

Chapter 12

The Perspective of the History of Thought¹

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Introduction

Public choice is a relatively new discipline located at the interface between economics and political science. Its modern founding was the achievement of Duncan Black whose 1948 (a–c) articles are widely viewed as the seminal contributions that launched scholarship in the application of economic analysis into the traditional domain of political science. Yet, it is true that the founding goes back almost two centuries in time, to the late eighteenth century contributions of two French *Encyclopedistes*, the Comte de Borda and the Marquis de Condorcet. The two French noblemen shared a conviction that social sciences were amenable to mathematical rigor, and made significant contributions to the theory of voting. These contributions form the foundations on which much of modern public choice has been crafted.

In his pioneering work on elections, Condorcet (1785) sought to ‘inquire by mere reasoning, what degree of confidence the judgment of assemblies deserves’ (1785, iv). In modern jargon, he posed what is now known as the jury problem or the vote problem. The starting point, well-known to the *Encyclopedistes*, is that majority voting is unambiguously the best voting rule when only two candidates are on stage. How might this rule be extended to three or more candidates? The naive but widely held answer is plurality voting, where each voter casts a vote for one candidate and the candidate with most votes is elected.

Condorcet raised doubts as to the general acceptability of the plurality vote rule. Suppose that 60 voters have opinions about three candidates A, B and C as shown in Table 12.1.

In the illustration, candidate A wins by plurality. Yet, if A is opposed only by B, he loses (25 to 35) and if A is opposed only by C he loses again (23 to 37). Thus the plurality rule does not convey accurately the opinion of the majority.

¹ This chapter is a revised and updated version of an essay that first appeared in *The Encyclopedia of Public Choice* edited by Charles K. Rowley and Friedrich Schneider and published in 2004 by Kluwer Academic Publishers, Volume I, pp. 146–159.

Table 12.1 Borda's method of marks

	23	19	16	2
Top	A	B	C	C
	C	C	B	A
Bottom	B	A	A	B

Table 12.2 Condorcet's paradox of voting

23	17	2	10	8
A	B	B	C	C
B	C	A	A	B
C	A	C	B	A

Using identical premises, in 1781 Borda had initiated the discussion of voting rules by questioning the effectiveness of the simple majority vote rule and by proposing the method of marks as a more appropriate rule. In this method, each candidate receives 2 points from a voter who places him first, 1 point from a voter who places him second and 0 points from a voter who places him third. Hence, by reference to Table 12.1, C is elected with a score of 78 points. Condorcet, however, in following up on the insight of Borda, sought a different solution.

Condorcet posited a simple binomial model of voter error. In every binary comparison, each voter has a probability $1/2 < p < 1$ of ordering the candidates correctly. Thus the relevant data is contained in the 'majority tournament' that results from taking all pairwise votes: B beats A 35 to 25; C beats A 37 to 23; C beats B 41 to 19. Condorcet proposed that candidates should be ranked according to 'the most probable combination of opinions' (1785, p. 125). In modern terminology, this is a maximum likelihood criterion.

In the above example, the most probable combination is given by the ranking CBA, since this agrees with the greatest total number of votes. Condorcet's ranking criterion implies that an alternative that obtains a majority over every other alternative must be ranked first. Such an alternative, if one exists, is now known as a 'Condorcet winner'. However, as Condorcet established, some configurations of opinions may not possess such a winner because the majority tournament contains a cycle. Such an occurrence is now known as Condorcet's paradox and is illustrated in Table 12.2.

In this illustration, A beats B, 33 to 27; B beats C, 42 to 18; C beats A, 35 to 25. In such circumstances, pairwise voting results in intransitivity. According to Condorcet's maximum likelihood criterion, the cycle should be broken at its weakest point, namely A over B, which yields the ranking of B over C over A. Therefore, in this case, B would be declared the winner.

Condorcet's *Essai* contains other useful insights that now play an important role in public choice. Perhaps the most important is the issue of strategic manipulation, which is hinted at in several places, although it is never systematically explored (Moulin and Young, 1987). For example, on page clxxix of the *Discours Preliminaire*, Condorcet criticizes Borda's method of marks as being vulnerable to

a *cabale*. When confronted with this criticism, Borda was merely moved to comment: 'My scheme is only intended for honorable men' (Rowley, 1987). It has since been established by modern game theory that any configuration of individual opinions that guarantees the existence of a Condorcet winner also defines a strategy proof voting rule. This remains an important argument in favor of Condorcet consistent rules designed to elect the Condorcet winner whenever it exists (Moulin, 1983).

Because the publications by Condorcet and Borda were not widely circulated in the late eighteenth century, because they were somewhat densely written and because they were written in French, their ideas disappeared for some 150 years until they were rediscovered and proselytized by Duncan Black in 1958. Since then, the ideas have strongly influenced public choice theorists and have played a central role in many of the discipline's recent developments.

The Insights of Duncan Black

Ideas that are lost do not constitute any part of the litany of science. Duncan Black essentially rediscovered ideas that had been advanced earlier by the two eighteenth century French noblemen only to be lost, then to be rediscovered late in the nineteenth century (1884) by Charles Dodgson (Lewis Carroll), then to be lost again. Since Black's discovery has not been lost, he must be viewed as the true founder of public choice (Rowley, 1991). The work of Borda, Condorcet, and Dodgson is known today only because Black researched their writings and made them available to his own generation of scholars (Grofman, 1987).

Duncan Black's vision as a young economist was that of developing a pure science of politics that would place political science on the same kind of theoretical footing as economics. All of his work was underpinned by the deceptively simple insight of modeling political phenomena 'in terms of the preferences of a given set of individuals in relation to a given set of motions, the same motions appearing on the preference schedule of each individual' (Black, 1972, p. 3).

In this search, Black rediscovered Condorcet's paradox of cyclical majorities (Black, 1948a, pp. 32–33) and thereby opened up an extremely fruitful avenue of public choice research. It is important to acknowledge Black's achievement because recognition for the rediscovery of the Condorcet paradox is frequently and incorrectly given to Kenneth Arrow. Black (1948a, b, c) raised a number of important questions and offered some preliminary answers related to this paradox (Grofman, 1981). The first question asks whether the paradox is inevitable; the second asks how frequently the paradox can be expected to occur; the third asks how easy it is to detect a paradox from the available evidence on majority rule outcomes; and the fourth asks how large a cycle will be.

