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Queen's Economics Department Working Paper No. 1245

Bargaining and Voting

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Bargaining and Voting

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Abstract: Government by majority rule voting requires that compromise be attainable, but not too easily. Little of the nation's business could be transacted without an ability on the part of the legislators and political parties to strike bargains, but government by majority rule voting could not withstand a bargaining equilibrium comparable to the general equilibrium in a competitive economy. Democratic government is designed to foster bargaining where it should be fostered and to impede bargaining where it should be impeded.

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“In the nineteenth century, economics was often called the “dismal science” largely because the equilibria predicted from price theory were not palatable to those who called it dismal. In what seems to me a deeper sense, however, politics is *the* dismal science because there are no fundamental equilibria to predict.”

William Riker (1980, 433)

“... by the same right of nature (whatever that be) that you pretend... one man hath an equal right with another to the choosing of him that shall govern him - by the same right of nature, he hath the same equal right in any good he sees - meat, drink, clothes - to take of them for his sustenance....if this be allowed because by the right of nature we are free, we are equal, one man must have as much voice as another, then show me what step or difference there is why I may not by the same right take your property...”

Henry Ireton (Putney Debates, 1647)

A willingness to compromise - among legislators, in the formation of coalition government, in the establishment of platforms of political parties and in other ways as well - is an indispensable requirement for the maintenance of government by majority rule voting. As has been recognized since the beginning of political thought in the Ancient world, the knack of compromise may destroy government by majority rule voting through the exploitation of minorities by majorities. Preservation of government by majority rule voting rests upon a design of government and an organization of society at large to promote the one aspect of bargaining while suppressing the other. Elaboration of that proposition is the subject of this paper.

Majority rule voting is a process by which eligible voters choose one point, or option, out of a set of available points. Voters may be citizens choosing among candidates, legislators choosing among alternative laws or programs, or citizens choosing laws as in a referendum. In what follows, it will be evident from the context which of these situations is being examined. The set of available points may consist of:

- two points, as when citizens vote for a red party or a blue party or when legislators vote for peace or war.

- many points, as when citizens vote for one out of several candidates for office

- a one-dimensional continuum, as when all public policy can be set out on a left-right scale

- a multi-dimensional continuum, as when legislators must choose expenditures on several items - health care, education, the military, etc. - simultaneously

- the allocation of income, as when public largess is apportioned among constituencies or, in the extreme, when the entire national income is distributed in a fully socialist state.

Interactions between voting and bargaining will be examined in each of these five patterns, one by one. Discussion of the first three patterns is preliminary to discussion of the fourth pattern where bargaining is indispensable to democratic government and the fifth pattern where bargaining is corrosive.

Some preliminary observations about bargaining: First, bargaining is commonly described as the allocation of a pie by common consent among people who are collectively entitled to it but who cannot appropriate it until they agree on how it is to be shared. Here, bargaining is more than that. It is also the self-selection of participants among a great field of possible participants. Bargaining within majority rule voting differs from bargaining within markets. In markets, many groups of participants - buyers and sellers - are formed simultaneously, until, in the limit, there emerges a single market price or vector of market prices.¹ In majority rule voting, the bargain that matters is within just one of the many possible majorities in the legislature.

Second, there is no such thing as a bargaining equilibrium. As argued in an earlier article (Usher, 2010), bargaining and maximizing are fundamentally different activities. There is a literature in which bargaining equilibria are derived, but what is called bargaining there is very different from bargaining as the term is commonly understood. We simply do not know which among a set of mutually-advantageous bargains, some relatively advantageous to one party, some relatively advantageous to another, will be struck.

Third, though all bargains must be beneficial to the participants in the sense that participation is preferable to non-participation, some bargains are *predatory* in the sense that outsiders are made worse off than if no bargain had been struck. This consideration is of great importance in majority rule voting where a majority of voters - any majority whatsoever - can have its way. In the quotation at the beginning of this paper, Henry Ireton, a supporter of Oliver Cromwell in the English Civil War, refers to a majority of the poor expropriating the property of the rich, but a majority identified by religion, language, location, or race would do equally well as long as the members of the majority coalition can strike a bargain to vote as a block.

Fourth, bargaining may require something analogous to transaction cost. Some bargains are struck costlessly, if at all, in that no resources of time or money need be devoted to the bargaining process. Other bargains require bargainers to be organized and to keep watch upon one another to ensure that promises within the bargain are kept. The former is represented by the division of a dollar between two parties; the parties may fail to agree on any particular allocation, but there is likely to be little or no cost to reaching an agreement. The latter is represented by agreements of a majority of voters to support a specific policy or political allocation of income, no matter what else may be proposed. As will be discussed below, coordination among the members of the majority coalition may be more difficult in some circumstances than in others.

¹On this process, see Newman (1965) and Osborne and Rubinstein (1990).

Also, it is assumed throughout this paper that voters differ about *interests* rather than *opinions*, ignoring the possibility that, in a choice among policies, the policy which is best for any one person is automatically best for everybody else as well, but people disagree about which policy that is. Here, if person 1 favours policy A and person 2 prefers policy B, it must be because policy A is really better for person 1 and policy B is really better for person 2. The allocation of benefits to different people is assumed to be common knowledge.

A brief review of some of the literature on voting equilibrium is included as an appendix.

How the Role of Bargaining in Majority Rule Voting Depends on What People Vote About

i) A Pair of Options: The legislature is confronted with a simple choice, to pass a bill or to reject it, with no amendments allowed. If the number of legislators who favour the bill exceeds the number opposing it and with no side-payments allowed, the bill passes with no need or opportunity for bargaining.

Consider a 9-person legislature with 5 people in favour of a certain bill and the remaining 4 people opposed so that the bill is passed with a 5 to 4 majority. Suppose also that everybody places a value of \$100 on his preferred option. Each of the 4 people opposed to the bill would pay up to \$100 to block it. Each of the 5 people in favour of the bill would pay up to \$100 to preserve the win. As long as everybody votes sincerely, the bill wins in a straight up or down vote.

