

## **Attitudes toward presidential candidates in the 2012 and 2016 American elections:**

### **Cognitive ability and support for Trump**

#### **Abstract**

Using data from the American National Election Studies (ANES), we investigated the relationship between cognitive ability and attitudes toward and actual voting for presidential candidates in the 2012 and 2016 U.S. Presidential elections (i.e. Romney, Obama, Trump, and Clinton). Isolating this relationship from competing relationships, results showed that verbal ability was a significant negative predictor of support and voting for Trump (but not Romney), and a positive predictor of support and voting for Obama and Clinton. By comparing within and across the election years, our analyses revealed the nature of support for Trump, including that support for Trump was better predicted by lower verbal ability than education or income. In general, these results suggest that the 2016 U.S. Presidential election had less to do with party affiliation, income or education, and more to do with basic cognitive ability.

## **Attitudes toward presidential candidates in the 2012 and 2016 American elections:**

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Defying almost all polls, pundits, and surprising even his own party, Donald Trump won the 2016 U.S. presidential election. One of the key questions following his victory was who voted for him? News outlets, expert commentators, and a wide range of researchers have subsequently tried to understand and characterize his voters. Two specific factors gained prominence: Income and education. For example, prior to the election, some media gave the impression that Trump supporters were largely blue-collar. While some have questioned the link between these factors and voting for Trump (Carnes & Lupu, 2016; Rothwell & Diego-Rossell, 2016), little to no attention has been devoted to the role cognitive ability might have played in the 2016 election. Drawing on one of the most extensive and representative electoral U.S. samples (the American National Election Studies), the present study directly examined the relationship between cognitive ability and support for Trump.

Investigating a possible connection between cognitive ability and political ideology is not novel. For example, indices of cognitive ability relate negatively (though often weakly) to social conservatism or right-wing authoritarian ideologies (e.g. Carl, 2014a; Choma, Hodson, Hoffarth, Charlesford, & Hafer, 2014; Heaven, Ciarrochi, & Leeson, 2001; Onreat et al., 2015; Stankov, 2009; Van Hiel et al., 2010). However, political ideology is complex and it is often necessary to divide the broader liberal-conservative continuum into at least two dimensions: social and economic/competitive (e.g. Choma, Ashton, & Hafer, 2010; Feldman & Johnston, 2014; Jost et al., 2003; for a summary, see Duckitt, 2001). The need for multiple dimensions might explain findings suggesting a negative relation between cognitive ability and support for income redistribution (Mollerstrom & Seim 2014) and a positive relation between cognitive ability and ‘thinking like an economist’ (i.e. rejecting anti-market, anti-foreign, make-work, and pessimistic beliefs of the economy. See Caplan & Miller, 2010).

Furthermore, there is also some evidence for a U-shaped pattern, in which individuals lower or higher in cognitive ability (*vs.* those with moderate levels) are more politically liberal or left-leaning (Solon, 2014). Carl (2015b) also finds indications for a similar U-shaped pattern with respect to issues concerning economically or racially marginalized groups. However, based on his results and on a review of the literature he concludes that a positive relation between cognitive ability and support for socially liberal attitudes is the most consistent association between the two.

Relying primarily on the WORDSUM measure of cognitive ability, some researchers also considered the relation between cognitive ability and party affiliation. Whereas some contend that cognitive ability is associated positively with support for Republicans (*vs.* Democrats; Carl, 2014b), others argue that there is no meaningful association between verbal ability and party affiliation (Ganzach, 2016). Other research suggests that the pattern of relationship between cognitive ability and party affiliation has changed over time, such that in younger generations there is a stronger impact of cognitive ability on Democratic affiliation (Ganzach, 2017; Meisenberg, 2015). The evidence concerning the relationship between cognitive ability and voting for Democrats versus Republicans, therefore, is mixed. Of particular importance, it is still unclear how cognitive ability relates to voting behavior in the 2016 U.S. Presidential election.

To complicate things even further, support for Trump may represent a unique phenomenon in American politics. Trump's political ideology, for example, draws both from Republican and Democratic ideas; indeed, he garnered votes from supporters of both parties. That said, there are some investigations that provide initial indication that cognitive ability might have played a role in the 2016 U.S. Presidential election. Schram and Fording (2017) found that individuals who intended to vote for Trump scored lower on need for cognition, possessed less political knowledge, and thus were more likely to be swayed by non-factual

information (such as emotional appeals). Motta (2017) showed that anti-intellectualism sentiments and lower belief in experts (on matters such as climate change and nuclear power) related to greater support of Trump. Pennycook and Rand (2017) reported that greater analytical thinking related to lower belief in the accuracy of fake news (identified by snopes.com, an independent fact checker). Finally, Choma and Hanoch (2017) reported an association between right-wing ideological beliefs and favorable attitudes of Trump.

All of these studies focused on individual differences that may be associated with cognitive ability. However, only Choma and Hanoch's (2017) data provide direct information about the relationships between cognitive ability and Trump support. However, they only found a significant relationship for affective evaluation of Trump, not for voting intentions. Furthermore, their results are open to alternative explanations since they relied on a non-representative Mturk sample, did not clearly distinguish between the effects of cognitive ability and education, and did not adequately control for party affiliation and racial identity, which are crucial in accounting for the relationship between cognitive ability and support for presidential candidates (see Meisenberg, 2015 and Ganzach, 2016, respectively).

