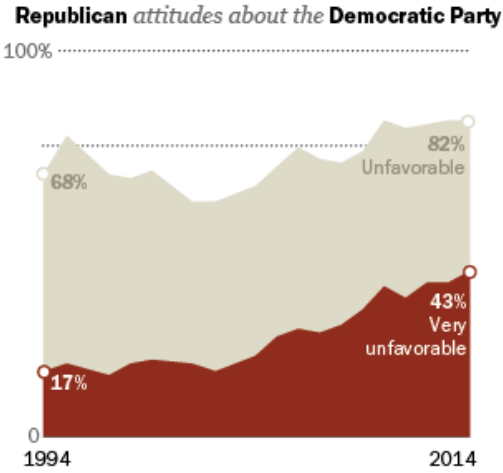
- How expectations are formed is crucial for understanding macroeconomic dynamics and policy-making

This Paper:

- Documents stylized facts about how household beliefs and actions interact with political beliefs and the rise of polarization
- The stylized facts rule out some of the commonly used microfoundations for expectation formation

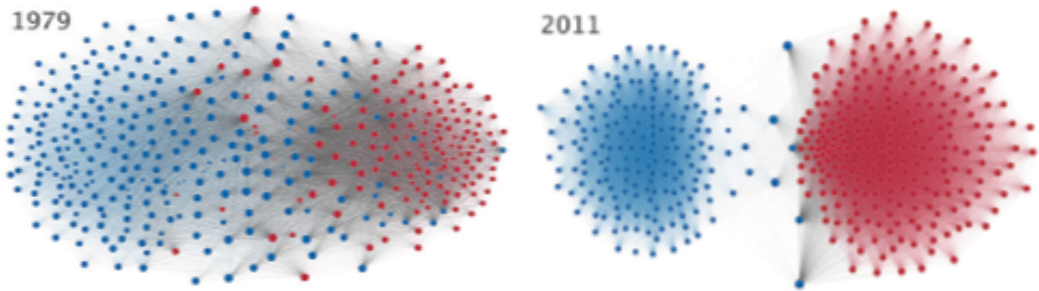
Rising Polarization: Political Party





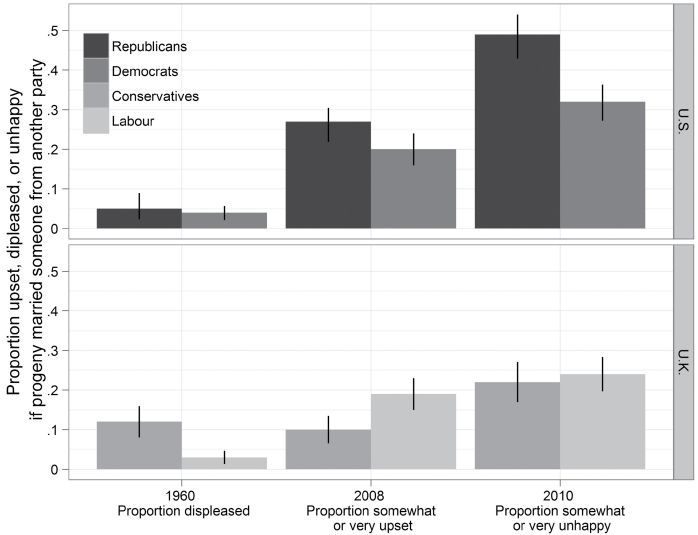
Source: PEW Research Center.

Rising Polarization: Legislative Voting



Cooperation amongst Democratic and Republican congressional members. Source: Andris et al (2015).

Rising Polarization: Households



Source: Iyengar et al (2012).

Findings: Five Facts About Polarized Expectations

FACT 1: Heterogeneity in Expectation Optimism/Pessimism Falls Along Party Lines

- Kamdar (2020): expectations are well-described by a one-factor model. Essentially, household's range on a spectrum of optimism to pessimism (for both aggregate beliefs and personal beliefs)
- At any given point in time, there is a high degree of heterogeneity. That is, there are many optimistic and pessimistic households
- Heterogeneity correlates with political ideology: democrats tend to be optimistic at the same time as republicans are pessimistic, and vice versa

Findings: Five Facts About Polarized Expectations

FACT 1: Heterogeneity in Expectation Optimism/Pessimism Falls Along Party Lines

FACT 2: Short-Run Stability

- Most of the time, household beliefs are extremely stable
- For example, if a household is optimistic today, they are highly likely to be optimistic in the near future

Findings: Five Facts About Polarized Expectations

FACT 1: Heterogeneity in Expectation Optimism/Pessimism Falls Along Party Lines

FACT 2: Short-Run Stability

FACT 3: Switching only when the White House Changes Party

- Strong switching behavior occurs following presidential elections when the White House changes parties
- Optimists become pessimistic, and pessimists become optimistic
- This switching occurs at virtually no other time, including: major macro events; midterm elections; presidential elections when the White House does not change parties; or in the lead up to the election

Findings: Five Facts About Polarized Expectations

FACT 1: Heterogeneity in Expectation Optimism/Pessimism Falls Along Party Lines

FACT 2: Short-Run Stability

FACT 3: Switching only when the White House Changes Party

FACT 4: Magnitude of Switching Has Increased

- Over time, and consistent with a rise in polarization, the magnitude of switching behavior has increased

Findings: Five Facts About Polarized Expectations

FACT 1: Heterogeneity in Expectation Optimism/Pessimism Falls Along Party Lines

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FACT 4: Magnitude of Switching Has Increased

FACT 5: Real Actions Follow the Switching Behavior

- Differential changes in consumption when the White House switches party

Related Literature

Deviations from FIRE:

- General: Coibion et al. (2018), Malmendier and Nagel (2016)
- Over/under-reaction: Coibion and Gorodnichenko (2015), Bordalo et. al. (2020)

Expectations and Actions:

- General: Bachmann et al. (2015), D'Acunto et al. (2016), Coibion et al. (2021)
- Political: Mian et al. (2018), Benhabib and Spiegel (2019), Gerber and Huber (2009), Gillitzer and Prasad (2018), Coibion et. al. (2020)

Rise of Polarization:

- Bartels (2002), Andris et al. (2015)

Empirical Results: Expectations

Expectations: Survey Evidence

Question: Do political shocks lead to a differential/partisan impact on consumer beliefs?