The bill can, nonetheless, be defeated by a coalition of the 4 opponents together with one extra person who favours the bill but can be paid off to vote against it. In this deal, each of the four opponents would be willing to pay up to \$100 to the turncoat, or \$400 in total, and the turncoat would be willing to accept anything over \$100, creating a surplus of \$300 that would somehow be apportioned among the bargainers. Worse still, if the 5 people in favour of the bill came to believe that the bill would not pass because one of them would be bought out by the opposition, each of them would accept compensation, however small, to vote against it. Clearly, government by majority rule voting could not be sustained in such circumstances. Hence, the absolute prohibition of vote-buying in a democracy.

Note however that a) majority rule does not necessarily maximize social welfare and b) that something analogous to vote-buying occurs in government support of industry in different parts of the country. Social welfare may not be maximized because majority rule voting takes no account of intensity of preference. Suppose, for example, that each of the 5 supporters of the bill places a value of \$100 on its passage, while each of the 4 opponents places a value of \$1,000 on its defeat. Clearly, there is room for a grand bargain that makes everybody, supporters and opponents alike, better off. Something analogous to such a bargain may in practice be struck by incorporating the subject matter of the bill within a larger and more comprehensive bill or by vote-trading where supporters of the bill vote against it in return for votes by opponents on something else. There is a trade-off here between the evils of vote-buying and the maximization

of social welfare in the determination of public policy.

ii) Several mutually-exclusive options: Consider a choice among three options X, Y and Z, which may be candidates for office or may be variations of a bill before the legislature on the understanding that the status quo with no bill at all is among the alternatives. Either of two voting procedures might be adopted, a plurality rule where each person votes for one of the options and the option with the most votes wins, or sequential voting with a first vote between some pair of options, a second vote the winner in the first vote and some new option, and so on until all available options have been included. Typically, the plurality rule is used for choosing among candidates and the sequential procedure is used for voting on bills and amendments to bills in the legislature.²

Much depends upon whether one among these options is a Condorcet winner, defined as an option that beats every other option in a pair-wise vote. The option X is a Condorcet winner if X beats Y in a vote between X and Y alone, and X beats Z in a vote between X and Z alone.

The winner under sequential voting is the Condorcet winner rule if there is one, but that need not be so under plurality voting. For example, the option X may emerge victorious under a plurality rule despite the fact that X would lose to either Y or Z in a head-to-head pair-wise vote.³ The plurality rule is used nonetheless in voting for candidates for office because people voting for candidates would not tolerate the long series of elections that sequential voting typically requires and because, as will be explained, sequential voting gives the edge to candidates at the end of the sequence.

Sequential voting works less well when there is no Condorcet winner. Consider an electorate of just three voters with orders of preference XYZ, YZX and ZXY, giving rise to a *paradox of voting* where collective choice as expressed in voting is intransitive despite the fact that each voter's individual preference is transitive. In pair-wise votes, X defeats Y, Y defeats Z, but Z defeats X. A person who made such choices would be deemed insane.⁴ It follows at once that the last option in the sequence automatically wins and that the agenda-setter (the person entitled to choose the ordering of the sequence of votes) is, in effect, empowered to determine the outcome of the election. If the first vote is between Y and Z, the winner in that round of voting is Y which then loses to X in the second and final round. If the first vote is between X and

²Other methods of voting for candidates, such as the single transferrable vote, incorporate some of the features of sequential voting.

³Imagine an electorate of 10 people, 4 people with preference XYZ, 3 people with preference YZX and 3 people with preference ZYX. Under a plurality rule, X wins the election with 4 votes, as against 3 votes for Y and 3 votes for Z, despite the fact that X would lose by 6 votes to 4 in a pair-wise contest between either Y or Z.

⁴For an exposition and history of the paradox of voting, see Black(1948) and Black and Newing (1958)

Z, the winner in that round of voting is Z which then loses to Y in the second and final round. An agenda-setter who wants Z to win schedules the first round of voting between X and Y. In general, with many voters, many options but no Condorcet winner, an option that would not be chosen if placed early in the sequence may win if placed farther along. There is a wide range of circumstances where the agenda-setter determines the outcome of the election.

Parliamentary procedure may be seen as a partial corrective for the paradox of voting. Broadly-speaking, it prescribes a sequence of pair-wise votes where amendments to a bill are voted upon in reverse of the order that they are presented, the second-to-last vote is between the bill as amended and as originally proposed, and the last vote is between the survivor in the second-to-last vote and the status quo, ensuring that innovation is only adopted when there is a strong preference for it.⁵ Suppose in our three-person example that X is the status quo, Y is the original bill as proposed by the government in office and Z is the bill as amended. Then there two votes, the first between Y and Z and the second between the winner of the first vote and X. With preferences as assumed above, X wins, signifying that no bill, with or without amendments, is passed. Parliamentary procedure ensures that, with sincere voting, the constellation of preferences giving rise to a paradox of voting is insufficient to overturn the status quo.

Even within Parliamentary procedure, there is remains room for strategic voting and predatory bargaining. Two of the three voters - the person with preferences YZX and the person with preferences ZXY - prefer the amended bill, Z, to the status quo, X. Both become better off if the person with preferences YZX acts strategically in the initial vote, voting not for his first preference Y, but for the amended bill, Z, which then beats X in the final vote. The remaining person, with preferences XYZ, is harmed by the manoeuvre, for the outcome is shifted from his most preferred, X, to his least preferred, Z, alternative.

To make the best of a bad situation, the person with preference XYZ, who but for strategic voting would have attained his first preference, may offer this deal to the person with preference ordering YZX: "You vote for Y over Z in the first round, and I in turn promise to vote for Y instead of X in the second. A win for Y is better for both of us than a win for Z which is what we can expect otherwise." Both parties to the deal become better off as long as all promise are kept. Something of this simple example remains when the parties to the deal are thought of not as real people, but as factions influencing platforms of political parties or as groups of legislators representing portions of the population as a whole.

