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James Buchanan and Gordon Tullock, *The Calculus of Consent*

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Abstract and Keywords

The *Calculus of Consent: Logical Foundations of Constitutional Democracy* is a groundbreaking work in democratic theory. This chapter argues that it is of continued relevance today, due both to its methodological innovations and its use of those innovative techniques to solve the fundamental problem of democratic justification. In *Calculus*, James Buchanan and Gordon Tullock fuse economic methods, political theory, and the normative project of showing how democratic institutions of a particular sort can be justified contractually, creating a unique form of democratic contractualism that came to be known as “Constitutional Political Economy” and the more general research program of “Public Choice Theory.” Although these pioneering techniques have been integrated into mainstream political theory, the interest of their normative project has not been similarly appreciated.

Keywords: James Buchanan, Gordon Tullock, contractualism, democratic theory, constitutional political economy, public choice theory

In the preface to *The Calculus of Consent: Logical Foundations of Constitutional Democracy* (hereafter *Calculus*), James Buchanan and Gordon Tullock describe their work as a “fence-row” effort, an attempt to work the soil closest to the disciplinary fence between political theory and economics (xv). But, as Peter Ordeshook has argued, *Calculus* was not mere working *on* the disciplinary boundaries, it “sought to destroy” them (2012, 424). The public choice school that Buchanan and Tullock launched with *Calculus*, along with the spiritually similar work of William Riker and his followers, has largely accomplished the work of dissolving many of the disciplinary boundaries between economics and political theory.

If this were all that *Calculus* accomplished, it would be critical in the history of political thought but not a classic in the sense that it should still be read and studied today. Its enduring interest is not in its methodological innovations, but rather in the more fundamental innovation of developing a formal democratic theory in a contractarian philosophical framework anchored in comparative institutional analysis. As we hope to show, there is still much to learn from this analysis.

The Foundations of Democratic Justification

Calculus advances new methods in an attempt to solve an old problem: the *problem of democratic justification*. While democracy claims to be the “rule of *the* people” in any actual democratic system we actually find the rule of *some* people over others. More formally, the winning coalition in any election is able to impose its authority on the losers. This is true however large the majority happens to be, and however small the minority is, unless the vote is unanimous; and even then, there may be an excluded minority of those who did not or could not vote. Yet at the heart of the democratic ideal is the principle that all are inherently free and equal, with no natural authority to rule over one another. How odd then to start from freedom and equality and end with majority coalitions imposing their policies on minorities merely because they have the numbers to do so. Once we see this oddity we are confronted with the question: how could the authority of democratic assemblies over free and equal persons be justified? This is the *problem of democratic justification*, a problem that animates *Calculus*.

Buchanan and Tullock sought to solve this fundamental problem through a form of contractual constitutionalism. Their innovation is to do seek to do so without presupposing definite answers to enduring philosophical or ethical questions, such as whether more freedom or equality is better than less. Instead, they adopt a contractual framework that assumes only that individuals are rational: they will only consent to institutional rules that are likely to be as beneficial as any alternative. This allows Buchanan and Tullock to model unanimous consent as a contractual agreement on rules that everyone in society would have reason to endorse. By modeling democratic justification contractually, Buchanan and Tullock also capture the idea of “rule of the people,” without invoking any conception of a “general will.”

This point helps to identify what Buchanan and Tullock see as the proper target of agreement: the rules by which we will make future decisions, a constitution. Their rational individuals know that they will need rules, enforcement mechanisms, and a way to make new rules or change old ones. The meta-rules that govern each of these can be understood as the fundamental constitution of a society. The key elements of their approach then are: (a) the assumption of rational individualism and (b) the linking of unanimity as a democratic concept with the economic concept of Pareto efficiency (14).

Surprisingly, these weak assumptions produce a conclusion for a unique constitutional system based on super-majority rules.

Logrolling and Contractarianism

A feature of *Calculus* typically missed is its optimism. Public choice theory is commonly characterized as anti-democratic, or as undermining faith in the democratic process (Barry 1989; Christiano 1996, 2004). Rightly understood though, *Calculus* is an almost giddy endorsement of democracy (of a specific form) in the face of what looked like dire prospects for democratic theory. In the wake of Arrow's impossibility theorem, it was unclear whether democracy could be rationally justified at all (Riker 1982). Many believed that Arrow had shown that no rule for collective social choice, no voting rule, could be both collectively rational and fair.

