

Chapter 2

Calculus of Consent



Abstract We discuss the problem of selecting a decision rule in the simplest possible setting involving dichotomous choice situations. The starting point is individual utility maximization under two types of cost-constraints: one resulting from the collectivity making decisions against the interests of the generic individual and the other associated with resources that are needed to garner enough support for the passage of motions that are in the individual's interest. Our point of departure is the classic decision making calculus envisaged by Buchanan and Tullock.

2.1 Introduction

One of the classics of modern public choice theory is Buchanan and Tullock's (1962) *The Calculus of Consent*. True to the spirit of public choice, it looks at the problem of rule choice from the angle of an individual participant in a fictitious situation where no collective decision making mechanism exists. Each of the n individuals is assumed to be rational in the narrow sense of maximizing his/her (hereinafter his) expected utility. No assumptions regarding the utility of the various outcome states (elected alternatives) are made. Rather, the collective choices are assumed to be costly for each individual. Hence, the rationality in choosing rules amounts to minimizing the cost involved in applying the rule. For this one has to be able to associate an expected cost for each decision rule.

2.2 Individualism and Unanimity

Buchanan and Tullock's account of political constitutions is radically individualistic. As such it may be even more useful in the study of the principles guiding the choice of rules in settings where a purely instrumental role is assigned to the rules. One obvious way to choose rules would be to simply pick those that best serve the public interest. This way is, however, rejected by Buchanan and Tullock because of its explicit reference to the collectivistic notion of public interest. Whatever com-

Table 2.1 Pairwise majority comparisons may lead to Pareto suboptimal outcomes

Voter 1	Voter 2	Voter 3
A	D	B
B	C	D
D	A	C
C	B	A

parisons between rules are made have to based on individuals, their preferences and beliefs, according to the individualistic approach. A constitutional arrangement can be considered an improvement over another just in case all individuals judge it to be in their interest to replace the latter with the former. So, public interest is in fact reduced to individual interests and the standard of comparison of rules is based on the unanimity rule. The reasons for this standard are two-fold. Firstly, the rule of unanimity enables us to avoid interpersonal comparisons of utilities. If all individuals deem one constitutional arrangement an improvement over another, we can judge the former preferable to the latter without assuming any other than purely ordinal information about individual utilities. Secondly, the unanimity rule avoids the infinite regress regarding the choice of rules of choice since – it is argued by Buchanan and Tullock (1962, p. 15)

...it is clear that if all members of a social group desire something done that is within their power, action will be taken regardless of the decision rule in operation.

On closer inspection the latter reason for unanimity rule is not correct since it can happen that pairwise comparisons with the simple majority rule may lead to outcomes judged unanimously inferior to some others that have been voted down in earlier pairwise comparisons. For the general result, see (McKelvey 1979), and for a fictitious example involving only four alternatives, see (Nurmi 1983, 196). The latter is reproduced in Table 2.1. The preferences of the three voters (or of three groups of roughly equal size) over four alternatives – *A*, *B*, *C*, *D* – are presented so that the higher up in the list an alternative is placed, the more preferred it is for the voter. Suppose that the agenda of pairwise comparisons is: (i) *B* versus *D*, (ii) the winner of (i) versus *A*, and (iii) the winner of (ii) versus *C*. Suppose furthermore that each voter votes according to his preference in each pairwise comparison and that the winner is always the alternative receiving more votes than its contestant. Then *B* defeats *D* in ballot (i), *A* defeats *B* in (ii) and finally *C* beats *A* in (iii). Upon looking at Table 2.1 we see that the *C* is Pareto dominated by *D*. Hence, Pareto criterion is violated.¹ We shall return to this subject later on in this book. The point here is that – in contrast to what Buchanan and Tullock suggest – not all voting rules result in Pareto undominated outcomes, at least not in all environments.

¹The Pareto criterion amounts to the following requirement on choices regarding any pair of alternatives *X* and *Y*: if all individuals strictly prefer alternative *X* to alternative *Y*, then *Y* is not elected.

2.3 The Cost Calculus

The distinctive feature of Buchanan and Tullock's analysis of the constitutional choice problem is the individual utility calculus. A membership in a collectivity exposes the individual to external costs, viz. costs that the individual incurs as a result of the activities of others. Over these costs the individual has no control. The other type of cost results from the individual's active participation in the collective activity. These are called decision making costs. They are associated with coming to an agreement within the collectivity which the individual belongs to.

The two types of costs play a central role in the constitutional choice. To wit, each constitutional arrangement is assumed to be associated with some amount of expected external and decision making costs to each individual. The simple setting that Buchanan and Tullock focus upon is one where each constitution is essentially a collective decision making rule. In fact, it is reduced to a single number, viz. the amount of individuals needed to support a motion in the collective decision making body for it to pass, i.e. to become the collectively binding decision. Obviously, the setting applies to dichotomous (yes-no) voting situations only. Even so, how is it possible to associate a cost or benefit for any individual in any constitution?