Black's answer to the first question was that the paradox is not inevitable. Embedded in this answer is the famous median voter theorem that will be outlined and evaluated later in this section. In answering the second question, Black focused

attention on the special case of three voters and three alternatives for what is now known as the ‘impartial culture’ i.e., a committee in which all strong preference orderings are equally likely.

Black recognized the wider significance of this question. He suggested that the likelihood of the paradox of cyclical majorities occurring increased rapidly as the number of motions under consideration and the number of committee members increased (Black, 1958, p. 51). In this judgment he has been proved correct by subsequent analysis (Grofman, 1981, p. 15).

In answering the third question, how easy it is to detect a paradox, Black provided two useful results. The first result is that under standard amendment procedures, given sincere voting, a voting paradox will always be revealed if there are as many rounds of voting as there are alternatives, less one. The second result is the theorem that the voting paradox is always revealed if data is available on all paired comparisons. This is a powerful result since Black also shows that if a majority winner exists, no voter has an incentive to vote insincerely in such a complete balloting.

The fourth question, querying how many alternatives are likely to be located in a *top cycle*, was not directly addressed by Black. However, he did provide a number of insights on interrelationships between cycles. For example, he noted that if two intersecting cycles have one motion in common, it must be possible to form a cycle that includes all the motions of both cycles (Black, 1958, p. 48). He also examined the case of three nonintersecting cycles (where every motion in the first defeats every motion in the second, and where every motion in the second defeats every motion in the third). He demonstrated, in such circumstances, that every motion in the third may still defeat every motion in the first (Black, 1958, p. 50). As subsequent analysis has confirmed, winning cycles are likely to include all alternatives (McKelvey, 1976).

Black’s answer to the first question, concerning the inevitability of the paradox of the voting cycle, has been left to the end because it is his most important legacy to public choice. His insight came in February 1942, while ‘fire-watching’ in case of air raids, late at night in the magnificent green drawing room of Warwick Castle (Black, 1972, p. 4). While playing with diagrams that represented motions as points on a line and with preferences represented as single-peaked utility functions, Black saw ‘in a shock of recognition’ (*ibid.*) the property of the median optimum, or what we now refer to as the median voter theorem.

The idea of single-peakedness can be defined in a number of different ways. Black provided a graphical interpretation that is illustrated in Fig. 12.1. A set of preference schedules is said to be single-peaked if there occurs an ordering of the alternative motions such that the preference schedules of all committee members can be graphed as single-peaked curves (i.e., as curves that change direction at most once, up or down). Where this condition holds, Black established that a unique alternative exists capable of attracting a simple majority in pairwise competition against all other alternatives. This majority winner is the most preferred alternative of the median voter. Hence, for single-peaked preferences, Black established that there is a stable majority choice at the median of the voter distribution. Furthermore, under this condition, majority rule gives rise to a transitive ordering of alternatives.

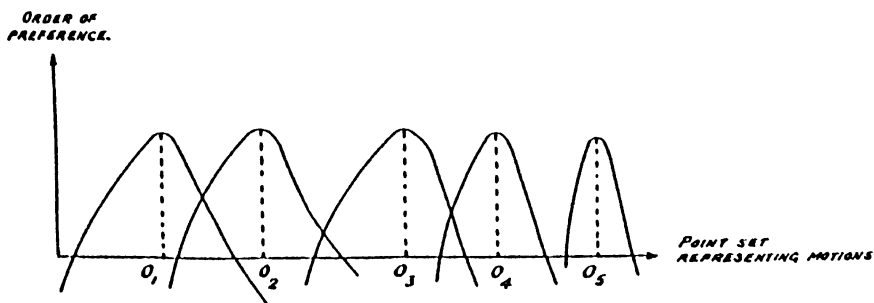


Fig. 12.1 Duncan Black's median voter model

In Fig. 12.1, the median outcome is at point O_3 in policy issue space. It is important to note that Black's theorem is restricted to the case (illustrated in Fig. 12.1) where policy issue space is defined in terms of a single dimension. As we now know (Black, 1958), where the median voter theorem holds, majority rule always selects a Condorcet winner.

The Insight of Kenneth J. Arrow

Although Duncan Black's 1948 article is best known for its derivation of the median voter theorem, Black was clearly aware of the potential for cycling, should the condition of single-peaked preferences fail to hold. In 1949, Black and Newing attempted to define the necessary conditions for the existence of a stable voting equilibrium in multi-dimensional space, focusing on the three-person case. In this contribution they clearly anticipated the contributions of Kenneth Arrow. Their paper was submitted to *Econometrica* in November 1949. The referee reported favorably on the paper.

In a stroke of misfortune, *Econometrica* delayed by some 18 months in reaching a decision on the paper. When it did so, the Managing Editor, Ragnar Frisch, informed the authors that he would recommend the article for publication 'if the interrelationships with Arrow's recent monograph could be brought out clearly throughout the paper' (Coase, 1981). Arrow's 1950 article and his 1951 monograph apparently had pre-empted the Black and Newing article as a consequence of inexcusable editorial delay. Black and Newing withdrew the article from *Econometrica* and published it in 1951 in a little-read booklet. By such chance events are Nobel Prizes sometimes won and lost (Rowley, 1991).

In any event, Arrow's 1951 book has exerted a significant impact on the evolution of public choice, even though its primary concern was normative rather than positive in nature, focusing as it did on the desirable characteristics of alternative mechanisms of social choice. This impact stems from Arrow's rediscovery of Condorcet's paradox of cyclical fluctuations.

Arrow (1950, 1951) responded to the apparent collapse during the 1930s of Benthamite utilitarianism as economists systematically retreated from the notion that utility is measurable on a cardinal scale and comparable across individuals. If the weak Pareto principle is all that remains of the once mighty utilitarian doctrine, what are the normative implications for the available mechanisms of effecting social choices? In his famous impossibility theorem, Arrow proved that any social welfare function involving at least three individuals choosing over at least three alternatives must violate at least one of six reasonable axioms of social choice, namely rationality, unbounded domain, the Pareto principle, non-dictatorship, non-imposition and independence of irrelevant alternatives.

Most important, from the perspective of public choice, was Arrow's proof that a social welfare function based on majority rule has the unsatisfactory property of being intransitive when at least three individuals vote over at least three alternatives, even when the preferences of each person are strictly transitive. Arrow did not infer that majority rule would always produce cycles in such circumstances. Given the assumption of an unbounded domain, it sufficed for him to demonstrate that certain configurations of individual preferences would result in the Condorcet paradox.