Buchanan and Tullock dissented from this mainstream interpretation of Arrow's theorem in their pre-*Calculus* work. The error, they claimed, was at the heart of Arrow's approach to understanding collective choice. It is a mistake, Buchanan argued, to think of democratic institutions as mechanism for aggregating individual preferences into some coherent collective choice (Buchanan 1954a, 1954b).¹ Collectives are not individuals and, as such, there is no obvious reason that they should be bound by the consistency constraints of individual rationality.² In later work Tullock pursued a different route, arguing that Arrow's general possibility theorem was "generally irrelevant" because of the role that institutions, agenda setters, and, most importantly, logrolling have on making collective social choice possible (Tullock 1967).

Calculus developed these basic insights, applying a methodologically individualist analysis to collective choice, thus making pellucid the importance and dynamics of democratic practices such as logrolling. The starting point for political analysis is the sometimes cooperating, sometimes conflicting, wills and interests of individuals. The essential function of democratic institutions is to induce mutual gains by resolving conflicts through exchange. As Tullock argues in his appendix to *Calculus*, "logrolling eliminates the basic problem" of democratic aggregation, at least as it concerned Arrow and his predecessors (Tullock 1999, 333). Logrolling can introduce additional information about the relative intensity of preferences. This information can be used by individuals to trade a vote on an issue on which they have little at stake for a vote on a matter they care more about. The idea is that I will be willing to help you secure passage of proposal *A*, which matters little to me, if you help me secure proposal *B*. By linking votes on different issues, it is possible to find agreement by exchange where before there was none. This expands the possibilities of forming a winning coalition on any particular issue, changing the model of democratic aggregation from a static one of taking given binary preferences and generating a collective ordering (a model that Arrow showed would be either unfair or incoherent) into a dynamic process of adjustment and compromise wherein

preferences of different intensities over different issues can be linked through trade (Thrasher 2016). Here we have the beginning of what Buchanan would call “politics as exchange” (Brennan 2012).

Buchanan and Tullock commence by putting aside the traditional questions of political inquiry: “Political theory has concerned itself with the question: What is the State? Political philosophy has extended this to: What ought the State to be? Political ‘science’ has asked: How is the State organized? None of these questions will be answered here” (Buchanan and Tullock 1999, 3). They argue that they are not concerned with what “*the State or a State actually is*” or even what the state ought to be, but with “*what we think a State ought to be*” (1999, 3). Note they are not seeking to show what the state ought to be or do, full stop—a normative theory of the state from a sort of Archimedean perspective. Instead, the aim is to present a model of how “we”—the constituent individual actors, with their own goals and concerns—could consent to rules that provide a framework for their interactions. *Calculus* is, first and foremost, an attempt to develop a method of justifying constitutional institutions to individuals who have no antecedent reason to endorse any particular constitutional structure. Political philosophy changes from a project of justifying the authority of the state, or one’s obligation to the state, to an understanding of how political rules can be based on consent, and politics transformed into exchange.

This constitutional focus is at the heart of the book’s distinctive contractarian method. Constitutions are the fundamental rules that govern collective choice, rules specifying how we make further rules. Contracting about constitutions is deciding how to decide. This contrasts with contemporary moral and political philosophy, which typically sees the contractual device as revealing what is truly, from the impartial perspective, just (e.g., Scanlon 1998). *Calculus* interprets the social contract in empirical and dynamic terms, about what types of constitutions can emerge given certain sorts of agents.

The striking innovation of this project is the cross-fertilization of democratic theory and contractarianism. Not only can a contractarian method show how democratic governance can be justified, techniques from actual democratic institutions (most notably logrolling) are shown to solve a thorny problem in contractarian theory. As Rawls later wrote, a “normalization of interests” is typical in social contract theories (2007, 226). That is, it is supposed that, to secure agreement, the diversity of the parties must be reduced. If the parties are too diverse, it is supposed, their disagreements will swamp the basis for contractual consensus. The social contract would thus seem impossible. To obviate this, Rawls homogenizes the utility functions of the parties in the original position by introducing primary goods, which all value the same (Gaus and Thrasher 2015). In that case, choice in the original position becomes functionally identical to the choice of one person over prospects. This approach makes it possible to achieve “agreement” (there is, after all, only one person left!), but at the stiff price of the thorough homogenization of contracting agents.

