An Economic Theory of Democracy

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The Basic Logic of Voting

Introduction

In order to plan its policies so as to gain votes, the government must discover some relationship between what it does and how citizens vote. In our model, the relationship is derived from the axiom that citizens act rationally in politics. This axiom implies that each citizen casts his vote for the party he believes will provide him with more benefits than any other.

Though this definition seems obvious, it is actually based upon concepts which are both complex and ambiguous. In this chapter we examine them carefully in order to show what “rational voting” really implies.

I. Utility Income from Government Activities

The benefits voters consider in making their decisions are streams of utility derived from government activity. Actually, this definition is circular, because we define utility as a measure of benefits in a citizen’s mind which he uses to decide among alternative courses of action. Given several mutually exclusive alternatives, a rational man always takes the one which yields him the highest utility, ceteris paribus; i.e., he acts to his own greatest benefit. This follows directly from the definition of rationality which is given in Chapter 1.

All citizens are constantly receiving streams of benefits from government activities. Their streets are policed, water purified, roads repaired, shores defended, garbage removed, weather forecast, etc. These benefits are exactly like the benefits they receive from private economic activity and are identified as government-caused only by their source. Of course, there are enormous qualitative differences between the benefits received, say, from national defense and from eating mince pie for dessert. But no matter how diverse, all benefits must be reduced to some common denominator for purposes of allocating scarce resources. This is equally true of benefits within the private sector. The common denominator used in this process we call utility.

It is possible for a citizen to receive utility from events that are only remotely connected to his own material income. For example, some citizens would regard their utility incomes as raised if the government increased taxes upon them in order to distribute free food to starving Chinese. There can be no simple identification of “acting for one’s own greatest benefit” with selfishness in the narrow sense because self-denying charity is often a great source of benefits to oneself. Thus our model leaves room for altruism in spite of its basic reliance upon the self-interest axiom.

Using this broad concept of utility, we can speak of a utility income from government activity. This income includes benefits which the recipient does not realize he is receiving. It also includes benefits he knows he is receiving but the exact source of which he does not know. For example, many citizens are probably not aware that the water they drink is inspected by a government agency. If inspection were discontinued, they might not realize their utility incomes had fallen until they received polluted water. Even then, not all of them would know that a cessation of government activity had caused this drop in income.

The fact that men can receive utility income from government actions without being aware of receiving it may seem to violate the usual definition of income. Nevertheless, we must insist upon it, be-
cause an important political strategy of governments is making voters aware of benefits they are already receiving. However, only benefits which voters become conscious of by election day can influence their voting decisions; otherwise their behavior would be irrational.

II. THE LOGICAL STRUCTURE OF THE VOTING ACT

A. TERMINOLOGY OF THE ANALYSIS

By defining income as a flow of benefits, we have involved ourselves in time, since flows can only be measured as rates per unit of time. The unit of time we use is the election period. It is defined as the time elapsing between elections, and it forms the principal unit of judgment in a voter's mind.

At least two election periods enter into a rational voter's calculations: the one following the coming election, and the one ending on election day. We will refer to these periods $t+1$ and $t$ respectively.

To illustrate the verbal analysis, we also employ several other symbols as follows:

$U$ stands for an individual voter's real or hypothetical utility income from government activity during one election period.

$A$ is the incumbent party, i.e., the governing party in period $t$.

$B$ is the opposition party, i.e., the party out of power in period $t$.

($U^a$) stands for utility income actually received during a period. It is the utility income provided by the party in power during that period.

$U^i$ stands for the utility income which a voter believes is the highest he could possibly have received during some period. It is the utility income which the ideal government would have provided him if it had been in power during that period.

$E$ stands for expected value.

B. THE TWO PARTY DIFFERENTIALS

Each citizen in our model votes for the party he believes will provide him with a higher utility income than any other party during the coming election period. To discover which party this is, he compares the utility incomes he believes he would receive were each party in office. In a two-party system, this comparison can be set up as a simple subtraction:

$$E(U^i_{t+1}) - E(U^a_{t+1})$$

The difference between these two expected utility incomes is the citizen's expected party differential. If it is positive, he votes for the incumbents; if it is negative, he votes for the opposition; if it is zero, he abstains.\footnote{From now on, the term utility income refers specifically to utility income from government activity unless otherwise noted.}

At first glance, rational voting thus appears to be a very simple matter. But its apparent ease is deceiving, for a crucial question remains: how should a rational voter calculate the expected utility incomes from which he derives his expected party differential? It is in answering this question that we encounter difficulties.

