Unidimensional Voting And Multidimensional Issues:

The Role Of Interest Groups

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Abstract: According to Downs, voting on unidimensional issues will produce equilibrium outcomes if voter preferences are single peaked. While the equilibrium outcomes would not necessarily be Pareto optimal, they would be stable. This paper shows that voting on multidimensional issues can produce stable equilibria if the voting occurs in one "super" ideological dimension. However, interest groups that expect to lose the ideological vote have an incentive to disrupt the voting process by arguing that the voting should not be ideological. (JEL D70)

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1. Introduction

Social choice theory has produced important insights into issues of voting rules and the collective outcomes of voting regimes. While social choice models of voting have produced advances in our understanding of how and why particular outcomes occur when different voting rules are employed, they have not provided a compelling theoretical framework from which contemporary social issues can be solved by aggregating voter preferences.

The purpose of this paper is to examine the literature on voting rules and dimensional issues and to show why such rules are not adopted. Specifically, this paper will show that groups that have the most to lose if the issue is voted on unidimensionally will have an incentive to adopt strategies that circumvent voter preference aggregation mechanisms.

2. Voting Rules and Multiple Issue Spaces

In the simple case in which voting issues are defined unidimensionally, social choice theory has shown that a majority rule produces an equilibrium under the condition that voter's preferences are single-peaked within the dimension the issue is defined (Black, 1948; see Enelow and Hinich, 1984, for a proof).

When more complex voting issues are subjected to a simple majority voting rule, preference orderings could lead to voting cycles so that no socially-optimal equilibrium can be found. Indeed, one of the most difficult issues facing a democratic society concerns the problem of determining voter preferences to multidimensional concerns. This does not imply the non-existence of a voting equilibrium in multidimensional spaces, however. Davis, DeGroot, and Hinich (1972), and later Enelow and Hinich (1984), described the necessary and sufficient conditions for the existence of a dominant point under majority rule for issues that are defined over multiple dimensions. The conditions are that a median must exist in all directions relative to the true dominant position. Kramer (1973) argues that a majority of voters with identical preferences will produce an equilibrium outcome under a majority voting rule. Similarly, Niemi (1969) and Tullock and Campbell (1970), and Williamson and Sargent (1967) find that the likelihood of cycles declines as the number of voters with single-peaked preferences and the proportion of voters with similar preferences increases. Thus, homogeneity assumptions on voter preferences are usually adopted to increase the probability of reaching a dominant majority position.

The restrictions necessary to ensure a majority rule equilibrium are so extreme that they make the likelihood of reaching a dominant point improbable. Generally, the probability of voting cycles increases as the dimension of the issue space increases (See Niemi, 1969, and Plott, 1976).

While discussions on the relative probabilities of majority rule equilibria or cycles occurring are important theoretically, they do not describe the specific mechanism by which dominant positions are actually achieved. The problem of selecting appropriate voting rules for multidimensional issues is analogous to that of determining the existence of a core in a Coasian game of allocating property rights. In the special case in which there are two individuals and one externality, when transaction costs are zero the allocation of initial endowments is independent of any specific *a priori* assignment of property rights (Coase, 1960; see also Hoffman and Spitzer, 1982 and 1986). However, when a third party is added to the allocation game and there exists more than one source of externalities, there is no reason to expect that the assignment of property rights will not affect the final allocation of endowments in an attempt to alleviate the externality. Even when there are no transaction costs, the assignment of property rights will substantially alter to final outcome of the game when a single, unique allocation rule is adopted. Only when a separate allocation rule is adopted for each externality, when bargaining for the rule is independent of the bargaining for the other allocation rules, and when transaction costs are zero, will there be an efficient allocation of initial endowments and determination of a core (Aivazian and Callen, 1981; see also Mueller, 1989, pp. 31-35).

The Coasian game suggests that one possible solution to solving the problem of voting cycles occurring when multidimensional issues are involved is to vote one dimension at a time. By voting within each dimension separately, an equilibrium can be achieved. While a voting method of this type will lead to equilibrium outcomes, however, the outcomes themselves may not be Pareto optimal (Slutsky, 1977). In fact, a series of majority votes within each dimension could lead to outcomes that everyone unanimously dislikes. Moreover, the possibility of logrolling may produce voting cycles depending on the order in which each particular dimension is placed in the voting sequence (see Mueller, 1989). Generally, there are no accepted mechanisms for ensuring that a stable, Pareto-optimal outcome will result from reducing the multidimensional problem to a series of unidimensional ones.

