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Demographic change and political polarization in the United States

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ABSTRACT

I construct an index of political polarization using seven previously used measures. I estimate the relative propensity for polarization across demographic groups and examine the extent to which demographic change can explain recent trends in polarization. Assuming fixed propensities for polarization across groups, 34 percent of the change in polarization between 1984 and 2016 can be attributed to demographic change in the United States. Shifts in the educational, religious, and age compositions of the United States are the main contributing factors.

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1. Introduction

What is driving contemporary US political polarization? Proposed answers to this question include, among others, income inequality (McCarty et al., 2008; Grechyna, 2016), cable television (Duca and Saving, 2017), and the internet (Sunstein, 2017).

In this paper, I examine the extent to which demographic change can explain recent trends in political polarization. Much of the previous work focuses on changes in the environment (e.g., internet or cable television) that alter the propensities for polarization. In contrast, I examine the impact of compositional changes among the US electorate assuming a fixed environment.

The United States has become increasingly educated and older in the last few decades (Ryan and Bauman, 2016; Shrestha and Heisler, 2011). Both of these demographic characteristics are highly correlated with political participation (Timpone, 1998), and education is related to greater ideological prejudice (Henry and Napier, 2017).

To examine the impact of these and related demographic changes, I construct an index of polarization from seven previously used measures. I then estimate the relative propensities for polarization across seven different demographic categories and estimate the counterfactual level of polarization if propensities

for polarization (i.e., the environment) were held constant at their 1984 levels but the demographic composition of the United States was allowed to vary.

The counterfactual estimates imply that demographic change can explain 34 percent of the change in the index of political polarization. For the individual polarization measures, estimates range between 25 and 59 percent. Growing education levels, shifts in religiosity, and growing elderly populations are the primary drivers of the demographic-induced changes in polarization.

2. Data and polarization measures

The data come from the American National Election Studies (ANES) 1948–2012 Cumulative Data file and the ANES 2016 Time Series study. I use seven measures from Boxell et al. (2017) and modify them so that they can be constructed at the individual level.

- *Partisan affect polarization* is the difference between an individual's feelings towards their own party and their feelings towards the opposing party.
- *Ideological affect polarization* is defined similarly, but for ideological affiliation.
- *Partisan sorting* measures the extent to which an individual's party and ideological affiliations are aligned weighted by the strength of these affiliations.
- *Ideological polarization* is the strength of an individual's self-placed ideological affiliation measured from 0 to 3.
- *Perceived partisan-ideology polarization* is the difference between an individual's placement of Republicans and Democrats on a 7-point liberal-to-conservative ideological scale.

- *Issue consistency* measures the extent to which an individual gives ideologically consistent responses to a set of six policy questions. Each response is labelled as conservative (1), moderate (0), or liberal (-1) and the absolute value of the sum of their responses is taken.
- *Straight-ticket voting* is an indicator for whether an individual reported voting for the same party (Republican or Democratic) in both the presidential and House elections.

Given these seven measures of political polarization, a single index is constructed as follows. First, each of the seven measures is normalized by its standard deviation using respondents in 1984 with non-missing values for the polarization measure. Second, the averages of these normalized measures are used to create an index defined at the individual level. Formally, for each individual i, the index of polarization is

$$\mathcal{M}_i = \frac{1}{|M|} \sum_{m \in M} \frac{m_i}{\sigma_m},$$

where σ_m is the standard deviation of the measure m across respondents in 1984. Then for each measure (including the index), the weighted mean of the measure across respondents in year t gives the value of the measure for a given year. The index increased 35 percent over the entire period.

3. Results

I examine differential propensities for polarization across seven demographic categories: income group, employment status, religious affiliation, education level, age, gender, and race. The following linear conditional mean model is estimated via weighted OLS

$$\mathbb{E}(\mathcal{M}|X) = X \cdot \beta, \tag{1}$$

where $\mathcal{M}$ is a measure of polarization and X is a vector of indicators for various demographic characteristics with coefficients β.[2] Note that X contains a constant in addition to the demographic indicators.