Although this insight is not original to Arrow, nevertheless, it is he who has gained recognition for it. Undoubtedly, Arrow's emphasis on the instability of majority rule contrasts sharply with Black's emphasis on the stability of the median voter outcome. Since these two impulses still course strongly through much of public choice analyses of the vote motive, it is convenient, if not strictly accurate, to distinguish them by reference to the two scholars.

The Insight of Anthony Downs

Both Black and Arrow analyzed the majority vote mechanism in abstract terms, deliberately seeking generality at the cost of sacrificing institutional detail. Although their contributions, especially those of Arrow, sparked an almost obsessive interest among students of social choice, perhaps because of their abstractness, they failed to make much initial inroad into political economy and political science.

In 1957, Anthony Downs filled this institutional vacuum with a book entitled *An Economic Theory of Democracy* that would become a fulcrum for public choice analysis. Downs was a student of Kenneth Arrow whose work on social choice theory clearly motivated his contributions. Surprisingly, Downs displayed no knowledge of Black's contributions despite Arrow's evident acquaintance with them. Ironically, despite the fact that most public choice scholars identify Downs with the median voter theorem, the theorem is referred to nowhere in the book.

Rather Downs adapted the spatial economic model of Harold Hotelling (1929) to demonstrate that competition between two political parties under conditions of parliamentary democracy often results in both parties converging in policy issue space to adopt identical platforms that reflect the preferences of a majority of the

electorate. Since Downs depicted normally distributed voter preference distributions, there is no way in his analysis of distinguishing between the mean, the median and the mode as the relevant point of party convergence.

The real contribution of Downs was not the median voter theorem (unequivocally the insight of Black) but rather the introduction of the rational choice approach to the study of political science. Pitting himself against the well-entrenched tradition of behavioral analysis among political scientists, Downs laid the foundations for a major research program that would apply rational choice theory to every aspect of the political market place.

By rational action, Downs meant action that is efficiently designed to achieve the consciously selected political and/or economic ends of every actor in the political market place. From this perspective he developed an economic theory of democracy designed to understand and to predict political behavior within an environment of two-party representative democracy.

From the self-interest axiom sprang Down's view of what motivates the political actions of party members. They act 'solely in order to attain the income, prestige, and power which comes from being in office' (Downs, 1957, p. 28). Politicians, in this model, never seek office as a means of promoting particular policies. Their only goal is to reap the rewards of holding office. The fundamental hypothesis of Down's model is that 'parties formulate policies in order to win elections, rather than win elections to formulate policies' (Downs, 1957, p. 28). Thus, the application of the self-interest axiom leads Downs to the hypothesis of vote-maximizing politicians.

Downs also applied the self-interest axiom to voter behavior, hypothesizing that each citizen casts his vote for the party that he expects to provide him with the most benefits. As Downs recognized, the concept of rational voting is deceptively complex, ambiguous and, hence, deserving of close scrutiny. The benefits that voters consider in making their decisions are streams of utility (referred to as utility income) derived from government activity.

Not all utility income is relevant to the vote decision, since utility income includes benefits that the recipient does not realize that he will receive and also benefits that he is aware of without knowing their exact source. However, only benefits of which rational voters are conscious at the time of the election can influence their voting decisions.

The unit of time over which voters evaluate utility income flows is the election period, defined as the time elapsing between elections. At least two such election periods enter into the calculus of the rational voter, namely, the period ending at the time of the election and the period following that election. Both periods are relevant to his determination of the expected party differential in utility income, the measure that will determine which party will secure his vote.

In placing his vote, the voter is helping to select the government that will govern him during the coming election period. His rational decision must reflect the expected future performances of the competing parties. Yet, he knows that political parties are neither obligated to honor nor always capable of carrying out their platform commitments.

In such circumstances, the most recent election period experience of the party in power is the best possible guide to its future behavior, assuming that its policies have some continuity. This performance must be weighed against the performance the opposition would have produced had it been in power. Downs asserted that it is rational for the voter to ground his voting decision primarily on current events, while applying two future-orienting modifiers to his current party differential.

The first modifier is the trend factor, an adjustment made by each citizen to his current party differential to account for relevant trends in the behavior of the government during the current election period. The second modifier is the tie breaker adjustment utilized only when the voter cannot distinguish between the parties. In such circumstances, voters cast their votes by comparing the performance of the incumbent government with that of its immediate predecessor. Voters who still cannot distinguish between the competing parties rationally abstain from voting.

Because Downs was not aware of the median voter theorem, his discussion of the basic logic of government decision-making was less precise than it might have been. In general, he suggested that vote-maximizing incumbents will follow the majority principle, subjecting each decision to a hypothetical poll and always choosing the alternative that the majority of voters prefer. He recognized that such a strategy would not guarantee victory in every election.

The opposition party might defeat a majority-pleasing government by adopting one of three possible strategies. The first such strategy is the adoption of a program identical in every detail with that of the incumbent. Such a strategy forces the electorate to decide their vote by comparing the performance of the incumbent with those of previous governments. Only rarely would such a strategy be effective.

The second such strategy is that of opposing the incumbent by supporting minority positions on carefully selected issues, building a coalition of minorities into a majority vote for the next election. Such a strategy can succeed only where the preferences of those in the minority are more intensely held than the preferences of those in the majority, i.e., where consensus is weak. In the case of passionate majorities, a sufficiently large coalition of minorities will not emerge.

The third such strategy is available to an opposition once again only when there is a lack of consensus in the electorate. In this case, the lack of consensus takes the form of the Condorcet paradox of cyclical majorities. In such circumstances, any alternative that the government chooses can be defeated in a paired election by some other alternative. As long as the government must choose first, and must remain committed to this choice, a prescient opposition can always defeat it.

Downs correctly recognized that his model appears to disintegrate at this point because of the false assumption of certainty. In reality, political parties do not fully know what voters prefer and voters do not fully know the consequences of government acts. If uncertainty is introduced into the model, the incumbents are saved from almost inevitable defeat at each succeeding election, but appear also to be freed from the grip of the majority principle. Therefore, Downs devoted a major part of his book to the effects of uncertainty on the behavior of political markets.

According to Downs, uncertainty divides voters into groups endowed with varying degrees of confidence in their voting decisions. Those who feel least well-informed

are vulnerable to persuasion by voters who are well-informed and who provide correct but biased information favorable to their own causes. Interest groups that want government to adopt policies favorable to their causes pose as representatives of the popular will, simultaneously creating public opinion supportive of their views and convincing government that such public opinion exists. Political parties, once they have formed their policies, endeavor to extend electoral support for those policies. Uncertainty thus forces rational governments to regard some voters as more important than others. By so doing, it modifies the equality of influence that universal suffrage was designed to ensure.