To deal with these shortcomings we use data from the American National Election Studies (ANES), a large representative sample of American voters, to investigate directly the relation between cognitive ability and support for Trump. Furthermore, in our analyses, we give special attention to comparing the statistical effect of cognitive ability to the effects of income and education. Although both are indicators of socioeconomic status, education also strongly relates to cognitive ability (Deary, Strand, Smith & Fernandes, 2007); thus, by controlling for education we obtain a conservative estimate of the unique contribution of cognitive ability. Additionally, since a large part of the statistical effect of education on political preferences is shared with cognitive ability, whereas only a small part of the effect of income is shared with cognitive ability, a comparison between the effects of education and

income can shed light on the extent to which cognitive versus socioeconomic individual differences affect political preferences. This is particularly important given that socioeconomic differences were the most popular explanations for Trump's success (e.g., Knowles & Tropp, 2018; Navarro, 2017). Finally, as cognitive ability may be associated with political orientation, or with support for conservative versus liberal parties (Kanazawa, 2010), it is important to separate support for Trump from support for the Republican Party in general. Therefore, in our analyses we (1) use party affiliation as a control in most of our models; and (2) compare support for the 2016 and 2012 Republican candidates.

## **Method**

### **Data.**

The data were taken from the 2012 and 2016 waves of the American National Election Studies (ANES; see, <http://www.electionstudies.org/>). The 2012 wave included 5,914 participants, of which 2054 were interviewed face to face and 3860 answered an online survey. The 2016 wave included 4,271 participants, of which 1181 were interviewed face to face and 3090 answered an online survey. Both were random and representative samples of the American voters in the respective years. Interviews were conducted face-to-face (2054 and 1081 for the 2012 and 2016 surveys, respectively) or through the internet (3,860 and 3,090, respectively). In the present research, party affiliation, sex, age, race, income, and education were examined as control variables, and verbal ability was considered as the main predictor variable of attitudes toward Presidential candidates and voting behavior in the 2012 and 2016 elections.

## Measures.

**Cognitive ability.** The 2012 and 2016 surveys included the WORDSUM test of verbal ability as a short measure of cognitive ability. WORDSUM originates from Thorndike's (1942) early research on cognitive ability and cognitive ability testing and includes 10 multiple-choice questions, each asking respondents to identify the word or phrase in a set of 5 whose meaning was closest to a target word. For clarity of presentation, raw scores are converted to the commonly used IQ scale with a mean of 100 and standard deviation of 15. Due to the strong correlation between verbal ability and general cognitive ability, this measure is considered a good indicator of general cognitive ability (i.e., General Mental Ability. See Alwin, 1991; Miner, 1957; Zhu & Weiss, 2005)<sup>1</sup>. Wechsler (1958, p. 85) reports a correlation greater than .80 between overall WAIS score and the WAIS Vocabulary subtest. Miner (1961) concluded that the correlation between 20-word vocabulary tests and general cognitive ability was at least .75. WORDSUM had been used as a measure of cognitive ability in many GSS based studies (e.g., Hauser & Huang, 1997; Kanazawa, 2004), as well as research based on other large national databases (e.g., the American National Election Study; see Brandt, & Crawford, 2016; Carl, 2015a). Wechsler provides a well-known explanation for the validity of tests such as the WORDSUM as measures of cognitive ability: "Contrary to lay opinion, the size of a man's vocabulary is not only an index of his schooling, but also an excellent measure of his general cognitive ability. Its excellence as a test of cognitive ability may stem from the fact that the number of words a man knows is at once a measure of his learning ability, his fund of verbal information and the general range of his ideas" (1958, p. 84).

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<sup>1</sup>We note, however, that there are evidence suggesting that verbal ability is more strongly related to left-wing social attitudes than numerical ability (Onraet et. al., 2015).

**Attitudes toward presidential candidates** were measured by asking participants to rate their feelings toward the candidate (i.e. Romney, Obama, Trump, Clinton) on a 0-100 scale (0 = unfavorable and cold, 100 = favorable and warm).

**Party affiliations** were measured by asking participants to rate their feelings toward each of the two parties on a 0-100 scale (0 = unfavorable and cold, 100 = favorable and warm).

**Voting** was measured by asking participants whether they voted for the Republican candidate (coded as 1) or the Democratic candidate (coded as 0).

**Control variables** were sex (1- female, 0 – male), race (black, Hispanic and white, the comparison group was other race), age (in years), education (years of education), and income (measured in increments of \$5,000 up to an income of \$80,000 and then in larger increments, resulting in a 28 point scale).

## **Results**

### **Descriptive statistics and inter-correlations**

Table 1 presents descriptive statistics and inter-correlations of the 2012 and 2016 variables, respectively. The initial picture that emerges from this table is that the correlation between verbal ability and support for Trump was negative,  $r = -.080$ , but less negative than the correlation for Obama  $r = -.166$ . For Romney and Clinton these correlations were  $r = .075$  and  $r = -.027$ , respectively ( $p < .0001$  for the first three. The last correlation was not significant). However, as Ganzach (2016) showed, relying on zero-order relationships in assessing the relationships between cognitive ability and political attitudes can be rather misleading. For example, he showed that race can make a difference because black Americans, who tend to score lower on cognitive tests than white Americans, mostly vote Democrat, yet white Americans with the very highest scores also tend to vote Democrat (see

also the discussion in Solon 2014, and Carl, 2015b). Education and income, too, can make a difference, the reason being that part of the effect of cognitive ability on right-wing economic preferences is mediated by perceived self-interest on the part of people with higher cognitive ability, who generally have better education and higher incomes. Indeed, the analyses below show that the relationships between verbal ability and support for the 2012 and 2016 presidential candidates change dramatically when appropriate controls are exerted<sup>2</sup>.