Downs (1957) suggested that uncertainty as to the preferences of voters could lead candidates to formulate unidimensional, ideological positions within which multidimensional issues are moved. In this way voting can be reduced to a single issue space, and the well-known median voters theorems can be applied to determine equilibrium outcomes. Downs argued that within the ideological space, parties that did not possess the median position would not be elected. Thus, he expected a convergence of ideologies. However, casual observation suggests that parties do not converge at a single ideological position. Nor do voters consistently vote along party lines (Kalt and Zupan, 1984). This suggests, as with the case above in which issues are voted on one dimension at a time, that non-Pareto or non-equilibrium outcomes could occur.

3. Multidimensional Issues and Political Agendas

While the Downsian model has been frequently applied to the problem of studying the outcomes of voting behavior, its applicability to real world phenomena has been challenged due to unrealistic assumptions (see Wittman, 1977). Nevertheless, the Downsian model does present a useful frame of reference for understanding the way in which some interest groups respond to voting on multidimensional issues.

Consider the case in which voters are to decide the extent to which women are allowed legally to have abortions. By voting at one dimension at a time, administrators could, for instance, provide a vote on whether to ban abortions or whether to allow them. If voters choose to allow abortions, voting would continue to determine whether to allow it in cases of rape, etc. However, as suggested above, such a voting mechanism may lead to voting cycles or Pareto inferior solutions.

An alternative, as suggested by Downs, would be to place the issue of abortion in some ideological dimension, and then vote in that one single "super" dimension. For instance, the issue of abortion can be linked to other "similar" ideological concerns such as women's rights, privacy, etc. This would remove the possibility of logrolling when voting along several dimensions and produce an equilibrium (albeit not necessarily a Pareto optimal one). Using the abortion example, one would expect that during the period of "campaigning" before the voting actually takes place, advocates for and against abortion would claim their positions are part of a larger ideological issue, such as the "right of choice" or the “right to life.” By doing so they attempt to possess an ideological median the majority of the electorate prefers in order to produce a unique voting equilibrium. Indeed, interest groups that expect a majority of voters to favor their ideological positions will have an even stronger incentive to argue that issues that are multidimensionally complex are in reality part of a single, ideological position.

What if one advocating group, in an attempt to claim the ideological median, was universally viewed by the rest of the voting population to be far from the median -- that is, the group could not credibly argue that it held the median position of the ideological vote. Suppose also that the this was mutual knowledge (the group and the rest of the voters know this). Because the group knows that they could not win their position in a single majority vote, it has an incentive to "disrupt" the unidimensional nature of the voting issue by introducing an issue that "splinters" the single ideological space. For example, suppose the abortion rights group feared that an ideological vote would not produce an outcome in their favor. The group could argue that while freedom of choice is paramount, abortion does not lend itself to the ideological space of choice because it also involves women’s issues, doctor-patient privileges, etc. If the group could credibly and successfully reintroduce a new dimension in the voting agenda, then the disadvantaged group may increase its chance of winning a popular vote by splintering the voting electorate’s preferences.

The point is that in cases in which candidates or interest groups cannot credibly possess the median ideological position, they have an incentive to complicate the voting process in an attempt to increase their respective chances of winning a majority vote (or to reduce their opponent’s chance of winning). This suggests that interest groups will adjust their rhetoric by moving in and out of ideological debates depending on their perceived view of the voting public’s preferences.

4. Conclusion

According to Downs, voting along a single dimension would produce a stable equilibrium. This paper has shown that multidimensionally complex issues can be resolved by voting if the issues are circumscribed into one single “super” dimension. Diverse interest groups representing many different issues will have an incentive to claim a part of the single ideological dimension if voters are expected to approve the ideological position. Interest groups that expect to lose the vote, however, have an incentive to splinter the single unidimensional issue by claming their position does not fit the ideology or that the ideology is misguided. This has the effect of reducing the possibility that voters will reach a stable equilibrium by introducing the problems of cycling and Pareto suboptimality inherent in multidimensional issues.

While this paper presented no formal model, it attempts to illustrate the problems that may occur in formulating mechanisms that are created to aggregate voter preferences. Until now, very little research has been devoted to studying disadvantaged interest group behavior under various voting conditions. The closest has been the agenda control literature in which institutions and agendas are manipulated to produce desired outcomes (see, for instance, McKelvey, 1976; Ordeshook and Palfrey). Clearly, social choice theory can be advanced by determining more rigorously the conditions under which interest groups affect the issue space, and the mechanisms by which they are able to accomplish this.

Game theory provides one possibility. Conceptually, one can think of this tactic as an attempt to move off, and credibly commit to staying off, a Nash equilibrium path in a sequence of binary voting contests.

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