

Non-optimal unanimous agreement*

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In collective decision making, unanimous agreement is accepted as a benchmark for economic efficiency, because with everyone in agreement on an issue, a Pareto superior move will result from the issue's approval.¹ This view of unanimous agreement is not completely accurate, though, because when unanimous agreement occurs under a less than unanimous decision rule, a situation could arise in which individuals could agree with a majority in order to avoid being in the minority. There is an important distinction to be made between a decision rule of unanimity and unanimous agreement under a less than unanimous decision rule. Under a unanimous decision making rule, every voter has veto power, and so can vote against an issue to keep it from being approved. This means that under a unanimous decision rule, nobody will approve an issue unless approval makes the individual better off than the status quo. Under a less inclusive rule like simple majority rule, an issue can be approved without the vote of any particular voter, as long as a majority of the voters approve. Typically, the voter's single vote will not affect the outcome of a majority rule election. Thus, the voter faces the more complex choice of being in the majority coalition or in the minority coalition. Sometimes a voter will be better off in the majority coalition than in the minority coalition even if changes proposed by the majority coalition make the voter worse off than the status quo. Therefore, one would not be justified in concluding that because there is unanimous agreement on an issue, everyone is made better off. Unanimous agreement under majority rule may result from all voters in a majority rule system being better off in the majority rather than the minority, even if the change that is unanimously approved is not a Pareto superior move.²

The general idea behind non-optimal unanimous agreement is relatively straightforward. Under majority rule, a majority has the power to exploit the minority.³ Therefore, under some situations, everybody joins the majority on an issue even though some find themselves worse off when the

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issue passes, since the alternative is to be in the minority after the issue passes. The first implication, mentioned above, is that unanimous agreement under majority rule is not the same thing as agreement under a rule of unanimity. But while the general idea is relatively straightforward, the foundation of the argument is less obvious, and involves some complex issues. Furthermore, if the argument is intended to apply to the real world rather than just to be a theoretical curiosity, some explanation is needed for why unanimous agreement is not more frequently observed. In particular, the argument in this paper is intended to apply to a representative democracy, yet rarely are unanimous agreements observed in representative democracies. The purpose of this paper is to explain the causes for non-optimal unanimous agreement, and to explain how the theory is applicable to decisions made in a representative democracy even when unanimous agreement is not generally observed.

While the general idea behind the model is straightforward, a model of non-optimal unanimous agreement must address four important issues in order to demonstrate its applicability to representative democracy. The first issue is why the majority coalition in a majority rule system will have a tendency to include everybody. Clearly, a necessary condition for non-optimal unanimous agreement is unanimous agreement. The second issue to be considered is why the agreement is not optimal. At first glance, it appears that if everyone agrees to something, the agreement must represent a Pareto superior move. However, an examination of the incentives behind the bargaining process will show this not to be true in a representative democracy. The third issue that must be addressed is why, if the agreement is non-optimal, no political entrepreneur is able to suggest an outcome Pareto superior to the non-optimal agreement, leaving everyone better off in the process in addition to providing some residual profit to the entrepreneur. The answer to this question is important not only to the specific argument at hand but also to public choice models in general. If outcomes are not optimal, why can a better outcome not be proposed and agreed to? The fourth issue that must be addressed is the applicability of the model to the real world. The model describes non-optimal unanimous agreement, yet unanimous agreement is rarely observed in a representative democracy. This issue must be addressed to explain how the model could be generally applicable.

The remainder of the paper is organized around the four issues posed in the preceding paragraph. The next section explains the incentives toward unanimous agreement in a democracy. The a section is devoted to the question of why the resulting agreement is non-optimal. Next the incentive structure is examined to show why a move toward optimality cannot be made. The paper closes with a section explaining the model's applicability to representative democracies. The arguments presented in this paper are

evolutionary rather than revolutionary; at each step in its development the model finds support in the work of earlier writers. But while the model is built upon the foundation of earlier work, some of the issues involved are as yet unresolved, suggesting the value of laying out the argument step by step so that each piece is subject to easy scrutiny.