Buchanan and Tullock set out to show that a society composed of diverse individuals could find enough common ground to endorse at least one constitutional form; so they must avoid both (a) introducing so much diversity into the contractual process as to make agreement impossible and (b) securing agreement by homogenizing individuals. They navigate between these extremes by relying on logrolling, a core idea we have already considered. Logrolling allows one voter to offer “side payments” (deals about votes on other issues) to another, rendering agreement possible. Rather than being eliminated, diversity is commensurated through what amounts to political exchange. As in the market diverse interests and preferences are satisfied through trade.

In *Calculus* individual, often conflicting, wills and interests are thus the starting point. This “contractual turn” in political theory is a departure from what Buchanan calls the “organic” approach to politics, which takes the collective will or collective good as the unit of analysis. The question is how to identify the possibilities of finding agreement over the basic political institutions, rather than showing that a particular institutional arrangement is uniquely good by some external standard of goodness or utility.

Individualism and Constructivism

To understand how a “politics as exchange” justification of a democratic constitution works, however, we need to look at how the individuals—the parties to the agreement—are modeled. Rawls’s method of “normalizing” disagreement leaves us with impersonal parties who are so similar that they can be modeled as a single rational chooser: the real problem of choice given diversity is abstracted away. Buchanan and Tullock need to show their contractarianism yields agreement without homogenization. Without this *Calculus* will not be able to solve the problem of democratic justification.

It is critical to keep in mind that the problem of deep individual difference is part and parcel of their individualist approach. This problem does not arise on “an organic conception” of the state. “If an organic conception of the state is accepted, the theory of collective choice-making is greatly simplified. The collectivity becomes an individual, and the analyst need only search for the underlying value pattern or scale which motivates independent State action” (11). That is, a state conceived as a super-individual or entity not reducible to the individuals who make it up (11). There are many versions of such organicism in the history of political philosophy, but their references to “German political philosophers” and the “general will” suggest that they have in mind those influenced by Hegel and Rousseau (12). According to this version of organicism, individuals cannot be understood as existing outside of a social reality that reaches its perfect form in the modern nation-state. Buchanan and Tullock argue that this conception of the state is antithetical to the liberal tradition and especially to democracy. More generally, any conception of democracy relying on a “collective will” is suspect.³

In *Calculus* the decision-making of a collective must be reduced to the individuals who compose it, and normatively, the value of the collectivity must be reduced to the satisfaction of individual purposes that rules and institutions promote. As Buchanan and Tullock argue, “analysis should enable us to determine under what conditions a particular individual in the group will judge a constitutional change to be an improvement; and when all individuals are similarly affected, the rule of unanimity provides us with an extremely weak ethical criterion of ‘betterness,’ a criterion that is *implicit in the individualist conception of the State itself*” (14, emphasis added). They thus develop a rational justification of a system of collective choice that is ultimately grounded *only* on the value of system to the individuals who employ it.

Articulating this individualistic contractarian standard requires an account of the individuals who compose their model society and their standards for rational choice: “[T]he separate individuals are assumed to have separate goals both in private and social action. The goals may or may not be narrowly hedonistic. ... We need make no specific assumptions concerning the extent of equality or inequality. ...” (15). The model does not assume “*Homo economicus*,” motivated solely by self-interest (17).⁴ Their model of rational agency is more general, insisting only that agents prefer more rather than less of whatever they value.

Given this, the only possible justification of a political order is one that appeals to the rationality of those who are to live under those rules. Here we see an intimation of the public reason tradition developed by Rawls and others, or at least one important aspect of it. Individuals endorse rules because they view them as the least expensive way to achieve the collective and individual goods that social cooperation provides. Justification must appeal to individual rationality, not because of strong assumptions of moral freedom and equality, but because the individualistic postulate leaves us with no other possible justifications. This basic individualistic approach of *Calculus* applies to both the economic and political spheres: the political and economic agent is the same person. *Calculus* thus rejects a traditional assumption that in social or collective matters individuals are moved wholly or mostly by the public interest or common good.