All such bargaining is predatory. Bribery, as discussed in connection with voting about a pair of options, is feasible here too, but may be unnecessary because most of what might be attained by illegal bribery can be attained by legally-permitted vote-trading instead.

Options may consist of combinations of up-or-down alternatives. Suppose two bills are

⁵For a brief introduction to the logic of parliamentary procedure, see Riker (1980b)

under consideration in the legislature, one to ban abortion and the other to deregulate the economy. Represent passage of the first bill by X, and its rejection by R_X , where X refers to banning abortion and R_X refers to the status quo with abortion allowed. Represent passage of the second bill by Y, and its rejection by R_Y where Y refers to deregulation, The legislature is then confronted with four distinct options, each being a combination of decisions on the two bills: (X, Y) , (R_X, R_Y) , (X, R_Y) and (R_X, Y) . Suppose as well that the legislature consists of three groups of people: 30% religious folk, 30% free-marketeers, and 40 % moderates.

Moderates want neither bill passed, but, if just one bill is to be passed, they do not care which bill it is. Their order of preference among pairs of outcomes is

$$(R_X, R_Y), (X, R_Y) = (R_X, Y), (X, Y)$$

where “=” means indifference. Free-marketeers are passionately in favour of deregulation, but, other things being equal, oppose banning abortion. Their order of preference is

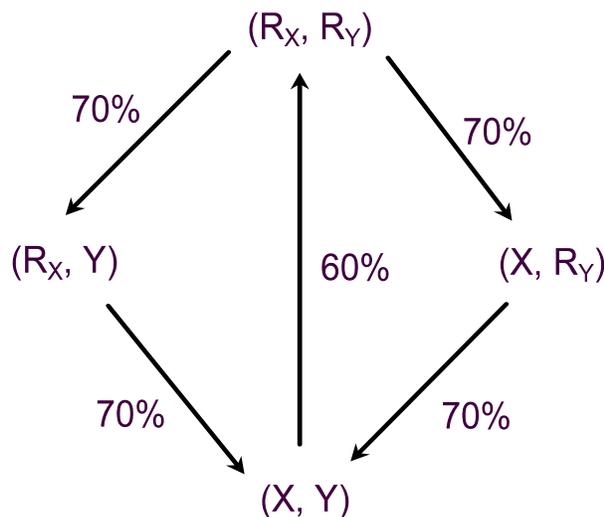
$$(R_X, Y), (X, Y), (R_X, R_Y), (X, R_Y)$$

Religious folks are passionately in favour of banning abortion, but, other things being equal, oppose deregulation. Their order of preference is

$$(X, R_Y), (X, Y), (R_X, R_Y), (R_X, Y)$$

For the postulated sizes of the three groups of voters, the outcomes of all votes between pairs of options - one concerning abortion and the other concerning deregulation - are shown in figure 1, with arrows pointing from winner to loser in each vote

Figure 1: Contests between Combinations of Outcomes



Suppose, firstly, that the two bills - to ban abortion and the to deregulate the economy - are voted upon separately, and that everybody votes sincerely with no vote-trading allowed. Nobody can exchange his vote on one bill for somebody else's vote on the other. With preferences as postulated above, both bills are destined to fail, with 30% of the legislature in favour and 70% opposed. The outcome is (R_X, R_Y) which is the first preference of the moderates but is the next to last preference of both the free marketeers and the religious folk.

The opposite outcome, (X, Y) can be procured by a vote-trading bargain between the religious folk and the free-marketeters. Though not in favour of deregulation, the religious folk pledge to vote for deregulation in return for a pledge by free marketeers pledge to vote to prohibit abortion. Though not in favour of banning abortion, the free-marketeters pledge to vote for it in return for a pledge by religious folk to vote for deregulation. By this bargain, both groups move from their third choice among the four options to their second choice. The bargain is predatory, for moderates become very much worse off, moving from their best to the their worst outcome among the four possibilities. Such deals are implicit in the formation of the platforms of political parties. The current alliance between God and money on what is commonly called "the right" may have more to do with elections than with any natural affinity between them.

The bargain between religious folk and free marketers is not the only possible bargain. A better deal for both moderates and the free marketeers can be had by the former pledging to vote for Y in return for the latter voting against X , yielding the outcome (R_X, Y) . As shown in figure 1, a similar deal is possible between religious folk and moderates. There is no telling which among these possible deals will actually be struck.

iii) A one-dimensional continuum: A voting equilibrium emerges when all possible choices can be represented as points on a left-right continuum, where voters' first preferences are representable by different points along the continuum and where all voters' preference schedules are *single-peaked*, meaning that each voter's utility diminishes steadily as the public choice moves farther and farther away, to the left or to the right, from the voter's first preference. Preferences about the severity of punishment would be single-peaked if there were a common understanding about the meaning of severity, if each voter had a preferred degree of severity and if, between any other two options both the right of his first preference, the voter prefers the option closest to his first preference.