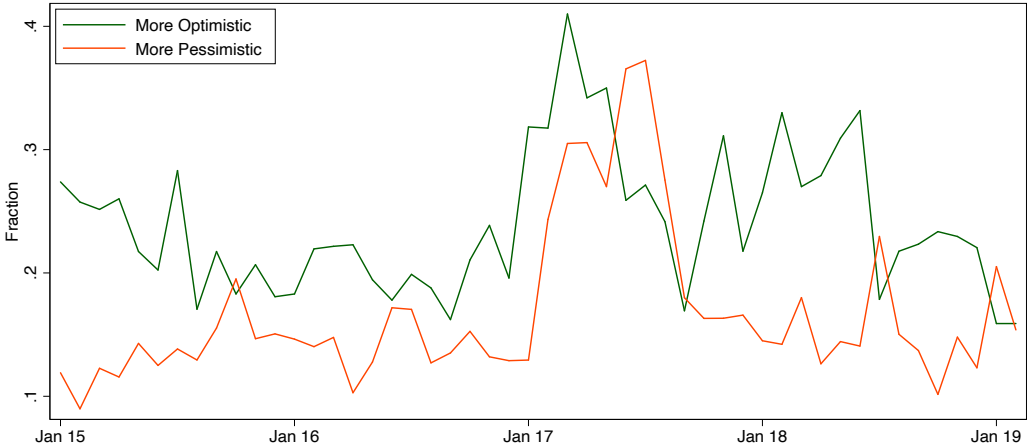
Data: Michigan Survey of Consumers

- Households surveyed at most twice (in recent months some respondents are surveyed three times), 6 months apart
- Sporadic questions regarding political party affiliation
- Analyze beliefs/changes in beliefs following elections

Aggregate Consumer Sentiment

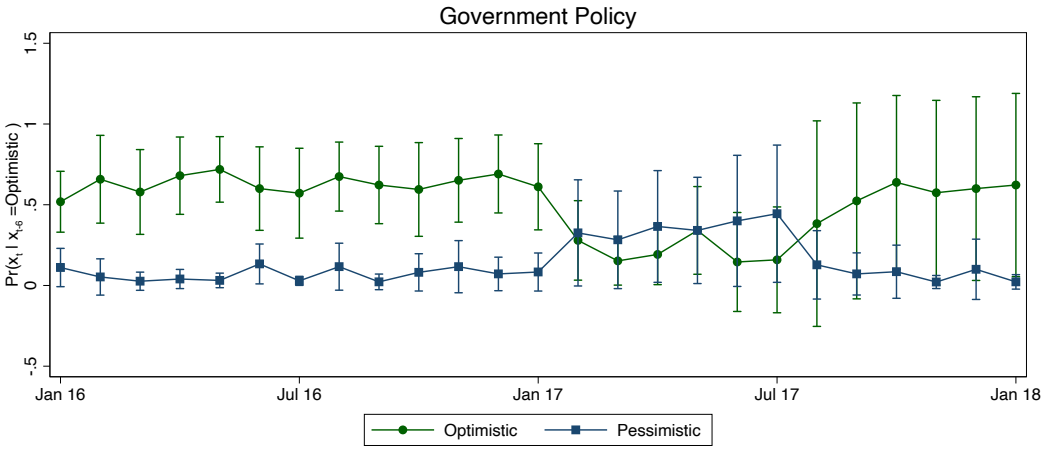
Source: Consumer Sentiment from the Michigan Survey of Consumers.

Substantial Heterogeneity in Belief Changes



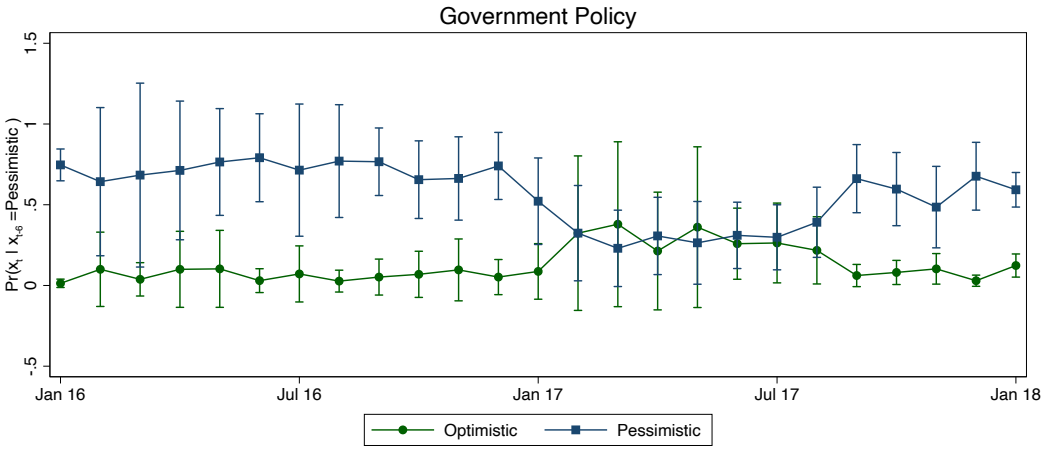
Notes: time series of fraction of respondents each period becoming more optimistic/pessimistic about government policy.

Government Policy Perceptions: Switching Probabilities



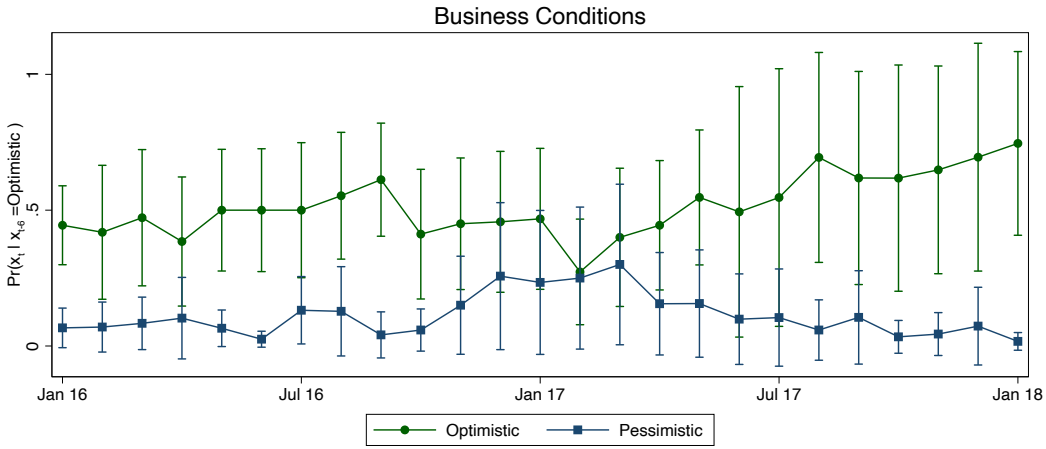
Notes: probability of optimistic or pessimistic response given the previously answered optimistically. Probabilities implied by a multinomial logit; vertical lines represent 95% confidence intervals.

Government Policy Perceptions: Switching Probabilities



Notes: probability of optimistic or pessimistic response given the previously answered pessimistically. Probabilities implied by a multinomial logit; vertical lines represent 95% confidence intervals.

Business Condition Expectations: Switching Probabilities



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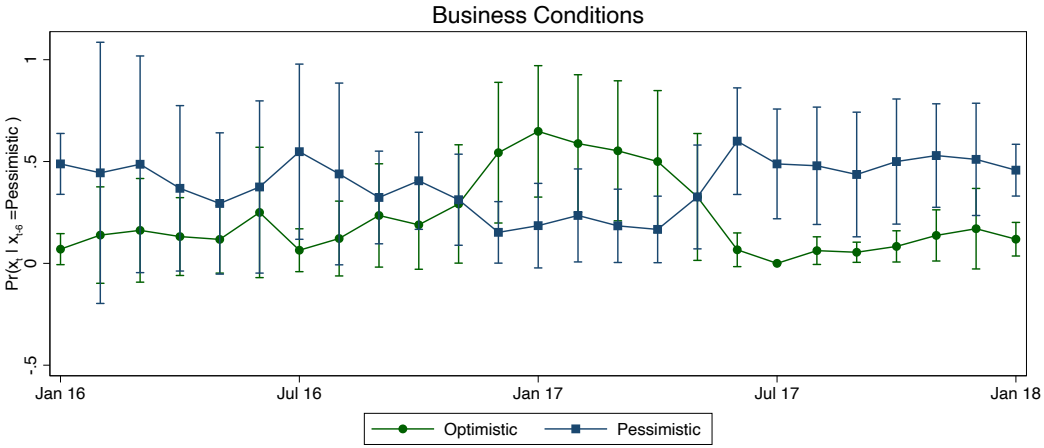

