

## **Disaggregating external costs in *The Calculus of Consent***

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### **Abstract**

The *Calculus of Consent*, by James M Buchanan and Gordon Tullock, puts forth a generalized economic theory of constitutions, within which the object of constitutional design is the minimization of expected interdependence costs. Interdependence costs are comprised of decision-making costs and external costs. My thesis is that the category of external costs includes very dissimilar types of costs, including unrealized potential benefits of collective action, the costs of unfavorable collective action, and redistributive costs, resulting from side payments associated with bargaining within the democratic process. An examination of the very different characters of these dissimilar costs is necessary for a full appreciation of Buchanan and Tullock's constitutional model.

The Calculus of Consent, by James M Buchanan and Gordon Tullock, puts forth a generalized economic theory of constitutions, within which the object of constitutional design is the minimization of expected interdependence costs. Interdependence costs are comprised of decision-making costs and external costs. Both of these cost categories are depicted as being a function of the proportion (or number) of individuals required to take collective action, that is, the inclusiveness of the decision making rule. A key element of constitutional design, therefore, is the selection of the decision making rule that minimizes interdependence costs for the type of collective decision under consideration. Buchanan and Tullock depict decision-making costs monotonically increasing with the inclusiveness of the decision-making rule, with presumably prohibitive decision-making costs for a rule requiring unanimous consent. Similarly, they depict the external cost function as monotonically decreasing with the inclusiveness of the decision-making rule, with zero external costs for a rule of unanimity. My argument is that the monotonically decreasing character of the external cost function is inconsistent with the nature of external costs, as they define them. The interdependence cost function, central to their model, should therefore be more nuanced than the simple U-shaped curve depicted in the text.

Buchanan and Tullock acknowledge differing types of external costs in their model. They distinguish between allocational externalities and redistributive externalities (p. 197-8). Allocational externalities result from the failure to allocate resources in a manner that maximizes net social benefits. Redistributive externalities are those associated with transfers between members of the polity. Both of these categories, as

treated by the authors, however, include dissimilar costs which should not be casually lumped together.

Interdependence costs in their model are the sum of external and decision-making costs. Since the authors explicitly exclude the decision-making costs of individuals making up their own minds (p. 68), decision-making costs can only occur when two or more individuals must come to an agreement to take collective or cooperative action. Atomistic decision-making involves zero decision-making costs. Decision-making costs then monotonically increase as the proportion (or number) of individuals required to take action increases, reaching a maximum at a rule of unanimity. I do not take issue with this portion of their model.

To construct a model where decision-making costs can be directly added to external costs, however, the authors introduce an innovation in the construction of the external costs function. They explain their innovation as follows (p. 44, emphasis in the original):

An orthodox or standard approach would perhaps be that of taking the situation characterized by no collective action as the zero or starting point and then comparing the expected benefits from collective action with the expected costs, the latter being measured in terms of production sacrificed in the private sector. This approach would have the advantage of being familiar to the economist who tends, professionally, to think in benefit-cost terms. The orthodox approach does not, however, lend itself well to a comparative evaluation of different methods of organizing activity. If we wish to compare collective organization with private organization, and especially if we want to analyze various collective decision-making rules, we need, even at the conceptual level, some means of comparing the *net* direct costs of collective action with *costs of organization* itself, that is, with *the costs of organizing decisions collectively*, a key variable in our analysis. It would be possible to use net direct gains, which could be defined as the difference between the benefits expected from collective action and the direct costs. On this basis, we could construct a “gains” or “net benefit” function, starting from a zero point where no collective action is undertaken...

We propose to adopt, instead of this, a “cost” approach in our subsequent analysis of collective action. That is to say, we propose to consider collective action as a means of reducing the external costs that are imposed on the individual by purely private or voluntary action. This is identical with the net-gains approach except for the location of the zero or starting point.