Buchanan and Tullock insist this bifurcation of agency is untenable: it is psychologically unlikely that individuals can pivot from their individual point of view to a collective point of view (19). People are people and choices are choices, be they moral, political, or economic. Individuals will choose rationally, or rather we should model them as rational choosers, whatever the object of choice. The psychology of the individual should, according to Buchanan and Tullock, be invariant across different choice contexts.

This psychological claim is open to doubt. People often behave differently in different contexts (Nisbett and Ross 1991). A man may act and think differently, for instance, in his role as a father and as a citizen. Stanley Benn argues that this phenomenon is a central part of our moral psychology (1988, ch. 3). The important point, however, is not so much a matter of psychology but of rational consistency. A plausible model of human agency certainly should not suppose a sort of schizophrenia, acting in one way in private and

being another person in public. But this is only a problem if, as we have argued is mistaken, private individuals are assumed to be inherently self-interested, and they must shed their self-interest when entering the public arena. This thin model of rationality, taken largely from economic theory, allows both that one may rank various political, economic, moral, and personal outcomes in a variety of ways, and that this ranking, because consistent, can be represented as a unitary utility function.

To contextualize the utility functions of a chooser then will not necessarily render his choices inconsistent; it will though make the evaluation of the rational choice exceedingly difficult (Sen 1993). Constitutional choice is all about evaluating different contexts or institutional settings for rational choice. If the agent's choices change substantially from context to context there will be no fixed point from which to evaluate the rational thing to choose in changing institutional contexts. To usefully model constitutional choice, it thus greatly simplifies matters to assume agents with fixed, decontextualized, globally consistent, utility functions. Rawls does the same thing by radically decontextualizing choice in the original position via the introduction of the "veil of ignorance." Buchanan and Tullock introduce a "veil of uncertainty" in constitutional choice, leading choosers toward more general rules.⁵ Because an individual will be uncertain about the effects that particular rules will have on him or his group in the future, "his own self-interest will lead him to choose rules that will maximize the utility of an individual in a series of collective decisions with his own preferences on the separate issues being more or less randomly distributed" (78).

Once we understand politics as simply a mechanism for diverse individuals to secure benefits, we immediately confront the inevitability of some seeking to benefit themselves at the expense of others. "It is precisely the recognition that the State may be used for such purposes which should prompt rational individuals to place constitutional restrictions on the use of the political process. Were it not for the properly grounded fear that political processes may be used for exploitative purposes, there would be little meaning and less purpose to constitutional restrictions" (13). Political institutions are thus understood as a "machine" or "artifact" that allows individuals to pursue their interests in collective choices. The regulative goal of designing such a machine is enhancing the outcomes for the individuals living under them, both in securing these goods and avoiding exploitation. Individuals bear the costs and capture the benefits of political institutions, so comparisons can only be made on the basis of the cost and benefits of outputs to individuals.

If rules are to effectively constrain behavior, rational individuals must conform to them, even when doing so thwarts their interests. This threatens the enterprise of *Calculus* with the traditional compliance problem for contractarian theories (Gaus 2011, ch. 2). Individuals may be able to rationally choose various rules on the basis of how those rules will benefit them, but it is a conceptually separate question whether they will find it rational to follow those rules once they are in place. Hobbes's Foole is the classic example of someone who knows the rules and can see their point, but doesn't see reason to comply when they instruct him to refrain from pursuing his interests. This compliance

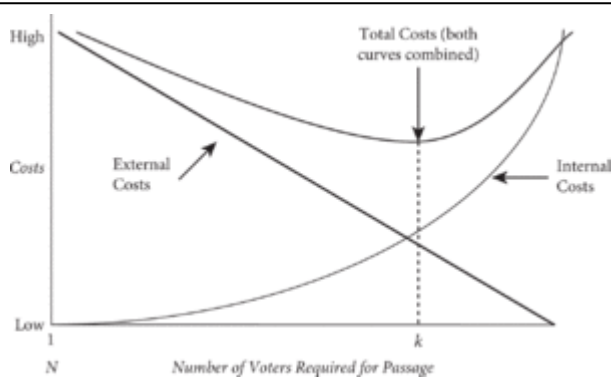
problem plagued later contractarian theorists such as David Gauthier (1986, ch. 6), leading him to introduce a revisionist conception of individual rationality—one that guaranteed that rational individuals would not follow the example of the Foole. Buchanan and Tullock do not take this revisionary route; insofar as they address this issue at all, they assume that compliance can be ensured by institutional incentives and punishments, changing the payoffs so that even Fooles will usually see the wisdom of compliance.⁶