Uncertainty limits the ability of the voter to relate every act of the government to his own view of good policy. The rational voter, in such circumstances, may lower his information costs by identifying party ideologies as a substitute for detailed policy platforms. Each political party in turn will develop an ideology consistent with its policy actions as a short cut to gaining votes. According to Downs, all parties are forced by competition to be relatively honest and responsible in regard both to policies and ideologies.

From this economic perspective, Downs utilized the theory of spatial competition invented by Harold Hotelling (1929), as refined by Arthur Smithies (1941), to elaborate a theory of political party competition under conditions of representative democracy. His version of Hotelling's spatial market consisted of a linear scale running from zero to 100 in the usual left-right fashion. He assumed that all voters would agree on the ordering of both parties across this single dimensional left-right space, essentially by reference to the projected ideologies of the parties.

Downs further assumed that every voter's preferences are single-peaked over this left-right issue space implying that each voter always prefers a position closer to his ideal point over one that is further away and that he always votes for the political party that is closer to his ideal point. If these conditions hold, and if all voters always vote, the two parties will converge at the center of the voter preference distribution in order to maximize their respective votes. Figure 12.2 illustrates this outcome with both parties converging at point 50 in left-right space.

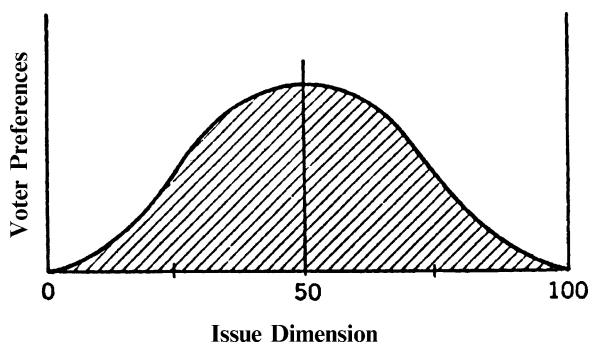


Fig. 12.2 Downs' model of convergence in spatial politics

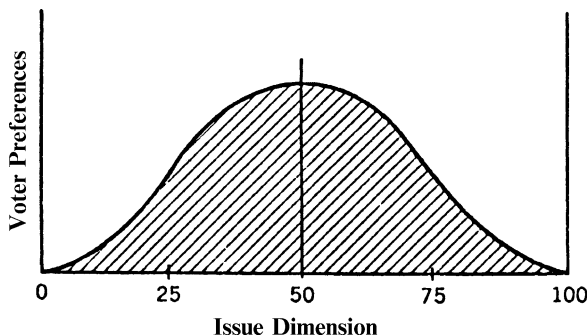


Fig. 12.3 Downs' model of spatial politics with voter abstentions

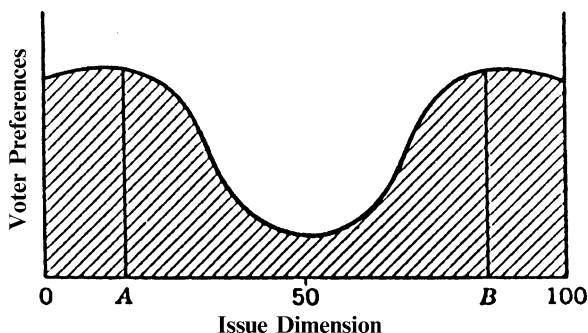


Fig. 12.4 Downs' model of spatial politics with a bimodal distribution of voter preferences

However, if voters located at the two extremes of left-right space become alienated as the political parties move towards the center their threats to abstain may halt this process of convergence well short of the center of the distribution. In such circumstances the ideologies of the two parties may differ sharply and political consensus may not emerge. Figure 12.3 illustrates this outcome with the two parties ending up located respectively at points 25 and 75 in issue dimension space.

If the condition of single-peaked preferences does not hold, and the distribution of voters across left-right issue space is bimodal, with modes located near each extreme, parties will locate themselves in proximity with their respective modes. The victorious party will implement policies radically opposed by the opposition. In such circumstances, Downs predicted that government policy will be unstable and that democracy may induce chaos, leading perhaps to its replacement by some form of autocracy. Figure 12.4 illustrates such an outcome with the two parties located respectively at points A and B across left-right space.

In the view of Downs, multi-party systems are likely to occur whenever the distribution of voters over issue space is multi-peaked or polymodal. In such circumstances, the Hotelling model (1929) is likely to hold with political parties

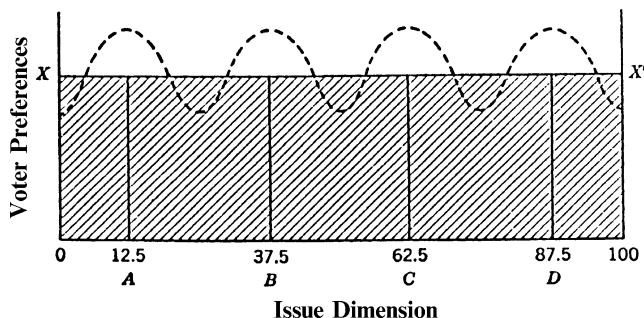


Fig. 12.5 Spatial politics with a multi-modal distribution of voter preferences

maneuvering in left-right space until the distance between each party and its immediately adjacent neighbors is the same for all parties. Figure 12.5 illustrates this outcome with the four competing parties located respectively at points A, B, C and D in the issue space.

Downs focused particular attention on the causes and effects of the rational voter abstention, recognizing that many citizens who are eligible to vote in democratic elections fail to do so. Downs assumed that a citizen's reward for voting is the value of his vote, i.e., his party differential discounted to allow for the influence of other voters upon the election's outcome. On this basis, he demonstrated that when voting is without cost, every citizen who prefers one party over the other votes and every citizen who is indifferent to both the parties abstains.

In reality, voting is always costly, because every act takes time. The cost of voting may outweigh the returns, even for citizens who prefer one party to the other. Indeed, because the expected returns of voting are often minuscule, even low voting costs may result in rational abstentions for citizens who view voting in elections solely from an instrumental perspective.

