

17-7 Manufacturing and the 2016 Election: An Analysis of US Presidential Election Data

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Abstract

Much of the public discourse and media analysis of the surprise outcome of the 2016 US presidential election has emphasized the role of manufacturing workers. This paper examines the importance of manufacturing jobs and job loss as determinants of voting patterns using county-level voting data from recent presidential elections. The share of employment in the manufacturing sector and long-run manufacturing job loss at the county level are not statistically significant in explaining the change in Republican vote shares from 2012 to 2016, when controlling for standard voting determinants. However, the change in the Republican vote share is positively correlated with manufacturing in predominantly white counties and negatively correlated with manufacturing in ethnically diverse counties, with these effects roughly offsetting each other. The paper further shows that this polarization between white and nonwhite manufacturing counties is more closely associated with polarizing candidates than a polarized electorate.

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INTRODUCTION

The manufacturing worker displaced by trade has played a leading role in rationalizing the outcome of the 2016 US presidential election. On the campaign trail, the Republican candidate, Donald Trump, blamed import competition for the decline in US manufacturing, claiming China is “killing” the United States on trade.¹ He promised to revive the American dream and bring back manufacturing jobs, proposing extreme policies such as a 45 percent tariff on China and a 35 percent tariff on Mexico. Since becoming president, one of his first acts was to withdraw the United States from the Trans-Pacific Partnership (TPP).

The Democratic candidate, Hillary Clinton, presented a more benign picture of US industry, stressing growth in high-tech manufacturing industries and opportunities for greater competition with high export countries like Germany and Japan. She acknowledged that trade agreements have not always delivered on all their promises and that some jobs migrate because of trade.² She rejected the TPP but did not propose a major shift in US trade policy.

Some experts have credited the election results to Trump’s extreme positions on trade and his promise to bring back manufacturing jobs. A review of articles in major media outlets since the election shows most news articles cite his support among white voters and nearly half focus on manufacturing as factors to which they attribute Trump’s victory (table 1).³ This is the oft-heard story of the “revenge of working class whites.”⁴

There is empirical evidence that trade shocks influence voting patterns.⁵ Autor et al. (2016) find that import competition from China is associated with increased political polarization in US congressional elections, as measured by the number of moderate incumbents who lost their seats. Using data on voting patterns in six presidential elections, Jensen et al. (2016) extend this analysis to include trade in services and exports, and find that while rising imports are associated with more polarization, rising exports are associated with more support for the incumbent. Che et al. (2016) find that greater import competition from China is correlated with increases in election turnout and the share of votes for a Democrat in congressional elections.

Because trade affects counties in diverse ways, it is not clear that it should significantly affect the presidential election, where all counties vote. The populist left and the populist right might offset each

1. “Donald Trump: ‘China is Killing Us!’”, YouTube, September 3, 2015, <https://www.youtube.com/watch?v=T5tTBAQ4CLs> (accessed on May 25, 2017).

2. “Full Transcript: Hillary Clinton’s Economic Speech,” *Newsweek*, August 11, 2016, <http://www.newsweek.com/hillary-clinton-full-transcript-economic-speech-489602> (accessed on May 25, 2017).

3. LexisNexis search of major English language publications between November 2016 and January 2017.

4. “How Trump won: The revenge of working-class whites,” *Washington Post*, November 9, 2016, https://www.washingtonpost.com/news/wonk/wp/2016/11/09/how-trump-won-the-revenge-of-working-class-whites/?utm_term=.6e2faf197e1a.

5. Rising imports from China in the 2000s have been associated with job loss in the counties producing competing goods, although there is debate about the magnitude of the loss (Autor, Dorn, and Hanson 2013; Pierce and Schott 2016; Feenstra, Ma, and Xu 2017).

other, and import-competing counties might cancel out export-oriented ones. Donald Trump's emphasis on trade protection and manufacturing jobs, however, suggests that to the extent voter concern about trade influenced the election, it would have given him an advantage in counties specialized in manufacturing or where manufacturing jobs have been lost. Indeed, in a companion note to their paper on polarization, Autor et al. (2017) find evidence that import competition from China influenced voting to favor Donald Trump in 2016, more than it did for George W. Bush in 2000, especially in key states.

To understand this shift, and specifically the importance of the manufacturing worker in voting patterns, this paper analyzes and compares 2016 voting outcomes at the county level with previous presidential elections.⁶ The model tests whether increases in Trump's vote share in 2016, as compared with the previous Republican nominee Mitt Romney's in 2012, are larger in counties that specialize in manufacturing or that experienced greater manufacturing job loss. The main finding is that neither manufacturing employment nor the change in manufacturing employment are significant in regressions controlling for the standard determinants of voting patterns. On aggregate, the angry manufacturing worker does not appear to have had a significant effect on the election outcome.

The results are, however, different when considering the white manufacturing worker. Specifically, when the share of manufacturing employment (or the change in employment) and race were analyzed together, the Republican share of votes was higher in predominantly white manufacturing counties, while diverse manufacturing counties voted more Democratic, as compared with previous elections. Specifically, where the share of black and Hispanic residents falls below the national mean, counties in the 75th percentile in manufacturing employment share, compared to the 25th percentile, voted Republican by 0.7 percentage point more. In contrast, where the share of black and Hispanic voters is above the mean, counties in the 75th percentile in manufacturing, compared to the 25th percentile, voted Republican by 1.2 percent less. Similar results hold if manufacturing job loss since 2000 is used in the analysis. Regression results suggest these two forces largely balanced out, such that manufacturing employment or manufacturing job loss had no significant role in the overall election. But, in line with the news stories, the large share of white manufacturing counties in some of the swing states⁷ played an oversized role in the electoral college.

There are two potential explanations for the polarization by race within manufacturing counties. One is that the economic shocks have been different across white and ethnically diverse counties. The other is that whites and nonwhites react differently to economic shocks. To evaluate whether differing economic conditions can explain the results, a number of robustness tests were performed, including alternative interactions, alternative time periods, and controlling for changing conditions. The results remain qualitatively

6. The basic specification compares the Republican vote share in 2016 to 2012, though a fixed-effects model using five elections and the long difference from 2000 to 2016 is also considered.

7. The swing states are Colorado, Florida, Iowa, Michigan, Minnesota, Nevada, New Hampshire, North Carolina, Ohio, Pennsylvania, Virginia, and Wisconsin.

unchanged: White counties with more manufacturing or manufacturing job loss voted more Republican, but ethnically diverse counties with more manufacturing or manufacturing job loss voted more Democratic. Perhaps most telling, when the manufacturing share from 1986 (when manufacturing was near its peak) is used instead of current manufacturing as the variable of interest, the results also remain unchanged. Historical manufacturing counties that are mostly white became more conservative, but historical manufacturing counties that are relatively diverse became more liberal.

The results raise the question of why white manufacturing counties and diverse manufacturing counties responded differently to similar economic shocks. Fiorina (2004) shows that polarization can be driven by the electorate or the candidates. A polarized electorate and polarizing candidates look similar because both result in a very close election. A split electorate is characterized by a bimodal distribution of the voting population; in contrast, when the candidates are polarizing, even a normal distribution of voters can result in a close election. The difference between the two is voter turnout: With a polarized electorate, voter participation should increase, as each group is tied to its candidate and opposed to the alternate. In contrast, with polarizing candidates, voters in the middle of the distribution are unsatisfied, so voter participation should decrease.

Regression analyses controlling for other factors show the rise in the Republican share of votes in white manufacturing counties was largely due to a drop in Democratic votes, while the rise in the Democratic share in nonwhite manufacturing counties was driven by a relatively higher drop in Republican votes. These results show that polarization in the 2016 election among manufacturing counties by race was associated with a reduction in votes for either major party candidate as compared with 2012, making the outcome more consistent with Fiorina's (2014) findings on polarizing candidates.⁸

As important as economic factors may be, the political science literature attributes voting decisions largely to identity politics. In examining the shift among Midwestern voters towards the Republican party since the late 1960s, Frank (2004) argues that cultural issues have replaced economic ones in their importance for electoral outcomes. The essence of this argument, also made by Lee and Roemer (2010) among others, is the idea of "policy bundling." Political parties may have a platform mixing policies, such as traditional moral and religious values with free market economics, that separately would not necessarily appeal to their voters. However, if voters care more about say, traditional family values, they may also vote for economic policies they do not like.

Recent research by Inglehart and Norris (2016) looks specifically at the rise of populist movements across the Western world and finds support for arguments linking cultural change to voting outcomes. They find that a backlash against cultural change in the modern world, especially on the part of older, less

8. This result is different from Autor et al. (2016) on polarization in response to trade shocks, which finds that major party votes increase in response to a shock.

educated, men of the dominant ethnicity, largely explains the rise of populist politics across the West. In contrast, Frieden (2017) uses individual level data from the Eurobarometer survey, from 2004 to 2015, and finds that while identity explains a great deal of the level of populism, there is relatively little change in these demographic variables over time. He argues that changing economic conditions must therefore be important in explaining shifts in voting patterns.

The results in this paper also contribute to the question of whether voting patterns in the 2016 election reflect economics or identity. The strongest correlation is with the variables describing a county's population, including race, age, education level, and religion, which alone explain around 70 percent of the variation in the change in the Republican vote share since 2012 and over 80 percent of the variation in the swing states.⁹ While the education variable could reflect voters' economic concerns if it is capturing the declining opportunities for the low skilled worker, it could also reflect identity politics if it is capturing preferences for a liberal and open society. The fact that the coefficient on education does not change significantly when economic variables are included, and that there is very little additional explanatory power from the economic variables, suggests that education is largely capturing social preferences.