Consent and Efficiency

Calculus judges a proposed political system or reform to be “optimal” if all would endorse the system or reform as an improvement. We are thus led to the familiar Paretian conception of efficiency in economics, but given a revised interpretation in the political, constitutional context. In traditional economic theory, institutions are taken as given, exogenous, constraints and the evaluation of optimality proceeds from that starting point. If a change in allocation improves the condition of at least one person by her own lights without making anyone else worse off (by their lights), the change improves efficiency (it is Pareto superior); when no such changes can be made, the allocation or state of affairs is efficient (it is Pareto optimal). This approach is inappropriate in comparative institutional analysis, however, because in this context we cannot assume that the change in allocations takes place against fixed institutional background conditions. Indeed, it is changes in those very institutional parameters that the individual is evaluating. The Pareto standard in *Calculus* is thus merely a representation of voluntary or consensual choice: if all would agree to move from constitution *A* to *B*, then *B* is Pareto superior.

It is not supposed that individuals value efficiency in itself; they do not choose an option *because* it is efficient—it is not an individual or collective goal. A constitution is Pareto optimal simply because no other feasible constitution would be chosen by everyone (or, somewhat more precisely, there is no other feasible constitution which at least one person would choose to adopt and to which all others are indifferent). This demand for unanimity expresses a respect for individuals and their aims: no collective decision is justified if it renders any individual worse off.

The manifest problem is that the decision costs of securing unanimity are excessive. Achieving unanimity in any deliberative body has high “transaction costs”: individuals have an incentive to strategically hold out or form coalitions to improve their bargaining power. *Calculus* shows how we can capture many of the benefits of unanimity without incurring these costs. This solves the *problem of democratic justification* by showing how every person in a given society would choose a constitution that operationalized unanimity. The key here is that collective choice procedures impose costs as well as delivering benefits. A simple majoritarian rule makes it relatively easy to collectively decide, say, to secure a public good, but the majority might secure much more of the good than some minority desires, leaving the outvoted minority with additional costs in terms of higher taxation or borrowing to purchase more of a good than they wanted—a sort of forced purchase. On the other hand, if the rule makes it too hard to reach agreement, we incur high negotiation costs, which might be so high as to entirely block securing the public good. In order to balance these costs, Buchanan and Tullock maintain that rational individuals would *unanimously agree to endorse a non-unanimous collective choice* rule—but not the majority rule. This leads us to one of the most famous graphs in political philosophy:



[Click to view larger](#)

Figure 1 Buchanan's and Tullock's Cost Curves

We see that if N voters are required for passage (unanimity) the “external” costs that one group can impose on another are zero: if everyone must agree, then we are assured that if there is any move it will be Pareto superior. But the “internal,” decision-making, costs are very high. If we wish to

minimize both costs, we should adopt a “ k rule,” where k is typically greater than $N/2 + 1$ but less than N . That is, a super-majoritarian collective choice rule.

Calculus's defense of a super-majority rule for collective choice can be seen as an attempt to devise a workable approximation of unanimity—what might be called “practical Paretianism” (Gaus 2011, 538–545). Much of Buchanan and Tullock's analyses of logrolling and bicameralism are exercises in practical (approximate) Paretianism. The other side of this practical Paretianism is a rejection of simple majoritarianism. We can see from Figure 1 that there is no reason to think that net costs will be minimized at $N/2 + 1$, majority rule. According to Buchanan and Tullock, “majority rule has been elevated to the status which the unanimity rule should occupy” (1999, 96). Like Kenneth May (1952), Buchanan and Tullock argue that there is one and only one uniquely justifiable collective choice rule.⁷ Unlike May, however, the rule they justify is not simple majoritarianism. At best, they argue, majority rules should be seen as a possible alternative to unanimity only if the “cost of securing widespread agreement” on contentious political issues is especially high (96). Importantly, as they later show, “without side-payments, there is nothing in any particular voting rule to insure collective decisions will move the group to the Pareto-optimality surface or that such decisions will keep the group on this surface once it is attained” (189). In this context, a “side-payment” is some additional advantage that “sweetens” the initial deal for some parties, raising them at least to the level of indifference between any proposed change and the status quo. Majority voting, or indeed any form of voting, cannot be justified along Paretian lines without the possibility of side-payments or logrolling. Indeed any voting rule (including dictatorship) that involves full side-payments leads to Pareto optimal collective decisions. That is, given a large enough package of side-payments any collective decision, no matter how many external costs are imposed, can be choice-worthy so long as the side-payments offset the external costs of the decision. This trivially follows from requiring *full* side-payments, but it is nevertheless enlightening.