When a man votes, he is helping to select the government which will govern him during the coming election period (i.e., period $t+1$). Therefore as we have just shown, he makes his decision by comparing future performances he expects from the competing parties. But if he is rational, he knows that no party will be able to do everything that it says it will do. Hence he cannot merely compare platforms; instead he must estimate in his own mind what the parties would actually do were they in power.\footnote{We discuss the decision rule for multiparty systems later in this chapter.}

Since one of the competing parties is already in power, its performance in period $t$ gives him the best possible idea of what it will do in the future, assuming its policies have some continuity.\footnote{The governing party in our model has such broad powers that perhaps it could carry out all its promises. Nevertheless, we assume here that it cannot for two reasons: (1) in the real world and in our own uncertainty model, government cannot foresee all the obstacles it will encounter; clearly this fact has repercussions upon the structure of voters' thinking; and (2) in a two-party system, each party deliberately makes ambiguous promises; hence platforms are poor harbingers of actions even in our model. The second point is discussed in detail in Chapter 8.}

But
it would be irrational to compare the current performance of one party with the expected future performance of another. For a valid comparison, both performances must take place under the same conditions, i.e., in the same time period. Therefore the voter must weigh the performance that the opposition party would have produced in period $t$ if it had been in power.

True, this performance is purely hypothetical; so he can only imagine what utility income he would have derived from it. But party B’s future is hypothetical, too—as is that of party A. Thus he must either compare (1) two hypothetical future utility incomes or (2) one actual present utility income and one hypothetical present one. Without question, the latter comparison allows him to make more direct use of concrete facts than the former. Not only is one of its terms a real entity, but the other can be calculated in full view of the situation from which it springs. If he compares future utility incomes, he enjoys neither of these advantages. Therefore, we believe it is more rational for him to ground his voting decision on current events than purely on future ones.

As a result, the most important part of a voter’s decision is the size of his current party differential, i.e., the difference between the utility income he actually received in period $t$ and the one he would have received if the opposition had been in power.\(^\text{6}\) Algebraically, this entity is calculated as follows:

$$ (U^A_t) - E(U^B_t) $$

It is the major determinant of his expected party differential.

However, this conclusion does not mean that citizens in our model ignore the future when deciding how to vote. Obviously, such an attitude would be irrational, since the purpose of voting is to select a future government. Therefore the rational man in our model applies two future-orienting modifiers to his current party differential in order to calculate his expected party differential.

\(^\text{6}\) To avoid confusion, we adopt the following rule: whenever the term party differential appears without the adjective current immediately preceding it, it always denotes the expected party differential.

C. THE TREND FACTOR AND PERFORMANCE RATINGS

The first of these modifiers we call simply the trend factor. It is the adjustment each citizen makes in his current party differential to account for any relevant trend in events that occurs within the current election period. For example, let us assume that a voter believes the present government made many mistakes upon first taking office but has steadily improved and is now governing expertly. He may feel that this expertise will prevail throughout the next election period if the incumbents are reelected. Therefore he adjusts his current party differential to eliminate the impact of their initial blunders. Conversely, if he feels the government started out superbly but has continuously degenerated, he may project only its bad performance into his expected party differential.

The second modifier comes into play only when the citizen cannot see any difference between the two parties running; i.e., when he thinks they have identical platforms and current policies.\(^\text{6}\) To escape from this deadlock, he alters the basis of his decision to whether or not the incumbents have done as good a job of governing as did their predecessors in office.

Our use of this particular tie-breaking device may seem rather arbitrary. Why should a rational man pay attention to the past in selecting a future government? Why should the present similarity of parties cause him to drag past governments into his decisions?

The answer to these questions is derived from the impact of elections per se upon party behavior. In effect, every election is a judgment passed upon the record of the incumbent party. But the standards used to judge its record are of two types. When the opposition’s policies in period $t$ have differed from those of the incumbents, the judgment expresses the voters’ choice between the future projections of these two policy sets. But if the opposition’s policies...
have been identical with those of the incumbents, mere projection provides the voters with no real choice. In this case, their judgment expresses whether they rate the incumbents' record as good or bad according to some abstract standard.

