

The Electoral College and Voter Participation: Evidence on Two Hypotheses

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This paper empirically investigates the impact of the electoral college on voter participation rates across states. Two hypotheses are tested. The first argues that in states where either the Democratic or Republican party strongly dominates the other, voter participation rates are reduced the greater the degree of domination. The second states that in states where neither party overwhelmingly dominates the other, the smaller the majority of the dominant party over the minority party, the greater the voter participation rate. (JEL D70, D72)

Introduction

Under the U.S. Constitution, the electoral college system establishes a process by which would-be or actual voters in any given state know that they can vote only indirectly for candidates for the presidency. Given rational voting behavior, it is argued in this paper that, first, because of the electoral college system, the incentive to vote is diminished in those states where voters perceive or expect that their votes are less likely to have a potential impact on the outcome. Whereas, second, the incentive to vote is increased in those states where voters expect or perceive that their votes are more likely to affect the outcome. The former perception is most likely to manifest itself in those states where the composition of voters is such that the state is overwhelmingly Democratic or overwhelmingly Republican. It is hypothesized (in Hypothesis 1) that the electoral college system acts to reduce voter participation in such circumstances.¹ The second perception is most likely to be manifested in those states where there is proximal parity between the major political parties. It is hypothesized (in Hypothesis 2) that the electoral college system acts to increase voter participation in this circumstance.

This paper empirically investigates Hypotheses 1 and 2. In the second section, a very simple framework is provided to elucidate Hypotheses 1 and 2 and then to identify the variables in the empirical analysis. The third and fourth sections provide the empirical analysis with evidence derived from the voter participation rates in the 1996 presidential election. Findings are summarized in the fifth section.

A Simple Framework

It is argued here that the probability that a rational voter will vote depends on the expected net benefits of voting, *ENBV* [Downs, 1957; Riker and Ordeshook, 1973; Cebula, 1983]. In

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turn, the latter is an increasing function of the expected gross benefits of voting, $EGBV$, and a decreasing function of the expected gross costs of voting, $EGCV$:

$$ENBV = f(EGBV, EGCV) \quad . \quad (1)$$

This formulation is consistent with the position postulated by Buchanan and Tullock [1962, p. 120] that the individual "...is assumed to be motivated by a desire to further his own interest, to maximize his expected utility..." In this study, the expected gross benefits of voting for the office of president depend upon the expected net marginal value of casting a vote for the same.

H1: If an eligible Republican voter, R, resides in a predominantly Democratic state, he may regard the marginal value of his vote for president as approaching zero, as the degree to which the state of legal residence is predominantly Democratic rises.

In other words, R perceives that if he resides in a predominantly Democratic state, there may exist such a large Democratic majority in the state as to clearly nullify the value of his vote. Indeed, as the degree of Democratic dominance in the state increases, R perceives the marginal value of his vote for president as declining and approaching zero. Clearly, in the absence of the electoral college, that is, under direct election of the president by popular vote, individual R would regard his vote as having a marginal value independent of the political party dominance circumstance in his state of legal residence. In any event, it is hypothesized that given that the value of $EGCV$ is positive, the rational R voter residing in a predominantly Democratic state becomes less likely to vote as the Democratic majority rises. Furthermore, if an eligible Democratic voter, D , resides in that same state, he regards his vote for president as less necessary or even unnecessary since it is expected that in such a predominantly Democratic state, there are likely to be more than enough Democratic votes to carry the state's electoral votes (therefore, a free-rider behavior is manifested [Hyman, 1990, p. 194]). Thus, the $EGBV$ for D approaches zero the more predominantly Democratic the state is. Given that for D the value of $EGCV$ is positive, the likelihood that D will vote declines as the Democratic predominance in the state rises. Similarly, in a predominantly Republican state, the D and R voters are also both less likely to vote as the Republican party dominance increases. Hence, it is hypothesized that because of the electoral college system in a state where one political party strongly dominates the other, the voter participation rate is reduced, with that reduction being greater with the greater the degree of party dominance.