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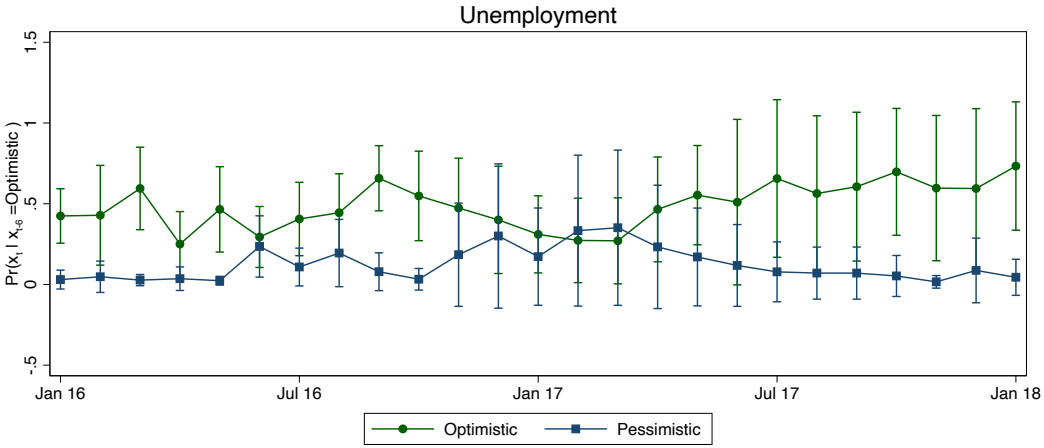
Unemployment Expectations: Switching Probabilities



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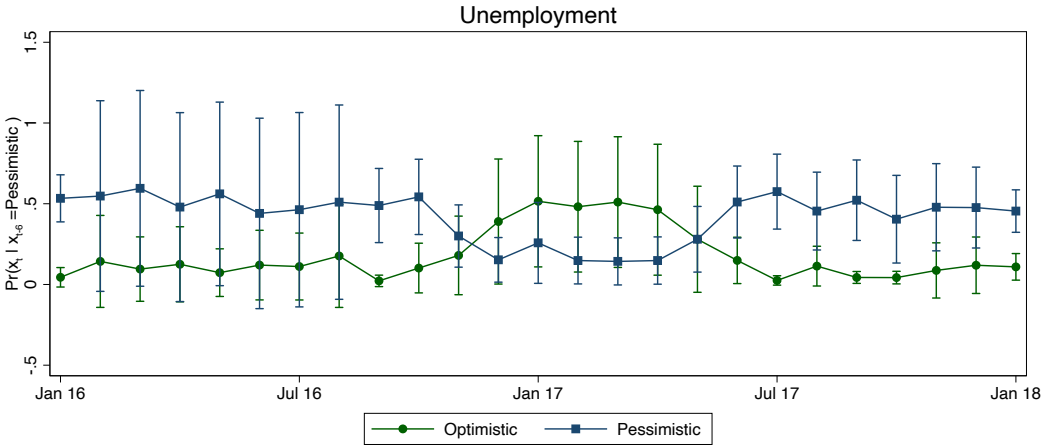
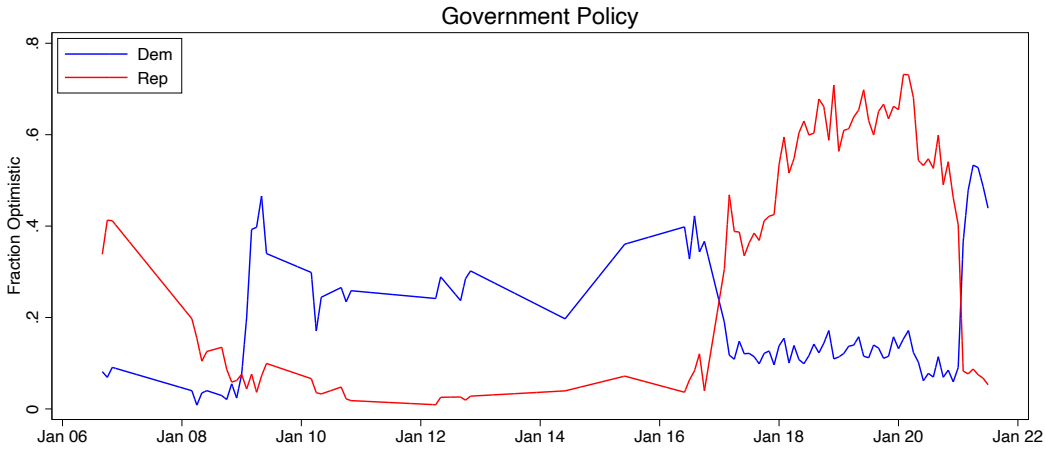


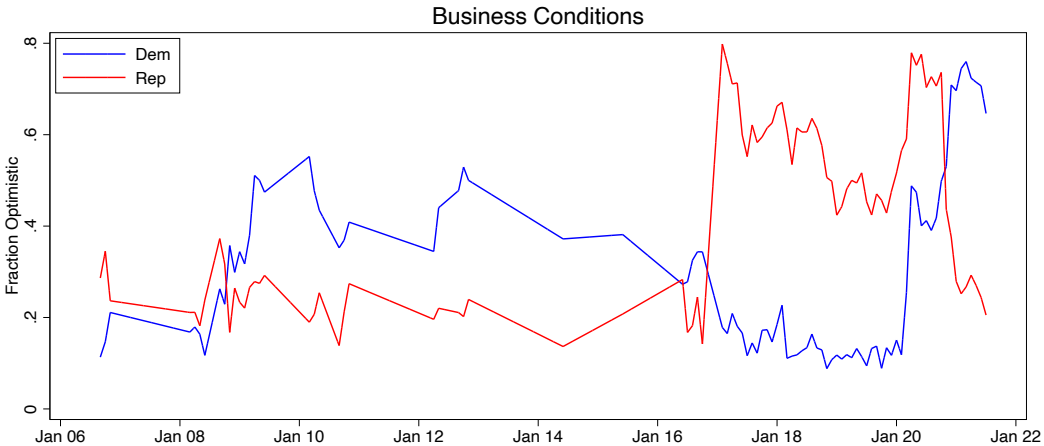
Notes: probability of optimistic or pessimistic response given the previously answered pessimistically. Probabilities implied by a multinomial logit; vertical lines represent 95% confidence intervals.

Government Economic Policy Perceptions: Partisanship



Notes: optimistic responses across self-identified Democratic and Republican voters. Optimistic respondents are those who believe the government is doing a good job with economic policy.