Thus every election is a signaling device as well as a government selector. However, in a two-party system, it is limited to giving one of two signals. The incumbents always regard reelection as a mandate to continue their former policies. Conversely, the opposition party regards its triumph as a command to alter at least some of the incumbents' policies; otherwise, why would people have voted for it? In short, the outcome calls for either "no change" or "change." Hence it always makes a difference which party is elected, no matter how similar their records in period t. If the opposition wins, it is sure to carry out policies different from those the incumbents would have carried out had they been reelected.

However, no one knows in advance just what policy changes the opposition will make if it is elected. Nor can they be discovered by looking at the opposition's hypothetical record in period t, since (we are here assuming) it is identical with that of the incumbents. But if men do not know what change signifies, how can they rationally vote for or against it?

Rational men are not interested in policies per se but in their own utility incomes. If their present utility incomes are very low in their own eyes, they may believe that almost any change likely to be made will raise their incomes. In this case, it is rational for them to vote against the incumbents, i.e., for change in general.

On the other hand, men who are benefiting from the incumbents' policies may feel that change is likely to harm rather than help them. True, the opposition might introduce new policies which would raise their utility incomes. But their incomes are so high already that they fear any break in the continuity of present policies. Hence they rationally vote for the incumbents, i.e., against change in general.

Clearly, both actions are rational responses to the fact that elections inevitably signal change or no change. They show that even when the parties running have identical records in period t, many citizens may reasonably expect different utility incomes from each party in period t + 1. Therefore abstention is rational only if a citizen believes that either (1) the policy changes that will be made if the opposition is elected will have no net effect upon his utility income or (2) these changes may affect his income, but the probability that they will raise it is exactly equal to the probability that they will lower it; i.e., the expected change is zero.

Two things are to be noted about this reasoning. First, we have admitted a degree of uncertainty into our certainty model. However, the purpose of this model is to prepare for analysis of the uncertainty model; hence we feel justified in taking uncertainty into account whenever it affects the basic structure of rational behavior.

Second, we have argued that the incumbents' record can be judged as good or bad even when it is identical with the record of the opposition. But what standard for judgment exists in this case? With what can the incumbents' record be compared?

In the real world, men often compare what government is doing with what it should be doing without referring to any other party. Instead they are implicitly comparing the utility incomes they are actually receiving with those they would be receiving if the ideal government were in power. Of course, every man does not have the same ideals as every other. Yet each man can use his private conception of the ideal government to assign a performance rating to the incumbent party or any other party.\(^7\) Algebraically, it is computed as follows:

\[
\left[ \frac{U_t}{U_{t+1}} \right]
\]

Performance ratings are extremely useful for comparing governments operating in different time periods or even in different areas.\(^8\) They are necessary for such comparisons because absolute levels of utility income from different time periods cannot be compared di-

\(^7\) To compute the ratings of parties not now in office, it is necessary (1) to substitute the real (or hypothetical) incomes they did (or would) provide for the actual income being received and (2) to select the appropriate ideal income so that both terms of the fraction concern the same time period.

\(^8\) Our use of ratios to denote performance ratings is purely arbitrary; any other mathematical measure which allows relative comparisons can be substituted without changing the argument.
rectly, as we saw earlier. The performance rating of a government may change for the following reasons: (1) it changes its actions while other conditions remain the same; (2) it keeps the same actions, and they give rise to the same utility as before, but other circumstances change so that the ideal utility-income level alters; or (3) it keeps the same actions, but other circumstances change so that these actions no longer produce the same utility incomes.

In our model, performance ratings enter a voter’s decision-making whenever he thinks both parties have the same platforms and current policies. At first glance, this rule seems to imply discontinuity in the voter’s thinking, but in fact it does not. Every rational voter knows that if the opposition party is elected, it will alter some of the policies now being followed by the incumbents. But whenever the two parties have different platforms or current policies, he also knows just what changes will be made. Therefore he can choose between parties by deciding how he likes these specific changes.

