

## Now more than ever, your vote doesn't matter.

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Public-choice scholars have long argued that voting is instrumentally irrational because the probability that a single vote will change the outcome of an election is nearly zero. Dennis Mueller made the point well when he noted that "the probability of being run over by a car going to or returning from the polls is similar to the probability of casting the decisive vote. If being run over is worse than having one's preferred candidate lose, then this potential cost of voting alone would exceed the potential gain" (1989, 350). (1) Did the U.S. presidential election of 2000 prove such voting skeptics wrong?

Certainly, no platitude was repeated more often in the wake of the election than the declaration that "this event should remind every citizen that his vote matters." The small margin in the Florida counts and recounts in favor of presidential candidate George W. Bush might seem to validate such a declaration. Even a cursory examination of the election data by anyone familiar with public-choice scholarship, however, indicates that the assertion is an overstatement. First, only Florida's twenty-five electoral votes and its six million voters might be said to have been decisive to the outcome of the U.S. presidential election of 2000. The votes of the other ninety-nine million voters were not decisive. Moreover, no rendering of the Florida count, either real or speculative, has ever indicated that the election turned on a single vote. Thus, notwithstanding the pundits' refrain, election 2000 provides no evidence that the League of Women Voters' admonition that "your vote matters" is any more accurate now than it ever was.

Nevertheless, the U.S. presidential election of 2000 does raise a number of institutional issues about vote counting that deserve attention. First, the experience shows that the mechanism by which an individual vote might matter differs from the mechanism described in the literature. Second, it shows that because of the recount mechanism--which is fraught with procedural, legal, and human uncertainties--any individual vote counts even less than public-choice theory itself recognizes.

The Mechanics of a Single Vote's Mattering: The Literature Diverges

Whether "an individual vote matters" is usually considered by asking whether an individual's vote for a candidate generates or breaks a tie. If the number of voters is even, an individual's vote matters only if it creates a tie. However, generating a tie does not change the outcome of an election in favor of a candidate; rather, it simply increases the probability that the candidate will ultimately

be declared the winner. For example, suppose a tie will be broken by a fair coin toss. Then, an individual's vote increases his preferred candidate's probability of winning from 0 to 0.5. Correspondingly, if the number of voters is odd, one person's vote matters if it breaks a tie and thereby raises the probability that a preferred candidate will be declared the winner from 0.5 to 1.0.

The public-choice literature contains debate about the statistical probability of a vote's mattering. Gordon Tullock's (1967) initial exploration of the issue was interpreted as implying that  $1/N$  is an appropriate estimate of this probability, where  $N$  is the number of voters. Beck (1975) advanced another method to calculate the odds that a single vote would matter, which was subsequently adopted by Howard Margolis (1977), G. Owen and B. Grofman (1984), Dennis Mueller (1989), and Geoffrey Brennan and Loren Lomasky (1993). In Beck's formulation, the probability of a vote's mattering rises considerably above  $1/N$  if the ex ante expectation of an election outcome is a tie, but it falls to much less than  $1/N$  if the election is not perceived to be close. A. J. Fischer (1999) has criticized Beck's approach and suggested a method previously advanced by I. J. Good and L. S. Mayer (1975) and by Gary Chamberlain and Michael Rothschild (1981). The result that method yields can differ from the result that the Beck method yields by as much as an order of magnitude.

### Institutional Issues

The preceding formulations of the odds of a vote's mattering ignore several institutional factors exposed by the U.S. presidential election of 2000. First, an individual vote's creating or breaking a tie is not the means by which a vote matters, because if a tie (or single-vote margin) results from an election, a recount will ensue. The way a vote matters must be respecified. To develop a more accurate version of how a single vote might have efficacy, let  $m$  be the margin of an election that triggers a recount. (2)

Consider a special case in which the number of voters is  $N = 100,000$ , and assume there are two candidates, A and B. Let the representative voter be an A voter, and let  $m = 1,000$ . Suppose votes for A are 49,500 and votes for B are 50,500, so that a recount is declared. In this case, the representative voter for A mattered in that his vote was crucial in placing the initial count within the recount margin. Had the representative A supporter not voted, then the recount margin would not have been triggered. The vote for A therefore increases the probability that A will win from zero to some positive number.