### **Preliminary analyses**

We first offer a simplified presentation of our main results by comparing a basic regression model of attitudes toward the Republican candidate in the 2012 and 2016 elections. The results of this model are presented in Table 2. Verbal ability was associated negatively with support for the Republican candidate in both elections. However, its association with support for Trump was stronger than its association with support for Romney (the standardized coefficient of verbal ability was about twice as large in predicting attitude toward Trump than in predicting attitude toward Romney,  $-.161$  vs.  $-.083$ ). Thus, verbal ability appears to be an important predictor of support for Trump. Note, however, that, as shown below, the negative association between verbal ability and support for Romney is largely due to the negative association between verbal ability and support for the Republican Party: When party affiliation is controlled, the negative association between verbal ability and support for Romney, but not for Trump, disappears (see Table 3 below).

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<sup>2</sup>Since the political attitude measures we rely on in the current study are primarily oriented toward specific elections, there are no previous reports about their relationships with verbal ability. However, the ANES includes more general measures of political attitudes, measures that were also collected in other surveys, allowing us to compare the relationships between verbal ability and political attitudes in the ANEs to such relationships in other databases. In Appendix S1 of the supplementary material we describe two such comparisons.



There are some other results of interest in this table. Income was not associated with support for Trump, but it was associated positively with support for Romney (-.003 vs. +.081). Education was associated negatively with support for Trump, but not for Romney (-.114 vs. +.014). These results show that the effect of education, which involves both cognitive and socioeconomic factors, should be separated from the effect of income, which, *ceteris paribus*, involves primarily socioeconomic factors. Whereas in the 2012 election, income was a significant predictor of support for the Republican candidate and education was a non-significant predictor, in the 2016 election, income was non-significant and education was significant, negatively associated with support for the Republican candidate.

One problem with the models in Table 2 is that they do not isolate attitude toward the presidential candidate from attitude toward the party. Although the causal relationship between the two is not clear, a more conservative approach to examine attitudes toward presidential candidates is to control for attitudes toward the party. Thus, in the rest of the paper we control for party affiliation in all our models.

Table 3 presents the results of regression models of attitudes toward each of the four presidential candidates controlling for party affiliation. For Trump, there was a negative association between verbal ability and attitude. For the other three candidates, the association with verbal ability was either positive (for Obama and Clinton) or negligible (for Romney). The difference between the association of education and attitudes toward the candidates was also striking in that education was negatively associated with attitude toward Trump, but positively associated with attitudes toward the other three candidates. These differences are consistent with a general dislike of the more intellectual to the candidacy of Trump. The association between income and attitude toward Trump was non-significant. This finding suggests that it is not the relationship between education and socioeconomic status that underlies the negative effect of education, but the discomfort of the more intellectual to the

candidacy of Trump. Income was also not a significant predictor of attitudes toward Obama or Romney; but was significantly related to attitude toward Clinton. Party affiliation was positively associated with favorable attitude toward each of the candidates. However, this association was notably weaker for Trump than for the other three candidates.<sup>3,4</sup>

We turn now to analyses that focus on differences in the relationship between verbal ability and attitudes toward the four candidates, as well as differences in the relationships of education and income (effects of other demographic variables are discussed in footnotes). We conduct these tests utilizing the combined 2012 and 2016 data in two separate analyses. In the first, we compare attitudes for the same party candidates in different elections. In the second, we compare attitudes of candidates of rival parties in the same election (*competing candidates*).

### **Comparison between same party candidates**

In this analysis, we estimated two models, one for the two Democratic candidates and one for the two Republican candidates. These models analyzed simultaneously the data of same party candidates from both elections. They included a main effect election dummy

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<sup>3</sup>Note that the  $R^2$  of the Trump model (.486) is considerably lower than the  $R^2$  of the models of the other candidates (.686, .672 and .636 for Obama, Clinton and Romney, respectively). This is primarily due to party affiliation having a much weaker effect on support for Trump than on support for the other three candidates ( $\beta$ s of .610, .768, .771 and .762, respectively). Other effects of interest are: Being older significantly predicted favorable attitude toward Clinton, Romney, or Trump, whereas being younger significantly predicted favorable attitude toward Obama. Sex was only a significant predictor for the Republican candidates with men holding more positive attitudes of Romney or Trump than women. Black Americans held more positive attitudes toward Clinton or Obama, and less favorable attitudes of Trump. White Americans held less favorable attitudes toward the Democratic candidates and more favorable attitudes of Trump. Hispanic Americans held more favorable attitudes of Clinton, but less favorable attitudes of Trump. Racial identity was not a significant predictor of attitude toward Romney.

<sup>4</sup>To examine the sensitivity of the results to the type of survey (face to face vs. on line interview) we estimated the models of Table 3 only for the face to face samples. The pattern of the results of these analyses (see Appendix S2 in the supplementary material) was similar to the patterns of the results of the entire samples.

variable (0 for the 2012 election and 1 for the 2016 election), the independent variables of our basic model and, in addition, the interactions of these variables with the election dummy. These interactions test the hypotheses that the effects of our independent variables were different in the two elections. The results of these models are reported in Table 4.