In this construction, external costs are present in the form of unrealized potential gains from collective action, as well as the more familiar external costs where one party’s actions impose costs on others. These are two very different kinds of costs, in a manner quite relevant to their model. External costs include familiar Pigouvian externalities, which I will call costs of action, as well as an unfamiliar form of external costs, the foregone benefits of collective action, which I will call costs of inaction. A variety of examples of costs of inaction are presented as they develop their model, including the failure to provide adequate police or fire protection, the failure to pool common resources (oil fields), and the failure to provide adequate traffic controls. In fact, prior to their formal introduction of the external costs function in chapter 6, the majority of their examples of external costs are costs of inaction. The external costs function is then presented (p. 64) as:

$$C_i = f(N_a), i = 1, 2, \dots, N$$

$$N_a \leq N$$

where  $C_i$  is defined as the present value of the expected costs on the  $i$ th individual by the actions of individuals other than himself, and where  $N_a$  is defined as the number of individuals, out of the total group  $N$ , who are required to agree before collective action is taken.

The problem arises in the depiction of the external cost function as monotonically decreasing with  $N_a$ . For the familiar external costs of action, this would seem correct, and

a graph of the external costs of action would be as shown by the authors in the text (p. 70).

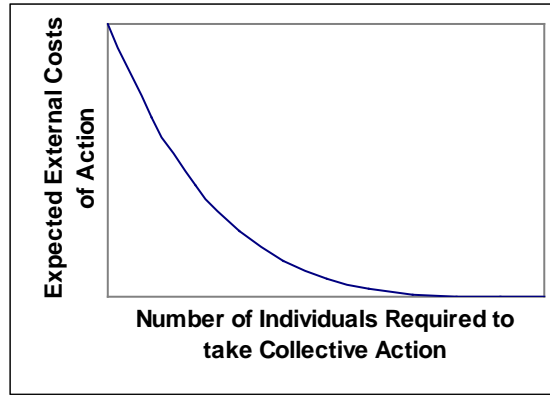


Figure 1.

The external costs of inaction are another matter. It is not apparent why costs of inaction should decrease as  $N_a$ , and thus the number of individuals who must agree to action, increases. Costs of inaction will be zero under a rule where any individual can undertake collective action ( $N_1$ ); All actions which would benefit any individual will be taken. The costs of inaction should be increasing function of  $N_a$ ; The larger the number of individuals that must agree for collective action to be taken, the less likely it will be that any action will be taken.

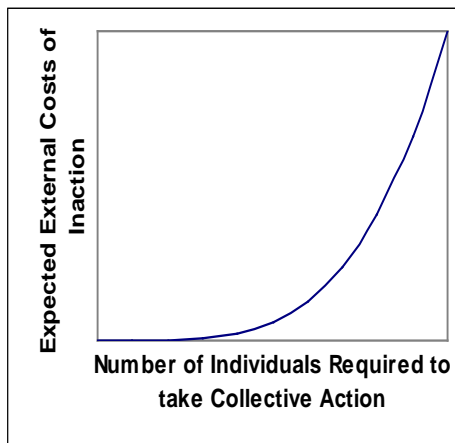


Figure 2.

Expected external costs in the aggregate will include both costs of inaction and costs of action. The external costs function will then take on the familiar U-shaped form that Buchanan and Tullock had reserved for interdependence costs, that is, both external and decision making costs.

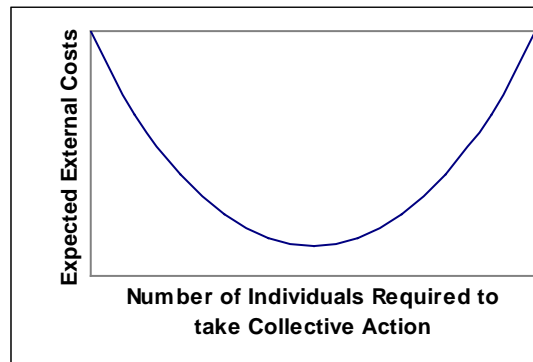
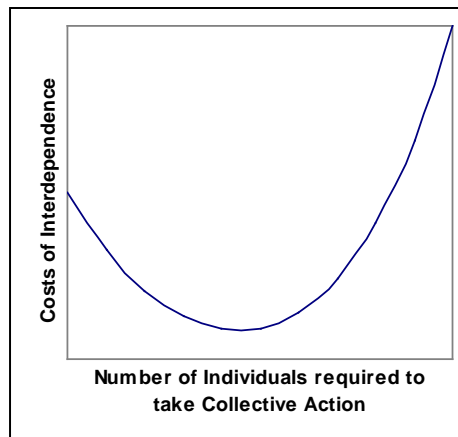


Figure 3.