The importance of rational abstentions depends on its impact on political power. This impact in turn stems from two potential biases. The first potential impact arises from the distribution of the ability to bear the costs of voting. If the cost of voting consists primarily of poll taxes, loss of earnings and transportation costs, upper income citizens obtain a political advantage since the ability to bear such costs typically varies inversely with income. If the cost of voting primarily is the loss of leisure, no income-correlated disparity exists.

The second potential impact arises from biases in the distribution of high returns. The total return each citizen receives from voting depends on (1) the benefits he obtains from democracy, (2) how much he wants a particular party to win, (3) how close he thinks the election will be and (4) how many other citizens he thinks will vote. Since the expected return is predictably higher for the high-income than for the low-income citizen, the former has a greater incentive to become politically informed. He also has a greater incentive to vote on the basis of expected benefits.

The Insight of James M. Buchanan and Gordon Tullock

Five years after Downs' (1957) masterpiece, there followed the most far-reaching and the only philosophical founding contribution, namely *The Calculus of Consent* by James M. Buchanan and Gordon Tullock (1962). Neither author was trained formally in philosophy or in political science. Yet, this book explicitly moved the analysis to the interface between economics, philosophy and political science, applying the tools of economics and economic philosophy to a detailed and far-ranging evaluation of political institutions in an attempt to delineate the logical foundations of constitutional democracy.

Buchanan and Tullock rejected the emphasis placed by Downs on the group behavior of political parties in favor of a model of collective decision-making that is more closely analogous to the theory of private choice. Collective action is viewed as the action of individuals when they choose to accomplish goals collectively rather than individually. Government is viewed as a set of processes that allows collective action to take place. From this perspective of methodological individualism, the rule of unanimity is advanced as a weak ethical criterion for the 'good' in evaluating both new constitutions and initiatives for constitutional change. Buchanan and Tullock embedded their analysis firmly within the framework of rational choice, acknowledging albeit that *homo economicus* may not always be as narrowly self-seeking as neoclassical economics frequently assumes. They further acknowledged that in the effecting of collective choices, the individual has no way of knowing the final outcome at the time that he makes his own contribution. For this reason, individuals lose that full sense of personal responsibility inherent in the making of private choices.

The rational self-seeking individual will contemplate collective action only when such action increases his expected utility. In an environment devoid of any kind of Pareto-relevant externality, the state would have no utilitarian support. Buchanan and Tullock therefore rationalized the existence of collective action as a means for individuals to combine in order to reduce the burden of external costs imposed upon them by purely private or voluntary actions. In contemplating such collective action, the rational individual is concerned to minimize his relevant expected costs, defined as the sum of his expected residual external costs and of his expected costs of decision-making within a collective framework.

In deciding whether any particular activity belongs within the realm of collective rather than private choice, the rational individual must take into account the expected cost of voluntary cooperative arrangements. If such costs are zero, all Pareto-relevant externalities would be eliminated by voluntary private behavior (here we note an early application of the 1960 Coase theorem, itself developed at the University of Virginia).

If the environment is one of positive transaction costs, however, the choice between non-cooperative private behavior, cooperative private behavior and collective political action must rest on the relative expected costs of these alternatives. The existence of Pareto-relevant external effects of private behavior is neither a

necessary nor a sufficient condition for an individual to entrust that activity to the realm of collective choice. In this regard, Buchanan and Tullock, *for the first time in formal economic analysis*, called specific attention to the fact that the collective organization of activities must also impose expected external costs upon the individual unless the collectivity itself is constrained to make decisions through a rule of unanimity.

Thus, the expected costs that collective choices impose on the individual depend on decision-making rules that govern such choices. In such circumstances, the individual will compare the expected costs of private choice with the expected costs of the most efficient form of collective action when making his decision to submit to collective action.

Buchanan and Tullock designed a generalized economic theory of constitutions specifically to analyze the problem of individual choice among alternative collective decision-making rules. This economic theory, now widely recognized as the most important and enduring insight of *The Calculus of Consent*, is outlined in Figs. 12.6–12.9.

Figure 12.6 outlines the nature of the relationship between the present value of an individual's expected external costs and the number of individuals required to take collective action. Buchanan and Tullock suggested that the curve CN will slope downwards throughout its range, reaching zero only where the rule of unanimity is in place. The point C on this curve represents the (high) external costs that the individual expects will be imposed on him if *any* single individual in the group