However, when he believes the two parties have identical platforms and current policies, he no longer knows what specific changes will occur if the opposition wins. Therefore he is forced to base his decision upon his attitude towards change in general. There is no shift in his method of deciding how to vote; rather a shift in the evidence available causes him to discard one tool and use another. The object of both tools is the same—to estimate the gain he will get from voting for one party instead of the other.

Thus voters use performance ratings only when their current party differentials are zero and not always then. A man’s current party differential may be zero for two reasons: (1) both parties have identical policies and platforms; or (2) though their policies and platforms are different, they produce identical utility incomes for him. In the latter case, performance ratings are useless to him because he already knows what changes will take place if the opposition wins. Since these changes do not alter his utility income, he abstains. But in the former case he does not know what changes the opposition will make; hence he needs some way to determine his attitude toward change in general. We have already shown that (1) this attitude depends upon how good a job he thinks the incumbents are doing in providing him with utility income and (2) he can rate the incumbents’ performance against an ideal performance. But by what standard does he evaluate, say, a rating of 40 percent as good or bad?

Formulating such a standard is what requires the voter to consider the performances of past governments. In our model, each voter develops his own standard out of his experiences with other governments. By computing their performance ratings, he creates a measuring rod with which he can discover whether the incumbents have been doing a good, bad, or indifferent job of governing. He votes for them if their rating is good, against them if it is bad, and not at all if it is indifferent. Thus he may rationally assign a non-zero value to his expected party differential even when both parties have identical records in period $t$.

III. PRELIMINARY DIFFICULTIES CAUSED BY UNCERTAINTY

So far we have glibly spoken of voters computing their party differentials and performance ratings without pointing out how difficult such computation is. In order to find his current party differential, a voter in a two-party system must do the following: (1) examine all phases of government action to find out where the two parties would behave differently, (2) discover how each difference would affect his utility income, and (3) aggregate the differences in utility and arrive at a net figure which shows by how much one party would be better than the other. This is how a rational voter would behave in a world of complete and costless information—the same world in which dwell the rational consumer and the rational producer of traditional economic theory.

In the real world, uncertainty and lack of information prevent even

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*When voting is costless, a voter using preference ratings always votes if the incumbents have done a good (or bad) job, but this is not true when voting is costly. In the latter case, the losses (or benefits) he expects from change in general must be large enough to outweigh the cost of voting; otherwise he will abstain even though the incumbents do not have an indifferent rating. For a more detailed discussion of abstention when voting is costly, see Chapter 14.*
the most intelligent and well-informed voter from behaving in precisely the fashion we have described. Since he cannot be certain what his present utility income from government is, or what it would be if an opposition party were in power, he can only make estimates of both. He will base them upon those few areas of government activity where the difference between parties is great enough to impress him. When the total difference in utility flows is large enough so that he is no longer indifferent about which party is in office, his party differential threshold has been crossed. Until then, he remains indifferent about which party is in power, even if one would give him a higher utility income than the other. The existence of thresholds raises the probability that the expected party differential will be zero, i.e., that abstention will occur. It also makes it possible to change a voter's mind by providing him with better information about what is already happening to him.

At this point, we encounter two major problems. First, when we open the door of our model to uncertainty, we must also admit such undesirables as errors, false information, and ignorance. Because in this chapter we deal only with the basic logic of voting, we will postpone consideration of these factors until later except for one proviso. Throughout this thesis, we assume that no false (i.e., factually incorrect) information exists, though incomplete information can exist. Thus we exclude deliberate lies from our model, though errors and misleading data may remain.

The second problem is rooted in the very concept of a voter's changing his mind about how to vote. As we have shown, every voter makes his voting decisions by comparing various real and hypothetical streams of utility income. To decide what impact each government act has upon his income, he appraises it as good or bad in the light of his own view of "the good society." This procedure is rational because every citizen in our model views government as a means to the achievement of the good society as he sees it.

Thus a man's evaluation of each party depends ultimately upon (1) the information he has about its policies and (2) the relation between those of its policies he knows about and his conception of the good society. Once a voter has even provisionally decided how to vote, he can be persuaded to change his mind only if one of these two factors is altered. To simplify the analysis, we assume that every citizen has a fixed conception of the good society and has already related it to his knowledge of party policies in a consistent manner. Therefore only new information can persuade him to change his mind.