Unanimous agreement

The question about optimal coalition size under majority rule is decades old. Downs (1957) argued that parties had an incentive to maximize the size of their majorities, prompting Riker (1962) to respond that in fact the incentive is for a minimum winning coalition, so that the gains accruing to the majority will be divided over a smaller group. Riker's argument met with some resistance because it would be likely that a minimum winning coalition would tend to be unstable (Shepsle, 1974; Frolich, 1975), because under majority rule the decision to join a coalition depends on the expected outcome (Brams and Heilman, 1974), and because a minimum winning coalition may be able to benefit by in essence charging an entry fee to those not already in the coalition, thus enlarging its size (Butterworth, 1971).

Early in the discussion on coalition formation stability was a key issue. More recently, Weingast, Shepsle, and Johnson (1981) have argued that representative democracies will be characterized by universalism and reciprocity, putting everyone in the majority coalition.⁴ This section will establish its model of unanimous agreement on a distributional game like one described by Buchanan and Tullock (1962) and extended by Klingaman (1969). Within this model it will be relatively easy to see how a democracy could be characterized by universalism and reciprocity.

Consider a simple distributional game where three individuals must divide a fixed sum of money among them, deciding the division by majority rule. Two of the three could form a majority coalition and agree to a division of $(1/2, 1/2, 0)$, where the numbers in parentheses represent the share of the total going to each of the three individuals. Such a coalition might be likely if the distributional game was only to be played once, but now consider the game to be an annual affair. In this case, the next year the third individual has an incentive to try to enter the majority coalition by bribing one of the existing members to form another coalition, perhaps by offering a distribution of $(0, 2/3, 1/3)$ to the second individual. Such a coalition dominates the first coalition and so could receive the approval of a majority. Now the first individual has an incentive to try to form a winning coalition, perhaps by offering $(1/3, 0, 2/3)$ to the third individual. This would defeat the earlier coalition by majority rule, but would prompt an offer of $(2/3, 1/3, 0)$, which would then prompt an offer of $(0, 2/3, 1/3)$, and so on. The cycle

problem emphasized by Arrow (1951) and discussed more recently by McKelvey (1976, 1979) arises.

Now consider this problem in a more explicitly political setting of representative democracy, where the three voters in the example are elected representatives voting to have money allocated to projects in their districts. The above example, while simple, is descriptive in an important way, because the federal budget process can really be thought of as a two stage game. First, revenues are collected through taxation (where debt and money creation are considered forms of taxation). Then congress votes on how to allocate the revenues available. The rules for the distribution of the tax burden are largely independent of the rules for distribution of benefits. Taxes are allocated along lines of income and occupation, while spending is determined by allocating resources to programs advocated by representatives.⁵ This being the case, revenue collection can be viewed as a mechanism for providing funds that are then divided among the programs desired by members of congress along the lines of the distributive game presented above.

The simple game above generates a cyclical outcome, but in the real world political outcomes appear to be very stable – at least as stable as market outcomes, and probably more so.⁶ There are many possible explanations for the observed stability in the public sector. Of course more than one may be correct; several could be operating in tandem, and some explanations may be more appropriate for some circumstances while other explanations apply to other circumstances. When looking at a representative democracy, an important characteristic is that representatives must be reelected in order to retain their jobs, and elections are held at frequent intervals. In the U.S. House of Representatives, for example, elections are held every two years. Voters tend to be shortsighted and credit representatives for recent successes and, perhaps more importantly, blame them for recent failures. This means that in a distributive game like the one above, a representative must be concerned not only about the distribution in a particular year, but also about the flow of distributions coming in future years. The average distribution received by the representative will be important, but the standard deviation of the distributions over time will also be important. A small distribution before an election could easily keep the representative from being reelected. Thus, representative i will have a utility function

$$U^i = U^i (E(D^i), \sigma(D^i)), \quad (1)$$

where $E(D^i)$ is expected value of a representative's distribution and $\sigma(D^i)$ is the standard deviation of the distribution over time.