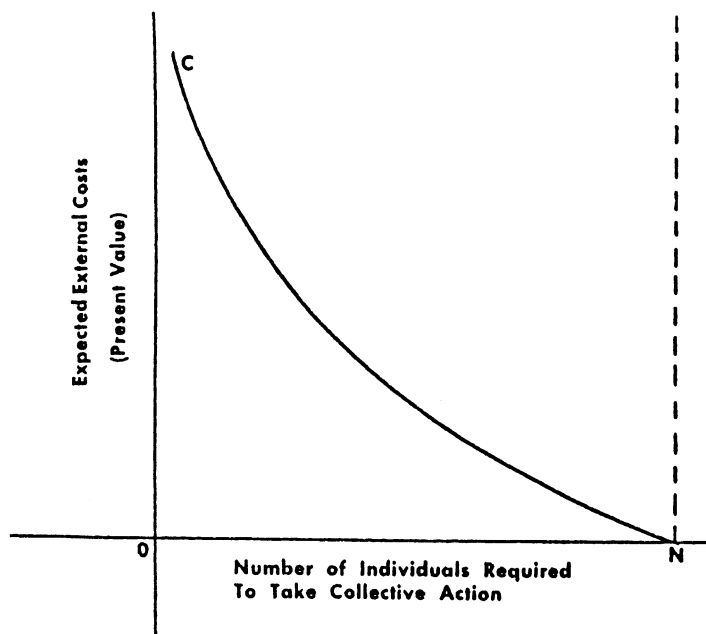


Fig. 12.6 The expected external costs of collective action

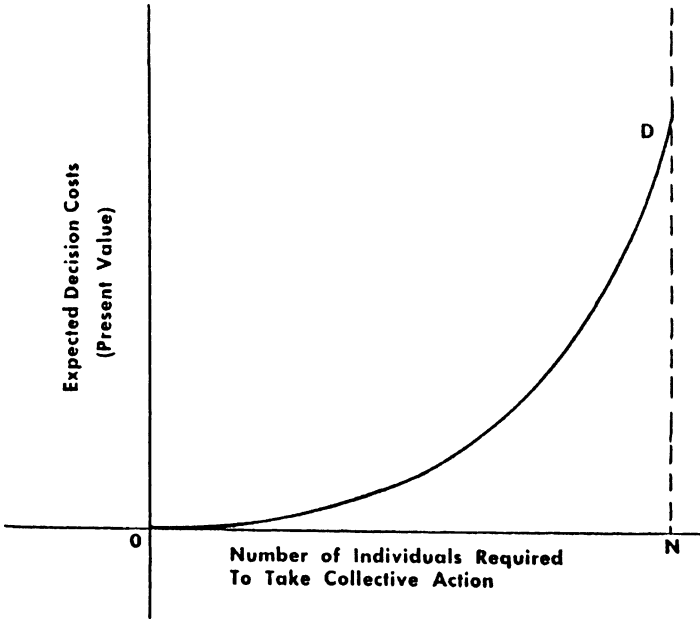


Fig. 12.7 The expected decision-making costs of collective action

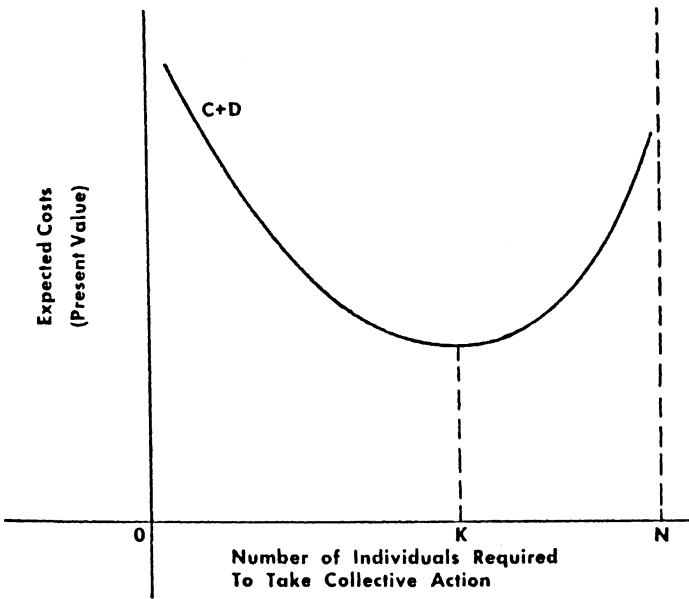


Fig. 12.8 The expected costs of collective action

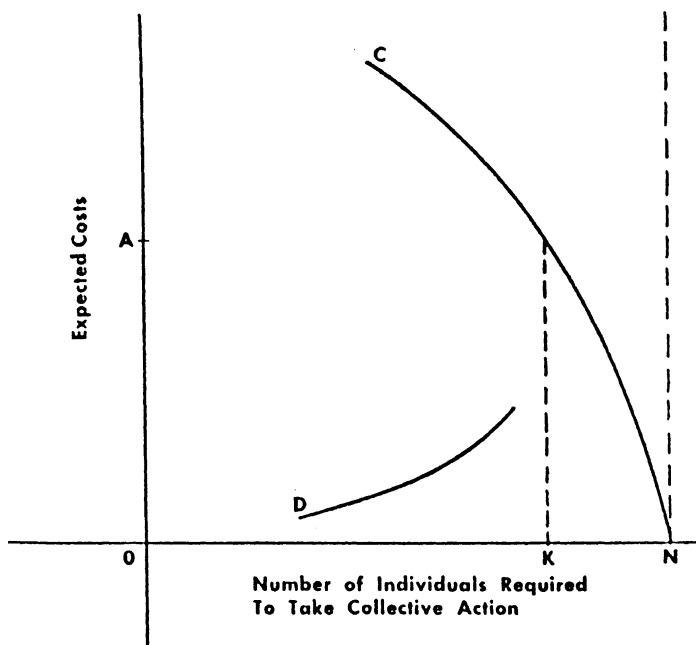


Fig. 12.9 The infeasibility of collective action

is authorized to undertake action for the collectivity. Note that **C** represents a randomly selected and not a uniquely designated individual, since the latter situation would be one of dictatorship.

As the decision rule becomes more and more inclusive, the individual's expected external costs of collective action decline, since there will be fewer decisions that the individual expects to run counter to his own desires. Only with the rule of unanimity will such costs be zero. For reasons outlined in Fig. 12.7, the rational individual will rarely choose unanimity as his most preferred rule when collective action is chosen over both private action and voluntary cooperation.

Figure 12.7 outlines the relationship between the present value of an individual's expected decision-making costs and the number of individuals required to take collective action. Buchanan and Tullock suggested that the curve **OD** will slope upwards throughout its range, reaching its highest point at **D** when the rule of unanimity is in place. At this point, the costs of strategic bargaining are so high as to render any form of agreement almost impossible.

Figure 12.8 sums the expected external costs and the expected decision-making costs functions vertically to create a curve that relates expected costs to the number of individuals required to take collective action. The rational individual will seek to minimize the expected costs of collective action by choosing the rule that requires **K/N** of the group to agree in order to act collectively. If the expected cost of private action or of voluntary cooperation is less than **OB** in Fig. 12.8, the rational individual will not endorse collective action.

As Buchanan and Tullock emphasized, the calculus of individual consent does not require that all potential collective action should be organized through the operation of the same decision-making rule. In their view, two categories of potential collective action can be separated even at this conceptual stage. In the first category are located those potential collective actions that are characteristically undertaken by government. Figure 12.8 effectively depicts the calculus of individual consent for this category.

In the second category are located those potential collective actions that modify the structure of established individual rights and property rights. The rational individual will foresee that collective action in this area potentially may inflict on him very severe costs. Figure 12.9 illustrates that the rational individual at best will require a much more inclusive rule as the basis for consenting to this category of collective actions. In the limit, the calculus of individual consent will break down entirely, and the individual will decline to enter into political society but will choose instead to protect this category of rights by private actions and/or by voluntary cooperation.

In Fig. 12.9, the expected external costs curve remains relatively high throughout the range of collective action rules short of unanimity. In such circumstances, the expected decision-making costs curve scarcely becomes a factor. In Fig. 12.9, for example, where the expected costs of private organization are depicted as OA , the expected external costs of collective action exceed the expected costs of private organization for all rules less inclusive than that shown by K/N . Given that expected decision-making costs rise exponentially in this latter range, the prospects for an individual agreeing to collective action under any rule short of unanimity are small.