In essence, we are assuming that citizens' political tastes are fixed. Even though these tastes often change radically in the long run, we believe our assumption is plausible in the short run, barring wars or other social upheavals. In fact, fixed political tastes seem far more plausible to us than fixed consumption tastes, which are usually assumed in demand studies.

IV. VARIATIONS IN MULTIPARTY SYSTEMS

Our analysis has so far been in terms of a two-party system, but its conclusions can easily be extended to a multiparty system. In the latter, a voter follows the same rules as in the former, but compares the incumbent party with whichever of the opposition parties has the highest present performance rating, i.e., would yield him the largest utility income if it were now in office.

However, there is one eventuality in a multiparty system that does not arise in a two-party system: a rational voter may at times vote for a party other than the one he most prefers. For example, when the Progressive Party ran a candidate in the American Presidential election of 1948, some voters who preferred the Progressive candidate to all others nevertheless voted for the Democratic candidate. They did so because they felt their favorite candidate had no chance at all, and the more people voted for him, the fewer would vote Democratic. If the Democratic vote fell low enough, then the Republicans—the least desirable group from the Progressive point of view—would win. Thus a vote for their favorite candidate ironically increased the probability that the one they favored least would win. To avoid the latter outcome, they voted for the candidate ranking in the middle of their preference ordering.

Clearly, this is rational behavior, but it contradicts our simple
rule for how voters should act. This discrepancy demands an explanation. First we must point out that in our model, elections are devices for the selection of governments, though they actually serve many purposes besides this one. They can also be (1) means of creating social solidarity, as they are in modern communist countries, (2) expressions of political preference, (3) devices for releasing personal aggression in legitimate channels (e.g., in political campaigns), and (4) incentives for citizens to inform themselves about current events. Nevertheless, we are interested in elections solely as means of selecting governments, and we define rational behavior with that end in mind.

A rational voter first decides what party he believes will benefit him most; then he tries to estimate whether this party has any chance of winning. He does this because his vote should be expended as part of a selection process, not as an expression of preference. Hence even if he prefers party A, he is "wasting" his vote on A if it has no chance of winning because very few other voters prefer it to B or C. The relevant choice in this case is between B and C. Since a vote for A is not useful in the actual process of selection, casting it is irrational.

Thus an important part of the voting decision is predicting how other citizens will vote by estimating their preferences. Each citizen uses his forecast to determine whether the party he most prefers is really a part of the relevant range of choice. If he believes it is not, then rationality commands him to vote for some other party.

In the absence of any information whatever about what other voters are likely to do, the rational voter always votes for the party he prefers. He also does so whenever the information he has leads him to believe his favorite party has a reasonable chance of winning. The precise stochastic meaning of "reasonable" cannot be defined a priori; it depends upon the temperament of each voter. However, the less chance of winning he feels his favorite party has, the more likely he is to switch his vote to a party that has a good chance.

The exact probability level at which he switches will partly depend upon how important he thinks it is to keep the worst party from winning. For example, let us assume that there are three par-

ties: Right, Center, and Left. Voter X prefers Right to Center and Center to Left, but he believes that Right has the least chance of winning. If he greatly prefers Right to Center and is almost indifferent between Center and Left, he is less likely to switch his vote from Right to Center than if he slightly prefers Right to Center but abhors Left.

This situation becomes even more complex when we consider future-oriented voting. A voter may support a party that today is hopeless in the belief that his support will enable it to grow and someday become a likely winner—thus giving him a wider range of selection in the future. Also, he may temporarily support a hopeless party as a warning to some other party to change its platform if it wants his support. Both actions are rational for people who prefer better choice-alternatives in the future to present participation in the selection of a government.10

V. SUMMARY

In a world where he is furnished with complete, costless information, the rational citizen makes his voting decision in the following way:

1. By comparing the stream of utility income from government activity he has received under the present government (adjusted for trends) with those streams he believes he would have received if the various opposition parties had been in office, the voter finds his current party differentials. They establish his preference among the competing parties.

2. In a two-party system, the voter then votes for the party he prefers. In a multiparty system, he estimates what he believes are the preferences of other voters; then he acts as follows:

   a. If his favorite party seems to have a reasonable chance of winning, he votes for it.

   b. If his favorite party seems to have almost no chance of win-

10 For a more detailed discussion of voting in multiparty systems, see Chapters 8 and 9.
ning, he votes for some other party that has a reasonable chance in order to keep the party he least favors from winning.

c. If he is a future-oriented voter, he may vote for his favorite party even if it seems to have almost no chance of winning in order to improve the alternatives open to him in future elections.

