Equilibrium and efficiency in an organized vote market

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Abstract. We study an organized market for votes, in which trade is directed by a market "specialist". This market mechanism always produces an equilibrium outcome, and whenever vote buying occurs the alternative chosen is Pareto superior to the alternative that would be chosen without trade. We then characterize the equilibrium outcomes in a one-dimensional policy space, and show that if the distribution of ideal points is skewed enough, then the equilibrium with vote buying differs from the equilibrium without vote buying (the median ideal point). This difference reflects the ability of an intense minority to obtain a policy it prefers in exchange for side-payments.

1. Introduction

Vote trading and vote buying are often proposed as ways to improve majoritarian collective decisions, by allowing such decisions to reflect the relative intensity of different voters' preferences in and across issues. Also, many observers of legislatures and other collective decision making bodies believe that vote trading and vote buying are widespread phenomena, and that something akin to vote markets exists. Two natural questions to ask about such markets are: (1) what observed collective decisions or behavior can be explained by vote buying or vote trading that cannot be explained by simple majoritarian voting alone; and (2) what are the normative properties of vote markets, and in particular, how efficient are the outcomes produced by such markets compared to those obtained under simple majority voting?

To answer these questions, we need plausible models that predict the likely outcomes of a vote market. As previous work has shown, however, this is a nontrivial problem: most of the existing results in the literature are negative, demonstrating the nonexistence of vote buying or vote trading equilibria (e.g., Park, 1967; Kadane, 1972; Bernholtz, 1973, 1974; Ferejohn, 1974; Schwartz, 1977, 1981; Shubik and Van der Heyden, 1978; Weiss, 1988).

One difficulty with decentralized vote markets is the following. Suppose a
legislature must choose between one of two proposals. If legislators are able to buy and sell votes, and the price at which votes trade is strictly positive, then any legislator holding a vote that does not affect the voting outcome will want to sell his vote. This will be true, for example, of any legislator on the losing side of the issue. However, no one will want to buy the vote, precisely because it does not affect the outcome. Thus, at any positive price, there will be excess supply of votes. On the other hand, if votes are free, there will be excess demand.

In this paper, we study an organized market for votes, in which trade is directed by an intermediary, or market specialist. This mechanism overcomes the problem above, and given a choice between any pair of alternatives, always produces an equilibrium outcome. Whenever vote buying occurs in equilibrium, the policy chosen is different from the policy that is preferred by a majority without trade. Moreover, in such cases the outcome is Pareto superior to the outcome that would occur without trade. Importantly, the intermediary needs relatively little information in order to perform his tasks.

We then extend the vote buying mechanism to collective decision making over a one-dimensional policy space, in order to characterize equilibrium policy outcomes. Our notion of equilibrium is a straightforward extension of the majority-rule equilibrium concept, similar to that used in previous work (e.g., Snyder, 1991). We show first that if legislators' preferences over policies are strictly concave, then there always exists an equilibrium policy. If the distribution of legislators' most-preferred policies is symmetric enough, then introducing vote buying has no effect; the equilibrium with vote buying is equal to the median of the most-preferred policies, and therefore coincides with the policy that would be obtained in the absence of vote buying. On the other hand, if the distribution of most-preferred policies is skewed enough, then the vote buying equilibrium is not the median. The difference between the vote buying equilibrium and the policy most preferred by the median voter reflects the ability of an intense minority to obtain a policy it prefers in exchange for private payments.

Second, since the equilibrium policy with vote buying depends on the skewness of the distribution of most-preferred policies, as well as the median, it is possible to test for the presence and importance of vote buying in some settings. For example, suppose the policy space consists of levels of government spending (tax rates are fixed), and voters' preferences over spending can be written as increasing functions of their incomes. If two communities have the same median income, but one community's income distribution is more heavily skewed than the other's, then the equilibrium level of public spending with vote buying will typically be higher in the community with the more heavily skewed distribution. Without vote buying, however, the equilibrium level of spending in the two cities would be the same, as implied by the median-voter theorem.