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However, if A obtains 50,500 votes and B 49,500--again triggering a recount--the representative A voter does not matter. Had the representative A voter not voted, then A's margin would simply have declined to 999, and a recount still would have ensued. (3) The upshot is that when the number of voters is even, an individual's vote matters only if it triggers a recount for his preferred candidate.

The mechanics change slightly if N is odd. Let  $N = 100,001$  and  $m = 1,000$ . In this case, if A obtains 49,501 votes and B 50,500, then the vote of the representative A supporter does not matter because the recount would have been triggered in the absence of his vote. (4) If, however, A obtains 50,501 votes and B 49,500, then the vote of the representative A supporter matters because a recount would have been triggered in the absence of that vote. The vote raises the probability of A's being declared a winner from less than one, to one. Therefore, when the number of voters is odd, an individual vote matters only if it eliminates a recount to the benefit of the preferred candidate.

Clearly, an individual's vote definitely does not matter in the case of a tie (N is even) or in the case of a single-vote margin (N is odd) because in either case the recount process will certainly be triggered in the absence of the individual's vote.

### Recount Scenarios

A vote matters because it triggers or prevents the triggering of a recount. What happens in the case of a recount? All we can say is that great uncertainty attends recounts. The presidential election of 2000 brought this uncertainty into the limelight as various "irregularities" became apparent. In a number of Florida counties, recounts led to significant vote shifts. The world watched as election officials pondered the arcane issue of whether a dimpled or hanging chad counted as a vote. Both partisan camps made attempts to intervene in the legal process; each camp made attempts to include vote pools that would favor its candidate and to exclude vote pools that would not. Ultimately, the election outcome was determined by bickering lawyers and judges.

Two conclusions are suggested by the experience. First, if both candidates have the resources necessary to pursue the legal challenges and the machinations of a recount process, then the expected outcome of a recount must be considered uncertain. Although entering a recount with a lead or deficit would seem to tip the odds in favor of or against the candidate, recall the mechanism by which an individual voter is decisive. Let  $v$  equal the probability that the candidate who is behind in the initial count by exactly  $m$  will eventually win the election. We can speculate that  $0.5 > v > 0$ . If N is even, the representative voter for A tips

the balance by triggering a recount when A was behind, raising A's odds of winning from zero to  $v$ . If N is odd, the representative voter for A tips the balance by avoiding a recount, raising A's odds of winning from  $1-v$  to 1. Because the odds of N being odd or even are essentially fifty-fifty, it is clear that the probability of the underlying vote's mattering--in the sense of triggering or avoiding a recount--is  $1/N$  using the simple Tullock measure of the odds of a vote's mattering.

Second, the experience of election 2000 indicates that there is some probability that a cast vote might not count in either an initial vote count or any subsequent recount. If this probability is considered to be  $k$ , where  $1 > k > 0$ , then the decisiveness of any vote is reduced further. In the simple case, it becomes  $(1 - k)(1/N)$ . A vote that is not counted cannot matter. The risk that a vote will not be counted because it is lost or destroyed in the counting process or because it is excluded for technical or political reasons must lower the probability of its mattering. The message of election 2000 is clear: now more than ever, your vote does not matter!

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(1.) Mueller (1989) points out that many commentators have used the auto-accident analogy. The first to do so was B. F. Skinner.

(2.) The variable  $m$  constitutes the threshold margin at which a recount will take place in any given election. This margin likely varies among elections, kinds of contests, and candidates. It may be greater (but presumably not less) than the legal margin at which an automatic recount is generated.

(3.) Note, further, that if A obtains 50,501 votes and B 49,499 votes, then the vote of the representative A supporter does not matter because no recount would ensue in the absence of his vote.

(4.) If A obtains 49,500 votes and B 50,501, then the vote of the representative A supporter does not matter because no recount will be triggered in the absence of that vote.

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