In the simple example given above, the distribution going to each representative varied from year to year, but the average distribution going to each

representative was the same. There is good reason to expect this to be the case. If any one representative tended to get more than the average distribution year after year, that representative would be a good target for others to remove from the majority coalition. It may be, of course, that one representative may truly be more productive than others in engineering winning coalitions, but this is likely to be minor when compared to the distributional gains of others from eliminating the representative receiving consistently larger than average distributions from the winning coalition. Thus, as a first approximation where TD is the total distribution to be divided among n representatives,

$$E(D^i) = TD/n, i = 1, n. \quad (2)$$

A quick examination of equations (1) and (2) shows that since the representative can expect his average distribution to be a roughly constant equal share of the total amount to be distributed,⁷ the representative maximizes his utility by selecting a pattern of distributions that minimizes the standard deviation from year to year. This solution, as argued by Klingaman (1969), is to divide the distribution equally every year, yielding the universalism and reciprocity argued by Weingast, Shepsle, and Johnson (1981). This solution also provides a plausible answer to Tullock's question, 'Why so much Stability?'⁸

In essence, the process is as follows. In a distributive process carried out by a legislature, it is not possible for a group of representatives to continually receive a larger than average distribution. That outcome is not stable. To guard against the possibility of cycles, the majority coalition incorporates everyone, and provides an equal share of the total distribution to everyone. Since over the long run the distribution going to any one representative will be approximately TD/n , a constant, the representative will favor the plan that minimizes the standard deviation of the distribution.

Unanimous agreement in this model is a stability-producing mechanism and is generated by legislative exchange, as suggested by Tullock (1981). Shepsle and Weingast (1981) have argued that stability is produced through institutional arrangements rather than legislative exchange, but this seems to beg a question about the origin of institutions. In particular, the five examples of institutional arrangements listed by Shepsle and Weingast (1981: 508–511) seem to be of the type that have either originated through legislative exchange or could be repealed by legislative exchange. The argument could be made that most of the institutional constraints facing legislators are not formal constitutional rules but rather informal rules that have emerged as the foundation for successful collective decision making. If this is so then the institutional arrangements cited by Shepsle and Weingast are a result of legislative exchange discussed by Tullock, and there may be more

commonality between the two positions than there initially appears.

Perhaps the issue here is whether individuals can find a way to cooperate without externally imposed institutional constraints when there are mutual benefits to cooperation but there may be greater benefits in exploiting some for the benefit of others. In an illuminating treatise, Axelrod (1984) has suggested that such cooperation would naturally emerge as a successful strategy without any externally imposed institutional arrangements. This again points to the suggestion that the institutional arrangements responsible for stable political outcomes may be the result of earlier legislative exchange, and that even if they were externally imposed they would not be necessary to generate a stable cooperative equilibrium featuring universalism and reciprocity.

One might ask the question, like Riker (1962): Would not a smaller majority coalition be better for those in the coalition? The answer, of course, is yes, but that outcome is not stable, because members outside the majority have the incentive to bribe some of the majority coalition members to defect and form a new majority coalition. The problem is the same as with any cartel. Members are better off being party to the cartel agreement, but each member has an incentive to cheat once the cartel is formed. Likewise, in this case, members of a less than unanimous coalition have an incentive to defect and join an even more profitable coalition. There is no difference between the stability of a less than unanimous coalition here and the stability of an economic cartel.

Seeing this, representatives have a strong incentive to allow any representative who desires to join the majority coalition. If the coalition is less than unanimous, it is inherently unstable, and if the representative finds himself in the minority in an election year, he will almost surely lose his job. The optimal strategy in legislative exchange is Axelrod's tit for tat.⁹

The main conclusion of this section, then, is that a representative democracy will tend to be characterized by a unanimous coalition of representatives. Representatives desire the unanimous coalition as a stability producing mechanism that lowers the risk of being unseated as a result of delivering disproportionately low levels of benefits to constituents.

Non-optimality

Given the tendency toward unanimity, the next question is why the unanimous coalition should arrive at a non-optimal agreement. The answer to this question lies in the divergence between the private interests of the representatives and the general public interest. Each individual representative has a limited amount of political capital that can be turned into legislation, if for no other reason than that the representative has a limited

amount of time to work toward the passage of legislation. Though the representative is facing this constraint, there are many groups and individuals who want the representative to pass legislation. The representative must choose which legislation to work for.