Business Condition Expectations: Partisanship



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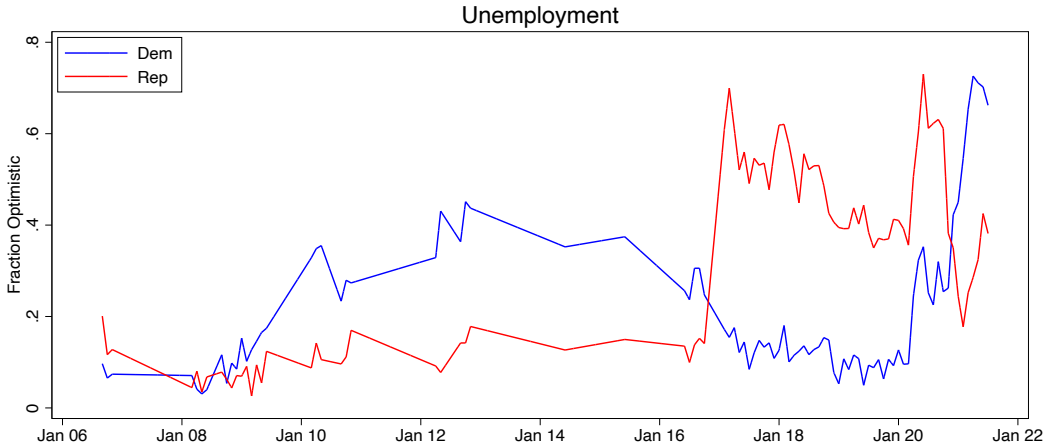
Unemployment Expectations: Partisanship

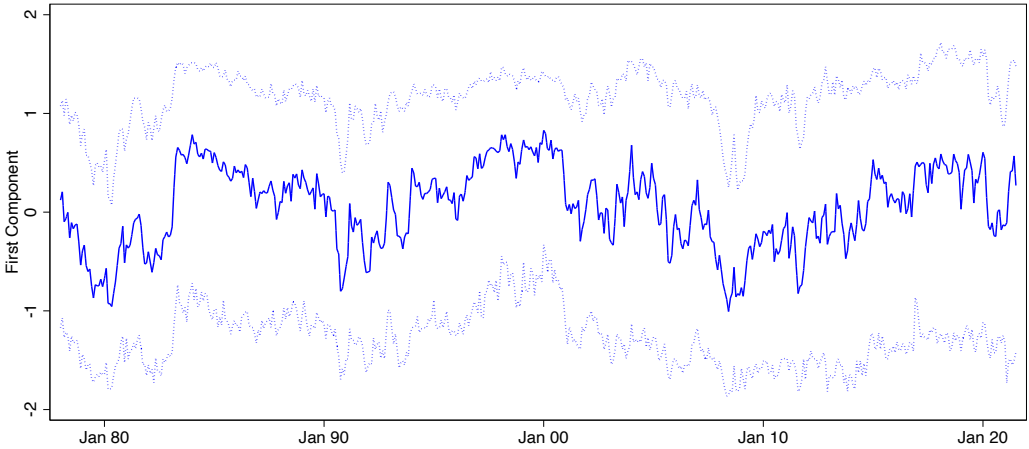


Notes: optimistic responses across self-identified Democratic and Republican voters. Optimistic respondents are those who expect unemployment to be lower in a year.

MCA to Estimate Sentiment

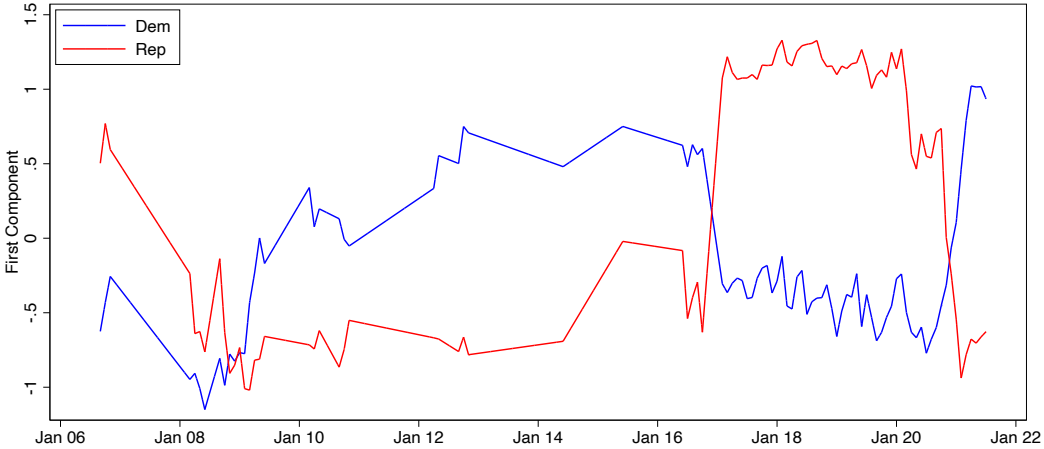
- Political shocks affect economic beliefs and expectations
- Has increased polarization made the effects larger over time?
- 1st component of a multiple correspondence analysis (MCA) using survey-based data on economic perceptions and expectations is a measure of sentiment (Kamdar 2020)
    - MCA is used on categorical data to extract components and loadings (much like principal component analysis for continuous data)
- We estimate the MCA and calculate the 1st component for each respondent

MCA Timeseries



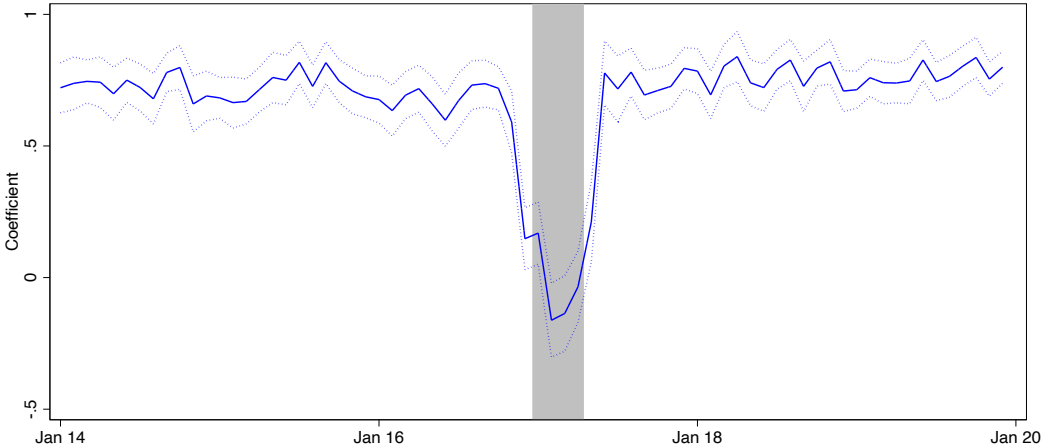
Notes: time series of the first component $f_{i,t}$ from an MCA analysis of nine questions in the Michigan Survey. The solid line is the median value of sentiment, while the dotted lines are the 90-10 percentiles. Variables included: GOVT, PAGO, PEXP, BAGO, BEXP, RINC, BUS12, BUS5, and UNEMP.

MCA Timeseries: Median by Republican and Democrats



Notes: time series of the first component $f_{i,t}$ from an MCA analysis of nine questions in the Michigan Survey. The median values for Republicans and Democrats are plotted.

Sentiment Autocorrelation



Notes: coefficient from period-by-period regressions pooled across HHs $f_{i,t} = \alpha_t + \beta_t f_{i,t-6} + \varepsilon_{i,t}$. $f_{i,t}$ is the first component from an MCA analysis. Shaded regions correspond to 6-month periods following presidential elections. Dotted lines represent 2-standard error bands. Variables included: GOVT, PAGO, PEXP, BAGO, BEXP, RINC, BUS12, BUS5, and UNEMP.