Eq. (1) is estimated on two different samples: the first sample containing responses from the 1984 and 1988 ANES surveys with estimates $\hat{\beta}_{1984}$ and the second containing responses from the 2012 and 2016 ANES surveys with estimates $\hat{\beta}_{2016}$.[3]

To examine the role of demographic changes, I estimate the counterfactual scenario where propensities for polarization are fixed at their 1984 level but demographic distributions are allowed to vary between 1984 and 2016

$$\bar{X}_{2016} \cdot \hat{\beta}'_{1984},$$

where $\bar{X}_{2016}$ is the weighted average for each indicator across the 2016 sample and $\hat{\beta}'_{1984}$ is the estimates from Eq. (1) over the 1984 sample. $\bar{X}_{1984}$ and $\hat{\beta}'_{2016}$ are defined analogously. Then

$$\frac{\bar{X}_{2016} \cdot \hat{\beta}'_{1984} - \bar{X}_{1984} \cdot \hat{\beta}'_{1984}}{\bar{X}_{2016} \cdot \hat{\beta}'_{2016} - \bar{X}_{1984} \cdot \hat{\beta}'_{1984}}$$

is an estimate of the proportion of the overall change in polarization between 1984 and 2016 that can be accounted for by demographic change assuming an invariant environment.[4] This decomposition can readily be extended to examine distributional shifts in a specific covariate, such as education or age.

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[2] See the Online Appendix for the set of demographic indicators and their construction.

[3] See the Online Appendix for coefficient estimates.

[4] Stone (2019) performs a related exercise of plotting the year fixed effects on affective polarization after controlling for various demographic and political controls.

Table 1
Impact of demographic change on polarization, 1984–2016.

Measure	Proportion due to demographic change	95% CI
Index	0.34	(0.23, 0.47)
Partisan Affect	0.34	(0.17, 0.56)
Ideological Affect	0.33	(0.17, 0.54)
Partisan Sorting	0.28	(0.12, 0.47)
Ideological	0.59	(0.26, 1.43)
Perceived Partisan-ideology	0.27	(0.16, 0.37)
Issue Consistency	0.25	(0.09, 0.44)
Straight-ticket Voting	0.31	(0.16, 0.49)

Notes: Table shows, for each measure, the estimated proportion of the change in the polarization measure that is attributable to changes in demographics between 1984–1988 and 2012–2016 as outlined in Section 3. The 95 percent confidence intervals are constructed using the bootstrap percentiles from 1000 replicates sampled at the year level. See the Online Appendix for additional details on the nonparametric bootstrap procedure.

Table 2
Impact of demographic change on polarization by demographic category, 1984–2016.

Category	Proportion due to demographic change	95% CI
Income	−0.01	(−0.02, 0.00)
Gender	0.00	(−0.00, 0.01)
Race	−0.02	(−0.04, 0.00)
Religion	0.09	(0.01, 0.18)
Education	0.18	(0.13, 0.24)
Employment	0.03	(0.01, 0.06)
Age	0.06	(0.03, 0.10)

Notes: Table shows, for each demographic category, the estimated proportion of the change in the index of polarization that is attributable to changes in the distribution of individuals in the category between 1984–1988 and 2012–2016 as outlined in section 3. The 95 percent confidence intervals are constructed using the bootstrap percentiles from 1000 replicates sampled at the year level. See the Online Appendix for additional details on the nonparametric bootstrap procedure.

Table 1 reports the estimates of this ratio for the index and each of the individual polarization measures, along with bootstrapped 95 percent confidence intervals. The estimates suggest that 34 percent of the change in the index can be explained by demographic change. The estimates for the individual polarization measures range from 25 percent for the measure of issue consistency to 59 percent for the measure of ideological polarization. In all cases, the 95 percent confidence intervals exclude demographic change explaining 0 percent of the change in polarization. Fig. 1 examines the evolution of demographic-induced polarization across the entire time period.

Table 2 reports the estimated contribution of each individual demographic category to the change in the index of polarization between 1984 and 2016. Shifts in the educational composition of the population can explain 18 percent of the change in the index of polarization. Changes in the religious and age composition of the US can explain another 9 and 6 percent respectively. Contributions from other categories are smaller in magnitude. The Online Appendix reports analogous results for each of the individual polarization measures.

4. Conclusion

The results suggest that demographic change can explain a nontrivial proportion of the recent rise in political polarization. As a result, there is a smaller amount of polarization that may need to be explained by other mechanisms. Furthermore, as demographics continue to shift towards demographic groups with higher propensities for polarization (e.g., educated and elderly), we should expect the current upward trends in polarization to likewise continue.

