



## Why votes have value: Instrumental voting with overconfidence and overestimation of others' errors



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### ABSTRACT

We perform an experiment in which subjects bid for participating in a vote. The setting precludes conflicts of interests or direct benefits from voting. The theoretical value of participating in the vote is therefore zero if subjects have only instrumental reasons to vote and form correct beliefs. Yet, we find that experimental subjects are willing to pay for the vote and that they do so for instrumental reasons. The observed voting premium in the main treatment is high and can only be accounted for if some subjects either overestimate their pivotality or do not pay attention to pivotality at all. A model of instrumental voting, which assumes that individuals are overconfident and that they overestimate the errors of others, is consistent with results from treatments that make the issue of pivotality salient to experimental subjects.

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## 1. Introduction

A longstanding literature investigates when and why people value participation in a vote, especially when they seem to have only a negligible impact on the outcome.<sup>1</sup> Moreover, it is still open to debate whether purely instrumental reasons can explain why people often incur costs in order to vote. Alternatively, non-instrumental reasons such as expressive motives or a civic duty may be necessary to account for why people vote. To address these questions, we experimentally elicit the willingness to pay for a vote in a setting where conflicts of interest are absent, information is symmetric, and direct benefits from voting are negligible. Hence, we measure the willingness to pay for a vote when it should be zero. We thereby contribute to a lively debate in the literature about whether the instrumental approach to voting, as adopted in the pivotal voter model, is sufficient to explain the high turnout rates often observed in reality.<sup>2</sup> Indeed, both in political

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<sup>1</sup> This debate goes back to Downs (1957) and Tullock (1967). See also Friedman (1995) and Green and Shapiro (1994), pp. 47–48.

<sup>2</sup> As Ferejohn and Fiorina (1974) put it: “The question is (...) whether the principal explanation of the voting act is found in its investment aspect or its consumption aspect. If it is in the former, then one type of rational choice model is appropriate. If in the latter, another theory – the theory of consumer choice – is relevant.” A prominent example of instrumental explanations of voting is the pivotal-voter model of Palfrey and Rosenthal (1983), which relies on conflicts of interest in a political setting. The notion of non-instrumental voting goes back at least to Fiorina (1976) who credits Butler and Stokes (1969)

elections (see Matsusaka and Palda, 1993) and votes on worker representation (see Farber, 2010), turnout is so high that it becomes difficult to rationalize why individuals are willing to incur costs in order to vote.<sup>3</sup> For shareholder votes, the value of the voting right is reflected in stock market data and has been shown to be substantial (Adams and Ferreira, 2008).

The literature addresses the challenges to the pivotal voter model in different ways. One strand proposes explanations that are based on alternative models of preferences, in particular expressive motives and other-regarding preferences.<sup>4</sup> Another strand of the literature postulates that individuals overestimate their probability of being pivotal.<sup>5</sup> In this paper, we show that individuals value participating in the vote even though their motives are purely instrumental and their impact on the outcome is small. They pay a significant premium in order to vote if and only if the *outcome* of the vote affects their payoffs, even though their *participation* in the vote has only a negligible impact. To explain this seemingly paradoxical result, we suggest that individuals are overconfident in that they underestimate their own probability of making mistakes, while they overestimate the error rates of others. In addition, a significant minority of the experimental subjects seems to be inattentive to the relevance of their pivotality and therefore willing to overpay for the vote.

Our experiment is framed as shareholder voting and designed in a way that leaves little room for direct benefits from voting. Shareholder voting provides a natural context for implementing a common interest setting and for eliciting individuals' willingness to pay for participating in a vote. Our experiment considers a firm with two classes of shares that are auctioned off at the beginning. One class of shares votes and the other class does not vote. After observing a public signal about the quality of the current manager, those experimental subjects who bought the voting shares decide on the replacement of the manager. The quality of the manager in charge after the vote determines the size of a dividend that is paid out to all shareholders. Non-voting shares receive exactly the same dividends as voting shares and information is symmetric.