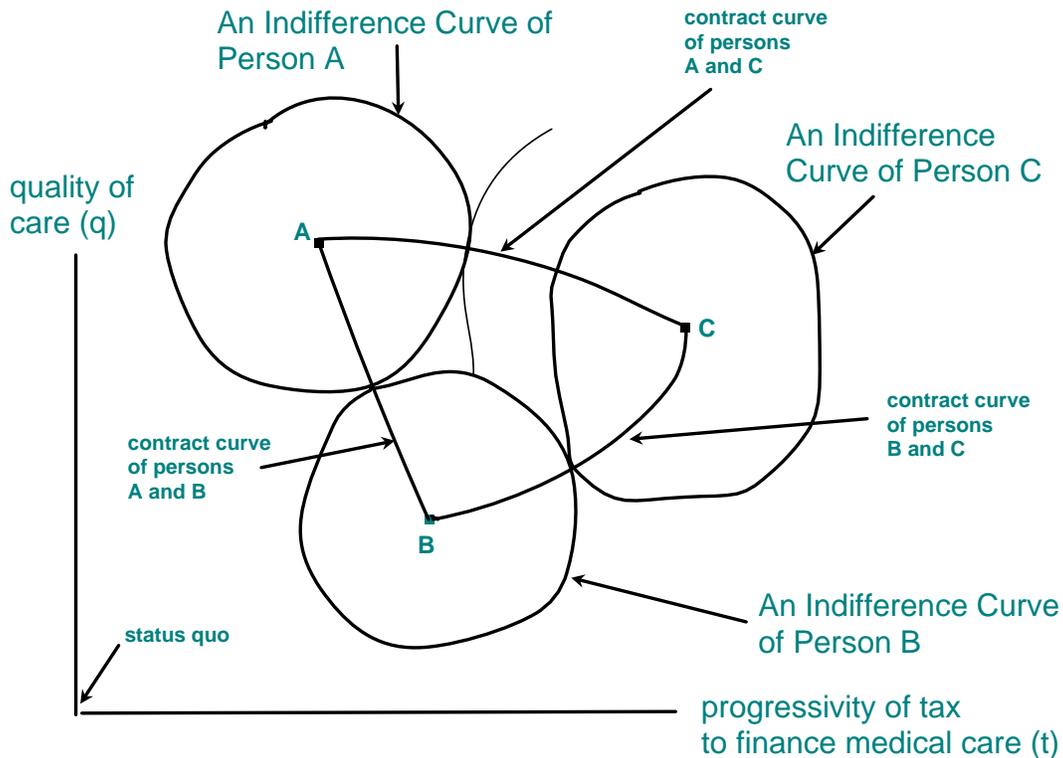
Single-peaked preferences gives rise to the *median voter theorem*. Mark each voter's first preference on the left-right continuum. The median voter is the person in the middle, with as many voter's first preferences to the left of his first preference as to the right. The median voter's first preference beats any other point on the continuum in a pair-wise vote with nothing remaining to bargain about.

iv) A Multi-dimensional Continuum: Consider the recent health care debate in the US Congress. Ultimately, a health care bill had to be voted up or down. Before that could happen, it had to be decided, among other things,

- whether there is to be a public option
- the size of the tax, if any, on very expensive private health care plans
- whether insurance companies may refuse to cover pre-existing conditions
- how much to subsidize health care for poor people
- whether to tax people who choose not to take out health insurance
- an excise tax on the very wealthy to cover the extra cost of insuring the poor⁶

The important consideration here is that an agreement on these matters must be reached before voting takes place, for there must be something definite to vote about. Voting must be preceded by a bargain among a majority of legislators who agree among themselves that a comprehensive health care bill should be passed, but who have somewhat different preferences about the specifics of the bill. Compromise is inescapable if any bill is to be passed. Bargaining and voting are inextricably joined together.

Figure 2: Preferences of Three Voters about a Two-dimensional Bill



⁶Farhana and Tse (2009)

What is at stake can be illustrated in a simple example with three voters and a two-dimensional bill as illustrated in figure 2. The voters (Think of them as Members of Parliament) are called A, B and C. The two dimensions are, let us say, “quality of care” measured as q on the vertical axis of the figure and “progressivity of tax to finance medical care” measured as t on the horizontal axis. All feasible health care bills can be represented as points (q, t) . First preferences of the three voters are indicated by the points labeled A, B and C. Every voter’s indifference curves are loops around that voter’s first preference. Three such curves are shown, together with a bit of an additional curve for voter C. The origin of the figure may be thought of as representing the status quo with no health care bill at all. Also shown on the diagram are three contract curves, one for each pair of voters.

Majority rule voting allows any two voters to choose the health care bill, provided that they can agree on what the content of the bill is to be. Acting in their own interest exclusively, and with no concern for the welfare of voter C, a majority consisting voters A and B would choose some point on the contract curve between their first preferences, but a bargain between voters A and B would be required to decide which point to choose. The same is true of possible deals between voters B and C, or between voters A and C. There might instead be a deal between all three voters. Any such deal would settle upon some point within the roughly triangular area bounded by the three contract curves, for all three voters could be made better off by some point inside the triangular area than they would be with any point outside. Agreement of all three voters would be required in an electorate of five, rather than just three, voters if the extra two voters favoured the status quo with no health care bill at all.

Without some such compromise, no bill could be passed and the status quo would be preserved. Here bargaining is indispensable for public decision-making by majority rule voting, but there is no telling which bargain will be struck and no assurance that two out of three voters, or all three voters, can strike a deal at all. The simple fact is that democracy requires a modicum of good will and compromise.⁷

The need for bargaining in the circumstances of figure 2 is the other side of a very

⁷Tullock (1967) has suggested an interesting equilibrium for a particular case. Holding to the assumption that voting is about the choice of a point in a two-dimensional continuum, assume that “indifference curves are all perfect circles and that the individual optima are evenly distributed over the issue space”(268), and, to make matters even simpler, assume that all voters’ first preferences are evenly spaced out in a disk. It then follows that the option represented by the point at the center of the disk beats any other option in a pair-wise vote, restoring the median voter theorem in two-dimensional space and rendering bargaining unnecessary. These, however, are very strong assumptions. Indeterminacy reappears if the electorate, no matter how large, consists of just three, or just a few, groups of identical people. Indeterminacy also reappears when the number of dimensions and the number of voters is the same as is the case in the exploitation problem to be discussed in the next section.

familiar coin. The figure is ordinarily employed to show the absence of a Condorcet winner, of some point, representing a two-dimensional option (q, t) , that cannot be defeated by any other point in a pair-wise vote. Centered on any given point in the figure is a trillium-shaped area within which any point defeats the given point.⁸ From this, it follows, when an agenda-setter can schedule pair-wise vote after pair-wise vote for as long as he pleases and when voters vote sincerely at each round of voting, the agenda-setter can manipulate the elector to vote for any point whatsoever. Sincere voting is the critical assumption in this inference. Recognizing that they are being led by the nose, any majority of voters that can strike a deal to reject all points other than the point they have agreed upon.

vi) The Allocation of Income: A group of N people is collectively entitled to a sum of money that can only be appropriated once each person's income is assigned. This becomes a classic bargaining problem when the money can only be allocated by unanimous agreement. This becomes majority rule voting when the money can be allocated by agreement of a majority - any majority - of the population; agreement among at least $(N + 1)/2$ people would be required. The money to be allocated may be, for example, a fund to be apportioned among firms to promote investment in different parts of the country, or it may be the entire national income in a fully socialist state, a regime of democratic communism that is of interest not because it is representative of any society that we know, but, quite the reverse, because democratic government could not be maintained if the stakes in an election were so large.