The significance of the U-shaped external costs function is that it reinforces Buchanan and Tullock's basic claim that decision rules matter. The steeper the U, the more that variations in the inclusiveness of the decision rule will affect the costs of interdependence. Deviations from the "sweet spot" associated with the optimal decision rule for a particular category of choice will generate significant avoidable costs for collective action.



#### Figure 4.

Another area where a closer examination of external costs is merited is that of redistribution costs. Some redistributive costs can be expected from taking collective action to achieve income insurance unavailable through private markets (pp; 192-7). The authors explicitly recognize the opportunity for mischief in permitting redistribution via collective action, and note that constitutional safeguards are typically in place to prevent majorities from simply voting for direct transfers to themselves. There are redistributive elements associated with collective action not intentionally aimed at income smoothing, and we should consider the potential mischief with regard to those redistributive costs as well, as I will do below.

Under less-than-unanimity rules, there is asymmetry in sharing the gains of collective action. Winning coalitions will capture a disproportionate share of the benefits. The authors note that the introduction of side-payments, or overt vote selling, would make the redistributive character of this asymmetry explicit. “What the introduction of side payments accomplishes is the conversion of all collective decisions to these *purely redistributive* elements. Unless a public investment project is ‘worth while’ in a market-value sense, side payments (‘bribes’) will arise to prevent action from being taken, regardless of the rule for choice.” (pp. 190-1, emphasis in the original)

The potential for strategic behavior is not explicitly evaluated here, but it should not be overlooked. The implication is that a relatively indifferent majority proposes a project, a minority expresses their intense objection by purchasing enough votes to block the initiative, and we are left with a socially superior outcome than would have occurred under a regime without side payments. Citizens presumably have voted their true

interests, and revealed their true evaluations of the proposal. This system can easily be gamed, however. The majority coalition has made a proposal, and its members are richer for it. From their perspective, it may not matter if they actually preferred the project had gone ahead, absent side-payments. Proposing any initiative opposed by an affluent minority with intense preferences is now a profitable undertaking. Proposing to convert the estates of the wealthy to public parks could become a routine event. The benefits from concealing one's true preferences are also substantial. One who is in favor of a proposal in risk of not passing may prefer to represent himself as opposed to it to achieve the best possible outcome – being paid to vote in favor of a project he is already in favor of.

The benefit of side payments in allowing persons to express opposition to proposals is dramatically attenuated if the basis of the opposition is the tax cost of the project. If a citizen objects to being taxed \$300 towards the construction of a bridge he may rarely use, he is not clearer better off if he pays \$250 to prevent the construction of the bridge, which now he can never use.

One of the striking aspects of *The Calculus of Consent* is that presents a model which can explain the wisdom of many observed constitutional provisions and democratic norms. The authors of ours and other constitutions, and elected officials seemed to have intuitively appreciated the value of bicameral legislatures, presidential vetoes, ubiquitous log-rolling, and prohibitions on unrestricted redistribution through the political process. The analysis in the *Calculus of Consent* shows how these devices serve to reduce the expected costs of interdependence. The potential for strategic use of side-payment provisions justifies adding their prohibition to the list of observed institutions that can be explained with Buchanan and Tullock's model, in spite of the theoretical

possibility of side-payments reducing the costs of interdependence, as discussed in the text.

Buchanan and Tullock's model of constitutional design based on minimizing the expected costs of interdependence provides a rich framework for analyzing the merits of democratic institutions. The more closely we analyze the external and decision-making costs that comprise the costs of interdependence, the more value we can derive from their model. This note extends that enterprise with regard to external costs by showing that the expected allocational external cost function should be regarded as U-shaped, rather than monotonically increasing with the inclusiveness of the decision rule, and that redistributive external costs, even those not overtly redistributive (that is, income smoothing), are highly susceptible to strategic behavior in the presence of side-payments.

#### References

Buchanan, J. M, and G. Tullock (1962). *The Calculus of Consent*. Ann Arbor: University of Michigan Press.