DATA AND METHODOLOGY

This paper uses Dave Leip's Atlas of U.S. Presidential Elections for data on voting patterns in the 2016 election. The Atlas contains data on votes cast for presidential, gubernatorial, and congressional elections on a county basis, going back to the 1910s. Data are collected from diverse official sources and made available online at www.uselectionatlas.org.

The dependent variable is the change in the relative share of Republican votes from 2012 to 2016. It is calculated using the number of Republican votes (R) cast over the sum of Republican and Democratic votes (D) cast, or $R/(R+D)$, during the 2012 and 2016 elections. For robustness, data from 2000, 2004, and 2008 were also used in some model specifications.

The vote share data was combined with county level information on economic performance and demographic indicators. The main economic indicators include: median wage, unemployment rate, labor force participation, and manufacturing share of employment; and the demographic indicators, all as share of population, are: with bachelor's degree or higher, aged between 35 and 50, black or Hispanic, and Protestant. Using more detail on these variables, such as three age categories or individual race categories, was also tried, but the explanatory power was unchanged from this more parsimonious specification. In all specifications, county size was also controlled for, and alternative specifications incorporate other variables, such as manufacturing job loss or whether the county is urban or northern.

9. Variables on gender, including the share of the population that is female and the ratio of median female-to-male wages, were also tried, but they were not robustly significant and had little explanatory power.

The source for most of the explanatory variables is the American Community Survey, from the US Census Bureau. The variables in this dataset are 5-year estimates reported for the period 2011–15. Data on the share of county employment in manufacturing is taken from the Census Bureau’s County Business Patterns (CBP) dataset, for which the most recent numbers are from 2014. Data on religious adherence is taken from the Association of Religion Data Archives (ARDA), and the variable used is the number of mainline (or mainstream) Protestants per 1,000 people in the year 2010 (the most recent year available).

The scatter plots in figure 1 show the correlation between the growth in the Republican vote share and the main explanatory variables. The scatter plot for the manufacturing employment variable shows a weak positive relationship with the growth in the Republican vote share. Other scatter plots also show that educated and ethnically diverse counties tended to favor the Democratic candidate in 2016 relative to 2012. Table A1 in the appendix reports summary statistics for all the main variables used in the analysis.

While striking, these are only simple bivariate correlations. The primary determinants are controlled for next, using regression analysis to evaluate the relative importance of each factor.

The basic specification is:

$$\frac{R}{(R+D)_{it}} - \frac{R}{(R+D)_{it-1}} = \beta_0 + \beta_1 \text{manufacturing}_i + \beta_x X_i + \varepsilon_i. \quad (1)$$

The dependent variable is the percentage point change in the Republican vote share between 2012 and 2016; R is the Republican vote share and D the Democratic vote share; manufacturing_i is the average employment share of manufacturing over the period; X_i is a vector of period averages of other control variables including median wage, labor force participation, unemployment, education, race, age, and religion; and ε is the error term. β_1 is the coefficient of interest; a positive and significant coefficient would mean that manufacturing counties voted more Republican in this election than in the past. In additional specifications, the change over time in the explanatory variables, are also used. All regressions are weighted by the number of votes cast per county in 2012, thus giving greater weight to those counties with greater voter turnout and therefore electorally more important. The regression tables record standardized beta coefficients, so the coefficients can be compared directly. Beta coefficients show how many standard deviations a dependent variable will change per one standard deviation change in the explanatory variables. Thus, they make coefficients comparable across variables.

The share of manufacturing employment is the main variable of interest because it captures the importance of manufacturing for existing jobs and hence what is at risk for job loss. In addition, the bivariate correlation between the growth in the Republican vote share and current manufacturing employment is stronger than the correlation with the change in manufacturing employment since 2000, though changes over time are considered.

There is anecdotal evidence that Trump’s message appealed to residents in white manufacturing counties broadly, even in those where manufacturing has thrived in recent years. An example is Elkhart, Indiana,

which produces recreational vehicles and has a manufacturing share above 50 percent. Elkhart benefitted significantly from the stimulus package and auto bailout under the first Obama administration, the county is highly dependent on exports, and its unemployment rate is relatively low and falling. The Republican vote share in Elkhart has increased by 3.4 percentage points since 2012. Many residents stated that they did not attribute the county's success to Obama's policies and that Trump would do better for the local economy.¹⁰

The specific race, age, education, and religion variables were chosen by incorporating a host of census breakdowns and choosing the most parsimonious specification, as noted above. For example, for race, the main races (white, black, Hispanic, and Asian) were included individually and together. The strongest relationship was with the share of the population that is black and Hispanic, which is referred to as minority share, and when they were included separately their coefficients were nearly identical. For age, only the share of the population between the ages of 35 and 50 was significantly different from other age groups, suggesting the young and old voted similarly. For education, the share of the population with a bachelor's degree or higher was most robustly significant, and for religion the share of the population that is mainline Protestant was important.¹¹ Results are robust to including a full breakdown of these variables, though the explanatory power does not improve significantly.

MAIN RESULTS

Columns 1 and 4 of table 2 report the results of estimating the model on the full sample of counties and on counties in swing states separately. The coefficient on the manufacturing employment share is close to zero and not significant in either specification. The identity variables are not only the more robust correlates of the growth in Republican votes, but their effect is also larger in magnitude. As can be seen from the standardized coefficients, education and race were among the most important variables in separating counties across all counties and in the swing states.

In the context of the election, the focus was not only on the manufacturing worker but more specifically the white manufacturing worker. Columns 2 and 5 show results including the interaction between the manufacturing employment share and the minority share. Manufacturing employment is now positive and significant. The coefficient on the interaction term is negative and significant, indicating that as manufacturing counties become more diverse the positive effect is reversed. The results imply that, controlling for other factors, the vote in white manufacturing counties shifted Republican in this election, while the vote in more ethnically diverse manufacturing countries shifted Democratic. The insignificant coefficient from the basic specification implies that the results broadly offset each other in all counties and in the swing states.

10. Alana Semuels, "It's Not About the Economy," *Atlantic*, December 27, 2016.

11. The number of Catholic adherents also has a significant, albeit small, positive effect on the Republican vote share. Including the Catholic variable does not diminish the effect of Protestant adherence or change the effect of other variables in the analysis.

The regression results can also be used to determine the share of the black and Hispanic population for which the effect of the manufacturing employment share shifts from positive to negative. The turning point (from the regression in column 2) occurs when 19 percent of the population is black or Hispanic,¹² a level very close to the mean of 18 percent. In other words, when counties are more diverse than average, manufacturing was negatively associated with the change in the Republican vote share.

To better understand the political significance of the results, columns 3 and 6 replace the continuous minority share variable with an indicator variable that is equal to 1 when the minority share is above the mean (18 percent) and zero otherwise. When the indicator is interacted with the manufacturing employment share, manufacturing is positive and significant. The interaction term is negative and significant and larger than the coefficient on the manufacturing employment share, indicating that in diverse counties there is a negative and significant relationship between manufacturing and the Republican vote share. The results suggest that a move from the 25th to the 75th percentile in manufacturing in a white county is associated with a 0.7 percentage point rise in the Republican vote share. In contrast, a move from the 25th to the 75th percentile in manufacturing in a diverse county is associated with a 1.2 percentage point drop in the Republican vote share. These are small but meaningful movements, especially in a close election. The simple average increase in the Republican vote share across counties was 5.5 percentage points, so these shifts are 13 to 22 percent of the average shift.

Figure 2 shows the predicted change in the Republican vote share, by employment share in manufacturing and the percentage of the county population that is minority. It also controls for the main economic and demographic indicators included in the analysis. It shows a bifurcation of the impact of manufacturing on the electoral outcome. Only in very white counties (below 20 percent minority) is an increase in manufacturing associated with an increase in the Republican vote share. For other counties, there is a negative relationship between manufacturing employment and voting Republican.

Figures 3a and b provide context to this figure. Figure 3a shows the share of the overall votes cast in the 2016 election accounted for by counties with different ethnic makeups. It shows that counties with white populations of over 80 percent contain 40 percent of all voters in the country. Figure 3b shows the same groups for counties in swing states. Here, white counties include over half of all voters. This shows that white manufacturing counties, which tended towards Donald Trump, played a larger role in crucial swing states.

Table 3 focuses on the decline in manufacturing jobs, which was discussed repeatedly during the election. It investigates the impact of the change in the manufacturing share of employment since 2000, as this was

12. Calculated using the nonstandardized coefficients, as $(\text{coefficient on manufacturing})/(\text{coefficient on the interaction})=.077/.004$.

a period of significant job loss in manufacturing.¹³ In this specification, all the economic variables measure changes over time to control for the overall economic health of a county. Counties in decline—experiencing falling wages, rising unemployment, and generally weak economic performance relative to other counties over time—may have been more likely to vote for change, measured here as a vote for changing the party affiliation in the White House. In addition, if counties in decline happen to be white manufacturing counties, then this specification will rule out the interaction mistakenly picking up that trend.

Columns (1) and (4) show that manufacturing job loss (the change in the manufacturing share of employment) since 2000 is not correlated with the change in the Republican vote share. However, when interacted with the minority share, it is positive and significant, indicating that controlling for overall economic change, manufacturing job loss in minority counties is associated with a fall in the Republican vote share, while manufacturing job loss in white counties is associated with a rise in the Republican vote share (column 2). For swing states, the coefficients on ethnically diverse and white manufacturing counties are significantly different from each other, but the overall effect of manufacturing job loss on the Republican vote share is not significant.