Panel A: Index
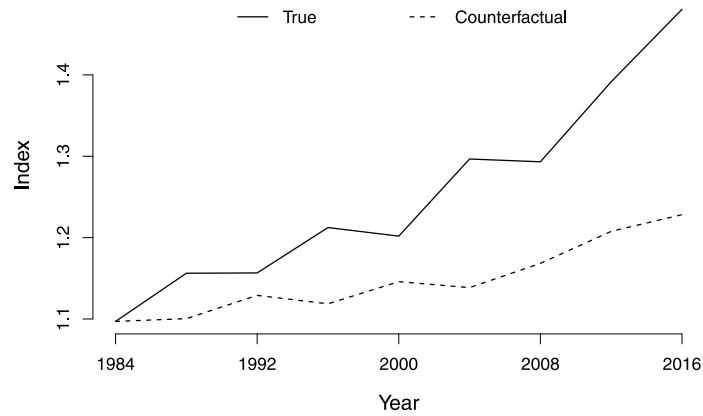
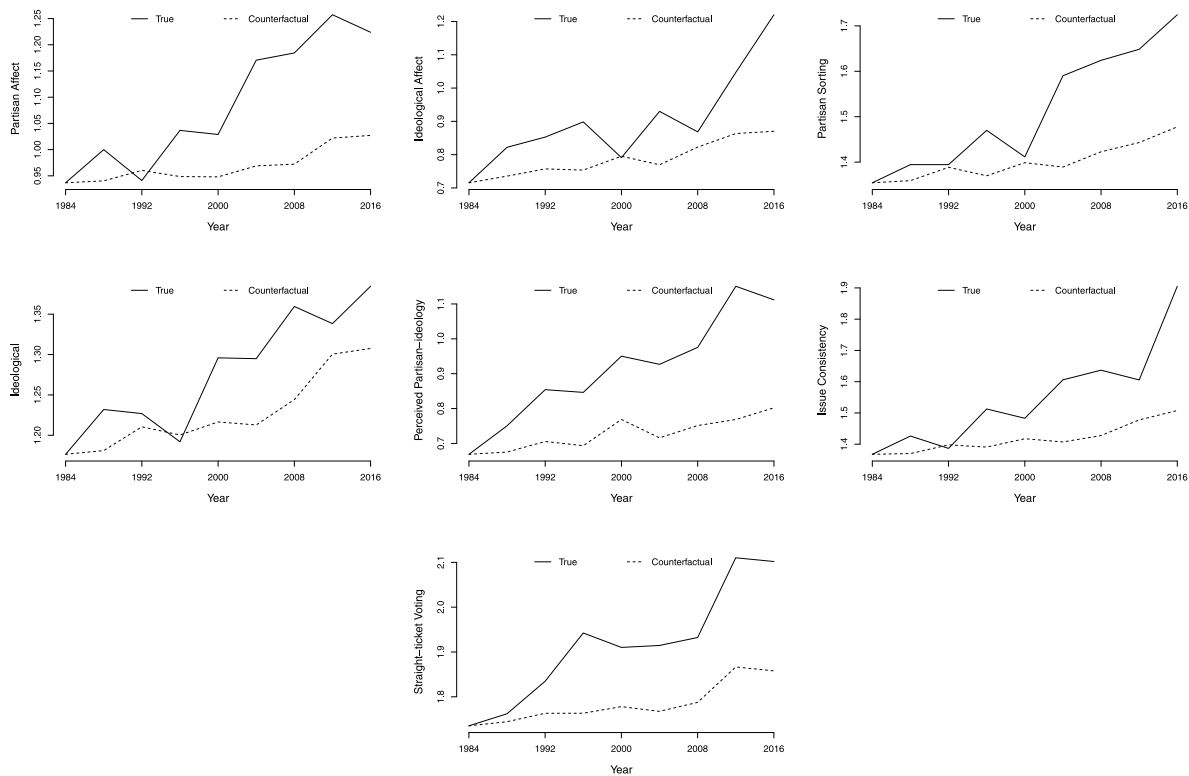## Panel B: Individual measures

Fig. 1. Counterfactual polarization levels. Notes: Figure plots the the true predicted levels and counterfactual levels of polarization between 1984 and 2016 for each polarization measure. For each year from 1984 through 2016, the plot reports the true predicted level of polar- ization (solid) given each year's coefficient estimates and demographic composition along with the counterfactual level (dashed) if propensities for polarization were kept at their 1984 levels but the demographic decomposition is allowed to vary. In contrast to Table 1, each year is used separately. See main text for additional details on the construction of each measure and the counterfactuals.

The counterfactual analysis assumes that polarization propensities across demographic groups are fixed at their 1984 levels. Changing demographic composition and shifts in the political environment may make certain demographic groups more or less extreme, altering the direct effects of compositional changes. However, the Online Appendix shows that the polarization gradients across the education and age groups are in the same direction in 2016 as in 1984, suggesting the direction of the effect of demographic shifts on polarization is likely invariant to these differences in propensities.

Appendix A. Supplementary data

Supplementary material related to this article can be found online at https://doi.org/10.1016/j.econlet.2020.109187.

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