Consider two pieces of legislation, one in the general public interest that will spread its benefits over the entire nation, and the other that will produce very concentrated benefits for special interests, but at a cost that is spread over the entire nation. The story is familiar, and so need only be told in its barest outline. The general public will be poorly informed about most matters, while special interests have an incentive to become informed about the issues that are most important to them. These special interests will be in a position to provide the representative with campaign contributions and votes in exchange for favorable legislation, while the general public, rationally ignorant about the political process, will probably not even realize it if the representative chooses to further the general public interest. Thus, the representative has an incentive to favor legislation aimed at benefitting special interests rather than legislation in the general public interest.

Even this conclusion is probably too weak, because if voters were well informed, they should favor having their representatives working for special interests in their districts rather than furthering the national interest. Representative government, at least as it is set up in the United States with representatives from geographic districts, is designed to represent special interests. Voters rationally should favor the representative who will do much for the special interests in the representative's district, rather than squander valuable political capital on legislation that is in the general public interest, but that provides only diluted benefits to the representative's home district. The system of geographic representation makes it rational for the individual representative to favor special interest programs to his constituents rather than general public interest programs. Thus, one does not need to assume ignorance on the part of voters to understand why the legislative process favors special interest programs over programs in the general public interest.

If each representative favors a different set of special interest programs, how is the representative able to get the majority of votes necessary for the program to be approved? The well-known answer: trade votes with other representatives. The representative continues to trade votes with others until a majority can be secured.¹⁰ No representative will be left out of the process because to do so would initiate the instability alluded to in the above section. In essence, given the government's revenue constraint,¹¹ each representative is allotted an equal share to use as desired, which means to spend on special interest programs which most enhance the chance of reelection.

Examining the incentives at every step along the way, every individual has a narrow incentive to favor special interest programs that transfer concen-

traded benefits rather than programs that are in the general public interest. Constituents would rather have their congressman's effort spent obtaining special interest benefits rather than benefits for everyone in the country, congressmen have an incentive to oblige if they want to be reelected, and the unanimous coalition has an incentive to act in favor of the special interest programs rather than in the general public interest. The result is a unanimous coalition that pursues special interest legislation rather than looking out for the general public interest.

Special interest legislation tends not to be cost effective because the special interests are interested in receiving the benefits regardless of the cost. Special interests need not calculate the costs and benefits, as long as the total benefits exceed the costs to them, and this will almost always be the case since benefits will be concentrated but the costs will be spread out over the entire nation. The result is that the unanimous coalition will approve a package of special interest legislation that is non-optimal. The special interest programs will cost more than the benefits they produce; meanwhile, nobody has an incentive to pursue programs that are in the general public interest. This is the general argument that there will be non-optimal unanimous agreement in a representative democracy.

Pareto superior agreements

This section addresses an issue that arises in this model, but also in many public choice models. If the outcome is not optimal, then why is it not possible for a political entrepreneur to put together an alternate agreement that would be Pareto superior to the non-optimal agreement, providing benefits to everyone, include a payment to the entrepreneur for engineering the improvement? The first answer to the question is that, strictly speaking, such a Pareto superior move would be possible, just as a Pareto superior move would be possible any time some inefficient allocation of resources exists. Any inefficiency always admits of the possibility that a bargain could be struck to eliminate it, so the task of proving that the inefficiency must exist under any circumstances can never succeed; rather, the more modest goal must be to show that there are strong incentives that give each individual decision maker reason to accept the inefficient allocation rather than to work for a Pareto superior alternative.

The incentive problem that arises in this case is a type of prisoners' dilemma game whereby given the activities of everyone else, it is always optimal for each individual representative to remain in the unanimous coalition. The reason is that since the coalition is larger than the minimum winning coalition, the individual representative's choice is to go along with the majority or to opt out of the coalition and become a member of the minority. The

majority will have enough votes to prevail without the vote of any one member.

Looked at from the perspective of an individual representative, the simple distributive game described earlier in the paper amounts to collecting taxes from everybody and dividing it up in equal increments to distribute at the discretion of each representative. Thus, in a world of equal sized districts, the representative's constituents can expect to pay T in taxes in order to receive a distribution of D in benefits to the representative's interest groups, where $D = T$. In the process, however, there will be a deadweight loss of L , so that the net benefits to the constituents of the representative will be

$$D - (T + L) = -L. \quad (3)$$

The representative's alternative is to leave the coalition. However, the coalition is larger than the minimum winning coalition, so if the individual representative left the coalition, the representative's constituents would still have to pay the taxes to finance the benefits going to every other district. With n districts, those taxes would be

$$-((n - 1)/n)*(T + L) = 1/n(T + L) - (T + L). \quad (4)$$

Unless L is very large (much larger than T), then $D > 1/n(T + L)$, and the representative's constituents are better off with the representative in the majority coalition than outside it.