Throughout this analysis, Buchanan and Tullock centered attention on the calculus of a single individual as he confronts the constitutional choice concerning rules of decision-making. What we should now perceive as a weakness in their book is the limited attention that Buchanan and Tullock devoted to dealing with the way in which individuals reach agreement concerning the rules that must govern various forms of collective action. Since individuals are aware of their own relative positions in society at the moment of constitutional choice, they are also aware that decision-making rules short of unanimity may impose different expected external costs upon them.

For the most part, Buchanan and Tullock evaded this issue, commenting that ‘[W]e prefer to put this issue aside and to assume, without elaboration, that at this ultimate stage, which we shall call the constitutional, the rule of unanimity holds’ (Buchanan and Tullock, 1962, p. 77). In fact, they did not completely put the issue aside. They relied upon the extended time horizon of the individual in making his constitutional choices to explain his greater willingness to consent to rules that potentially are harmful to his shorter-term interests.

Constitutional rules, by their nature, are expected to be long-lived, since constitutional change is usually subject to highly inclusive rules of decision-making. The rational individual, confronted with a constitutional choice, is inevitably uncertain of his particular interest at some unspecified future time. In such circumstances, he will selfishly tend to choose rules of collective decision-making that maximize the

utility of some random individual. Such far-sightedness in constitutional decision-making differs sharply from the more myopic, sectional-based approach of the individual in the ordinary business of politics.

Buchanan and Tullock recognized that uncertainty alone would not necessarily guarantee unanimity in the prior judgment of individuals as to the rules of collective decision-making that would minimize costs. Nevertheless, they argued that any initial conflicts of opinion over rules should be amenable to reasoned compromise.

Buchanan and Tullock likened the resolution of such conflicts to the discussion that might take place between potential participants as to the appropriate rules under which a game shall be played. Since no player can anticipate which specific rules might benefit him during a particular play of the game, he will not find it difficult to concur with others in devising a set of rules that will constitute the most interesting game for the average or representative player.

Buchanan and Tullock recognized that the process of constitutional decision-making set out in their book has little relevance for any society that is deeply divided by reference to social class, race, religion, or ethnicity. Unanimity over a collective decision-making rule is especially unlikely when one of these coalitions is perceived to hold an especially advantageous position. Needless to say, this implies that *The Calculus of Consent* could not have been written in its existing form, at least with relevance for the United States, with the constitutional democracy explicitly central to their analysis, had the co-authors joined forces in the late 1960s rather than in the late 1950s.

In any event, the analysis of Buchanan and Tullock provided a number of important insights into constitutional political economy. First, it is rational to have a constitution, in the sense that there is more than one rule for collective decision-making. Second, there is no necessary justification for majority rule as the basis for collective decision-making. At best, majority rule should be viewed as one among many practical expedients made necessary by the costs of securing widespread agreement on political issues when individual interests diverge.

Third, it is rational to have a constitution that requires a more inclusive rule of collective decision-making with respect to incursion on individual rights and property rights than with respect to less fundamental issues. Fourth, the more inclusive the decision-making rule, the more willing will individuals be to the entrustment of decision-making to collective choice. The range of collective decision-making, thus, is not independent of the rules that govern such activities in societies that respect the primacy of individual choice.

Finally, the analysis of Buchanan and Tullock suggests that the over-all costs of collective decision-making are lower, with respect to any constitutional rule, in communities characterized by a more, rather than by a less, homogeneous population. From this perspective alone, a more homogeneous community would adopt a more inclusive rule for collective choice. However, the homogeneity characteristic affects expected external costs as well as expected decision-making costs. On balance, Buchanan and Tullock predict that the more homogeneous the society, the less inclusive will be the rules of collective choice and the more extensive will be the range of actions encompassed within the collective sphere.

Buchanan and Tullock deployed the rational choice model to offer a number of important insights into the logic of constitutional design. A comprehensive review of these applications is beyond the scope of this essay. However, their evaluation of the rule of simple majority voting is illustrative of the general approach.

Buchanan and Tullock grounded their discussion of the simple majority vote rule on the generalized assumption that individuals vary in the intensity of their preferences for or against specific collective actions. In such circumstances, the rule of simple majority, applied to a single issue of collective choice, may provide minor gains in utility for a majority at the cost of imposing major losses in utility upon a minority (abstracting from the issue of the problem of measuring utility across individuals). Rational individuals will recognize this danger when engaging in constitutional decision-making and will protect themselves from its most serious consequences by providing institutional opportunities for logrolling (or the trading of votes).

An institutional environment in which logrolling cannot occur is the standard referendum on a single issue determined by a simple majority vote conducted by secret ballot. The rational individual, concerned about the potential tyranny of the majority, will therefore be extremely wary about endorsing decision-making by referenda as the basis for determining collective choices.

Buchanan and Tullock noted that logrolling opportunities are prevalent in many of the political institutions of the Western democracies. Explicit logrolling is a common feature of all representative assemblies where exchanges of votes are easy to arrange and to observe. Such exchanges of votes significantly affect the political process. Implicit logrolling dominates the electoral process since the leaders of the political parties formulate complex mixtures of policies into electoral platforms designed to attract voters' support by appealing to intensely held preferences.

Buchanan and Tullock suggested that both explicit and implicit logrolling tend to improve the efficiency of the political process, even though these practices are widely criticized on ethical grounds. They demonstrated, however, that even when logrolling is possible, simple majority rule is likely to produce undesirable collective decisions, for example by over-investing in the public sector. Indeed, they further demonstrated that a system in which the open buying and selling of political votes is encouraged tends to improve the efficiency of simple majority rule as evaluated in terms of the Pareto criterion.

Recognition of the fact that preference intensities over policy alternatives differ among the electorate may encourage the rational individual to favor the bicameral over the unicameral legislature as a basis for constitutional design. A properly designed bicameral legislature, offering different bases of representation, will discriminate automatically between legislation potentially affecting intense minorities and legislation on which the intensity of desires is more or less equal. This will significantly improve the efficiency of the political process.

A further improvement in political market efficiency occurs when the constitution provides a president with veto power, effectively establishing a third house of the legislature. This third house represents the entire body of voters in one grand constituency, raising the minimum size of the logrolling coalitions and further protecting the individual voter from the excesses of the rule of simple majority voting.