The results reveal significant verbal ability X election and education X election interactions ( $\Delta R^2$  of 0.95% and 1.8%, respectively) in the Republican candidates' model, which represent non-trivial interaction effect sizes (see Aguinis, Beaty, Boik & Pierce, 2005, for a discussion of interaction's effect size). These interactions are associated with the clear negative relationships of verbal ability and education with attitude toward Trump and the weak, non-significant relationships of verbal ability and education with attitude toward Romney, when controlling for party affiliation (see Table 3 and Figure 1). These significant interactions in the Republican candidates' model stand in contrast to the non-significant interactions in the Democratic candidates' model, suggesting that verbal ability and education had very similar associations with attitudes toward the 2012 and 2016 Democratic candidates.

The income X election interaction in the Republican candidates' model was also significant. It was associated with income having a positive relationship with attitude toward Romney and a non-significant relationship with attitude toward Trump. However, this interaction was considerably weaker ( $\Delta R^2=0.35\%$ ) than the verbal ability X election and education X election interactions. Thus, the current data suggest that support for Trump is better explained by the intellectual orientation of his supporters than by their income. (The income X election interaction in the Democratic candidates' model was also significant, but in the opposite direction. This is consistent with high-income voters moving their support between the 2012 and 2016 elections from the Republican to the Democratic candidate.)

Finally, the party affiliation X election interaction was significant in the Republican candidates' model. Affiliation was more strongly associated with attitude toward Romney

than attitude toward Trump. We view this in terms of a more important role of ideology in support for Trump than for Romney. Note that our data also revealed some tendency for a stronger association between affiliation and attitude toward Obama than toward Clinton (the affiliation X election interaction was marginally significant in the Democratic candidates' model), suggesting that the 2016 election was less ideological than the 2012 election.

### **Comparison between competing candidates**

Next, we compare the relationships between our predictors and attitudes toward candidates of rival parties in the same election. As the candidates competed against each other, the appropriate dependent variable is the difference in attitudes between the two candidates, which we label *Competing Candidates Attitude Difference, or CCAD*. This variable was created by subtracting the attitude toward the Democratic candidate from the attitude toward the Republican candidate<sup>5</sup>. In addition, as differences in attitudes are likely to map onto behavior, we use actual voting as a behavioral indicator for the difference in attitudes between the competing candidates.

Table 5 presents models in which CCAD and voting (coded as 1 for voting for the Republican candidate and 0 for the Democratic candidate) are regressed on our predictor variables as well as the gap between the attitudes toward the two parties<sup>6</sup>. It is clear from the

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<sup>5</sup>Another approach to examine differences in attitudes between competing candidates, an approach similar to the approach we took in analyzing the difference in attitudes between same party candidates, is to examine the interactions between our independent variables and a party dummy, where attitudes toward the two candidates is a within subject variable. We prefer the approach described in the text because (1) it directly incorporates the fact that the two candidates compete against each other and (2) it is the attitudinal counterpart of our second behavioral, voting, dependent variable.

<sup>6</sup> We used OLS (linear probability model) rather than logistic regression for modeling voting. One reason was ease of interpretation. Another was that our modeling of voting involved also interaction effects, whose estimates are known to be biased in logistic models (Hellevik, 2007). However, when the dependent variable is approximately evenly distributed around 50%, linear probability models are very similar to logistic models. Indeed, as can be seen

regressions that whereas both verbal ability and education were associated negatively with support for the Republican versus the Democratic candidate in 2016, they did not significantly predict support for one candidate over the other in the 2012 election. This pattern emerged for both CCAD and voting. Income, on the other hand, was significantly associated with support for the Republican over the Democratic candidate in the 2012 election, but was not significantly associated with support for this candidate in the 2016 election. Thus, verbal ability had a significant statistical effect in the 2016 election, but not in the 2012 election, while income had a significant effect in the 2012 election, but not in the 2016 election. The effects of education in the two elections were similar to the effects of verbal ability, suggesting that in our models, education is more of an indicator of cognitive functioning than socioeconomic status.

These different patterns of the effects of verbal ability, education and income on attitudes toward competing candidates is tested in a model that analyses simultaneously the CCAD or voting from both elections. This model adds the interactions between all of our predictors and an election dummy to the main effects<sup>7</sup>. Table 6 presents the results of this interaction model, and Figure 2 depicts the election X verbal ability interaction by plotting the predicted probability of voting for the Republican candidate for low and high verbal ability voters (one standard deviation below and above the mean, respectively)<sup>8</sup>.

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from Appendix S3 in the supplementary material, when modeling our data using logistic models we obtained very similar results.

<sup>7</sup>The results also revealed additional significant interactions associated with Hispanic, Blacks, female and younger people having a less favorable attitude toward the Republican vs. the Democratic candidate in the 2016 than in the 2012 election. Party affiliation was also more important in the 2012 than the 2016 voting.

<sup>8</sup>Note that the voting results reflect a bias in reporting toward younger, minority and female voters (McDonald, 2007). This, however, should not affect the comparison between the 2012 and 2016 elections.