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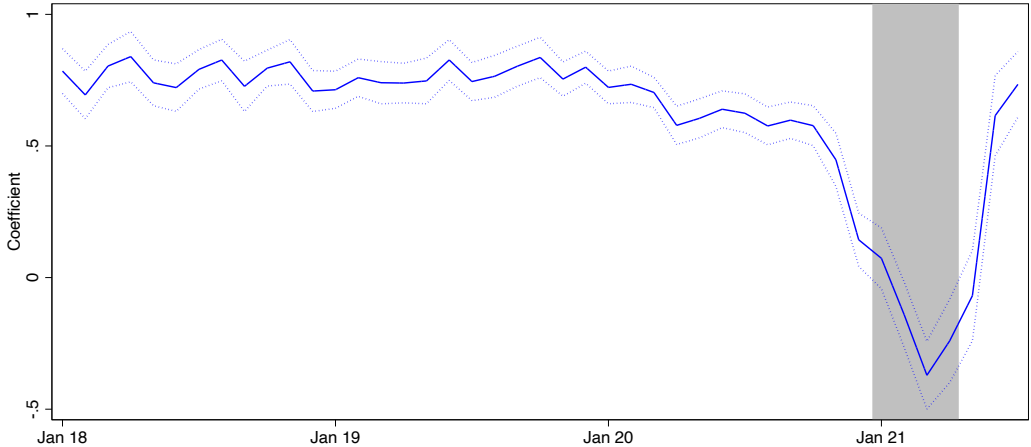

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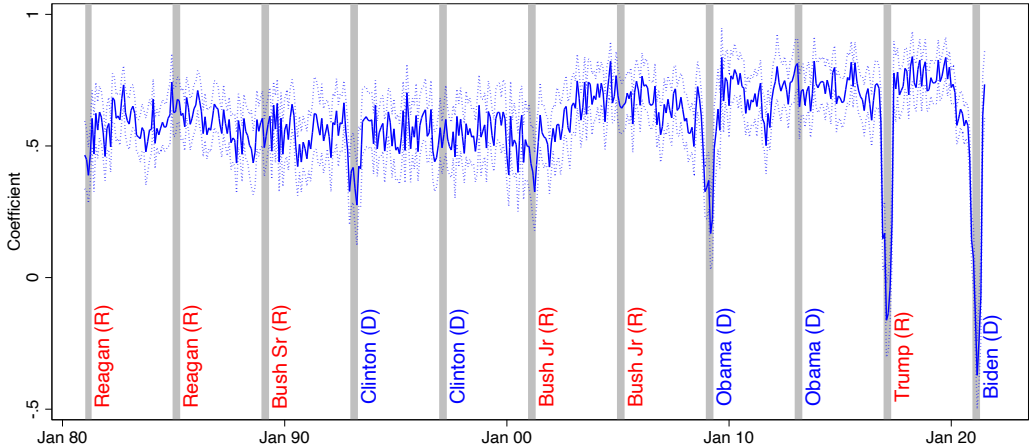

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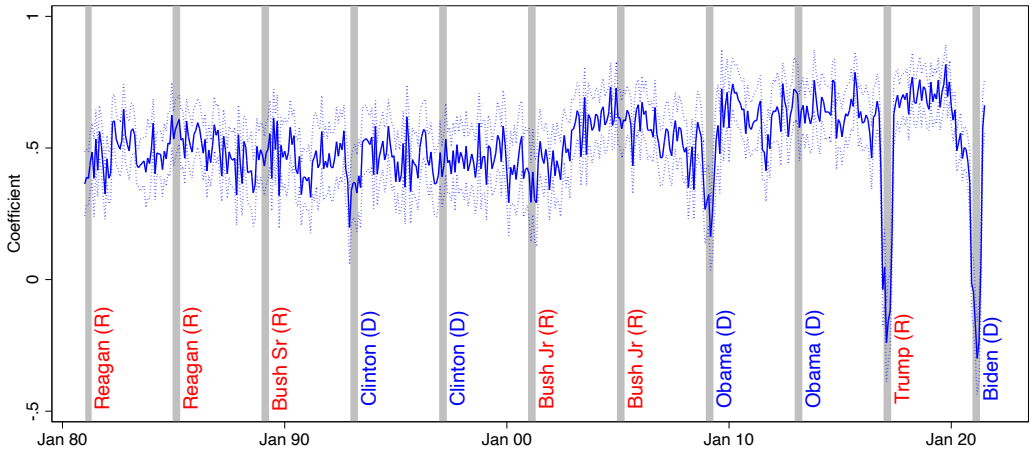
Sentiment Autocorrelation: Main Takeaways

- Sentiment is typically persistent
- Sentiment persistence dramatically decreases after elections where the White House switches party
- The magnitude of the decline in persistence has increased over time
- Large macro events, like the Great Recession and Covid-19, do affect persistence of sentiment, but to a smaller degree than the White House changing party
- Do these results also hold if only including aggregate beliefs or personal beliefs? Yes!

Sentiment Autocorrelation: Aggregate Beliefs Only



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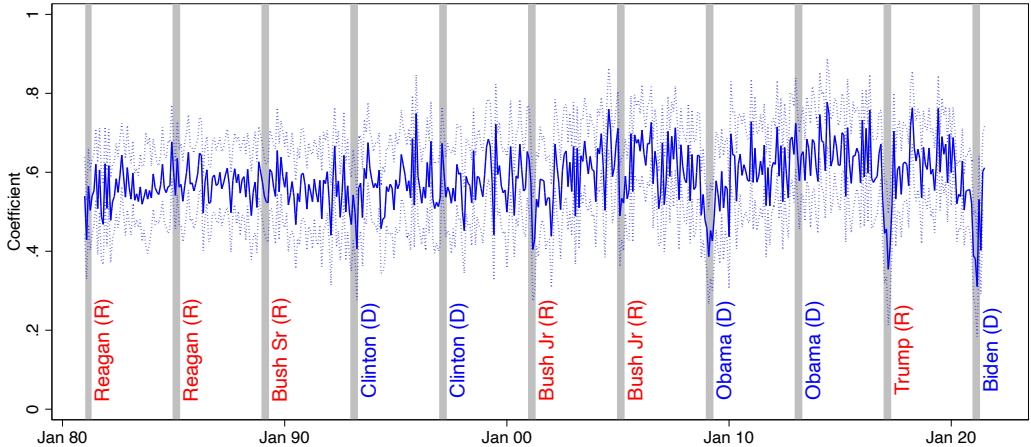
Sentiment Autocorrelation: Personal Beliefs Only