In this manner, Buchanan and Tullock outlined the sort of calculus that the individual must undergo when he considers the question: Can the pursuit of individual self-interest be turned to good account in politics as well as in economics? They were able to show that, even under the behavioral assumption of extreme self-interest, something akin to the constitutional democracy conceived of by the American Founding Fathers would tend to emerge from the rational individual calculus. They concluded their epic on an extremely optimistic note, a note perhaps that some forty-five years later they would no longer feel able to hold:

With the philosophers of the Enlightenment we share the faith that man can rationally organize his own society, that existing organization can always be perfected, and that nothing in the social order should remain exempt from rational, critical, and intelligent discussion. Man's reason is the slave to his passions and recognizing this about himself, man can organize his own association with his fellows in such a manner that the mutual benefits from social interdependence can be effectively maximized. (Buchanan and Tullock, 1962, p. 306)

The Insight of Mancur Olson

Prior to 1965, public choice had been developed with a primary emphasis on the vote motive. It is true that Downs (1957) and Buchanan and Tullock (1962) acknowledged the relevance of pressure group activities in the political process. Neither of them accorded to interest groups the central role that they evidently play in the determination of political outcomes in the Western democracies. In his important 1965 book, *The Logic of Collective Action*, Mancur Olson filled this lacuna in the public choice literature with his rigorous application of the rational choice approach to the analysis of interest groups.

Prior to Olson's book, economists, sociologists and political scientists had taken for granted the notion that groups of individuals with common interests usually attempted, often successfully, to further those interests by the application of political pressure. This notion played a central conceptual role in early American theories of labor unions, in the 'group theory' of the pluralists in political science, in John Kenneth Galbraith's concept of 'countervailing power' and in the Marxian theory of class conflict. This theory of interest group behavior essentially transferred the logic of the rational choice theory of individual behavior to that of groups.

In *The Logic of Collective Action*, Olson provided a dramatically different view of collective action. If individuals in some group share a common interest, furtherance of that common interest automatically benefits each individual in that group, whether or not he bears any of the costs of collective action to further that interest. Thus the existence of a common interest need not provide any incentive for individual action in the common interest, especially when any one member's efforts are highly unlikely to make the difference between group success and group failure.

From an analytical viewpoint, Olson demonstrated that the benefits of collective action take the form of public good in the sense that individual members of the

group cannot easily be excluded from any benefits that accrue. Economists recognize that voluntary and spontaneous market mechanisms either do not arise or seriously under-provide public good, as a consequence of the free-rider problem. This under-provision of markets is paralleled exactly by the under-provision of pressure in the case of large groups attempting to pursue a common interest.

Since many groups with common interests do not have the power to tax their members, Olson's theory predicts that many groups that would benefit from collective action will fail to organize effectively in pursuit of their common interests. This prediction is supported by evidence. There is no major country in which organizations of consumers effectively support consumer interests. There is no major country in which groups of unemployed workers are effectively organized for collective action. Neither taxpayers nor most of the poor are typically organized to act in their respective common interests.

Although the logic of collective action indicates that some groups can never act collectively, Olson suggested that other groups, with the assistance of ingenious leadership, may be able to overcome the difficulties of collective action. He posited three conditions, any of which is ultimately sufficient to make collective action possible, namely (1) that the relevant group is small in size, (2) that the group has access to selective incentives or (3) that the group can coerce the supply of pressure.

Suppose that a group is composed of a small number of members, each with identical preferences in favor of some common interest. An example of such a group would be an industry made up of two large firms that would gain equally from the provision of a government subsidy or a tax loophole. Since the lobbying activity of each firm, if successful, will exert a significant impact on profits, strategic bargaining between them predictably will result in a group optimal outcome. As the number of firms in the industry increases, however, the incentive to act collectively is eroded.

Even in an industry composed of many firms effective lobbying may occur where one firm has a differentially high absolute demand for collective action. In such circumstances, such a firm may engage in collective action, notwithstanding the inability of other firms to provide pressure of their own. This leads to the paradoxical exploitation of the great by the small. Olson illustrated the existence of this phenomenon in a variety of military alliances, in international organizations and in metropolitan areas in which collective good is provided across an entire metropolis by independent municipalities of greatly different size.

If large groups are to organize themselves effectively to supply pressure, Olson argued that they must engage in the provision of selective incentives to their members. These selective incentives are functionally equivalent to the taxes that enable governments to supply public good, except that interest group members, unlike taxpayers, cannot be coerced into accepting selective benefits.

Selective benefits either punish or reward individuals depending on whether or not they have borne a share of the costs of collective action. One example of this device is the provision of life insurance and medical policies to paid-up members of the American Association of Retired Persons at rates that would not be available to individual consumers. Another example is the mechanism whereby farm associa-

tions in the United States obtain most of their membership by deducting the dues owed by farm organizations from the patronage dividends or rebates of farm cooperatives and insurance companies associated with those organizations.

Large groups that fail to provide selective benefits may nevertheless overcome the free-rider problem associated with collective action where they are able to devise mechanisms for coercing the supply of pressure. An obvious device of this kind is the combination of the closed shop and the picket line utilized by some trade unions to make union membership a condition of employment and to control the supply of union labor during strikes. Another conspicuous example is the statutory requirement extracted by state bar associations in the United States that only paid-up members of the bar are allowed to engage in the practice of law.

Olson's application of the rational choice approach to the analysis of collective action offered disturbing insights into the political process. Since access to collective action is uneven, the application of pressure by groups in pursuit of common membership goals will be uneven across society. Legislatures that respond systematically to such uneven pressures (by taking advantage of rational ignorance among the electorate or by utilizing the campaign contributions to manipulate voters' preferences) may be able systematically to evade the centripetal pressures of two-party spatial politics while effectively providing tenure to incumbent representatives.

Conclusions

The five contributions evaluated in this essay together comprise the founding content of the public choice research program. By rejecting both the philosopher-king approach of economic science and the behavioral approach of political science in favor of the rational choice approach, the Founding Fathers revolutionized our understanding of the political process.

One important consequence of these contributions has been a dampening of the enthusiasm with which social scientists proffer policy advice to governments. A second important consequence has been the dampening of enthusiasm for active government even among scholars who still nurse strong suspicions concerning the behavior of private markets.

The Founding Fathers of public choice, in some cases by design and in other cases by accident, effectively leveled the playing field in the debate over the relative merits of governments and private markets. This playing field, by the mid-1950s, had become undeniably prejudiced in favor of an allegedly omniscient and impartial government.

In balancing this playing field, the Founding Fathers of public choice played an indispensable role in stimulating the Western democracies to abandon their mid-twentieth century flirtation with socialism, thereby paving the way for resurgence of market processes. The insights provided by the public choice research program rank among the most important of all advances in economic science during the second half of the twentieth century, when measured in terms of their contribution to the wealth of nations and to the expansion of individual liberty.

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