## Discussion

Electing the U.S. president is one of the most important democratic rights people have, with important implications for American citizens and people around the world. Thus, understanding voting behavior in the US has been of key interest to researchers from many fields. Trump's election in 2016 has proven to be a unique phenomenon, in more than one way. Although in analyzing the results of this election, some role was given to individual differences such as right-wing, authoritarian, and populist ideologies (Choma & Hanoch, 2017; MacWilliams, 2016; Rahn & Oliver, 2016; for a discussion see Pettigrew, 2017), the focus on socioeconomic factors has been the main perspective by which these results were understood. We believe that the present work suggests that cognitive ability may be a most basic explanatory variable underlying the apparent effects of socioeconomic variables on support for Trump. It is an important explanatory variable since both left-wing social attitudes (e.g., pro-abortion, pro-immigration, anti-racist) and right-wing economic attitudes (e.g., pro-free trade, opposition to price controls, opposition to redistribution), which are positively associated with cognitive ability (Caplan & Miller, 2010; Carl, 2015a; Mollerstrom & Seim, 2014; Solon, 2014) stand in sharp contrast to Trump's platform.

The present research illustrates the complex relationships between cognitive ability and other key explanatory variables in predicting political preference (see Meisenberg, 2015 and Ganzach, 2016). In our data, basic correlations showed that verbal ability related negatively to support for Trump and for Obama (and more so for Obama), positively to support for Romney, and non-significantly with support for Clinton. However, these relationships are potentially misleading, because they do not account for the role of socioeconomic and demographic variables (Ganzach, 2016), as well as the role of party affiliation. When these variables are controlled for, the effect of verbal ability on support for Trump becomes even more negative, but the effect on support for Obama becomes clearly

positive. Similarly, when the appropriate statistical controls are exerted, the effect of verbal ability on support for Romney becomes non-significant whereas the effect on support for Clinton becomes positive.

The different pattern of relations for Romney versus Trump illustrates the importance of distinguishing between Trump support and Republican Party support. Specifically, verbal ability was not a significant predictor of support for Romney, but it was for Trump.

Education was also a positive predictor of support for Romney (and Obama and Clinton), but a negative predictor of Trump support. Further, whereas higher income predicted Romney support, income did not predict support for Trump. Thus, qualifying previous positions (e.g. Knowles & Tropp, 2018; Nararro, 2017), our analyses indicate that support for Trump was less about socioeconomic standing and more about intellect, i.e. about cognitive ability and education. Another key difference was the relatively stronger predictive role of party affiliation for Romney than Trump. Indeed, party affiliation was of comparable strength for Obama, Clinton, and Romney, but notably weaker for Trump. This effect also explains the greater variance accounted for in the models for Obama, Clinton, and Romney compared to Trump. These findings highlight the (lower) importance of ideology in support for Trump.

A number of caveats should be acknowledged in interpreting the present results. First, these data are correlational and therefore no causation can be inferred. Second, verbal ability was assessed in the present study. While the WORDSUM is a widely used index of verbal ability, it is not the most reliable measure of cognitive ability (Ashenfelter & Krueger, 1994), and it may be affected by education more than other measures. Incorporating several indices of cognitive ability and considering their relation to candidate support would be fruitful for understanding the possible connections between cognitive ability and presidential candidate support. This would also help to appreciate the potential different roles that crystallized versus fluid cognitive ability might play in predicting political variables.

## **Conclusions**

The present analyses reveal that intellectual factors played an important role in the 2016 election. In particular, these analyses suggest that cognitive ability and education played a more important role in the 2016 than 2012 election. In contrast, income played a more important role in the 2012 election. Further, party affiliation was less important in the 2016 than in the 2012 election, an effect which is also consistent with a weaker role of intellectual factors in the 2016 election. In general, the findings suggest that intellectual factors may play a crucial role in political preferences, sometimes even a more important role than socioeconomic factors.



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Figure 1: The difference in the effect of verbal ability on support for Trump and Romney for lower verbal ability (1 standard deviation below the mean) and higher verbal ability (1 standard deviation above the mean).