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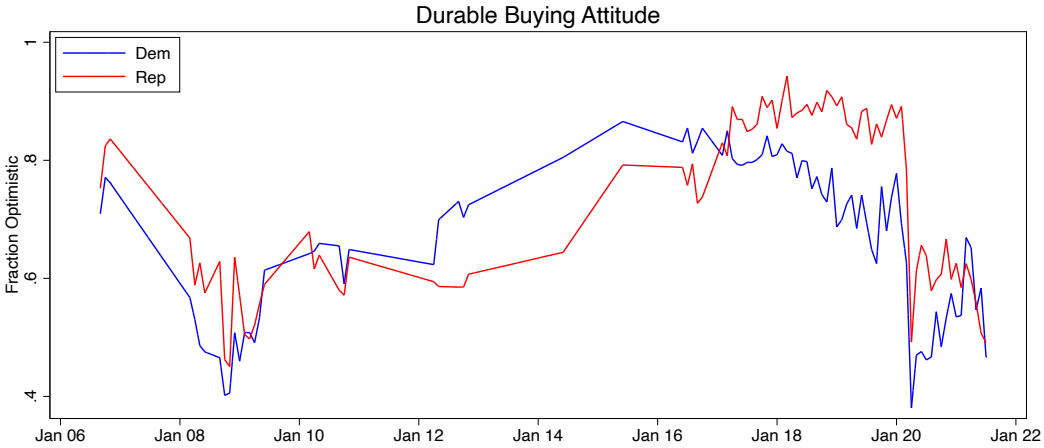
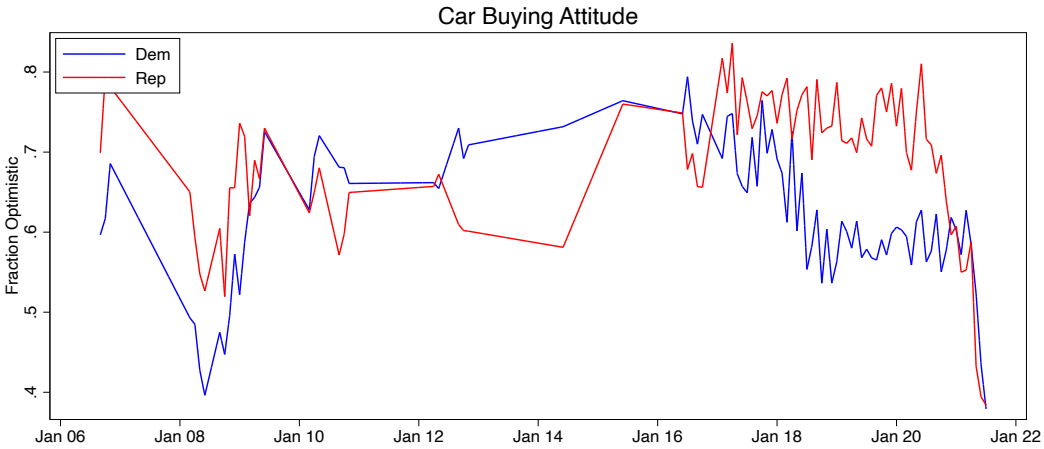
Empirical Results: Actions

Durable Buying Attitudes: Partisanship



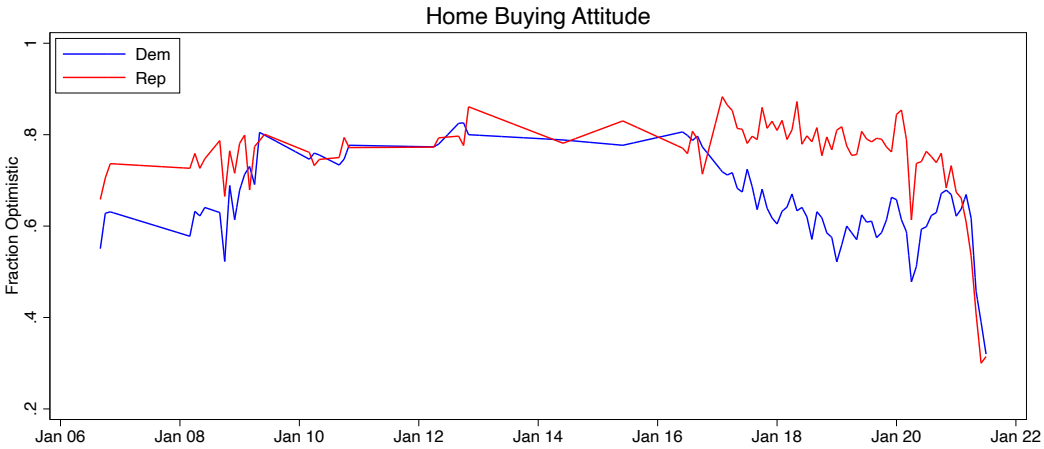
Notes: optimistic responses across self-identified Democratic and Republican voters. Optimistic respondents are those who believe it is a good time to purchase durables.

Car Buying Attitudes: Partisanship



Notes: optimistic responses across self-identified Democratic and Republican voters. Optimistic respondents are those who believe it is a good time to purchase a car.

Home Buying Attitudes: Partisanship



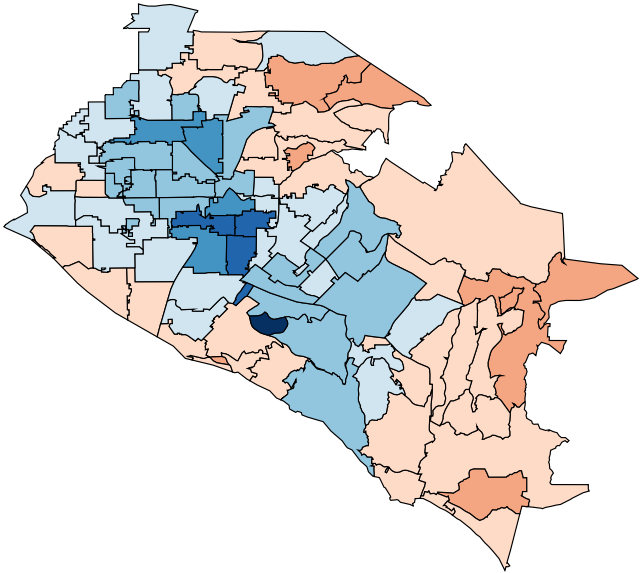
Notes: optimistic responses across self-identified Democratic and Republican voters. Optimistic respondents are those who believe it is a good time to purchase a home.

Actions: Consumption Evidence

Question: Do political shocks lead to a differential/partisan impact on actual consumption?

Data: Nielsen Home Scanner and 2016 voting data at the zip code

2016 Voting Data: Orange County



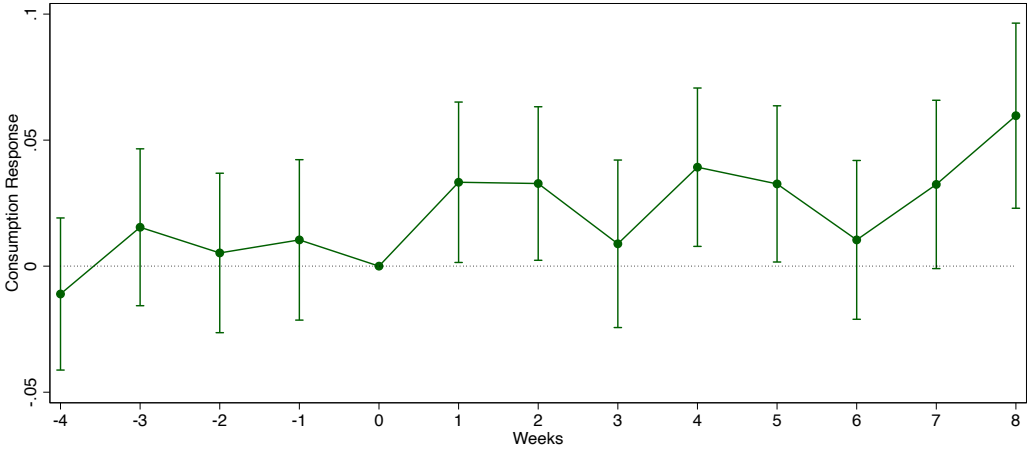
Event Study: 2016 Election

Event study design:

$$c_{z,t} = \alpha_z + \gamma_t + \sum_{k=-T}^{T} \beta_k v_z^{16} \cdot \mathbb{I}_{t=t^*+k} + \varepsilon_{z,t}$$