Voting about the allocation of income gives rise to a classic paradox of voting as discussed in item (ii) above. As long as everybody acts self-interestedly, there is no allocation that cannot be defeated by some other allocation in a pair-wise vote. Consider a group of 5 eligible voters, A, B, C, D, and E, allocating an 150 units of income among themselves. Any allocation can be represented set of five numbers, the first showing the income of person A, the second showing the income of person B, and so on. The "fair" allocation $(30, 30, 30, 30, 30)$ can be overturned by an unfair allocation, such as $(50, 50, 50, 0, 0)$, which in turn can be overturned by an allocation such as $(60, 0, 0, 45, 45)$, and so on ad infinitum. The paradox of voting is analytically similar in this context to the paradox of voting for one of several alternatives, but more pervasive and more extreme. There, a paradox of voting is a possibility that may or may not be realized, for preferences may easily be such that one alternative beats all others in a pair-wise vote. Here, the paradox of voting is universal, for no allocation can ever be preferred by a majority of voters to all the rest.

Related to the paradox of voting, but considerably more pernicious, is the *exploitation problem*. With no impediments to bargaining, any majority of voters can grab the entire income

⁸The only exception is where the first preference of one of the three voters lies on the contract curve between the first preferences of the other two. Suppose, for example, that the point C lies on the contract curve between the points A and B. If so, person C becomes the median voter in a left-right continuum, the point C becomes the Condorcet winner and the need for bargaining is removed. Otherwise, bargaining is indispensable.

for itself, with nothing left over for anybody else. In a five-person society with a total income of 150 to be allocated by majority rule voting, a coalition of, for example, persons A, B and C might strike a deal in support an allocation (50, 50, 50, 0, 0). The deal may or may not hold. It would not hold if everybody voted sincerely, for the allocation (50, 50, 50, 0, 0) could then be defeated by the allocation by an allocation such as (60, 0, 0, 45, 45), the traitor being person A whose income is raised from 50 to 60. But the deal may hold because nobody in the original coalition is prepared to break ranks for fear of being excluded from some other coalition down the road. Person A might refuse to vote for the allocation (60, 0, 0, 45, 45) for fear that it in turn might be defeated by an allocation such as (0, 0, 50, 50, 50).

The five people might be representative of five industries or five provinces or a population where three-fifths follow one religion and the remaining two-fifths follow another. The three person coalition becomes a political party with a platform serving the interests of the three at the expense of the other two. Invariably, there are three aspects to any such coalition. The participants - voters A, B and C in this example - must *recognize* one another, must *allocate* the spoils among themselves and must *resist* the entreaties of the members of the excluded minority who could otherwise take advantage of the paradox of voting to lure away members of the majority coalition into an infinite regress. The ploy only works if members of the majority coalition can be confident that the coalition will hold, and that in turn may depend on the presence of common features among the members of the majority coalition allowing them to identify and trust one another.

Predatory majorities are more likely to be established by groups of people who are similar to one another and different from the rest of the population, for, not only do such people have interests in common, but coalitions of such people are easier to form and to maintain than coalitions of people who do not initially identify with one another. Ethnic solidarity may foster exploitation, but the reverse is also true. The prospect of being expropriated and of expropriating others in a democratic society may create common bonds that might not otherwise be recognized. Solidarity among people with the same religion may have less to do with common beliefs than with the power of the vote to dispossess and deny civil rights to members of other religions, with the corresponding risk of dispossession and loss of civil rights at the hands of others.

The exploitation problem has been recognized for as long as people have speculated about politics, is a standard objection to democracy and must be dealt with in the design of democratic governments today. Throughout recorded history, thoughtful people have doubted whether democracy could ever be made to work. A majority of voters would employ its authority over the government and the army to deprive the corresponding minority of income, property and civil rights. Or, anticipating its fate at the hands of its successors, an unpopular party in office might use the power of the state to squelch the opposition. Better to rule tyrannically than to be dominated by a predatory majority in a democratic state. Recognition of a certain validity in the anti-democratic argument has led political theorists to search for constraints upon predatory voting and, more importantly, to design institutions that hold predatory majorities in check. Democracy may be defined as government by majority rule voting together with whatever

subsidiary rules and constraints are required to keep the system afloat.⁹ Democracy is not just voting. It is voting surrounded by other institutions to facilitate public decision-making while at the same time fencing off majority rule voting from domains of life where the exploitation of minorities would destroy democracy itself.

The Design of Democratic Government to Foster Bargaining where it Should Be Fostered and to Thwart Bargaining where it Should Be Thwarted.

Focus upon three extreme cases: Public decisions may be about i) single- peaked issues, such as the severity of punishment, ii) specification of some commonly-favoured public policy, such as health care in the three-person economy as described above, iii) allocation among voters of the entire national income. In these three cases, bargaining is, respectively, unnecessary because voting is determinate, necessary but universally-advantageous in that everyone becomes better off with any among a wide range of policies than if no policy were adopted, and advantageous to members of the majority coalition but disadvantageous to the corresponding minority and, typically, to society as a whole. There is a difficult trade-off here. Ideally, governments would be designed to facilitate bargaining in the second case where the outcome is expected to be advantageous for everybody, but to to impede bargaining in the third where bargaining is often destructive.