Columns 3 and 6 again display results above and below the mean minority share, showing a decrease in the Republican vote share in ethnically diverse counties that experienced manufacturing decline. Specifically, moving from the 25th to the 75th percentile in terms of job loss would lead to a 0.3 percentage point higher Republican vote share in white counties but to a 0.1 percentage point lower Republican vote share in ethnically diverse counties. The bifurcation is still present when job loss is considered, but the effects are even smaller than for the level of manufacturing.

ROBUSTNESS TESTS

The results of these initial regressions show that white manufacturing counties and ethnically diverse manufacturing counties changed their voting allegiances in opposing ways but do not provide insight as to why the voting patterns diverged. White and minority workers could have different views about important government policies, or the divergence could result because the magnitude of the economic shocks differed across counties in a way that is correlated with race. For example, if the economies of white manufacturing counties are specialized in low-skilled products, they would likely have experienced larger economic shocks as a result of trade and technology. Alternatively, it could have to do with other opportunities: If white manufacturing counties are more isolated, and ethnically diverse counties are more urban, it may be that alternative work is easier to find in diverse counties. This section explores these alternative explanations to the polarization observed in the two groups' voting patterns.

13. The change since 2012 was also examined, but none of the economic variables were significant.

Table 4 examines whether the polarization result is specific to the manufacturing sector and the minority share. It is possible that the association found between the manufacturing share and minority share is about skilled versus unskilled manufacturing or is also present in other professions. Column 1 interacts the share of the population with a bachelor's degree or higher with the manufacturing share, to test whether the minority share is proxying for type of manufacturing. The interaction between education and manufacturing is significant and negative, implying that less educated manufacturing counties voted more for the Republican candidate in this election than in the last. While the results are consistent with the thesis that low-skilled manufacturing counties were more attracted to Trump than Romney, controlling for the interaction between education and manufacturing does not affect the significance of the coefficients of interest. The effects of manufacturing share and the manufacturing and race interaction term, if anything, become stronger, indicating that the split by race is not about skilled versus unskilled manufacturing.¹⁴

It is possible that the effect found for manufacturing is also present for other relatively low-skilled professions. Column 2 includes an alternative sector, the share of employment in construction, and an interaction with minority share. While counties with more construction voted less Republican, there is no difference between white and nonwhite counties.¹⁵ One possible interpretation is that counties with more construction are counties with growing economies that favor the incumbent party.

The minority share could instead be reflecting regional differences, either between rural and urban areas or North and South. Journalists and other observers repeatedly highlighted the role of the rural voter in the 2016 election.¹⁶ In urban counties, workers may have more opportunities outside of manufacturing. If ethnic diversity is correlated with urbanization, the interaction may be picking up the effect of opportunity and not race. While the effect of manufacturing is smaller in urban areas, including this interaction does not affect the significance of the interaction between manufacturing and minority share (column 3). The divergence between the white manufacturing counties and the ethnically diverse manufacturing counties expands. Finally, another possibility is that the real difference is between traditional manufacturing in the North and new manufacturing in the South. When manufacturing is interacted with an indicator for the North,¹⁷ the interaction is not significant (column 4).

In the election, Trump repeatedly associated manufacturing job loss with imports from China. The divergence in how the manufacturing variable effects white and ethnically diverse counties could be

14. Other economic variables (wages, unemployment, labor force participation, and manufacturing share) were also interacted with minority share, but all had coefficients close to zero and were not robustly significant (not reported).

15. Retail was also examined, but its interaction with nonwhites was not significant and the coefficient on manufacturing and the manufacturing interaction did not change (not reported).

16. See, for example, Helena Bottemiller Evich, "Revenge of the rural voter," *Politico*, November 13, <http://www.politico.com/story/2016/11/hillary-clinton-rural-voters-trump-231266> (accessed on May 25, 2017).

17. The North in this analysis includes all of the states of New England (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont), three Mid-Atlantic states (New Jersey, New York, Pennsylvania), as well as the Midwest (Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin).

capturing the “China shock” if the white counties were disproportionately affected by imports from China. To examine this, a measure of the China supply shock, developed in Autor et al. (2013), is included. The Autor study created an index of competition with Chinese imports at the commuter zone level, which aggregates counties in the same economic area. This variable captures the increase in Chinese import exposure at this level over the period 1990–2007. In order to ensure this variable is not measuring a US demand shock, import competition is instrumented using Chinese exports to European countries across industries. Column 5 includes the China shock interacted with the minority share, where the import competition variable is instrumented with China’s exports to Europe. The China shock is significant in explaining the shift toward the Republican candidate, and the interaction with the minority share has a negative sign but is not significant. While the negative coefficient offers some evidence that diverse counties reacted differently to the China shock, it cannot be rejected that the trade shock affected all counties similarly. The inclusion of this variable does not change the magnitude or significance of the coefficient on manufacturing or the interaction with the minority share (as compared with table 2, column 3). The results imply that the white-manufacturing-county effect on voting is distinct from the trade effect—and of greater significance, as can be seen by comparing the standardized coefficients. Of course, education is still the dominating factor, about 11 times as important as the China shock.

Column 6 includes all the variables simultaneously. The results on the manufacturing employment share and race remain robust.

Table 5 reports results from regressions that vary the timeframe both in the dependent and independent variables. As Jensen et al. (2016) argue, longer-running trends may have played an important role in the election. Columns (1) and (2) report the results for a panel regression of the incumbent vote share in the last five presidential elections (2000–2016). The incumbent share, as opposed to the Republican share, is used because negative shocks are expected to make voters reject the incumbent party.¹⁸ Column (1) shows that while manufacturing intensive counties on average tended to vote against incumbents, this effect is not significant. However, when interacted with the minority share (column 2), it was diverse manufacturing counties who voted against the incumbent. This period includes the election of the first black president, so it is not clear how much can be inferred from this specification—except to say that share of manufacturing employment is not significant, except when it is interacted with race.

Columns (3) to (4) focus on the change in the Republican vote share between the elections of 2000 and 2016. Overall, the results mirror those of the earlier regressions. The share of manufacturing employment has no significant effect by itself. However, when interacted with the minority share, the effects found earlier resurface.

18. Using the same specification for the Republican vote share shows a negative and significant relationship with manufacturing employment, and a positive and significant one with the interaction variable. The result is consistent with Che et al. (2016) on congressional elections, who find that manufacturing increases the likelihood of voting Democratic. Again, the results differ significantly for white and diverse counties.

Columns (5) and (6) examine historical employment in manufacturing, using data on manufacturing employment share in 1986 (the earliest available) when manufacturing was near peak employment and unions were prevalent. If white manufacturing counties tend to specialize in more traditional industries and less in new high tech manufacturing, that could explain the divergence with ethnically diverse counties. The results show that even among only old manufacturing counties, the same split is evident. In fact, the coefficients are very similar to the current manufacturing employment share (table 2, column 3), implying that white and ethnically diverse counties that experienced similar shocks in manufacturing job loss reacted electorally in opposite ways, consistent with polarization among the working class with race being a critical factor.

POLARIZATION AND VOTER PARTICIPATION

The previous section showed that voting in manufacturing counties was polarized according to race. White manufacturing counties voted more Republican and diverse manufacturing countries voted more Democratic than in the previous election. The increase in the Republican share in white manufacturing counties could have happened because of greater participation of Republican voters or lower participation of Democratic voters, as compared with the last election. The former would imply that the Republican message was appealing, while the latter would suggest that the Democratic message was unconvincing.

Fiorina (2004) shows that polarization can be caused by the electorate or the candidates. He argues that a close election could reflect a bimodal distribution or a normal distribution with candidates at opposite ends of the spectrum. With a bimodal electorate, turnout should be especially high because the electorate is tied to its candidate and dislikes the alternative. With a normally distributed electorate and polarizing candidates, low turnout is more likely, as the bulk of voters do not support either candidate. To determine whether the observed polarization among manufacturing counties by race was associated with a polarized electorate or polarizing candidates, this section explores how voter participation changed across manufacturing counties by race.

To calculate the extent to which the results were driven by a strong showing for the Republican candidate (Trump) or a weak showing for the Democratic candidate (Clinton), relative to the previous election, the contribution from the change in Republican votes is calculated as:

$$contribution_R = \frac{|\Delta V_R|}{|\Delta V_R| + |\Delta V_D|} \quad (2)$$

where ΔV_i is the change in votes for party i since the 2012 election, where i is either Democrat (D) or Republican (R). The variable, $contribution_R$ is a summary statistic for how much of the overall shift in votes from the previous election is a result of a change in Republican votes. For the nation, $contribution_R$ is 0.49, implying the change in votes for Hillary Clinton as compared with the previous Democrat candi-

date, Barack Obama, was slightly more important than the change in votes for Donald Trump versus the previous Republican candidate, Mitt Romney. Across counties, the average was 0.47 percent, indicating that voting patterns on the Democratic ticket played a stronger role on average.

Figure 4 visualizes the results on the Republican contribution at the county level by plotting the *contribution_R* against overall turnout. It shows that when overall voting declined relative to the previous election (the points on the left), the decline was driven by lower turnout among Democratic voters (*contribution_R* below 0.5). In contrast, when more people voted as compared with the last election, the increased turnout was driven by Republican voters. The results in swing states were determined to a somewhat greater extent by the decline in Democratic votes (on average *contribution_R* = 0.46 in the swing states).