If the coalition did not exist and no representative participated in the special interest activities described above, the net payoff to each representative's constituents would be 0, which is clearly better for everyone than the outcome represented in equations (3) or (4). However, if no representative was receiving special interest benefits for his constituents, each representative would have an incentive to try. The payoff to receiving the benefits if nobody else were would be

$$D - (T + L)/n. \quad (5)$$

Since the entire benefit would come to the representative's special interests but the taxes and deadweight loss would be spread over all representative's districts, the representative's constituents will be better off if the representative attempts to secure special interest benefits for them. The result is that representatives will always have an incentive to lobby for special interest benefits for their constituents.

This can be clearly illustrated in Table 1, which shows the prisoners' dilemma nature of the situation the representative finds himself in. The representative can choose either to participate in trying to secure special in-

terest benefits for his constituents or to not participate. The social optimum is for nobody to participate, which is the upper left cell in the Table. However, if others do not participate, the individual representative has an incentive to try to receive special interest benefits, moving to the lower left cell in the Table and providing more benefits to his constituents than if he were in the upper left cell. All representatives will have the same motivation, though, and with everyone participating, the result is shown in equation (3), and listed in the lower right cell. Each individual representative, desiring to participate in the special interest coalition, produces this result.

Since the individual representative's vote is not necessary for the coalition to remain intact, if the individual representative withdraws from the majority coalition, the result will be that in equation (4), listed in the upper right cell. Since the payoff in the upper right cell is less than in the lower right, each representative has an incentive to remain in the special interest coalition. No matter what others do, each individual has an incentive to participate in producing special interest benefits for his constituents, leading to the outcome in the lower right cell, although the social optimum is the upper left.

Looking at Table 1, it is apparent that the representative's constituents cannot fault their representative for attempting to produce these special interest benefits for them. Even though they would prefer the outcome in the upper left cell of Table 1, they realize that their individual representative cannot produce that outcome. The constituents will be paying the taxes for everyone else's programs in any event, and it is only reasonable for them to want their representative to produce special interest programs for them as well. In essence, because of the incentive structure that exists, constituents credit their representatives for the benefits they get from the government, but cannot fault their representative for the taxes they pay for the programs that benefit others. This being the case, there is every reason for each representative to be content to remain in the unanimous coalition that produces special interest programs. Indeed, even if the representative would like to leave and be an entrepreneur to form a Pareto superior coalition, the risks are great, for if the representative fails, he will end up in the upper right

Table 1.

Representative	Others	
	Not participate	Participate
Not participate	0	$1/n(T + L) - (T + L)$
Participate	$D - (T + L)/n$	$-L = D - (T + L)$

risks are great, for if the representative fails, he will end up in the upper right cell in Table 1, which would be politically fatal.

Note that at every step along the way the model developed here is based upon political cooperation. Representatives and constituents cooperate, exchanging support and votes for special interest programs, and representatives cooperate among each other to get the special interest programs passed. The political bargaining that takes place in the model is all based on Axelrod's (1984) principle of tit for tat.

There is a tendency to want to apply a variant of the Coase theorem to these types of problems and argue that given transactions costs, the existing allocation of resources must be optimal or someone would have responded to the incentive to alter the allocation.¹² This argument is not very illuminating, especially in politics where societies collectively choose their institutions.¹³ The point is that it is possible for decision makers to collectively choose non-optimal allocations of resources despite the incentives that always must exist to make a Pareto superior move, and the issue then becomes identifying the incentive structure that prevents the Pareto superior move.

With simple majority rule an important impediment toward political entrepreneurship is that when the majority is more than the minimum winning coalition, no single individual in the majority coalition is necessary for the coalition to continue to function. A political entrepreneur might try to break away from the coalition and form a Pareto superior coalition, but without that individual, the majority coalition simply divides the gains from being in the majority among a smaller group. The risks of trying to make the Pareto superior move are great and the returns necessarily are limited. The gains will undoubtedly have to be shared among others in the group, but exactly how the gains should be shared is not clear. This sets up the possibility of the cycle problem again.