From the point of view of Paretianism, the mechanics of a voting system are not as important as system's distribution of costs. If all costs *must* be compensated the system will always tends toward Pareto optimality; if costs need not compensated, it will not. An implication is that any non-unanimity rule will tend to impose uncompensated costs on

some individuals: all such rules allow the losers to bear uncompensated costs. Here again, we see the conceptual link between the institutional unanimity rule, the Pareto standard, and consent. This point becomes more important when we look at the institutional evaluation of different collective choice rules.

Constitutional Political Economy

The central model of *Calculus* constitutes an answer to the question: “when will an individual member of the group find it advantageous to enter into a ‘political’ relationship with his fellows?” (43–44). Note that Buchanan and Tullock do not ask when collective action *should* be pursued, or when *we* should engage in collective action, but when an individual will think it is valuable or rational to resort to politics.

An important feature that distinguishes Buchanan and Tullock from their contemporaries, especially Rawls and Harsanyi, is their “cost model” of collective choice. When engaging in collective action a rational individual seeks to maximize net benefits: to secure the maximum benefits at the minimum feasible costs, involving both decision-making and external costs (44). One may want to decrease the costs that other individuals may impose through activities like theft is by hiring police. This reduces the external costs imposed by other individuals—one of the “externalities” of social life. One may also want to secure a benefit that is difficult or impossible to achieve alone, for instance a public good like clean water or improved roads. The central question of *Calculus* is how to minimize the cost associated with collective life for each individual in society through collective choice rules or, better, constitutional rules embodied in institutions.

This approach is importantly different from the traditional way of justifying collective action found in most contractarian theories. These theories tend to model justification as a rational choice based on the relative benefits of competing alternative regimes of rules or collective choice procedures. In the Rawlsian original position, for instance, the choice of ideal regime types is based on the attractiveness of the system’s distributive outcomes as judged from the view of a representative person’s (and her descendants’) life prospects, as measured in terms of “primary goods,” such as income, wealth, and opportunities. In their different ways the contractual choice procedures of John Harsanyi (1958, 1982), David Gauthier (1986), and Ken Binmore (1994, 1998, 2005) also take up this ideal distributive perspective. The problem, as Buchanan and Tullock point out, is that purely distributive variations in institutional frameworks cannot be evaluated by a unanimity rule (201). Individuals can evaluate a proposed change only given some starting point in utility space; they cannot meaningfully evaluate two different possible utility spaces (or distributions) from “nowhere” in terms of Pareto optimality. A starting point must be picked—we can only go up or down in reference to a baseline. Any Pareto-superior move is justified, but a move from one Pareto optimal distribution to another will be worse for someone.

Buchanan and Tullock's analysis commences with zero costs on the choosing individual: political association imposes no costs on them. This is *their* baseline for evaluating whether individuals have reason to want to engage in collective choice. The cost model claims that individuals will choose institutional collective choice rules (constitutions) that will be most likely to reduce the costs that others can impose on them while maximizing benefits from collective action. As we saw a unanimity rule tends to prevent the imposition of external costs in collective choice, but the process itself is costly. Majority rule externalizes costs from the decisive majority to the minority (and generally oversupplies collective goods, the costs of which the minority must partly bear). The optimal rule minimizes both types of costs and will, therefore, be uniquely justifiable to rational individuals, supposing that they cannot be certain whether they will be in the majority or minority. Any political decision to move from one state of affairs (which entails a distribution) to another inevitably involves the creation of costs as well as benefits: the aim of constitutional choice in *Calculus* is to devise rules that allow individuals the opportunity to pursue the benefits of collective action while, as far as possible, minimizing the costs.