Figure 5 shows a similar graph where counties with a high employment share in manufacturing (the top 25 percent of counties) are shown in red. If manufacturing counties were especially drawn to Donald Trump's message of restricting trade, relatively more observations should be present in the lower right of the chart, reflecting strong turnout and an election driven by strong Republican votes, relative to the previous election in these counties. Instead, results appear similar for manufacturing counties as they do for nonmanufacturing countries (on average *contribution_R* = 0.47 in these counties).

Tables 6a and 6b investigate the impact of the manufacturing employment share on the change in votes, overall and by party, controlling for other factors; the samples used are all counties for table 6a and swing states only for table 6b. The dependent variable is the growth in votes for the major parties combined and separately. Counties are again weighted by the number of votes cast in the 2012 election. The first two columns of table 6a report the effect of the manufacturing employment share on growth in votes. Controlling for other characteristics, counties with more manufacturing employment had a sharper drop in votes as compared with 2012, suggesting that blue-collar voters participated less in the 2016 election as compared with other voters. The decline was driven largely by diverse manufacturing counties (column 2). The manufacturing employment share is never positive and significant, further bolstering the previous findings that there was no great enthusiasm in manufacturing-intensive counties for either candidate.

Columns (3) and (4) explore the change in Republican votes. Again, counties with a higher manufacturing employment share voted relatively less than in the previous election (column 3). The drop was driven by ethnically diverse manufacturing counties (column 4). The results imply that white manufacturing counties did not support Trump more than other counties with similar characteristics, but ethnically diverse manufacturing counties rejected Trump more than otherwise similar counties.

Columns (5) and (6) report results for Democratic votes. Again, the manufacturing employment share is negative and significant, indicating that manufacturing intensive counties voted less in this election relative to the previous. The decline in votes in this case is driven by the white manufacturing counties (column 6). Clinton lost voters in the white manufacturing counties more than Trump won voters in these counties.

All results are robust when considering the swing states only, and the magnitudes of the coefficients and the explanatory power of the variables are greater in the swing states (table 6b).

The negative correlation between the manufacturing employment share and overall votes relative to the previous election is consistent with polarization among manufacturing workers in the 2016 election being driven more by the candidates, as discussed in Fiorina (2004), than by a polarized electorate. Voting for either major party candidate was down on average 1.25 percentage points, across counties, as compared with the last election (table A1).¹⁹ The results suggest that counties with higher manufacturing shares contributed to reducing not increasing this number.

It is worth noting that the share of the minority population, while significant and negative for the Republican vote, is positive and significant for both overall votes as well as Democratic votes. While the data are not at the individual level, the results are hard to rationalize with the oft-repeated claim that minorities turned out less for Clinton than for Obama, at least as compared with other voters in this election and the previous one. The results imply that either minorities or other residents of the more ethnically diverse counties voted in relatively greater numbers in this election, as compared with other counties and controlling for other factors. To the extent that voting was relatively weak in ethnically diverse counties, it was Republican voters who were missing.

DISCUSSION

The results imply that manufacturing did not play an important role in the election results. Rather, education and race were the two main determinants of the change in the Republican vote share from 2012 to 2016. To the extent manufacturing played a role, it was through race: Compared to the previous presidential election, white manufacturing counties voted less Democratic, causing the Republican vote share to go up, and diverse manufacturing counties voted less Republican, causing the Democratic vote share to go up. In aggregate, these effects roughly offset each other so that manufacturing had no significant effect. A potential explanation for the polarization by race within manufacturing intensive counties is that white manufacturing counties rejected existing policies, such as openness to trade and increased economic redistribution (for example through the Affordable Care Act), while ethnically diverse manufacturing counties rejected the message that economic conditions in the United States were deteriorating.

Examining the counties with the biggest changes in the Republican vote share from 2012 to 2016 highlights the importance of race and education as compared with manufacturing. Of the top 10 counties that shifted Republican, three are in Ohio; two each in Iowa and Missouri; and the other three are in Kentucky, Illinois, and West Virginia. Each of these counties saw a shift toward the Republican ticket of 19 percentage

19. While the total number of votes cast for either candidate increased by 1.6 percent, California alone was responsible for half of this increase, with Texas making up most of the rest.

points or more. The counties are on average 98 percent white, compared with 84 percent overall, and less than 8 percent of their voters have college degrees, compared with 13 percent on average. The counties have *less* manufacturing (7 percent of employment) than the average across counties (12 percent).

In contrast, the 10 counties that most increased their Democratic support have a lower white population, 85 percent, and significantly more college education, at 48 percent.²⁰ Six are in Utah, three in Virginia, and one in New Mexico. They shifted towards the Democratic candidate by 12 percentage points on average. Notably, their average share of manufacturing employment is the same as in the top Republican shifting counties: 7 percent.

Overall, these results reinforce the findings of Inglehart and Norris (2016), who argue that cultural values are of primary importance in explaining the rise of populism. Less diverse, more religious, and less educated parts of the United States voted for Donald Trump, whereas economic factors seem to have played a much smaller role.

Given that the identity variables are relatively constant over time, how could they have played a vital role in the change in the Republican vote share? One explanation can be found in pre-election polling. Of the seven issues the Pew Research Center asked about both in 2012 and 2016, the two issues that surged in importance were immigration and terrorism (figure 6). The percentage of the respondents who thought immigration was a critical issue jumped from 41 percent in 2012 to 70 percent in 2016.²¹ Terrorism jumped from 60 to 80 percent. In contrast, concern about the economy declined slightly from 87 to 84 percent, and education and health care similarly declined in importance. Consistent with this, new evidence from a national survey, conducted by the Public Religion Research Institute and the *Atlantic* before and after the election, finds that cultural anxiety among white working class voters was the most important predictor of support for Trump (Cox et al. 2017). The analysis finds that aside from party affiliation, social values, immigration, and educational attainment best predicted support for Trump among this group. They find that economic hardship weakly predicted support for Clinton. The poll results show that voters focused on security more than in the past, which made identity more important in this election, consistent with the new survey results. Put differently, it was not that the identity of voters changed, rather that the importance of identity politics was magnified.

In contrast, polls about trade show that it was not a major concern among voters. Gallup polls, which ask whether trade is a threat or an opportunity, show that Americans' views of trade have improved markedly since 2012 and were higher in 2016 than at any time since the question was first asked in the early

20. Excluding the state of Utah, in which the Republican candidate performed poorly for idiosyncratic reasons, the top 10 counties that swung towards the Democrats were on average even more diverse and well educated: 77 percent white and 61 percent college educated.

21. While immigration is also an economic issue, it was discussed during the election as a security risk—criminals coming in, not as a job killer. The increases in concern over terrorism, immigration, and foreign policy together, also suggest that concerns are more about security than economics.

1990s.²² In 2016, 58 percent thought trade was an opportunity and 34 percent thought it was a threat, as compared with a tie (at 43 percent) in 2012. Overall, the polling results are consistent with a greater focus on culture and security, not an increase in concern over rising imports and lost manufacturing jobs in the electorate.

REFERENCES

- Autor, David, David Dorn, Gordon Hanson, and Kaveh Majlesi. 2016. *Importing Political Polarization? The Electoral Consequences of Rising Trade Exposure*. NBER Working Paper No. 22637. Cambridge, MA: National Bureau of Economic Research.
- Autor David, David Dorn, and Gordon Hanson. 2013. The China Syndrome: Local Labor Market Effects of Import Competition in the United States. *American Economic Review* 103, no. 6: 2121-68.
- Autor, David, David Dorn, Gordon Hanson, Kaveh Majlesi. 2017. A Note on the Effect of Rising Trade Exposure on the 2016 Presidential Election [Appendix to Autor, Dorn, Hanson, and Majlesi *Importing Political Polarization? The Electoral Consequences of Rising Trade Exposure*]. Paper. Available at https://gps.ucsd.edu/_files/faculty/hanson/hanson_research_TrumpVote-032017.pdf (accessed on May 31, 2017).
- Che, Yi, Yi Lu, Justin R. Pierce, Peter K. Schott, and Zhigang Tao. 2016. *Does Trade Liberalization with China Influence US Elections?* Technical report. Cambridge, MA: National Bureau of Economic Research.
- Cox, Daniel, Rachel Lienesh, and Robert Jones. 2017. *Beyond Economics: Fears of Cultural Displacement Pushed the White Working Class to Trump*. Report. Washington: Public Religion Research Institute and the Atlantic.
- Feenstra, Robert, Hong Ma, and Yuan Xu. 2017. The China Syndrome: Local Labor Market Effects of Import Competition in the United States: Comment. Mimeo. Davis, CA: University of California, Davis.
- Fiorina, Morris (with Samuel Abrams and Jeremy Pope). 2004. *Culture War? The Myth of a Polarized America*. Palo Alto, CA: Stanford University Press.
- Frank, Thomas. 2004. *What's the Matter with Kansas? How Conservatives Won the Heart of America*. New York: Henry Holt and Company.
- Foster, Case, and Jeffry Frieden. 2017. Crisis of Trust: Socio-economic determinants of Europeans' confidence in government. Mimeo. Cambridge, MA: Harvard University.
- Inglehart, Ronald F., and Pippa Norris. 2016. *Trump, Brexit, and the Rise of Populism: Economic Have-Nots and Cultural Backlash*. Faculty Research Working Paper 16-026. Cambridge, MA: Harvard Kennedy School.
- Jensen, J. Bradford, D. P. Quinn, and S. Weymouth. 2016. *Winners and Losers in International Trade: The Effects on US Presidential Voting*. Technical report. Cambridge, MA: National Bureau of Economic Research.
- Lee, Woojin, and John Roemer. 2010. Moral Values and Distributive Politics: An Equilibrium Analysis of the 2004 U.S. Election. In *Divide and Deal: The Politics of Distribution in Democracies (186-220)*, ed. Ian Shapiro, Peter A. Swenson, and Daniela Donno Panayides. New York: New York University Press.
- Pierce, Justin R., and Peter K. Schott. 2016. The Surprisingly Swift Decline of US Manufacturing Employment. *American Economic Review* 106, no. 7: 1632-62.