In short, the unanimous non-optimal agreement is a stable equilibrium because each individual in the agreement is in a prisoners' dilemma type setting.¹⁴ The outcome is not Pareto optimal, but each individual has the incentive to remain in the non-optimal coalition. This is largely due to the characteristic of majority rule that no single individual is necessary to sustain the majority coalition as long as the coalition is larger than the minimum winning coalition.

Unanimous agreement in the real world

In a few sentences the model described above is as follows. Representatives find it in their self interests to pursue special interest benefits for their constituents rather than to pursue the general public interest. In order to pass

these essentially distributive programs they must join a majority coalition to have a majority of the votes for their programs. A coalition that excludes some individuals will be unstable, so where the standard deviation of the distribution is important in addition to the mean, the majority coalition will include every individual. The result is a unanimous coalition that produces a non-optimal outcome, but no single individual has the incentive to leave the unanimous coalition since the coalition would still have a majority without that individual. The implication here is that the coalition's activities are unanimously approved.

In the real world unanimous agreement is not observed; nevertheless the model is roughly descriptive of representative democracies in the real world. The reason that unanimous agreement is not observed in the real world has to do with the real world institutional structure. In the real world the coalition's activities are not all considered simultaneously as in the model. The argument in the model is that if once a year a majority coalition would form to determine the distribution of federal spending, the coalition would encompass everyone, and would receive unanimous approval. Instead, programs are considered one (or a few) at a time, and a representative must trade votes to gain a majority. Since only a simple majority is needed, there is no reason for a representative to seek out more votes than will be needed to pass the program, so less than unanimous agreement is the result. In fact, the representative would needlessly be spending his valuable votes if he continued to trade after his program was assured a majority.

Thus, even though if all programs were to be voted on simultaneously the result would be unanimous agreement, programs passed one at a time will tend to be passed less inclusively. This is simply a way of conserving on the bargaining costs necessary to secure the coalition output and a way of enforcing compliance with the coalition. If a representative does not offer any votes in trade, then the representative has no chance of getting his programs passed. Another labor saving device sometimes employed is the combining of several bills providing special interest benefits into one large bill. The river and harbors bill is a good example, and this type of bill tends to pass by an overwhelming majority. If the individual waterway projects were all voted on one at a time, it is likely that all of them would pass, but only by a bare majority because of the costs incurred in trading for the necessary votes, as noted above.

The unanimous agreement here is in a sense a device like the Walrasian auctioneer in a general equilibrium model. All individuals do not actually show up at a central market and call out their excess demands for commodities until the auctioneer finds an equilibrium price vector. Nevertheless, the market works as if that happens. Likewise, in representative democracies all representatives do not gather in a central gathering place to form a unanimous coalition where everybody agrees to a package that gives

something for everyone, which then gets unanimous approval. However, all of the separate trades that occur in the representative body end up producing an outcome that is the same as if the unanimous gathering occurred.¹⁵ In a very real sense the representative body is a unanimous coalition.¹⁶

One final factor deserves some discussion here. The model developed above treats government spending as a special interest benefit but has not considered taxes within the same framework. Special interests lobby for favorable tax treatment just as they lobby for spending projects. Why does the model not fit tax cuts into the same framework, with the result being a reduction in government revenue and too little government spending as a result? To some degree taxes do fit the model, and special interest tax preferences have greatly eroded the tax base. The result is not reduced government spending, though, but increased deficits. Special interest tax preferences are granted along with special interest spending programs which, in tandem, increase spending while narrowing the tax base.

But while special interest tax preferences are granted, there is a limit to the amount of benefits that can be granted through tax cuts. The limit, of course, is the taxpayer's total tax bill. Spending programs, in contrast, can bestow special interest benefits well beyond that limit. Therefore, while it is true that tax preferences are granted as special interest benefits, spending programs are more likely to be favored by special interests because the magnitude of the benefit is potentially much larger with spending programs than with tax preferences.¹⁷ The result is the excessive special interest spending described in the model above.