Universally-advantageous bargaining may be assisted by delegation. Citizens vote for legislators and executives who, in turn, determine public policy. Even the legislature may be too large. A committee of Parliament, the Senate or the House of Representatives may be instructed to work out the details of a bill when it would be cumbersome or excessively time-consuming for the entire legislature to do so.¹⁰ Alternatively, the governing party may be expected to propose a version of a bill that is at least tolerable to the great majority of its supporters. Through all this, some semblance of the will of the majority may be expected to prevail, but the correspondence between citizens' preferences and public outcome is necessarily less than complete.

Compromise is everywhere. Compromise must be struck within political parties before the election so that voters know what they are voting for. Compromise must be struck after the election in the choice of a cabinet under proportional representation or when no party commands a plurality in the legislature. Voting determines the numbers of legislators from the different parties, but no cabinet can be formed until an bargain is struck between two or more parties which together command a majority in the legislature (or a minority coalition with a reasonable prospects of not being voted out of office immediately) allocating cabinet post among the parties in the governing coalition. Such compromise is routine in Israel, Germany and many other

⁹On alternative definitions of “democracy”, see Dunn(2005).

¹⁰On delegation in the US Congress see Kiewiet and McCubbins (1991)

countries today.¹¹ Within legislatures, the rules of parliamentary procedure are designed to ensure, as nearly as possible, that voting is determinate, that the outcome of voting is a reflection of what might be called the common good and that the scope for insincere voting, strategy and manipulation is contained.¹² The ideal is to design public institutions yielding a unique political outcome with no recourse to bargaining, an outcome comparable to the equilibrium of a competitive economy.¹³ The ideal can at best be attained imperfectly.

Notwithstanding the need for bargaining in some circumstances, preservation of democratic government requires that bargaining be curtailed in others. It is at least arguable that the separation of powers - between central and state governments and among president, legislature and judiciary - is explicitly designed to make government inefficient by requiring consent among different branches of government if anything constructive is to be done. Constitutions of democratic countries are designed with bargaining as friction to stop governments from working too well. The division of powers and the corresponding checks and balances supports democratic government because and only because bargaining is costly and indeterminate. The hope is that friction and indeterminacy in bargaining drive up the cost of exploitation by majority rule voting to the point where the manoeuvre is no longer advantageous.

Arbitrary actions by a narrow and perhaps unrepresentative majority in the legislature are also contained by the establishment of two legislatures with different representations in the population as a whole, the house of Commons and Senate in Canada, and the Senate and the House of Representatives in the United States. With two legislatures, a predatory majority in one may be thwarted by a different predatory majority in the other. To exploit their minorities, the two factions would need to compromise. That in itself may be difficult. If successful, it would be tantamount to the formation of a larger majority in society as a whole with a correspondingly smaller minority and correspondingly smaller gains from exploitation. When each legislature represents the will of the people imperfectly and when a bare majority is sufficient to pass bills, a double majority is thought to be safer than a majority in one legislature alone.¹⁴

¹¹A much studied proposition in political science is “Duverger’s law” on the political consequences of voting rules: First-past-the-post encourages the formation of just two political parties with broad platforms worked out in bargaining *before* the election, while proportional representation encourages the formation of many ideologically-narrow political parties that must be reconciled in bargaining *after* the election for the formation of the cabinet and of the policies of the government in office. See Riker (1982).

¹²There is a good discussion of the relative merits of different ways of choosing among candidates for office and among variants of bills in the legislature in Riker (1980b).

¹³Some models of political equilibrium are discussed, very briefly, in the appendix.

¹⁴In a review of the history of democracy from Ancient Athens until the present day, Gordon (1999) develops a case for the proposition that democracy can only be preserved when the potential for exploitation of minority by majority is constrained by countervailing power

These considerations were of great concern to the authors of the American Constitution. In the words of Thomas Jefferson, “An elective despotism was not the government we fought for, but one which should not only be founded on free principles but in which the power of government should be so divided and balanced among the several bodies of magistracy, as so no one could transcend their legal limits, without being effectively checked and restrained by the others.” (Quoted in Madison, *The Federalist Papers* #48). “In the compound republic of America, the power surrendered by the people is first divided between two distinct governments, and then the portion allotted to each is subdivided among distinct and separate departments. Hence a double security arises to the rights of people. The different governments will control each other at the same time as it will be controlled by itself” (Madison, *The Federalist Papers* , #51).

Part of the rationale for civil rights is to protect majority rule voting from what cannot be safely voted about.¹⁵ Free speech, privacy and freedom from arbitrary imprisonment are surely valuable in their own right, but they are also valuable as a defense of majority rule voting, for democracy could not be sustained - no minority acquiescing peacefully to the decisions of the majority and no government in office willing to risk loss of office in an election - if a majority in Parliament could terrorize or punish the minority at will. The rule of law plays a similar role. A ban on ad hominem legislation and on unequal treatment by the courts places a limit upon what one stands to lose if one’s party fails to win the election. Laws must not reward the supporters of the party in power or punish its enemies. Governments do violate this principle to some extent, but gross violation places democracy in jeopardy.

Majority rule voting is also defended by the constitutional protection of private property. Like civil rights, property rights are valuable in themselves. The national income is very much larger, and citizens are very much more prosperous, when at least a significant proportion of the nation’s property is privately owned than when the entire means of production is directed by the state. But efficiency is not the only virtue. Constitutional protection of property rights preserves people’s willing to respect the results of an election by limiting what one stands to lose at the ballot box. Without secure property rights, predatory bargains would be too lucrative for the majority and too devastating for the minority. A majority in the legislature could impoverish the minority completely. No government would be prepared to risk loss of office in an election if its successor could not be trusted to respect the property of its supporters. Constitutional protection of property rights preserves democracy by drastically reducing the scope for predatory bargaining, allowing much less opportunity for exploitation because there is much less for legislators to bargain about. The exploitation problem would prove insurmountable and democracy would very soon self-destruct unless at least a substantial core of property is immune from expropriation. Not all capitalist societies are democracies, but all democracies are capitalist, at least to the extent of maintaining private ownership of a significant portion of the

within the legislature and among the different branches of government.