The basic assumption is that both external and decision making costs, when summed up, constitute a function that a rational individual aims at minimizing. The summands are assumed to vary from one individual to another. Yet, some general features of the costs can be discerned. First, external costs are presumably at a minimum when no collective action can be taken without the consent of the individual under consideration. The only decision rule that guarantees this is unanimity: if the consent of all individuals is needed for launching collective action, then also the individual under scrutiny has to agree on the action. Hence, the individual whose main concern is to minimize the chance of being overtaken by the action taken in the name of the collectivity can be expected to support the unanimity rule. On the other hand, the external costs can be expected to be at the maximum when any single individual can launch the collective action in the name of the collectivity. Between the minimum and maximum cost, the subjective views of the individual enter the picture, but some qualitative observations can still be made. One can envision that, if unanimity is not a feasible rule, the next best rule in minimizing the external costs is the $n - 1$ one which requires that at least $n - 1$ out of n individuals have to support a motion. This guarantees the individual that – while possible – collective action against his interest requires the consent of all other members of the collectivity. In similar way one may envision that the external cost minimizing individual will always support more inclusive rules against less inclusive ones. Graphically, the external cost function is monotonically decreasing function of the size of the support required for collective action. Within this general qualitative characterization, subjective attitudes and beliefs can be expected to cause variations in the individual external cost functions.

Similarly, the decision making costs would seem to have a 'natural' maximum point, viz. the rule which requires unanimity for collective action to ensue. This follows from the fact that in order to launch collective action on an issue that has

significance for him, the individual needs to convert all other members of the group to his side on the issue. The more people he has to persuade, the more time and possibly other resources are needed to accomplish this. On the other hand, if any one member can launch collective action, i.e. the decision rule is one out of n , then there are no decision making costs at all as the individual may act in the name of the collectivity without consulting others. Between these extreme values the decision making cost may vary between individuals. It seems reasonable, though, to assume that it is monotonically increasing with the decision rule: the larger the number of people required for collective action to ensue, the higher the cost of decision making.

Given these two types of costs, it is then straightforward to argue that a rational individual supports the rule where the sum of the costs are minimal for him. Indeed, the sum of costs makes it possible to construct a preference ranking of decision rules for each individual. If the cost functions are identical for all individuals, we can expect that the cost minimizing decision rule be unanimously selected. The assumption of identical cost functions is, however, extremely strong. Not only do individuals differ in the costs assigned to decisions related to any given issue (economic efficiency vs. environmental quality, efficiency vs. equality in resource allocation, public vs. private provision of health and/or education, etc.), but they may also have different expectations regarding the frequency of various types of issues entering the agenda of decision making. Also the salience of the issues typically differs between individuals. Hence, more likely than not, individuals differ in cost minimizing decision rules. How then should one proceed in selecting the collectively binding decision rule?

This crucial issue is all but ignored by Buchanan and Tullock. In a situation where everybody involved knows that there are joint gains to be had through collective action *vis-a-vis* individual decentralized activities, there is a presumption that the individuals get together to outline decision rules to be applied in the future in similar situations. This suggests that in the 'original situation', i.e. before any collective action, the possibility of joint gains could be made by unanimity since everyone expects to benefit from collective action. The specific decision rule that each individual then supports in the forthcoming decisions regarding the collective action can be whatever is unanimously accepted. Under the highly unrealistic assumption that each individual's vision of external and decision making costs under any given rule is identical, there is a rule that is supported by all individuals in paired comparison against any other rule. As said, however, this is an unrealistic assumption. It then follows that in more realistic circumstances it is likely that no decision rule gets a unanimous support against all other rules in pairwise contests. What we learn from Buchanan and Tullock are the intuitively plausible principles that a rational individual has in mind when pondering upon the rules he supports in joining collective action. To wit, he considers the costs incurred by him in case the collective action is taken against his interests and juxtaposes these with the costs of bringing about collective action that furthers his interests.

For the purposes of the present work we can largely overlook the first stage of this two-stage process where the individuals first decide to join a collectivity in order to guarantee the provision of some collective goods, and then decide which particular amount of support is required to launch collective action to produce the collective

goods. We can assume that there is a unanimous support for forming of the group or organization. Since unanimous support in this stage exists, could one then resort to the same rule in the second stage, i.e. in deciding whether collective action is warranted under specific circumstances? For individuals stressing the minimization of external costs, this would be welcome, but in general unanimity rule would create an enormous status quo bias. Hence, because of the high decision making costs unanimity rule is rarely resorted to. On the other hand, less than simple majority rules – although associated with relatively small decision making costs – are infeasible for they are bound to result in inconsistent decisions since of two mutually exclusive motions both could receive enough support to pass. This kind of outcomes are clearly unenforceable. Thus, in practice most decision making bodies resort to rules that require at least 50% but less than 100% support for motions to pass. Next we focus on the majority rule which for many commentators is viewed as a basic constituent of democracy.

2.4 Topics for Further Reflection

1. Buchanan and Tullock's view on the choice of rules emphasizes individual rationality. In your opinion, is this the proper way to analyze and evaluate collective decision rules?
2. Compare Buchanan and Tullock's fictitious original situation with the one introduced and elaborated by Rawls (1971) in his classic work on social justice.
3. Do you agree with Buchanan and Tullock in including external and decision making costs as the primary considerations in choosing the decision rule?

2.5 Suggestions for Reading

Calculus of Consent was a starting point of an extensive research program and the original focal point of the public choice scholarly community. The main later works of Buchanan are (Buchanan 1991a,b). Mueller (2003) provides a comprehensive overview of the public choice tradition. Pettit (2002) represents a more general philosophical approach to the problems of rules, norms and constitutional order.

References

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