3. If the voter cannot establish a preference among parties because at least one opposition party is tied with the incumbents for first place in his preference ordering, he then acts as follows:11

a. If the parties are deadlocked even though they have differing platforms or current policies or both, he abstains.

b. If the parties are deadlocked because they have identical platforms and current policies, he compares the performance rating of the incumbent party with those of its predecessors in office. If the incumbents have done a good job, he votes for them; if they have done a bad job, he votes against them; and if their performance is neither good nor bad, he abstains.

11 The case in which two or more opposition parties are tied for first place is not covered by our decision rules. However, it seems rational for a citizen to vote for whichever of these top-ranking parties he thinks has the best chance of winning. For other considerations which might have a bearing upon his decision, see Chapter 9.

4

The Basic Logic of Government Decision-Making

Introduction

Traditionally economic theory assumes that the social function and private motive of government both consist of maximization of social utility or social welfare. Our hypothesis differs from this view in three ways: (1) in our model, government's social function is not identical with its private motive; (2) we specify only the latter, which is the maximization of votes instead of utility or welfare; and (3) the government is a party competing with other parties for control of the governing apparatus. In this chapter we use the last two of these axioms to describe the basic principles of government decision-making in our model democracy.
I. FUNDAMENTAL PRINCIPLES OF GOVERNMENT DECISION-MAKING

A. THE CONCEPT OF MARGINAL OPERATIONS

Because the government in our model wishes to maximize political support, it carries out those acts of spending which gain the most votes by means of those acts of financing which lose the fewest votes. In other words, expenditures are increased until the vote-gain of the marginal dollar spent equals the vote-loss of the marginal dollar financed.

At first glance, this procedural role for government action looks very similar to the traditional rule based on social utility. The latter states that government should continue spending until marginal social return falls to a level equal to marginal social cost, i.e., the marginal return obtainable in the private sector. Although it appears that our hypothesis merely substitutes a vote function for the social-utility function, in fact the two rules are radically different. The government in our model is competing for votes with other political parties row out of office; hence its planning must take into account not only the voters’ utility functions, but also the proposals made by its opponents.

Furthermore, opposition parties usually do not have to commit themselves on any issue until after the incumbent party’s behavior as the government has revealed its policy. Therefore when the incumbents initiate a program, they can only guess how their opponents will react. But the opposition knows what policy the incumbents have on any given issue and can select the optimum strategy to counteract it. Thus government decision-making occurs in a tangled context of economic optimums and political warfare.

In our model, at the beginning of each election period the newly elected government draws up a master plan to guide its actions throughout the period. We could assume that every such plan is worked out from the basic acts of government down to the last detail as though there had been no government before. However, this would both describe the actual procedure inaccurately and change its logical structure.

Therefore we assume that the new government makes only partial alterations in the scheme of government activities inherited from the preceding administration; it does not recreate the whole scheme.\(^1\) This postulate is both realistic and useful in formulating relatively simple rules for government behavior. In addition, it allows us to correlate government’s plans with the utility functions of individual voters because citizens decide how to vote by means of the marginal impact of government activity upon their utility functions rather than its total impact.

Government activity includes providing such basic social conditions as police protection, enforcement of contracts, maintenance of national defense, etc. Thus the total utility a man derives from government action includes his gains from law and order in society and security in world politics. Even if this total utility income exceeds his total loss of utility in taxes and to government acts he dislikes, he may still strongly disapprove of some marginal government activity. A vote against any party is therefore not a vote against government per se but net disapproval of the particular marginal actions that party has taken.

Thus both the government and the voters are interested in marginal alterations in the structure of government activity. By marginal alterations we mean partial changes in the structure of government behavior patterns which each administration inherits from its predecessor. These changes may be of great significance absolutely (e.g., the alteration of defense spending by several billion dollars may have striking repercussions upon the economy). Furthermore, a series of marginal changes may alter the whole structure of government acts; so the meaning of marginality is related to the time units chosen.\(^2\) Nevertheless, it is legitimate to focus attention upon marginal government acts in the short run, which is what concerns us in this chapter.