Conclusion

There are two main conclusions that can be drawn from this analysis. One applies to representative democracies in the real world, while the other applies to voting theory. The first conclusion is that representative democracies in the real world make decisions as if they are a unanimous coalition producing special interest benefits for the coalition members. The resulting agreement does not allocate resources optimally. The second conclusion is the more general theoretical conclusion that when the voting rule is less than unanimity it is possible to approve unanimously an outcome that makes everyone in the group worse off. The reason is that when the majority coalition is larger than the minimum winning coalition no individual voter is necessary for the survival of the coalition. As a result, the voter faces a more complex choice than just whether the coalition's proposals make the voter better off. Since the coalition does not need the individual's vote, it can exist without him, so the voter must decide whether he would be better off as a member of the majority coalition or as a member of the minority.

The price of admission to the majority is the voter's vote. If every voter would be better off in the majority than in the minority there will be a unanimous majority coalition even if the majority coalition outcome makes everyone worse off than the status quo. Voters find themselves in a prisoners' dilemma situation where the individual finds it in his best interest to stay in the unanimous coalition even though everyone would be better off without the coalition.

This is not to say that every unanimous coalition under majority rule is non-optimal, or that it will be impossible to make a Pareto improvement from this type of situation. However, the model does clearly illustrate that when unanimous agreement is observed under a less than unanimous decision rule, the outcome of the unanimous agreement is not necessarily Pareto superior to the status quo.

NOTES

1. The general acceptance of this idea can be traced to the work of Buchanan and Tullock (1962).
2. Note that Buchanan and Tullock (1962) consistently discuss a rule of unanimity as opposed to unanimous approval.
3. This idea was developed by Buchanan (1962).
4. Tullock (1982) points out that Weingast, Shepsle, and Johnsen (1981) were guilty of treating taxes and spending asymmetrically. A part of their argument evaporates if taxes and spending are treated the same in their model, but Tullock notes in his comment that even if the symmetry is introduced their conclusions are not fatally wounded.
5. See Holcombe and Zardkoohi (1983) for some elaboration on this point.
6. See Tullock (1981) for a discussion.
7. See Holcombe (1985) for a more detailed discussion of this distributional game.
8. One might argue that the present value of a large distribution today is greater than a large distribution next year, still providing the incentive to fight for a larger than average distribution even though it may mean a smaller than average distribution in the future. If the election scenario described above has any merit, though, the representative should be sufficiently worried about an election year problem in the future to readily agree to the terms of the even division.
9. See also Ferejohn (1974) for an argument that legislative exchange leads to an arrangement where everyone gets a share of the total distribution.
10. See Koford (1982) for an innovative model of vote trading.
11. The government's budget constraint is discussed in more detail in Holcombe (1985).
12. This is undoubtedly not what Coase (1960) has in mind, though.
13. Keynes (1936) ended with the famous remark that madmen in authority were distilling their frenzy from some defunct economist. The view that given transactions costs everything is optimal seems to limit (or eliminate) the economist's scope for making policy recommendations. It is not very informative to argue simply that transactions costs should be lowered, but if one has a specific recommendation for lowering transactions costs, this seems to be the same thing as saying that unless the recommendation is taken, the situation will not be optimal.
14. Note that cooperation always takes place in this setting between representatives and their

constituents and among representatives. The prisoners' dilemma setting pits one set of constituents attempting to improve their welfare against the constituents of other representatives. Under this situation it is very difficult for any type of bargain to take place in a large number setting where there are no lines of communication and no obvious methods of cooperation among constituents in many different districts. As noted above, cooperation always takes place among people who interact with each other in the model, much as Axelrod (1984) would suggest.

15. Some casual empiricism supports this view. The author is a member of the faculty senate and has observed that often voice votes in the senate are unanimous, even when the discussion before the vote has revealed individuals siding strongly with the losing side of the issue. Why should someone speak strongly for a position and then not vote that way when the vote is taken? The author has observed the same phenomenon in faculty meetings, where a smaller group is present. When a voice vote is taken (so that it is revealed whether one is in the majority or the minority), votes are more likely to be unanimous, even when the discussion before the vote reveals the likelihood that someone will vote in the minority. There seem to be cases where a person's true preferences would put the person in the minority, but sensing the group's preferences, the person does not vote that way.