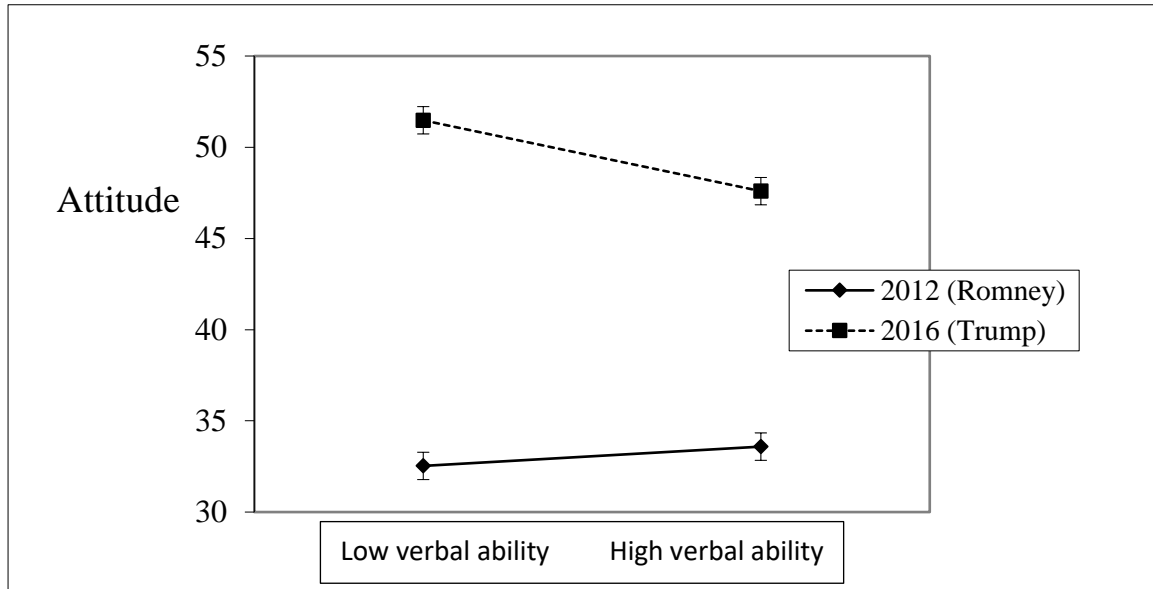


Figure 2: The predicted probability of voting for the Republican candidate for low and high verbal ability voters (one standard deviation below and above the mean, respectively)

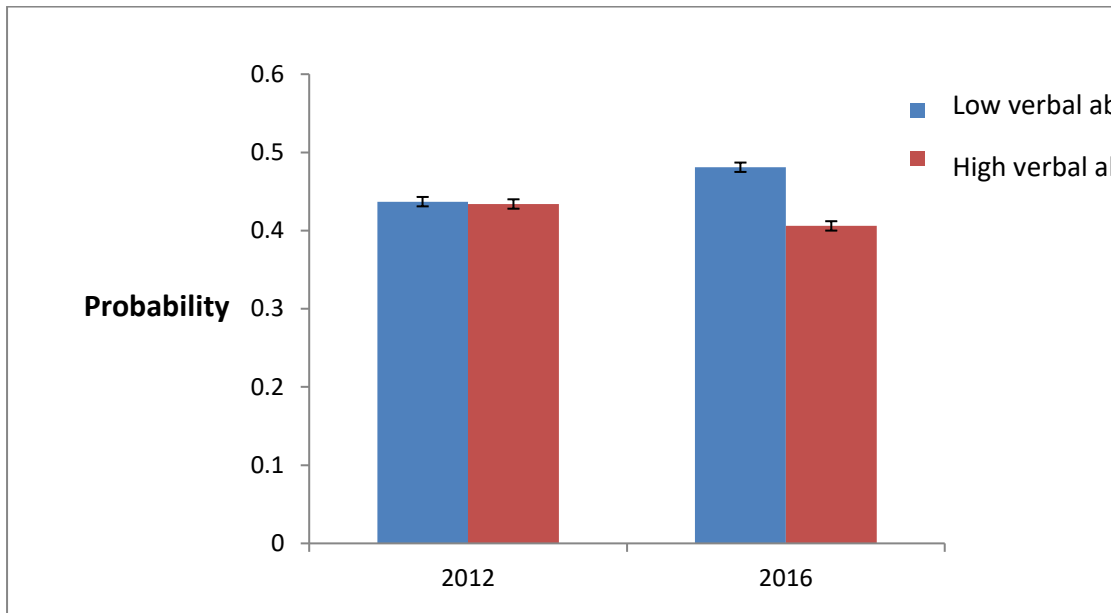


Table 1: descriptive statistics and inter-correlations for 2012 (below diagonal) and 2016 (above diagonal)

	Mean	STD	Mean	STD	1	2	3	4	5	6	7	8	9	10	11	12
	2012	2012	2016	2016												
1. Att. Democratic candidate	54.92	29.23	48.18	30.05	1.000	-0.664	0.809	-0.499	-0.010	0.109	0.294	-0.305	0.148	-0.061	0.035	-0.027
2. Att. toward Republican candidate	42.04	27.82	43.51	27.33	-0.682	1.000	-0.609	0.658	0.125	-0.103	-0.218	0.256	-0.131	-0.007	-0.117	-0.080
3. Att. Democratic party	58.36	34.49	42.15	34.23	0.814	-0.578	1.000	-0.453	-0.057	0.112	0.276	-0.285	0.131	-0.106	-0.011	-0.075
4. Att. Republican party	44.48	30.66	36.95	34.91	-0.595	0.777	-0.520	1.000	0.070	-0.027	-0.190	0.169	-0.056	-0.011	-0.101	-0.106
5. Age	50.62	16.85	49.58	17.58	-0.103	0.147	-0.069	0.079	1.000	0.005	-0.064	0.155	-0.132	0.021	0.005	0.160
6. Sex	1.52	0.50	1.53	0.50	0.087	-0.064	0.117	-0.022	-0.007	1.000	0.043	-0.005	-0.027	-0.127	-0.007	-0.016
7. Black	0.17	0.38	0.09	0.29	0.411	-0.262	0.382	-0.267	-0.054	0.049	1.000	-0.503	-0.110	-0.180	-0.087	-0.190
8. White	0.59	0.49	0.71	0.45	-0.409	0.267	-0.390	0.232	0.184	-0.029	-0.552	1.000	-0.539	0.173	0.137	0.233
9. Hispanic	0.17	0.38	0.11	0.31	0.118	-0.066	0.135	-0.019	-0.152	-0.004	-0.207	-0.548	1.000	-0.087	-0.159	-0.139
10. Income	13.64	8.16	15.39	8.08	-0.144	0.132	-0.165	0.068	0.059	-0.098	-0.166	0.223	-0.117	1.000	0.403	0.317
11. Education	10.63	2.47	11.17	2.32	-0.068	0.061	-0.124	-0.007	-0.013	-0.053	-0.084	0.185	-0.167	0.406	1.000	0.374
12. Verbal ability	0.67	0.24	0.68	0.26	-0.166	0.075	-0.209	0.003	0.195	-0.034	-0.273	0.334	-0.144	0.348	0.413	1.000

Note: For 2012 n varies between 5394 and 5914 depending on missing values. For 2016 n varies between 4069 and 4227.