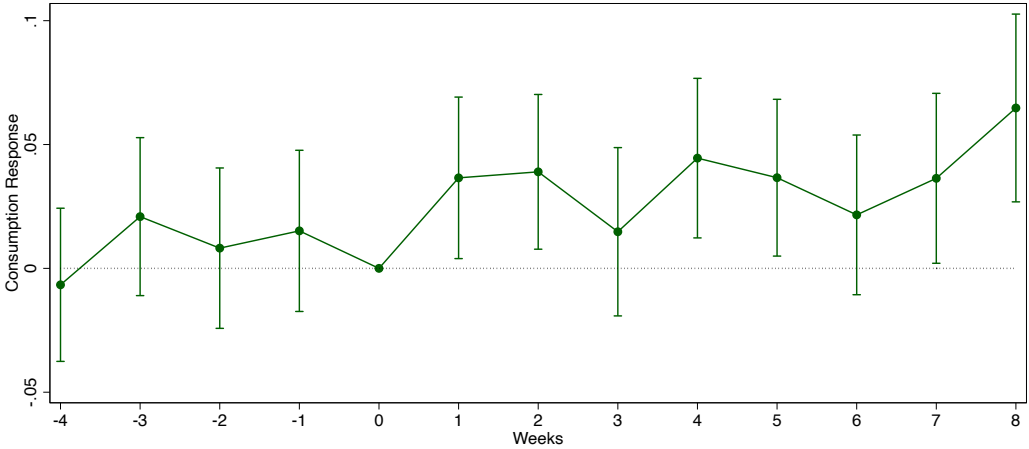
- $c_{z,t}$: (log) consumption in zip code z, week t
- v_z^{16}: Trump's vote share minus Clinton's vote share in zip code z. So, $-1 \leq v_z^{16} \leq 1$
- 1ppt increase in a zip code's Trump vote share margin $\implies \hat{\beta}_k$ percent change in consumption k weeks after the election
- Baseline: 47 states and DC, only include zip codes with 100 or more votes

Event Study: Baseline



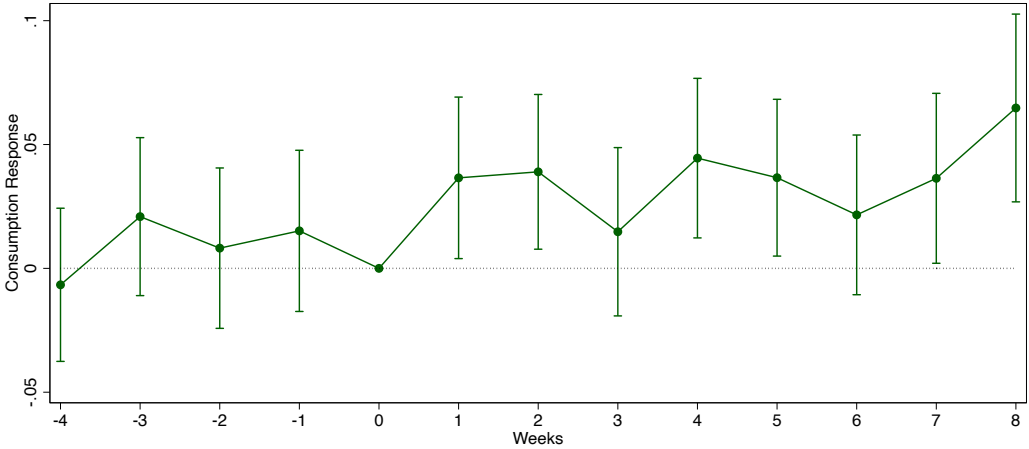
Notes: results from an event study in the weeks preceding and following the week of the 2016 presidential election. Vertical lines represent 90% confidence intervals.

Event Study: High Margin



Notes: results from an event study in the weeks preceding and following the week of the 2016 presidential election for zip codes where the margin of victory was at least 25%. Vertical lines represent 90% confidence intervals.

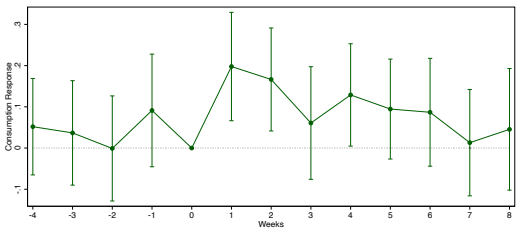
Event Study: High Votes



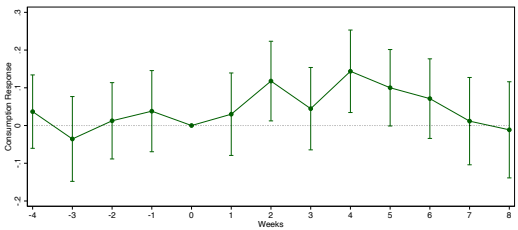
Notes: results from an event study in the weeks preceding and following the week of the 2016 presidential election for zip codes where there were at least 1,000 votes. Vertical lines represent 90% confidence intervals.

Event Study: California and Texas

California

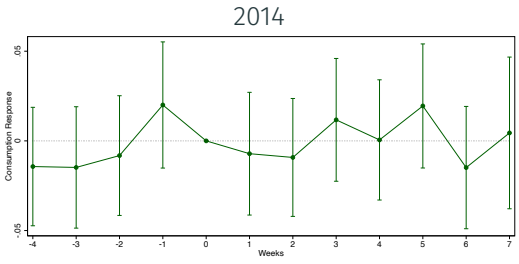


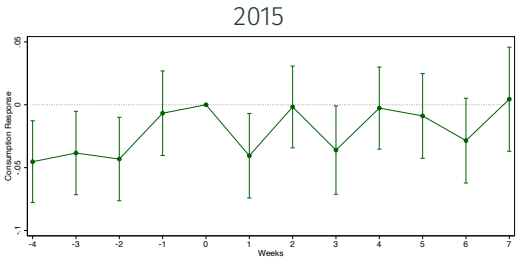
Texas

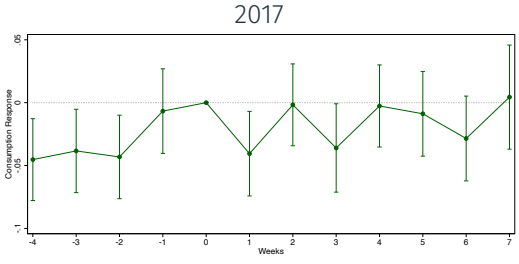


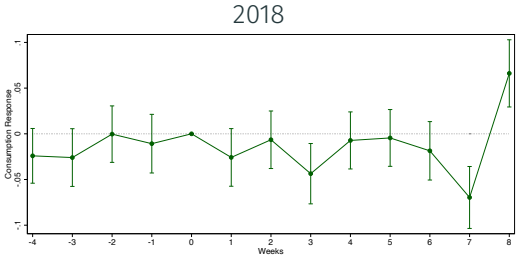
Notes: results from an event study in the weeks preceding and following the week in 2016 presidential election for California and Texas zip codes with at least 1,000 votes. Vertical lines represent 90% confidence intervals.