H2: In a given state where parity or at least proximal parity exists between the major political parties, neither party dominates the other.

An eligible Republican voter, R , in this state might reasonably take the view that since neither the Republican nor the Democratic party is clearly dominant over the other, the electoral votes from the state are indeed "up for grabs" and that the election outcome for the state's electoral votes could be determined by a relatively narrow margin of votes. Similarly, an eligible Democratic voter in the same state also might take the view that since neither the Republican nor Democratic party is clearly dominant over the other, the election outcome for the state's electoral votes could easily be determined by a relatively modest margin of

votes. In such a state, both the *R* and *D* voters expect that their votes have a positive marginal value. Hence, *R* and *D* voters alike tend to assign a positive value to their respective *EGBV*. Accordingly, although for both *R* and *D* the value of *EGCV* is non-zero, it nonetheless follows that the incentive to vote is greater in this environment than in one where party dominance exists. Therefore, it is hypothesized that because of the electoral college system, the incentive to vote, hence the voter participation rate, is increased in states where there is parity or proximal parity between the dominant political parties.

Other Considerations

Naturally, the electoral college is but one of many factors that may determine voter participation.² Presumably, any analysis of the voter participation effects of the electoral college must allow for such potential influences as the percentage of the population over age 65 (that is, retired or more likely to be retired), income, education, and poverty status.

Presumably, retired persons are likely to perceive higher values for *ENBV* because they are so profoundly affected by so many government policies and programs, especially since at least some nontrivial portion of the income for the majority of retirees' incomes is largely fixed. Issues such as Social Security, Medicare, inflation, oil prices, and so forth have sufficient potential impact as to create the expectation that voting among this group can yield tangible benefits. Furthermore, since most persons over the age of 65 are at least semi-retired, the lost income that might result from taking the time to vote (which is part of this demographic group's *EGCV*) is typically very modest. By contrast, persons with higher incomes often may be in circumstances where voter participation imposes costs in terms of foregone income. To the extent that this is true, the higher the voter's income, the lower the voter participation rate, *ceteris paribus*. On the other hand, the higher the educational attainment of the population, the greater the perceived benefits from participating in the democratic process of voting. Indeed, the very education process itself reinforces the inherent social value of being actively involved in the election process. To the extent that this is the case, the greater the education level of the population, *ceteris paribus*, the greater the *ENBV*, hence the greater the voter participation rate. Finally, for that segment of the population that is impoverished, the *EGCV* may be substantial. This increased *EGCV* might manifest itself because the means to get to the polls can be limited by lack of transportation access and increased personal and financial costs of transit access (which may include childcare costs, among other things). Moreover, for the poor, a lack of knowledge of how to maximize benefits from exercising the right to vote along with an attitude of hopelessness with the system might reduce the value of *EGBV*. Hence, the greater the percentage of a state that is impoverished, the lower the voter participation rate, *ceteris paribus*.

Testing Hypothesis 1

Based on this framework, it follows that the voter participation rate, *VPR*, in states with either a Democratic or Republican dominant political party is a decreasing function of the degree of the Democratic or Republican dominance, *DOM*, income levels, *INC*, and the percentage of the state's population that is poor, *POOR*. On the other hand, it is expected that this *VPR* is an increasing function of the level of educational attainment, *EDUC*, and the percent of the population that is age 65 and older, *AGE65*. Thus:

$$VPR = g(DOM, INC, POOR, EDUC, AGE65) \quad (2)$$

Based on (2), the following reduced-form equation is to be estimated:

$$VPR_j = a + bDOM_j + cINC_j + dPOOR_j + eEDUC_j + fAGE65 + U \quad (3)$$

where VPR_j is the voter participation rate in state j in the 1996 presidential election, as a percentage; a is the constant term; DOM_j is the degree of either Democratic or Republican party dominance in state j , as proxied by the percentage of the members in the state senate that was either Democratic or Republican in 1996 (only those states where $DOM_j > 60$ percent are included in the sample ($j = 1, \dots, 31$)); INC_j is the median income in state j in 1996; $POOR_j$ is the 1995 percentage of the population in state j that was at or below the federally defined poverty level; $EDUC_j$ is the percentage of the population residing in state j that had completed at least a bachelor's degree as of 1996; $AGE65$ is the (estimated) percentage of the population in state j that was age 65 or older in 1996; and U is the stochastic error term.³