22. Gallup, "In US, Record-High 72% See Foreign Trade as Opportunity," February 16, 2017, http://www.gallup.com/poll/204044/record-high-foreign-trade-opportunity.aspx?g_source=mn2-us (accessed on May 19, 2017).

Table 1 Explanations for Trump victory in major news stories

Totals	Democratic turnout						Republican turnout						Democratic turnout						Republican turnout					
	Race		Manufacturing		Other		Race		Manufacturing		Other		Race		Manufacturing		Other		Race		Manufacturing		Other	
	12	6	8	6	8	15	12	6	8	12	6	8	20	14	15	20	14	15	20	14	15			
Individual articles (sources listed below)																								
1	X					16						X				X							X	
2	X		X			17										X						X	X	
3				X		18			X															
4			X	X		19			X							X								
5					X	20										X							X	
6			X	X		21										X								
7			X	X		22			X							X							X	
8			X	X		23										X							X	
9	X		X			24										X							X	
10				X		25			X							X						X	X	
11			X	X		26			X							X						X	X	
12			X			27			X							X						X	X	
13	X					28										X						X	X	
14		X		X		29			X							X						X	X	
15		X		X																				

Sources: LexisNexis search of major English language publications between November 2016 and January 2017.

- Alex Thompson and Olivia Becker, "No-shows," *Vice*, November 17, 2016. <https://news.vice.com/story/hillary-clinton-lost-because-white-Democrats-in-key-states-didnt-bother-to-vote>
- Konstantin Kilbarda and Daria Roithmayr, "The Myth of the Rust Belt Revolt," *Slate*, December 1, 2016. http://www.slate.com/articles/news_and_politics/politics/2016/12/the_myth_of_the_rust_belt_revolt.html
- Nate Cohn, "Why Trump Won: Working-Class Whites," *New York Times*, November 9, 2016. <http://www.nytimes.com/2016/11/10/ups-hot/why-trump-won-working-class-whites.html>
- Rachel Martin, "Feeling Left Behind. White Working-Class Voters Turned Out For Trump," NPR, November 13, 2016. <http://www.npr.org/2016/11/13/501904167/feeling-left-behind-white-working-class-voters-turned-out-for-trump>
- Eric Sasson, "Blame Trump's Victory on College-Educated Whites, Not the Working Class," *New Republic*, November 15, 2016. <https://newrepublic.com/article/138754/blame-trumps-victory-college-educated-whites-not-working-class>
- Eric Levitz, "Trump Won a Lot of White Working-Class Voters Who Backed Obama," *New York Magazine*, November 9, 2016. <http://nymag.com/daily/intelligencer/2016/11/trump-won-a-lot-of-white-working-class-obama-voters.html>
- Jim Tankersley, "How Trump won: The revenge of working-class whites," *Washington Post*, November 9, 2016. <https://www.washingtonpost.com/news/wonk/wp/2016/11/09/how-trump-won-the-revenge-of-working-class-whites/>
- Helena Bottemiller-Evich, "Revenge of the rural voter," *Politico*, November 13, 2016. <http://www.politico.com/story/2016/11/hillary-clinton-rural-voters-trump-231266>
- Michael A. Cohen, "By the numbers: How Donald Trump won," *Boston Globe*, November 12, 2016. <https://www.bostonglobe.com/opinion/2016/11/12/numbers-how-donald-trump-won/h4sawuSV2PmvXtBMMW0AQfi/story.html>
- Zeke J Miller and Chris Wilson, "See a Map That Shows Exactly How Donald Trump Won," *Time*, December 1, 2016. <http://time.com/4587866/donald-trump-election-map/>

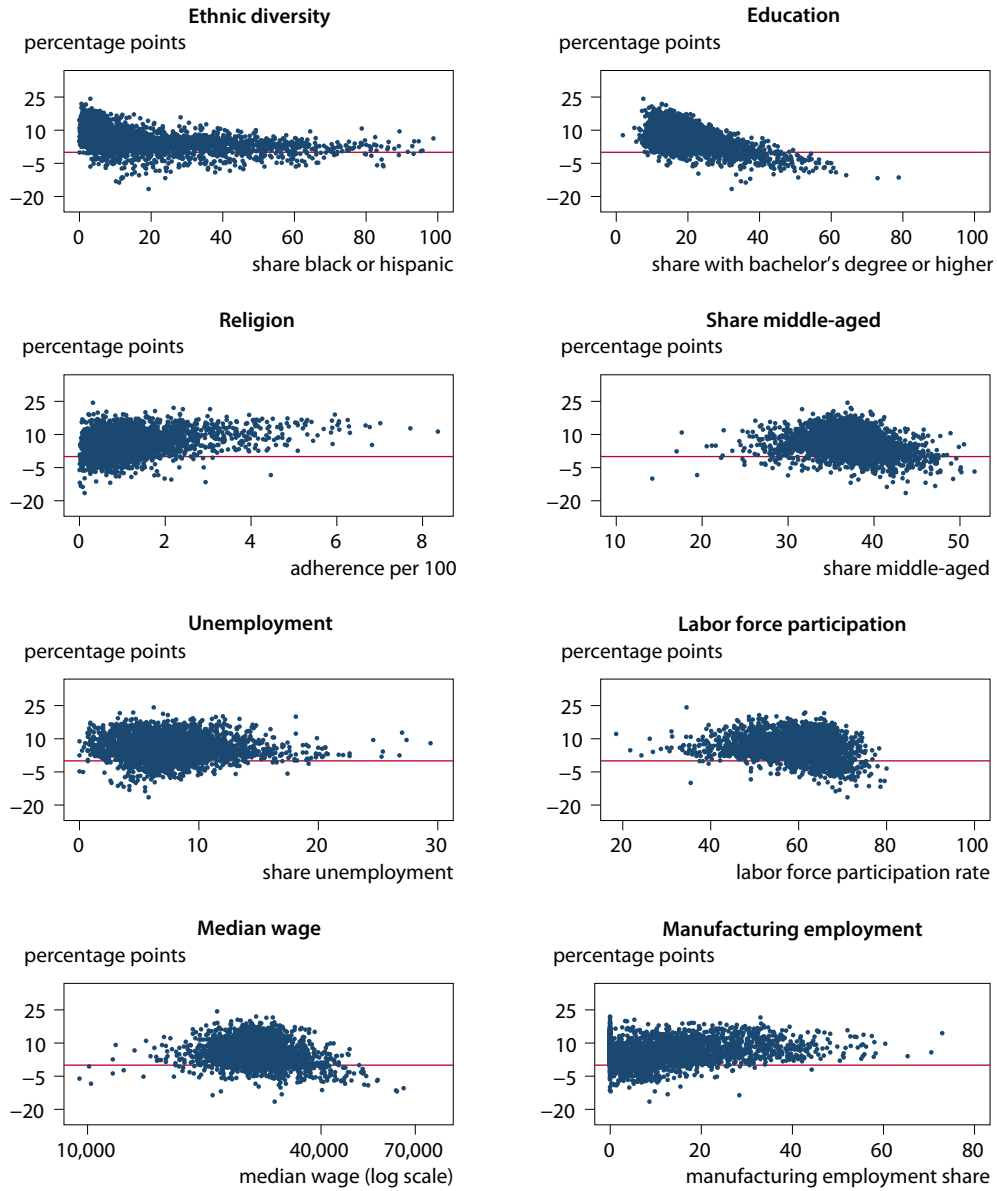
(table continues)

Table 1 Explanations for Trump victory in major news stories (continued)

Sources continued:

11. Nicholas Confessore and Nate Cohn, "Donald Trump's Victory Was Built on Unique Coalition of White Voters," *New York Times*, November 9, 2016. <http://www.nytimes.com/2016/11/10/us/politics/donald-trump-voters.html>
12. "Daily Chart: Where white voters mattered in the presidential election," *Economist*, November 28, 2016. <http://www.economist.com/blogs/graphicdetail/2016/11/daily-chart-16>
13. Natalie Jackson, "Trump's Win Isn't All About White People: Clinton Lost Black and Brown Votes in Key States," *Huffington Post*, November 15, 2016. http://www.huffingtonpost.com/entry/hillary-clinton-voter-turnout-key-states_us_582b79bae4b01d8a014b051f
14. Matthew Cooper, "How Donald Trump Courted White Americans to Victory," *Newsweek*, November 18, 2016. <http://www.newsweek.com/2016/11/18/donald-trump-white-working-class-voters-election-2016-519095.html>
15. Evan Horowitz and James Pindell, "Swings in state hint at long-term shift," *Boston Globe*, November 14, 2016.
16. Thomas B. Edsall, "The Not-So-Silent White Majority," *New York Times*, November 17, 2016. <https://www.nytimes.com/2016/11/17/opinion/the-not-so-silent-white-majority.html>
17. Simon Carswell, "Trump's 'rigged system' claims prove a winning pitch to disaffected Americans; The Republican candidate played on the fears of working class whites," *Irish Times*, November 10, 2016.
18. John B. Judis, "Why identity politics couldn't clinch a Clinton win," *Washington Post*, November 13, 2016. https://www.washingtonpost.com/opinions/why-identity-politics-couldnt-clinch-a-clinton-win/2016/11/11/ed3bf966-a773-11e6-8fc0-7be8f848c492_story.html
19. Heidi M. Przybyla, "After devastating loss, Democrats left searching for answers; One potential cause: Party failed to reach working-class whites," *USA TODAY*, November 11, 2016. <http://www.usatoday.com/story/news/politics/elections/2016/11/09/hillary-clinton-loss-democrats-trump/93563634/>
20. David Scharfenberg, "Pundits missed potency of working class," *Boston Globe*, November 10, 2016.
21. Nicholas Confessore and Nate Cohn, "White Voters in Broad Bloc Shaped Upset," *New York Times*, November 10, 2016. <https://www.nytimes.com/2016/11/10/us/politics/donald-trump-voters.html>
22. Alexander Panetta, "Where Trump won: A closer look at county-level data in key states," *Canadian Press*, December 8, 2016.
23. Eduardo Porter, "Where Were Trump's Votes? Where the Jobs Weren't," *New York Times*, December 13, 2016. <https://www.nytimes.com/2016/12/13/business/economy/jobs-economy-voters.html>
24. Jaweed Kaleem, "After 56 years, not able to vote: Election officials focus on what role voter ID laws may have played in Clinton's defeat," *Los Angeles Times*, December 17, 2016.
25. David Leonhardt, "The Democrats' Real Turnout Problem," *New York Times*, November 17, 2016. <https://www.nytimes.com/2016/11/20/opinion/sunday/the-Democrats-real-turnout-problem.html>
26. Nate Cohn, "How the Obama Coalition Crumbled, Leaving an Opening for Trump," *New York Times*, December 23, 2016. <https://www.nytimes.com/2016/12/23/upshot/how-the-obama-coalition-crumbled-leaving-an-opening-for-trump.html>
27. Dan Balz, "Donald Trump, America's first independent president," *Washington Post*, November 19, 2016. http://www.realclearpolitics.com/2016/11/20/donald_trump_america039s_first_independent_president_396168.html
28. Ken Stern, "Inside how Trump won the white working class," *Vanity Fair*, January 5, 2017. <http://www.vanityfair.com/news/2017/01/how-trump-won-the-white-working-class>
29. Sean Trende and David Byler, "How Trump won the Midwest," *RealClearPolitics*, January 19, 2017. http://www.realclearpolitics.com/articles/2017/01/19/how_trump_won_the_midwest_132834.html

Figure 1 Change in Republican share of votes (2012–16) by explanatory variables



Sources: Dave Leip's Atlas of U.S. Presidential Elections, US Census Bureau, Association of Religion Data Archives, and authors' calculations.

Table 2 Manufacturing employment share and change in the Republican vote share, 2012–16

	All counties			Counties in swing states ²		
	Basic	Interaction with minority share	Indicator variable ¹	Basic	Interaction with minority share	Indicator variable ¹
Dependent variable: Change in Republican vote share	(1)	(2)	(3)	(4)	(5)	(6)
Manufacturing employment share	0.00 (0.23)	0.11*** (5.89)	0.05*** (3.19)	-0.01 (0.55)	0.07** (2.36)	0.01 (0.47)
Minority share	-0.27*** (8.79)	-0.16*** (4.75)	-0.22*** (4.98)	-0.39*** (9.60)	-0.32*** (7.82)	-0.35*** (8.96)
Manufacturing * minority		-0.17*** (8.02)			-0.12*** (4.41)	
Above mean minority share			0.01 (0.29)			-0.02 (0.46)
> Mean minority * manufacturing share			-0.12*** (5.41)			-0.09*** (2.80)
Median wage (log)	0.32*** (9.05)	0.31*** (8.93)	0.32*** (8.80)	0.03 (0.86)	0.03 (0.83)	0.03 (0.78)
Unemployment	0.12*** (4.24)	0.13*** (4.83)	0.13*** (4.56)	0.04 (0.84)	0.08* (1.88)	0.08* (1.86)
Labor force participation	0.11*** (3.75)	0.09*** (3.18)	0.09*** (3.28)	0.03 (0.96)	0.02 (0.64)	0.02 (0.68)
Share middle-aged	-0.30*** (10.73)	-0.28*** (10.39)	-0.29*** (10.42)	-0.04 (1.10)	-0.02 (0.68)	-0.02 (0.60)
Share with bachelor degree or higher	-0.79*** (24.81)	-0.77*** (24.63)	-0.78*** (23.98)	-0.78*** (19.42)	-0.75*** (18.88)	-0.75*** (19.43)
Protestant adherence	0.11*** (5.15)	0.11*** (5.28)	0.11*** (5.35)	0.02	0.03 (1.56)	0.03 (1.58)
Population (log)	-0.15*** (4.76)	-0.15*** (5.06)	-0.15*** (4.92)	-0.06** (1.99)	-0.07** (2.27)	-0.07** (2.22)
R ²	0.76	0.77	0.77	0.83	0.83	0.83
N	2,963	2,963	2,963	875	875	875

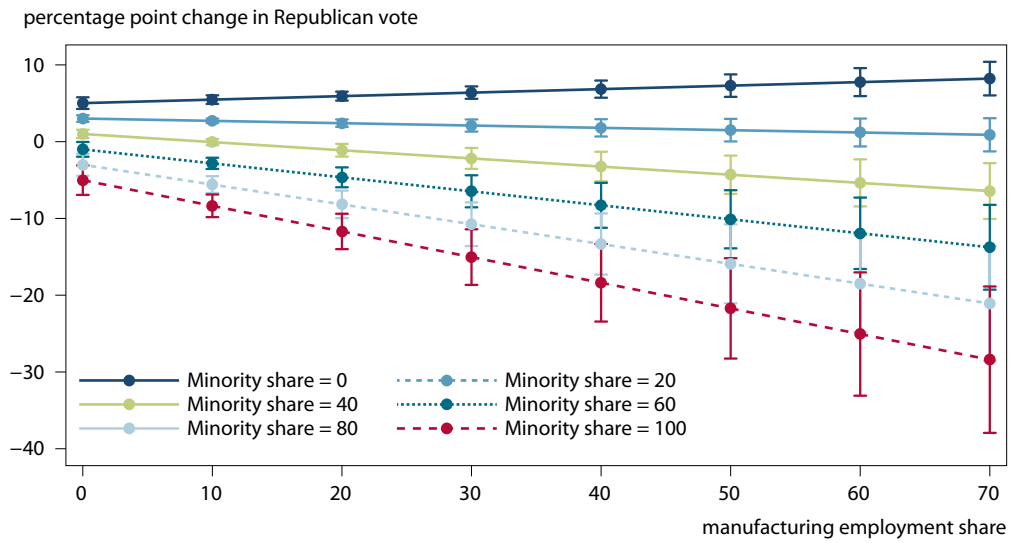
1. Equal to one 1 when the minority share is above the mean (18 percent) and zero otherwise.

2. Swing states in the 2016 election were: Colorado, Florida, Iowa, Michigan, Minnesota, Nevada, New Hampshire, North Carolina, Ohio, Pennsylvania, Virginia, and Wisconsin.

Notes: Standardized beta coefficients are reported, robust t-statistics in parentheses. Counties weighted by number of votes cast in the 2012 election; * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

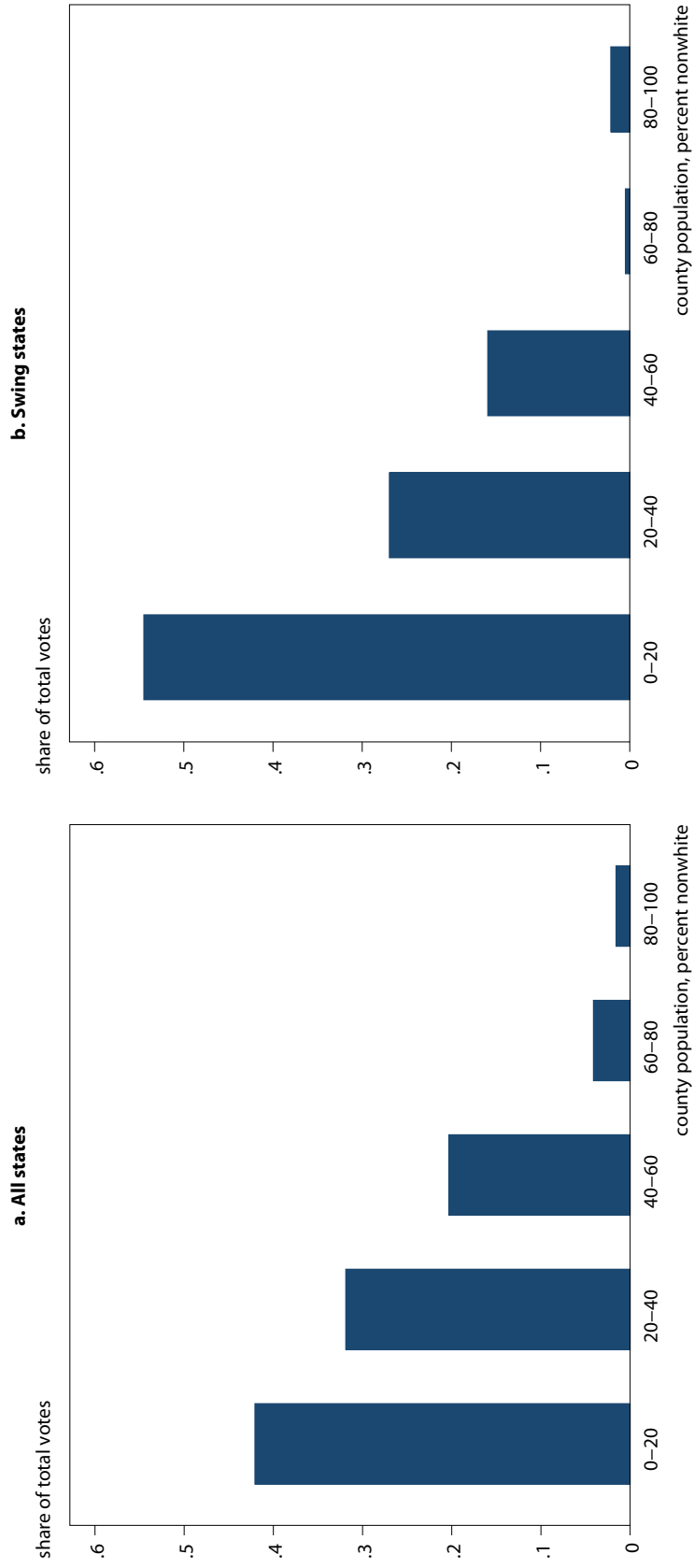
Sources: Dave Leip's Atlas of U.S. Presidential Elections, US Census Bureau, Association of Religion Data Archives, and authors' calculations.