Table 2: Main effect models of attitudes toward republican candidates (no control for party affiliation)

	Romney			Trump		
	b	stderr	$\beta$	b	stderr	$\beta$
Intercept	35.37***	3.12	0.000	67.64***	3.82	0.000
Age	0.230***	0.025	0.124	0.218***	0.030	0.109
Sex	-2.52*	0.80	-0.041	-6.80***	1.03	-0.098
Black	-15.50***	1.97	-0.186	-23.72***	2.49	-0.200
White	8.85***	1.77	0.140	9.98***	1.91	0.129
Hispanic	-0.476	1.967	-0.006	-12.92***	2.43	-0.113
Income	0.306***	0.056	0.081	0.013	0.073	0.003
Education	0.181	0.191	0.014	-1.71***	0.257	-0.114
<b>Verbal ability</b>	<b>-10.87***</b>	<b>2.03</b>	<b>-0.083</b>	<b>-22.92***</b>	<b>2.39</b>	<b>-0.161</b>
n		5232			3929	
R <sup>2</sup>		.112			.144	

Note: \*\*\* -  $p < .0001$ , \*\* -  $p < .001$ , \* -  $p < .01$ , † -  $p < .05$



Table 3: Main effect models of attitudes toward presidential candidates (controlling for party affiliation)

	Democratic candidates						Republican candidates					
	Obama			Clinton			Romney			Trump		
	b	stderr	$\beta$	b	stderr	$\beta$	b	stderr	$\beta$	b	stderr	$\beta$
Intercept	5.48	2.15	0.000	-17.62	2.37	0.000	-3.74	2.05	0.000	19.80	3.13	0.000
Party affiliation	0.91***	0.01	0.768	0.88***	0.01	0.771	0.84***	0.01	0.762	0.78***	0.02	0.610
Age	-0.07***	0.02	-0.035	0.09***	0.02	0.045	0.13***	0.02	0.071	0.14***	0.02	0.070
Sex	-0.66	0.54	-0.010	1.49	0.64	0.022	-1.98***	0.52	-0.032	-6.29***	0.81	-0.091
Black	8.19***	1.34	0.088	10.21***	1.55	0.088	-1.97	1.28	-0.024	-10.06***	1.96	-0.085
White	-4.80***	1.19	-0.068	-3.31*	1.18	-0.043	2.38	1.14	0.038	6.32***	1.50	0.081
Hispanic	-0.26	1.31	-0.003	5.59**	1.50	0.050	-0.68	1.26	-0.008	-8.42***	1.91	-0.073
Income	-0.07	0.04	-0.016	0.07	0.04	0.017	0.16***	0.04	0.043	-0.01	0.06	-0.003
Education	0.52***	0.13	0.037	0.59***	0.16	0.040	0.47***	0.12	0.037	-0.92***	0.20	-0.061
<b>Verbal ability</b>	<b>6.28***</b>	<b>1.35</b>	<b>0.043</b>	<b>5.85***</b>	<b>1.47</b>	<b>0.042</b>	<b>1.38</b>	<b>1.31</b>	<b>0.011</b>	<b>-8.73***</b>	<b>1.90</b>	<b>-0.061</b>
n		5225			3887			5210			3868	
R <sup>2</sup>		.686			.672			.636			.486	

\*\*\* - p<.0001, \*\* - p<.001, \* - p<.01, † - p<.05

Table 4: Interaction models of differences in attitudes toward same party candidates

	Democratic candidates		Republican candidates	
	b	stderr	b	Stderr
Intercept	5.476	2.162	-3.739	2.381
Election	-23.09	3.196	23.54	3.602
Party affiliation	0.911	0.010	0.844	0.011
Age	-0.072	0.017	0.132	0.019
Sex	-0.656	0.546	-1.980	0.601
Black	8.191	1.350	-1.965	1.482
White	-4.803	1.193	2.377	1.323
Hispanic	-0.258	1.321	-0.676	1.461
Income	-0.068	0.038	0.161	0.042
Education	0.522	0.128	0.470	0.143
Verbal ability	6.277	1.363	1.385	1.521
Affiliation x Election	-0.032 <sup>†</sup>	0.015	-0.067 <sup>***</sup>	0.017
Age x Election	0.160 <sup>***</sup>	0.025	0.007	0.028
Sex x Election	2.149 <sup>†</sup>	0.834	-4.307 <sup>***</sup>	0.919
Black x Election	2.012	2.043	-8.095 <sup>**</sup>	2.251
White x Election	1.489	1.670	3.938 <sup>**</sup>	1.851
Hispanic x Election	5.851 <sup>†</sup>	1.989	-7.744 <sup>**</sup>	2.204
Income x Election	0.142 <sup>†</sup>	0.058	-0.175 <sup>†</sup>	0.064
Education x Election	0.071	0.202	-1.393 <sup>***</sup>	0.225
<b>Verbal ability x Election</b>	<b>-0.424</b>	<b>1.992</b>	<b>-10.119<sup>***</sup></b>	<b>2.237</b>
n	9113		9079	