Using the White [1980] correction for heteroskedasticity, the ordinary least squares estimate of (3) is provided in column A of Table 1. In column A, three of the five estimated coefficients are statistically significant at the 5 percent level or beyond with the expected sign, whereas two exhibit the expected signs but are not significant. The coefficient of determination is 0.38 so that the model explains nearly two-fifths of the variation in the voter participation rate across states. Finally, the F-ratio is significant at the 3 percent level.

TABLE 1
Testing Hypothesis 1

| Variables | A | B | C | D |
|-----------|-----------------|-----------------|-----------------|-----------------|
| Constant | 72.5 | 81.7 | 73.9 | 68.4 |
| DOM_j | -0.121 (-2.65) | -0.120 (-2.58) | -0.152 (-3.91) | -0.145 (-3.58) |
| INC_j | -0.0007 (-2.36) | -0.0007 (-2.60) | -0.0004 (-1.94) | -0.0005 (-2.56) |
| $POOR_j$ | -0.509 (-1.24) | -0.530 (-1.34) | | |
| $EDUC_j$ | 0.519 (2.47) | 0.520 (2.51) | 0.570 (2.88) | 0.598 (3.27) |
| $AGE65_j$ | 0.092 (0.15) | | 0.310 (0.56) | |
| R^2 | 0.38 | 0.38 | 0.33 | 0.38 |
| F-ratio | 2.95 | 3.83 | 3.08 | 4.12 |

Notes: The t-values are in parentheses.

The estimated coefficient on the income variable, INC_j , is negative and significant at the 3 percent level. As previously hypothesized, this outcome implies that the higher the median income level in a state, the lower the voter participation rate. The estimated coefficient on the poverty variable, $POOR_j$, while negative, fails to be significant at even the 10 percent level. Thus, this factor appears to be of little influence in terms of the voter participation rate. On the other hand, the coefficient on the education variable, $EDUC_j$, is positive (as expected) and significant at the 2 percent level. Thus, it appears that the greater the proportion of a state's population that has attained at least an undergraduate college degree, the greater the state's voter participation rate. As for the age variable, $AGE65$, the coefficient is positive but not statistically significant. Thus, it seems that the percent of a state's population that is age 65 or older has little impact on the voter participation rate in that state.

Of greatest interest in terms of the objective of this study is the result for DOM_j . The estimated coefficient on this variable is negative and significant at the 3 percent level. Thus, it appears that in states where the percentage of the state senate is more than 60 percent Republican or more than 60 percent Democratic, the voter participation rate is smaller the greater the degree of dominance by the majority party. To the extent that DOM_j is a suitable and efficient proxy for political dominance in a state of either party over the other, it follows that there is strong empirical support for Hypothesis 1.

To test for robustness of these findings, three alternative versions of the basic model were estimated. These results are provided in columns B, C, and D of Table 1. In all cases, the education variable remains robust, and for the most part, the income variable also remains robust. Meanwhile, the poverty and age variables remain insignificant. From the perspective of this study, of greatest interest is the consistent robustness of the political dominance variable. Indeed, in two of the estimates, those in columns C and D, the estimated coefficient is negative and significant at the 1 percent level. Thus, Hypothesis 1 would appear to have received strong empirical support.