Anarchy is expensive, but so is leviathan. *Calculus* seeks a middle path between these two extremes that can complete the Madisonian task of establishing constrained institutions of collective choice. Buchanan and Tullock seek to do so through "politics as exchange" (Brennan 2012). If suitably constrained by Pareto-approximating institutions, politics is mutually beneficial, creating positive "gains from trade" that the possibility of peaceful social life allows. Constitutions that allow for politics as exchange provide a framework for mutually beneficial improvements, and obtain consent from rational individuals living under them. The normative project that comes out of *Calculus* is to employ the Pareto criterion to evaluate whether institutional structures are improvements from the status quo or a no-cost baseline. Buchanan and Tullock thus present a plausible claim to have solved the *problem of democratic justification*: each person in a society, no matter how diverse, will have reason to endorse and follow one and only one type of constitution, one that implements the unanimity rule in the way that they have described.

Conclusion

Calculus's project is to solve one of the deepest and thorniest problems of political theory, that of democratic justification. It has been, and remains, a controversial project. *Calculus* was instrumental in launching the constitutional political economy research program that has borne fruit in political science, economics, and political theory. A large part of the current work in public choice is dedicated to showing the benefits and drawbacks of various institutions from the point of view of unanimity. This is practical Paretianism in its most detailed and sophisticated form. This approach to political theory

and political economy follows directly from Buchanan's claim that political theorists should not tell us "what the state should be" but instead should develop a positive theory that can work hand in hand with normative evaluation. In *Calculus*, Buchanan wrote:

Normative theory must be erected upon and must draw its strength from the propositions of positive science, but it is only when this extension of normative theory is made that "reform" in existing institutions can be expected to emerge from specialized scholarship. Indeed the only purpose of science is its ultimate assistance in the development of normative propositions. We seek to learn how the world works in order to make it work "better," to "improve" things: this is as true for physical science as it is for social science (306).

Even if one disagrees with the substantive claims in *Calculus*, and even if one isn't confident that Buchanan and Tullock successfully solved the problem of democratic justification, the method and approach to political theory on display in *Calculus* is its true legacy. Despite the fact that much of has been incorporated into the mainstream, there is still a tremendous amount one can learn from *Calculus*.

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Notes:

⁽¹⁾ Arrow responds in the second edition version of *Social Choice and Individual Values*, arguing that Buchanan has misunderstood him and that his "confusion" is the result of substituting "verbal quibbling for genuine argument" (Arrow 1963, 107, n42). The consensus seems to be that Arrow is correct in this respect. Notably though, Amartya Sen agrees with Buchanan that an external "collective rationality" condition was an assumption of Arrow's original theorem (Sen 1993, 503-504).

⁽²⁾ Interestingly, recent trends in social choice theory and political theory have started to argue in favor of viewing collectives as individuals and of attributing rationality constraints to their collective judgments, see in particular List and Pettit (2011). For criticism of this approach see Gaus (2012).

⁽³⁾ They single out early social choice theory as resting on this mistake (12; see also Buchanan (1954a,b) and the text above). They also attack Marxist conceptions of politics as being based on a similar mistake, namely that politics is the vehicle for economic classes to achieve their ends.

(⁴) Buchanan is not always clear—or perhaps consistent—about this. In some works his motivational assumption is indeed identified as “*Homo economicus*” who is essentially self-interested (Buchanan and Brennan 2000, vol. 10, ch. 4). Cf. Gaus (2010).

(⁵) But compare Rawls (1958) where something like a veil of uncertainty is used as a functional equivalent for the later “veil of ignorance.”

(⁶) In later work, Buchanan is very concerned with the human ability to rationally follow social rules. He discusses the ability to make rules for one’s self as a form of self-contracting, recognizing the inter-temporal problems of compliance that this ability creates (Buchanan 2000, 118–121; Buchanan and Brennan 2000, 83–91). See Gaus (2018) for a discussion of Buchanan’s analysis of norm-based preferences.

(⁷) For May (1952), this only holds for two options.

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