Placebo: Other Years









Notes: results from an event study in 2014, 2015, 2017, and 2018. "Week zero" corresponds to the week in which a hypothetical presidential election would have taken place in a given year. Vertical lines represent 90% confidence intervals.

Combined Empirical Evidence: 2020 Election

2020 Election Survey

- Added survey questions to Nielsen Home Scanner panel, before and after the 2020 election (Coibion, Gorodnichenko, and Weber 2020)

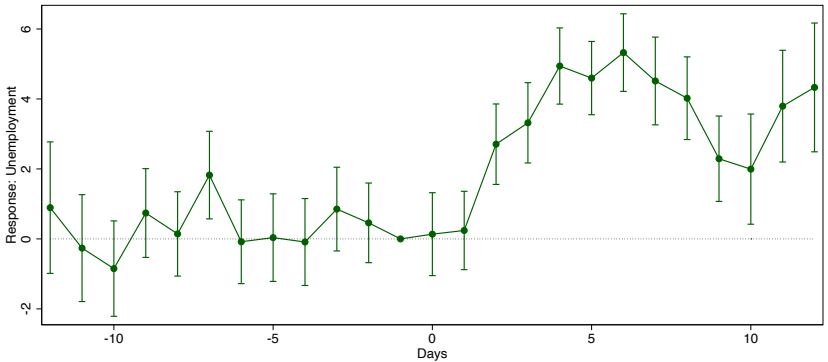
- Direct evidence linking political ideology, economic beliefs, and consumption decisions

    - Two consumption measures: survey-based “good”/“bad” time to purchase durables (already available) and soon-to-be-released Nielsen scanner data

- High frequency data at the individual level (with political affiliation)
    - Individuals only surveyed once (repeated cross section)
    - We compare responses of Democrats and Republicans over the days preceding and following the election
    - This allows us to trace out how beliefs and consumption attitudes changed in a high-frequency manner following the results of the election

Response: Unemployment

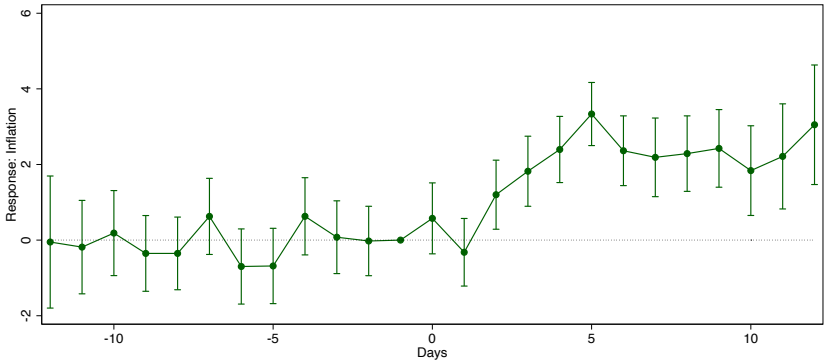
Following the election, Republicans believed unemployment would be higher in the next year relative to Democrats



Notes: Regression coefficients plotted from $y_{i,t} = \alpha_t + \sum_{\kappa=-T}^{T} \beta_\kappa \mathbf{I}_{i \in R} \mathbf{I}_{t=t^*+\kappa} + \epsilon_{i,t}$. Vertical lines represent 90% confidence intervals.

Response: Inflation

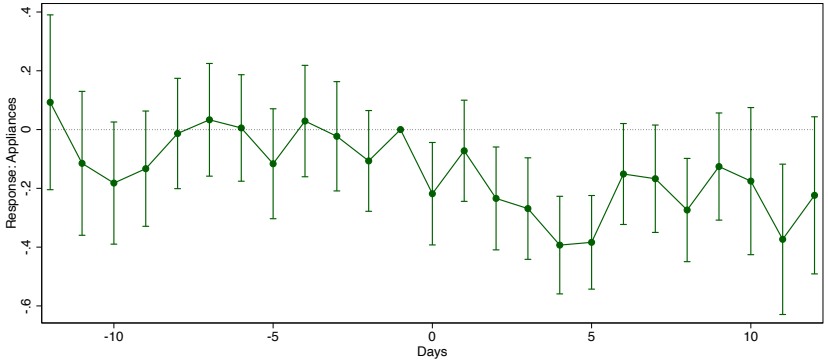
Following the election, Republicans believed inflation would be higher in the next year relative to Democrats



Notes: Regression coefficients plotted from $y_{i,t} = \alpha_t + \sum_{\kappa=-7}^{7} \beta_\kappa \mathbf{I}_{i \in R} \mathbf{I}_{t=t^*+\kappa} + \epsilon_{i,t}$. Vertical lines represent 90% confidence intervals.

Response: Durable Appliances

Following the election, Republicans believed it was a worse time to durable appliances relative to Democrats



Notes: Answers to the question vary from (1) for it is a very good time to buy durables to (5) a very bad time to buy durables. Regression coefficients plotted from $y_{i,t} = \alpha_t + \sum_{\kappa=-T}^{T} \beta_\kappa \mathbf{I}_{i \in R} \mathbf{I}_{t=t^*+\kappa} + \epsilon_{i,t}$. Vertical lines represent 90% confidence intervals.

What Model Can Explain the Key Facts?

FACT 1: Heterogeneity in expectation optimism/pessimism falls along party lines ✗

FACT 2: Short-run stability ✗

FACT 3: Switching only when the White House changes party ✗

FACT 4: Magnitude of switching has increased ✗

FACT 5: Real actions follow the switching behavior

FIRE fails to deliver systematic heterogeneity in aggregate beliefs, and we would observe reactions to events other than the White House switching party

Any **representative agent model**, or model where beliefs react in the same direction to shocks, is ruled out

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FACT 1: Heterogeneity in expectation optimism/pessimism falls along party lines

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FACT 5: Real actions follow the switching behavior

Heterogenous agent models featuring model mispecification (eg, differing beliefs about the impact of trade tariffs) would be consistent partisanship influencing sentiment

But, we would expect see switching behavior in response to congressional elections or in the lead up to presidential elections as probabilities change

Also, not consistent with an increase in switching magnitude over time

What Model Can Explain the Key Facts?

FACT 1: Heterogeneity in expectation optimism/pessimism falls along party lines

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FACT 5: Real actions follow the switching behavior

Any model that consistently delivers under-reaction or over-reaction (eg, **diagnostic expectations, learning, rational inattention, sparsity**) will struggle to simultaneously explain both the stability of beliefs and the strong switching behavior only when the White House switches party

They will also (typically) struggle to explain the increase in switching magnitude

What Model Can Explain the Key Facts?

FACT 1: Heterogeneity in expectation optimism/pessimism falls along party lines

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FACT 5: Real actions follow the switching behavior ✗

Surveys do not reflect true beliefs and people use surveys to simply express approval/disapproval of the party in power

Conclusion

Our paper:

Using survey data, scanner consumption data, and voting data, we show:

- Political preferences and economic beliefs are tightly linked
- Beliefs are generally stable, and switch only when the political party in the White House changes
- The strength of the belief switching has increased over time
- These expectations matter for economic actions (consumption)

Open Question:

- What theoretical model can explain these stylized facts?