R<sup>2</sup>

.695

.569

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Note: Each model analyzes simultaneously the data of same party candidates from both elections. Election was coded as 0 for the 2012 election and 1 for the 2016 election. \*\*\* -  $p < .0001$ , \*\* -  $p < .001$ , \* -  $p < .01$ , † -  $p < .05$

Table 5: Differences between competing candidates

	CCAD						Voting					
	2012			2016			2012			2016		
	b	stderr	$\beta$	b	stderr	$\beta$	b	stderr	$\beta$	b	stderr	$\beta$
Intercept	-11.26	3.13	0.000	27.67	4.08	0.000	0.423***	0.039	0.000	0.650***	0.048	0.000
Attitude gap	1.01***	0.01	0.839	1.02***	0.01	0.789	0.007***	0.000	0.748	0.007***	0.000	0.757
Age	0.18***	0.03	0.051	0.02	0.03	0.005	0.001*	0.000	0.027	0.001**	0.000	0.046
Sex	-0.71	0.81	-0.006	-6.65***	1.10	-0.053	0.016	0.010	0.016	-0.021	0.012	-0.022
Black	-4.88 <sup>‡</sup>	2.01	-0.030	-13.12***	2.70	-0.061	-0.052 <sup>‡</sup>	0.025	-0.041	-0.097 <sup>†</sup>	0.031	-0.058
White	5.23 <sup>†</sup>	1.78	0.042	7.30**	2.05	0.052	0.066 <sup>†</sup>	0.022	0.065	0.064 <sup>†</sup>	0.025	0.055
Hispanic	0.50	1.97	0.003	-11.61***	2.61	-0.056	-0.042	0.025	-0.030	-0.057	0.032	-0.031
Income	0.18 <sup>†</sup>	0.06	0.024	-0.13	0.08	-0.016	0.002 <sup>†</sup>	0.001	0.034	-0.001	0.001	-0.008
Education	-0.03	0.19	-0.001	-1.18***	0.27	-0.043	-0.004	0.002	-0.019	-0.009 <sup>†</sup>	0.003	-0.042
<b>Verbal ability</b>	<b>-3.12</b>	<b>2.04</b>	<b>-0.012</b>	<b>-9.61**</b>	<b>2.58</b>	<b>-0.037</b>	<b>-0.004</b>	<b>0.025</b>	<b>-0.002</b>	<b>-0.127***</b>	<b>0.029</b>	<b>-0.059</b>
n	5208			3845			3783			2402		
R <sup>2</sup>	.767			.710			.645			.663		

Note: CCAD (Competing Candidates Attitude Difference) is the difference in attitudes between the two candidates in the same election (thus a positive value of CCAD indicates being more favourable toward the Republican candidate). Voting was coded as 1 [0] if the participant voted for the Republican [Democratic] candidate. Attitude gap is the difference between attitude toward the Republican and Democratic party, positive values indicate more support for the Republican party. \*\*\* -  $p < .0001$ , \*\* -  $p < .001$ , \* -  $p < .01$ , <sup>‡</sup> -  $p < .05$

Table 6: Differences between competing candidates – interactions with election

	CCAD		Voting	
	b	Stderr	b	stderr
Intercept	-11.62	4.00	0.423	0.039
Election	40.73	6.35	0.227	0.062
Attitude gap	1.04	0.01	0.007	0.000
Age	0.17	0.03	0.001	0.000
Sex	0.60	0.98	0.016	0.010
Black	-3.37	2.52	-0.052	0.025
White	7.09	2.27	0.066	0.022
Hispanic	0.39	2.53	-0.042	0.025
Income	0.10	0.07	0.002	0.001
Education	0.00	0.24	-0.004	0.002
Verbal ability	-4.71	2.54	-0.004	0.025
Party-affiliation. X Election	0.03 <sup>‡</sup>	0.02	0.000	0.000
Age x Election	-0.10 <sup>‡</sup>	0.05	0.001	0.000
Sex x Election	-5.66 <sup>**</sup>	1.58	-0.038 <sup>‡</sup>	0.015
Black x Election	-9.23 <sup>‡</sup>	4.06	-0.045	0.040
White x Election	-2.46	3.41	-0.002	0.033
Hispanic x Election	-10.97 <sup>*</sup>	4.13	-0.015	0.040
Income x Election	-0.21 <sup>**</sup>	0.11	-0.003 <sup>‡</sup>	0.001
Education x Election	-1.35	0.39	-0.005	0.004
<b>Verbal ability x Election</b>	<b>-8.43<sup>‡</sup></b>	<b>3.95</b>	<b>-0.123<sup>*</sup></b>	<b>0.038</b>
n	9053		6185	

R<sup>2</sup>

.742

.653

Note: CCAD (Competing Candidates Attitude Difference) is the difference in attitudes between the two candidates in the same election (thus a positive value of CCAD indicates being more favourable toward the Republican candidate). Voting was coded as 1 [0] if the participant voted for the Republican [Democratic] candidate. Election was coded as 0 for the 2012 election and 1 for the 2016 election. Attitude gap is the difference between attitude toward the Republican and Democratic party, positive values indicate more support for the Republican party. \*\*\* -  $p < .0001$ , \*\* -  $p < .001$ , \* -  $p < .01$ , † -  $p < .05$