Testing Hypothesis 2

To test Hypothesis 2, the same basic model is adopted as in (3) but with two modifications. First, the model is applied only to those states, of which there are 19, where the dominant political party in the state senate possesses less than a 60 percent majority. This procedure is dictated by the very nature of Hypothesis 2 itself. Second, to conform to the content of Hypothesis 2, DOM_j is replaced by a new variable, MAJ_j . The latter variable measures the value of the difference between the percent representation of the dominant (majority) party, whether Republican or Democratic, and the percent representation of the minority party, whether Democratic or Republican. According to Hypothesis 2, the smaller this difference, that is, the more "up for grabs" the state is during a presidential election, the larger the voter participation rate in the state should be.

The ordinary least squares estimate of (3) with these modifications, using the White [1980] correction for heteroskedasticity, is provided in column A of Table 2. Following the pattern in Table 1, three alternative versions of the basic equation are provided in columns B, C, and D of Table 2. As shown in Table 2, the results for $POOR_j$, $EDUC_j$, and $AGE65_j$ parallel those in Table 1. On the other hand, the results for INC_j are not significant, in sharp contrast to the negative and significant coefficients on this variable in Table 1. However, of

greatest relevance from the viewpoint of this study, in all cases, the coefficients on MAJ_j are negative and statistically significant at the 5 percent level. This implies that, *ceteris paribus*, in those states where neither political party strongly dominates the other, the smaller the margin between the majority party and the minority party, the greater the voter participation rate. Thus, it appears that there is empirical support for Hypothesis 2.

TABLE 2
Testing Hypothesis 2

| Variables | A | B | C | D |
|-----------|----------------|------------------|----------------|---------------|
| Constant | 30.5 | 84.1 | 44.1 | 51.8 |
| MAJ_j | -0.47 (-2.39) | -0.44 (-2.58) | -0.520 (-2.48) | -0.45 (-2.23) |
| INC_j | 0.00007 (0.18) | -0.00003 (-0.09) | 0.0008 (0.09) | 0.0008 (0.20) |
| $POOR_j$ | -0.77 (-0.60) | -0.86 (-0.88) | | |
| $EDUC_j$ | 0.27 (2.85) | 0.28 (2.89) | 0.300 (2.98) | 0.27 (2.75) |
| $AGE65_j$ | 0.29 (0.61) | | 0.704 (1.32) | |
| R^2 | 0.50 | 0.50 | 0.41 | 0.36 |
| F-ratio | 2.94 | 3.45 | 2.84 | 2.83 |

Notes: The t-values are in parentheses.

Conclusion

This paper has empirically investigated two hypotheses regarding the potential impact of the electoral college system during presidential election years. Focusing upon the results from the 1996 presidential election, empirical support for both hypotheses is obtained. Thus, there is evidence that in states where one political party strongly dominates the other, the voter participation rate is lower the greater the degree of domination. In addition, there is evidence that in states where neither political party strongly dominates the other, the voter participation rate is higher, as the degree of parity between the two parties increases, that is, as the degree of dominance declines. Both of these sets of results can be interpreted as verifying the rational voter model since the voting decision is treated in effect as being determined by the perceived marginal net value of voting.

It should be noted that these results are not sensitive to the use of majority size in the state senate as a proxy for party dominance. Indeed, very similar results are obtained if majority size in the state house is used as the proxy for party dominance.

Two final, albeit obvious, observations are in order. First, the electoral college appears to distort voting behavior during presidential election years because the pattern of voter participation is altered from what likely would have been observed under direct election of

the president. Second, to the extent that voting behavior, that is, voter participation, in nonpresidential election years is conditioned by voter participation during presidential election years, the electoral college may also distort voting participation in general.

Footnotes

1. See a related argument in Hyman [1990, p. 194] and Cebula [1983].
2. For work related in principle to this perspective, see the recent empirical studies by Matsusaka and Palda [1999] and Greene and Nikolaw [1999].
3. The data source for the following variables is the U.S. Census Bureau: *VPR*, [2000b], *DOM*, [1997, Table 454], *INC*, [2000a], *POOR*, [1998, Table 761], *EDUC*, [2000c], and *AGE65*, [1997, Table 33].

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