¹⁵“Insulation” as a requirement for democracy is discussed in Tilly (2007).

means of production.¹⁶

Hence the prohibition in the Fifth Amendment of the Constitution of the United States against the taking of “private property... for public use without just compensation”. Similar prohibitions are to be found in the written or unwritten constitutions of every other democratic country. There is much debate over how far the prohibition of taking without compensation should go, for virtually anything the government might do is beneficial to some people at the expense of others, and it is neither feasible nor desirable for the government to compensate the losers in each and every public decision. An excessively rigid interpretation of the constitutional prohibition of taking without compensation would block all redistribution of income from rich to poor. A line must be drawn between property rights and citizens’ rights to choose laws by majority rule voting. Pushing the line too far in either direction is likely to endanger the stability of majority rule voting.¹⁷

Fear of predatory majorities might be thought of as the basis of a case against all redistribution of income, but that is not so. A sharp distinction is warranted between the political allocation of income where the government chooses people’s incomes one by one, and ordinary redistribution of income where the extent of redistribution is determined in a single public decision applicable to everybody at once. With reference to the three-fold distinction among types of public decisions, redistribution of income is more like a single-peaked issue than like the allocation of income among people, one at a time.

Fear of predatory majorities is the basis of the quotation from Henry Ireton at the beginning of this paper. Ireton was not opposing democracy altogether, for the entire debate from which the quotation was drawn took place among the republicans in seventeenth century England about how to govern the country once King James I was finally deposed. The argument was for property qualifications at a time without income taxation when universal franchise would in all probability have empowered the poor to expropriate the property of the rich, with no obvious limits on how much property to take. Property owners had simply too much at stake. Nor, it might be supposed, would democracy last for long if any majority of the population could employ the power of the vote to appropriate the country’s property for itself. Ireton was surely right in his time. Universal franchise emerged gradually over the next few centuries.

Contemporary redistribution of income is different because there is a natural stopping-place and because the ordering of people in the distribution of income is preserved. The natural stopping-place is the first preferences of the median voter. Systematic redistribution of income narrows the gap between rich and poor, but at a cost of reducing total income as higher taxes to finance redistribution of income induce taxpayers to divert time and resources to less productive

¹⁶ On the logic of the connection between voting and capitalism, see Usher (1981).

¹⁷For the absolutist position that all redistribution is a “taking” prohibited by the U.S. Constitution, see Epstein (1985).

but less taxed activities, creating a net gain to the poor, a net loss to the rich and a continuum in between. Think of the degree of redistribution as the rate of a negative income tax. As the rate rises, the median voter has less to gain from any additional narrowing of the income distribution and more to lose from the additional contraction of total income, until eventually there is some rate at which the marginal gain and marginal loss just cancel out. That is the preferred rate of the of the median voter.¹⁸ It is the rate that government by majority rule voting can be expected to choose. Unlike the helter-skelter reallocation of property that would probably have occurred in Ireton's England, contemporary redistribution of income supplies a systematic increase in the incomes of the poor without impoverishing the rich altogether. Something of the orderliness of the negative income tax is preserved when social programs such as the old age pension or public provision of health care are financed by progressive taxation.

With redistribution of income as the salient political issue and with two political parties, one might expect both parties to adopt the median voter's preferred degree of redistribution as their platforms, on the assumption that whichever party deviates from the first preference of the median voter can be expected to lose the election. Clearly, this does not happen. Elections tend to be between a left party and a right party distinguished in part by the degree of redistribution they support. The reason is perhaps because eligible voters would not bother to vote and the party faithful would not show much enthusiasm unless there is a real difference between the parties to vote about. A residue of the median voter theorem is likely to persist, ensuring that the platforms of rival political parties do not drift too far apart.

The exploitation problem is also circumvented to some extent by cost-benefit analysis for public projects. Suppose each legislator represents a distinct constituency, each constituency has a pet project, a road for example, and all projects would be financed out of general tax revenue. Every legislator can then be expected to favour the project in his constituency but to oppose the projects in every other constituency, so that every project would be voted down in a sequence of votes for one project at a time. A deal might be then struck among a majority of legislators to undertake all projects in their constituencies, but to reject projects in other constituencies. To avoid predatory bargains of that sort, there may be a universal agreement to undertake all projects, or, alternatively when benefits of some projects exceed cost but benefits of others do not, to undertake all projects passing an efficiency test maximizing every constituency's expected gain in the long run.

Feasibility of government by majority rule voting may depend upon the composition of society. Predatory bargaining may be easier in some types of society than in others. It is relatively easy in a societies composed of a few clearly-identified races, religions or tribes than in either a very diverse society or a society where people are much alike. Referring principally to democracies, Aristotle (1946, 210) wrote that a "state cannot be constructed from any chance

¹⁸The median voter favours some degree of redistribution as long as the distribution of pre-tax income is skewed in such a way that the income of the median voter is less than the average income in the population as a whole.

body of persons....Most of the states that have admitted persons of another stock.... have been troubled by sedition...”. Voltaire (quoted in Gordon, 1999, 230.) observed that “If there were only one religion in England, we should have no fear of despotism; if there were two, they would cut each other’s throats; but there are thirty, and live in peace and happiness”. In defense of the new American constitution, James Madison (1789, #51) observed that “Whilst all ...will be derived from, and dependant on the society, the society itself will be broken into many parts, interests and classes of citizens, that the rights of individuals, or of a minority, will be in little danger from interested combinations of the majority. ... security of civil rights...consists... in the multiplicity of interests and.... in the multiplication of sects.” Any badge separating people into two distinct factions is potentially corruptive. Recognition of this danger is the basis for the separation of church and state in the Constitution of the United States. Rabushka and Shepsle, (1972), Chua (2003) and Mann (2005) have extended this line of reasoning to the study of ethnic cleansing.