We develop several benchmark solutions of the game and assume instrumental voting throughout. We begin by assuming that subjects make no errors when they vote and when they predict their own and other subjects' behavior. Subsequent solutions successively relax this assumption. Hence, the starting point is that subjects make no errors and therefore all make the same choices in equilibrium. As a result, they are pivotal with probability zero, attach no value to voting, and the premium for voting shares is zero. In a second step we apply the Quantal Response Equilibrium model (QRE) of McKelvey and Palfrey (1995, 1998), in which individuals make random mistakes and follow strategies that are best responses in such a context. In this model, the probability of being pivotal becomes strictly positive. However, as long as all subjects have the same error rates and these are the same for all individuals, the voting premium subjects should pay in equilibrium is still zero, because they have the same preferences. Positive probabilities of being pivotal by themselves are therefore insufficient to generate a willingness to pay for the vote.

The first two benchmark solutions we consider predict that there should be no voting premium in equilibrium. However, our experimental subjects do attach a significant value to participating in the vote. We therefore analyze the possibility that individuals may have non-instrumental motivations to vote and conduct two control treatments in which voting does not affect payoffs. We find no significant voting premium in these treatments and conclude that subjects value their participation in the vote for purely instrumental reasons. We therefore need to reconcile instrumental voting with individuals' willingness to pay for a vote in a setting in which standard assumptions predict that a voting premium should not exist.

Our point of departure is the QRE model. We introduce overconfidence by assuming that individuals believe that only the other participants in the game make mistakes. In this model we obtain a voting premium, but it is orders of magnitude smaller than the voting premium in our experimental data. The reason is that a single shareholder is pivotal only with a relatively small probability, so even an overconfident shareholder should not be willing to pay much for participating in the vote. Overconfidence by itself is therefore insufficient to explain our results.

Next, we also assume that subjects overestimate the probability that other subjects make mistakes in the voting stage of the game. The level- $k$  model of Stahl and Wilson (1995) and Nagel (1995) nicely captures both, overconfidence and overestimating the errors of others. As a consequence, individuals can legitimately assume higher probabilities of being pivotal in this model than in the QRE model with overconfidence. Accordingly, we find that this model is able to explain much higher voting premiums than the QRE model with overconfident players. It can even explain the entire premium in some of our experimental treatments.

The results for the level- $k$  model are promising, because overconfidence together with an overestimation of the errors of other players can explain a significant portion of the voting premium. However, this explanation relies on individuals making counterfactual assumptions about the errors of other players and about their own errors. In all previous treatments

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with the distinction between instrumental and non-instrumental explanations and refers to the "older tradition" in political science (i.e., the tradition preceding Downs, 1957) as supporting a non-instrumental view of voting. The "D-term" in Riker and Ordeshook (1968) is generally thought to capture (unspecified) non-instrumental reasons to vote.

<sup>3</sup> Farber (2010) finds turnout rates between 80% and 95% for votes among employees in U.S. private sector firms on whether or not they want to be represented by a union. Similar rates (between 75% and 80%) are observed for elections of worker representatives in German private sector firms (see Böckler Impuls 16/2006, [http://www.boeckler.de/32014\\_84303.html](http://www.boeckler.de/32014_84303.html)).

<sup>4</sup> For an early formalization of the expressive voting theory, see Brennan and Hamlin (1998). Tyran (2004) extends this theory and provides an experimental test. Feddersen et al. (2009) provide experimental evidence for expressive ethical motivations of voters that increase with electorate size. Höchtel et al. (2012) experimentally show that fairness preferences motivate rich voters to vote for redistribution. Morton and Tyran (2012) provide evidence from internet lab experiments that voters exhibit instrumental ethical motivations.

<sup>5</sup> Already Riker and Ordeshook (1968) argue that voters may overestimate their pivot probability. There is still little experimental evidence on this claim. One notable exception is the contribution of Duffy and Tavits (2008).

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