Figure 2 Predicted change in Republican vote share by counties with different ethnic composition and manufacturing employment, 2012–16



Sources: Dave Leip's Atlas of U.S. Presidential Elections, US Census Bureau, Association of Religion Data Archives, and author's calculations.

Figure 3 Share of total votes cast by counties with different ethnic compositions



Sources: Dave Leip's Atlas of U.S. Presidential Elections, US Census Bureau, and author's calculations.

Table 3 Manufacturing employment share change and Republican vote share change, 2012–16

	All counties			Counties in swing states ¹		
	Basic	Interaction	Alternative	Basic	Interaction	Alternative
Dependent variable: Change in Republican vote share	(1)	(2)	(3)	(4)	(5)	(6)
Change, manufacturing employment share	-0.01 (0.94)	-0.04*** (2.67)	-0.03** (2.07)	0.02 (1.14)	-0.02 (1.23)	-0.01 (0.58)
Minority share	-0.34*** (9.77)	-0.32*** (7.58)	-0.30*** (5.13)	-0.38*** (13.06)	-0.34*** (9.14)	-0.33*** (7.30)
Change, manufacturing employment * minority		0.05** (2.32)			0.07*** (2.78)	
Above mean minority share			-0.04 (0.82)			-0.02 (0.44)
> Mean minority * change in manufacturing employment			0.03* (1.77)			0.06*** (2.83)
Change, median wage (log)	0.04* (1.71)	0.04* (1.74)	0.05* (1.79)	-0.10*** (3.46)	-0.10*** (3.51)	-0.10*** (3.48)
Change, unemployment	0.04* (1.94)	0.04** (1.99)	0.05** (2.10)	-0.07*** (2.66)	-0.07*** (2.64)	-0.06** (2.39)
Change, labor force participation	0.11*** (3.93)	0.11*** (3.93)	0.10*** (3.85)	0.10*** (3.98)	0.09*** (3.89)	0.09*** (3.88)
Share middle-aged	-0.17*** (5.73)	-0.17*** (5.77)	-0.17*** (5.71)	0.05** (2.02)	0.04* (1.92)	0.05** (2.00)
Share with bachelor degree or higher	-0.59*** (22.69)	-0.59*** (22.77)	-0.59*** (21.34)	-0.79*** (26.82)	-0.79*** (26.65)	-0.79*** (26.81)
Protestant adherence	0.10*** (4.67)	0.10*** (4.67)	0.10*** (4.71)	-0.01 (0.40)	-0.01 (0.31)	-0.01 (0.31)
Population (log)	-0.11*** (2.63)	-0.11*** (2.71)	-0.11*** (2.65)	-0.10*** (2.93)	-0.11*** (3.15)	-0.11*** (3.16)
<i>R</i> ²	0.72	0.73	0.73	0.84	0.84	0.84
<i>N</i>	2,927	2,927	2,927	871	871	871

1. Swing states in the 2016 election were: Colorado, Florida, Iowa, Michigan, Minnesota, Nevada, New Hampshire, North Carolina, Ohio, Pennsylvania, Virginia, and Wisconsin.

Note: Standardized beta coefficients are reported, robust *t*-statistics in parentheses. Changes are for the period 2000–2016. Counties weighted by number of votes cast in the 2012 election; * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

Sources: Dave Leip's Atlas of U.S. Presidential Elections, US Census Bureau, and Association of Religion Data Archives, and authors' calculations.

Table 4 Alternative Interactions

	Education	Construction	Urban	North	China shock	All
Dependent variable: Change in Republican vote share	(1)	(2)	(3)	(4)	(5)	(6)
Manufacturing employment share	0.22*** (6.99)	0.09*** (4.84)	0.16*** (6.85)	0.05** (2.38)	0.09*** (4.41)	0.09*** (3.53)
Minority share	-0.18*** (5.15)	-0.17*** (4.11)	-0.19*** (5.12)	-0.11*** (3.55)	-0.13*** (3.65)	-0.33*** (5.45)
Manufacturing share * minority	-0.17*** (7.84)	-0.16*** (7.77)	-0.15*** (6.64)	-0.13*** (6.41)	-0.16*** (6.61)	-0.06*** (2.86)
Share with bachelor degree or higher	-0.73*** (21.99)	-0.80*** (25.48)	-0.76*** (22.28)	-0.71*** (22.16)	-0.78*** (24.51)	-0.78*** (18.82)
Bachelor degree * manufacturing	-0.12*** (3.35)					0.18*** (3.08)
Construction share		-0.08*** (3.73)				-0.01 (0.71)
Construction * minority		0.00 (0.11)				0.02 (0.69)
Urban share			0.07** (2.07)			0.11*** (3.38)
Urban share * manufacturing share			-0.08** (2.32)			-0.12*** (3.98)
Northern United States				0.23*** (7.99)		0.24*** (7.66)
North * manufacturing share				0.01 (0.49)		0.03 (1.19)
Import exposure					0.07*** (3.99)	0.04*** (2.72)
Import exposure * minority					-0.04 (1.64)	-0.02 (0.93)
R^2	0.77	0.77	0.77	0.81	0.77	0.82
N	2,963	2,961	2,913	2,963	2,957	2,906

Note: Standardized beta coefficients are reported, robust t-statistics in parentheses. Regressions include control variables included in table 2, results not reported; counties weighted by number of votes cast in the 2012 election; * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

Sources: Dave Leip's Atlas of U.S. Presidential Elections, US Census Bureau, Association of Religion Data Archives, Autor et al. (2013), and authors' calculations.

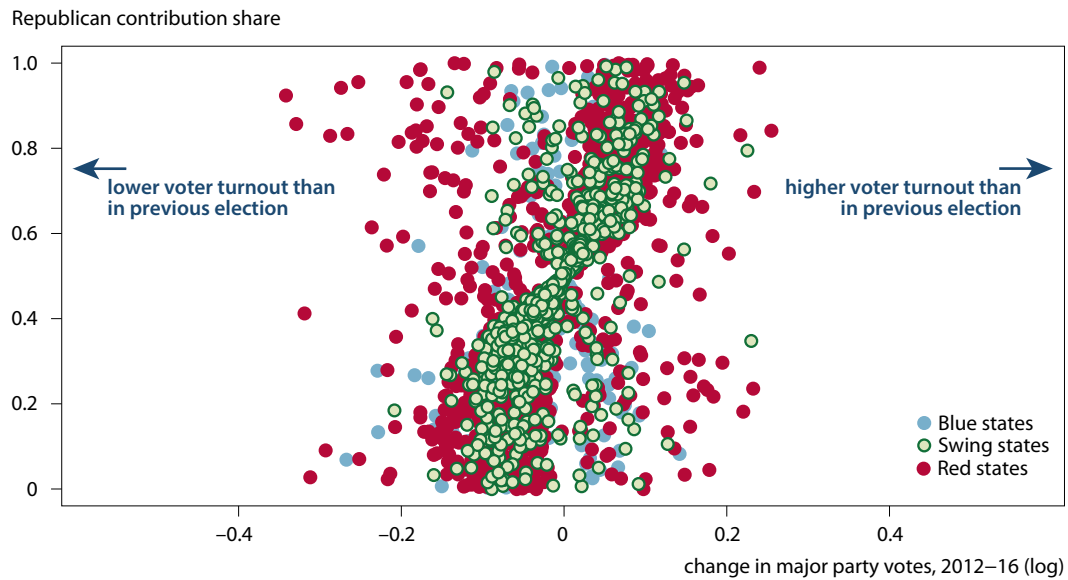
Table 5 Alternative Timeframes

	Incumbent share, elections 2000–2016		Change in Republican vote share, 2000–2016		Change in Republican vote share, 2012–16, manufacturing share 1986	
	Basic	Interaction	Basic	Interaction	Basic	Interaction
	(1)	(2)	(3)	(4)	(5)	(6)
Manufacturing employment share	-0.03 (1.51)	0.04* (1.90)	-0.02 (1.19)	0.06*** (2.98)	0.02 (1.36)	0.11*** (4.87)
Minority share	-0.54*** (4.37)	-0.51*** (4.08)	-0.34*** (11.51)	-0.26*** (7.19)	-0.27*** (8.84)	-0.15*** (3.41)
Manufacturing * minority		-0.11*** (5.40)		-0.12*** (5.00)		-0.15*** (4.87)
R^2	0.09		0.73	0.73	0.76	0.76
N	15,090	15,090	2,962	2,962	3,001	3,001

Note: Standardized beta coefficients are reported, robust t-statistics in parentheses. Counties weighted by votes cast in the 2012 election; regressions include control variables included in table 2, results not reported. Columns (5) and (6) include unemployment, labor force participation, and median wage in changes. Counties weighted by number of votes cast in the 2012 election; * $p < 0.1$; *** $p < 0.01$.