People seem to unanimously agree to be a member of the majority coalition even when the coalition is not in the narrow self interest of every voter. The reader may be able to think of similar instances.

16. Tullock (1965) has modeled the political process in a way that can be viewed as a coalition of incumbents versus challengers. See also Crain, Holcombe, and Tollison (1979), Crain (1977), and Holcombe (1983: Ch. 7) for more development on the view that political competition is really between incumbents and nonincumbents.
17. Economists dislike surveys as a source of data, but one could imagine the results of a questionnaire mailed to waterway operators (dairy farmers, tobacco farmers, etc.) asking them if they would be willing to give up their federal program in exchange for reducing their federal tax bills to zero. I doubt there would be many takers.

REFERENCES

- Arrow, K.J. (1951). *Social choice and individual values*. New Haven and London: Yale University Press.
- Axelrod, R. (1984). *The evolution of cooperation*. New York: Basic Books.
- Brams, S.J., and Heilman, J.C. (1974). When to join a coalition, and with how many others depends on what you expect the outcome to be. *Public Choice* 17 (Spring): 11–25.
- Buchanan, J.M. (1962). Politics, policy, and the Pigouvian margins. *Economica* n.s. 29 (February): 17–28.
- Buchanan, J.M., and Tullock, G. (1962). *The calculus of consent*. Ann Arbor: University of Michigan Press.
- Butterworth, R.L. (1971). A research note on the size of winning coalitions. *American Political Science Review* 65 (3) (September): 741–748.
- Coase, R.H. (1960). The problem of social cost. *Journal of Law & Economics* 3 (October): 1–44.
- Crain, W.M. (1977). On the structure and stability of political markets. *Journal of Political Economy* 85 (4) (August): 829–842.
- Crain, W.M., Holcombe, R.G., and Tollison, R.D. (1979). Monopoly aspects of political parties. *Atlantic Economic Journal* 7 (2) (July): 54–58.
- Ferejohn, J.A. (1974). *Pork barrel politics*. Stanford: Stanford University Press.

- Frolich, N. (1975). The instability of minimum winning coalitions. *American Political Science Review* 69 1 (3) (September): 943–946.
- Downs, A. (1957). *An economic theory of democracy*. New York: Harper and Row.
- Holcombe, R.G. (1983). *Public finance and the political process*. Carbondale: Southern Illinois University Press.
- Holcombe, R.G. (1985). *An economic analysis of democracy*. Carbondale: Southern Illinois University Press.
- Holcombe, R.G., and Zardkoohi, A. (1983). On the distribution of taxes and expenditures, and the new war between the states. *Public Choice* 40 (2): 165–174.
- Keynes, J.M. (1936). *The general theory of employment, interest, and money*. New York: Harcourt, Brace.
- Klingaman, D. (1969). A note on a cyclical majority problem. *Public Choice* 6 (Spring): 99–101.
- Koford, K.J. (1982). Centralized vote-trading. *Public Choice* 39 (2): 245–268.
- McKelvey, R.D. (1976). Intransitivities in multi dimensional voting models. *Journal of Economic Theory* 12 (3) (June): 472–482.
- McKelvey, R.D. (1979). General conditions for global intransitivities in formal voting models. *Econometrica* 47 (5) (September): 1085–1112.
- Riker, W.H. (1962). *The theory of political coalitions*. New Haven: Yale University Press.
- Shepsle, K.A. (1974). On the size of winning coalitions. *American Political Science Review* 68 (2) (June): 505–518.
- Shepsle, K.A., and Weingast, B.R. (1981). Structure-induced equilibrium and legislative choice. *Public Choice* 37 (3): 503–519.
- Tullock, G. (1965). Entry barriers in politics. *American Economic Review* 15 (2) (March): 458–466.
- Tullock, G. (1981). Why so much Stability? *Public Choice* 37 (2): 189–205.
- Tullock, G. (1982). The political economy of benefits and costs: A neoclassical approach to distributive politics: Comment. *Journal of Political Economy* 90 (4) (August): 824–826.
- Weingast, B.R., Shepsle, K.A., and Johnsen, C. (1981). The political economy of benefits and costs: A neoclassical approach to distributive politics. *Journal of Political Economy* 89 (4) (August): 642–664.