Majority rule voting cannot be insulated from all contentious issues. Where interests of different groups conflict, where some degree of taking by majorities from minorities is unavoidable. Where the risk of predatory bargaining cannot be eliminated altogether without at the same time curtailing essential public services, the structure of government may be constitutionally mandated to create difficulties in passing bills without wide-spread support in the entire population.

Concluding Observation

Democratic politics is infused with bargaining in two very different ways: Bargaining is required to fill in the gaps when outcomes under the rules of parliamentary procedure are less than completely determinate. Bargaining is indispensable when, for instance, committees of the Senate and the House of representatives come together to forge a common bill in the event that two somewhat different bills on one and the same subject have been passed in the two houses of Congress, or when a political party forges a common platform out of the partly similar but partly different views of the party supporters. But bargaining is also an essential part of the process by which a majority in the legislature can employ the power of the vote to exploit the corresponding minority, directing to itself a disproportionate share of the national income and the fruits of office. A principal objective in the design of of constitutions for democratic government is to foster one aspect of bargaining and to thwart the other.

Government by majority rule voting needs bargaining and compromise in ways that other forms of government may not. The King issues commands that his subjects must obey. He alone appoints the cabinet. He alone chooses whether or not to reform health care and how the reformed health care system is designed. Officials appointed to design a program of health care reform must craft a program the king is prepared to accept, and he alone resolves disputes among them. It is under his authority that laws are established, modified or abolished. Actual monarchies today are typically half way between true monarchy and democracy. There are limits beyond which subjects of king or dictator can be expected to rebel, but the need for

accommodation and compromise is very much less than under democratic government with majority rule voting.

It was argued in a preceding article, Usher (2010), that bargaining is indeterminate, with no plausible bargaining equilibrium comparable to the equilibrium in a competitive economy. This fundamental indeterminacy is inherited by majority rule voting. In other contexts, the indeterminacy of bargaining - the absence of a unique bargaining equilibrium - is typically harmful. In the context of voting, it is a mixed blessing, for the knack of bargaining is, at once necessary and potentially destructive. Democracy requires that people be able to compromise, but not too easily.

Appendix: The Escape from Bargaining to Equilibrium

This appendix is a list of models that attempt, one way or another, to circumvent bargaining through the installation of a political equilibrium comparable to the equilibrium in the competitive economy. Of these attempts, all are successful in that conclusions flow from assumptions, all are dubious in that what is called bargaining in the models is quite far from bargaining as we know it to be, and all are useful in identifying forces or mechanisms that narrow the range within which bargaining is required, even perhaps to the point where residual bargains are manageable.

The natural starting point, historically and logically, is the *median voter theorem* yielding an equilibrium in pure voting when voters' preferences are single-peaked, when, for example, each voter's preferred tax rate is a decreasing function of that person's income. [Black, 1948)]. A similar outcome is guaranteed by the *probabilistic voting theorem* under much less promising circumstances. The probabilistic voting theorem circumvents the exploitation problem, guaranteeing a unique outcome, represented in the platforms of both of two competing political parties. The source of equilibrium is set of a concave votes-to-offers functions for each interest group in society, allowing political parties to maximize votes in the allocation of the national income among interest groups and leaving nothing whatsoever to bargain about. [Mueller, (2003), chapter 12]. The theorem has been criticized on the grounds that some groups might be excluded altogether, restoring the paradox of voting, [Usher, 1995] and that the required concavity in the groups' votes-to-offers functions is artificial, [Kirchgassner, 2000].

Delegation is carried to its logical extreme, with no place left for bargaining, in the *citizen-candidate* models of Osborne and Slivinski (1996) and by Besley and Coate (1997). All citizens participate in the legislature, anybody can run for office, everybody's preference is common knowledge and whoever wins the election is expected to act in accordance with his own preference exclusively because no promise to act otherwise would be credible. The models differ in their specifications of what people vote about. In the Osborne and Slivinski, voting is about the choice of a parameter such as the rate in a negative income tax. In Besley and Coate, a wider range of options is allowed, including the allocation among voters of the entire national income. For a critique of these models, see Usher (2005).

Containment of bargaining through the design of government is carried to its logical extreme in Shepsle and Weingast's model (1981 and 1987) of *structure induced equilibrium*, the principal example being the committee system in the US Congress designed to restrict the range of options facing the House and Senate as a whole. A distinction need be drawn in this context between structural constraints that reduce the range of bargaining and structural constraints that remove the need for bargaining altogether. The title of Shepsle and Weingast's paper is "Structure-induced equilibrium and legislative choice." The word "equilibrium" might be replaced by the clumsy but more accurate phrase "reduction in the range over which bargaining is required for political outcomes to emerge", but the moral of the story would be preserved. See also Riker (1980a).

Voting over the allocation of allocation of total income can be made determinate by the imposition of appropriate rules of procedure. In the extreme, the entire income can be assigned to one randomly-chosen voter, or, equivalently, an agenda-setter can be selected at random on the understanding that all income vanishes (that nobody gets anything) unless the agenda setter's proposal is accepted in an up-or-down vote. The agenda-setter would then offer a penny to just over half the voters and keeps the rest of the income for himself. Considerably more plausible procedures have been examined by Baron and Ferejohn (1998) in an article entitled "Bargaining in Legislatures". A second randomly-selected voter might be entitled to propose an amendment. If a bill fails to pass, another randomly-selected agenda-setter might be entitled to propose a new bill the following year, raising every voter's reservation value of a bill this year to the present value of an equal share of total income next year. The process may continue forever, or until such time as a bill is passed. Equilibrium in such models depends critically upon the exclusion of credible promises. One cannot promise to behave tomorrow in a way that may not be in one's interest when tomorrow comes. Otherwise, in an electorate consisting of a majority of blue people and a minority of red people where people of each colour are fiercely loyal to one another, there is nothing to stop the blue people from grabbing the entire income for themselves by promising one another to vote against any bill with a different allocation. The exploitation problem is circumvented in this model by simply assuming it away.

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