Sources: Dave Leip's Atlas of U.S. Presidential Elections, US Census Bureau, Association of Religion Data Archives, and authors' calculations.

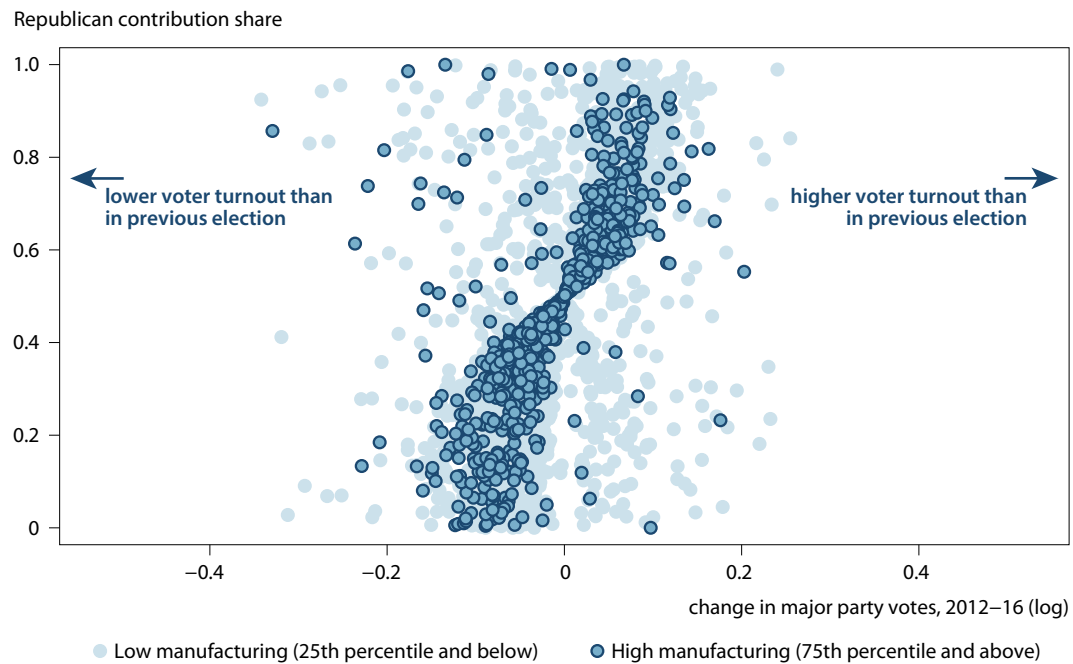
Figure 4 Contribution of change in Republican votes to shift in Republican vote share by county, 2012–16



Note: Republican contribution is a summary statistic measuring how much of the overall party shift in votes is the result of a change in Republican votes.

Sources: Dave Leip's Atlas of U.S. Presidential Elections, and author's calculations.

Figure 5 Contribution of change in Republican votes to shift in Republican vote share by county level of manufacturing intensity, 2012–16



Note: Republican contribution is a summary statistic measuring how much of the overall party shift in votes is the result of a change in Republican votes.

Sources: Dave Leip's Atlas of U.S. Presidential Elections, and author's calculations.

Table 6a Growth in votes cast, 2012–16, in all counties

	Change in votes (log)		Change in Republican votes (log)		Change in Democratic votes (log)	
	Basic	Interaction	Basic	Interaction	Basic	Interaction
	(1)	(2)	(3)	(4)	(5)	(6)
Manufacturing share	-0.07*** (2.90)	0.01 (0.19)	-0.09*** (4.07)	0.00 (0.01)	-0.04** (2.48)	-0.14*** (7.12)
Minority share	0.08 (1.31)	0.16** (2.03)	-0.27*** (4.73)	-0.19** (2.50)	0.23*** (7.94)	0.14*** (3.96)
Manufacturing share * minority		-0.12*** (2.59)		-0.13*** (2.98)		0.15*** (6.21)
R^2	0.13	0.13	0.54	0.55	0.70	0.70
N	2,963	2,963	2,963	2,963	2,963	2,963

Note: Standardized beta coefficients are reported, robust t-statistics in parentheses. Regressions include control variables included in table 2, results not reported; counties weighted by number of votes cast in the 2012 election; ** $p < 0.05$; *** $p < 0.01$.

Sources: Dave Leip's Atlas of U.S. Presidential Elections, US Census Bureau, Association of Religion Data Archives, and authors' calculations.

Table 6b Growth in votes cast, 2012–16, in swing states¹

	Change in votes (log)		Change in Republican votes (log)		Change in Democratic votes (log)	
	Basic	Interaction	Basic	Interaction	Basic	Interaction
	(1)	(2)	(3)	(4)	(5)	(6)
Manufacturing share	-0.24*** (4.68)	-0.05 (0.88)	-0.16*** (6.31)	-0.04 (0.96)	-0.10*** (3.13)	-0.16*** (4.44)
Minority share	0.16** (2.34)	0.31*** (3.93)	-0.33*** (6.97)	-0.23*** (4.27)	0.36*** (7.27)	0.31*** (5.68)
Manufacturing share * minority		-0.27*** (3.07)		-0.18*** (3.12)		0.08* (1.88)
R^2	0.30	0.33	0.71	0.73	0.73	0.73
N	875	875	875	875	875	875

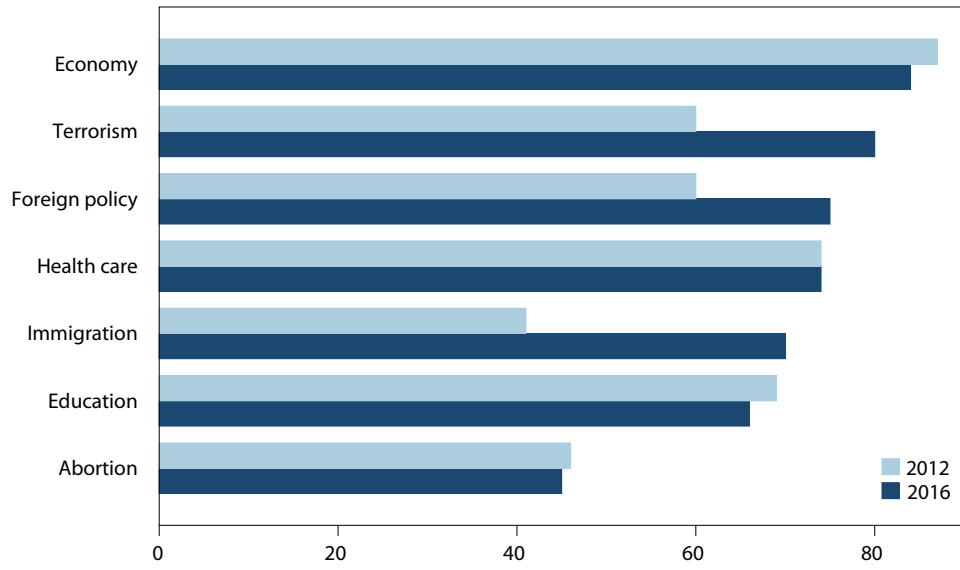
1. Swing states in the 2016 election were: Colorado, Florida, Iowa, Michigan, Minnesota, Nevada, New Hampshire, North Carolina, Ohio, Pennsylvania, Virginia, and Wisconsin.

Note: Standardized beta coefficients are reported, robust t-statistics in parentheses. Regressions include control variables included in table 2, results not reported; counties weighted by number of votes cast in the 2012 election; * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

Sources: Dave Leip's Atlas of U.S. Presidential Elections, US Census Bureau, Association of Religion Data Archives, and authors' calculations.

Figure 6 Change in voters' priorities, 2012–16

percent positive responses



Source: Pew Research Center.

APPENDIX

Table A1 Summary Statistics for all main variables

Variable	Mean	Median	Minimum	Maximum
Change (percentage points) in Republican vote share (2012–16)	5.89	5.51	-16.52	24.29
Growth in votes	-1.23	-0.90	-86.48	22.50
Growth in Republican vote	9.00	9.09	-41.44	77.62
Growth in Democratic vote	-17.56	18.51	-65.85	125.81
Minority share	18.00	10.00	0.00	99.00
Share with bachelor degree or higher	20.00	18.00	2.00	79.00
Share middle-aged	37.00	37.00	14.00	52.00
Mainline Protestant adherents per 100	11.68	8.64	0.05	83.54
Median wage (dollars)	27,580	26,815	9,530	65,340
Unemployment rate	7.82	7.50	0.00	29.40
Manufacturing employment share	9.00	11.00	0.00	73.00
Labor force participation rate	59.07	59.70	18.50	88.40
Urban share	41.00	40.00	0.00	100.00
County population	99,514	25,699	85	10,038,388

Sources: Dave Leip’s Atlas of U.S. Presidential Elections, US Census Bureau, Association of Religious Data Archives, and authors’ calculations.