\(^1\) The preceding administration is the same as the present one in cases of re-election.

\(^2\) In this respect, our concept resembles that of marginal cost in economics.
B. THE MAJORITY PRINCIPLE

Though such focusing drastically narrows the range of choice open to a government's consideration, it still faces a staggering choice problem, for there are numerous margins and multitudes of alternatives at each. In order to present our model of how government behaves under these circumstances, we make six simplifying assumptions:

1. All decisions are made by a central unit in the government which can look at all margins of possible action.
2. At each margin, there are only two alternatives of action, M and N.
3. All government choices are independent of each other; i.e., the outcome of each decision has no bearing on the possible choices or outcomes of any other decision.
4. There are only two parties competing for control of the government, one of which is now in office.
5. Each party knows the nature of all the utility functions of individual voters, so that it can tell whether and by how much each voter prefers M or N for every choice it is considering. By this we assume intrapersonal cardinality of utility, but we say nothing about interpersonal comparisons.
6. Voters are informed without cost of all possible government decisions and their consequences, and they make voting decisions rationally, as described in Chapter 3.

Under these radically oversimplified conditions, the government subjects each decision to a hypothetical poll and always chooses the alternative which the majority of voters prefer. It must do so because if it adopts any other course, the opposition party can defeat it. For example, if the government acts as the majority prefers in everything except issue x, the opposition can propose a platform identical to the government's except for issue x, where it stands with the majority. Since the voters are indifferent between parties on all other issues, the whole contest narrows down to issue x, and the opposition, having supported the majority position, gains more votes than the in-
cumbents. Thus to avoid defeat, the government must support the majority on every issue.

II. OPPOSITION STRATEGIES AGAINST THE MAJORITY PRINCIPLE

Following the majority principle is the incumbents' best policy, but it does not guarantee victory in every election. The opposition party can sometimes defeat a majority-pleasing government by using one of three possible strategies.

A. COMPLETE MATCHING OF POLICIES

The simplest opposition strategy is adoption of a program which is identical with that of the incumbents' in every particular. This maneuver forces citizens to decide how to vote by comparing the incumbent's performance rating with those of previous governments. But in a certain world, the incumbents can easily discover and adopt the majority position on every issue; hence their performance rating is likely to be high enough to assure reelection. In addition, the only circumstances which cause a majority-pleasing government to have a low performance rating also cause other strategies to work even better than the 100 percent matching maneuver. Therefore the latter would rarely be used in our hypothetical world.

B. A COALITION OF MINORITIES

Under certain conditions, the opposition can defeat a government which uses the majority principle by taking contrary stands on key issues, i.e., by supporting the minority. To explain these conditions, we make use of the following symbols:

U stands for the utility income a voter would get from a possible government policy on some issue.

M is the policy alternative on any issue which is favored by a majority of those citizens who are not indifferent about that issue.

N is the policy alternative on any issue which is favored by a minority of those citizens who are not indifferent about that issue.
$P$ is the total set of issues which arise during an election period.
$S$ is a subset in $P$ containing issues $1$ through $s$, the first of which to arise (issue 1) need not be the first issue to arise in $P$ but is the earliest issue in $P$ on which the opposition party takes a minority stand.

$i$ stands for any individual issue.
$X$ is the incumbent party.
$Y$ is the opposition party.

The opposition party can always defeat the incumbents if there is some $S$ in $P$ which has the following characteristics:

1. More than half the citizens who vote are in the minority on some issues in $S$; i.e., they prefer $N_i$ to $M_i$ at least once.
2. Each citizen who holds the minority view on some but not all issues in $S$ has a stronger preference for those policies he favors when in the minority than for those he favors when in the majority.
3. The opposition party need not commit itself on any issue in $S$ until the incumbents have revealed their position on all issues therein, nor does it have to reveal its position on any other issue in $P$ until after the incumbents have committed themselves on that issue.

Throughout this chapter, we refer to these characteristics as condition one, condition two, and condition three respectively.

Conditions one and two can be expressed more precisely in symbols as follows: there are more voters for whom \( \sum_{i=1}^{s} (U_N - U_M)_i > 0 \) than for whom \( \sum_{i=1}^{s} (U_N - U_M)_i < 0 \). In other words, more voters are minority oriented toward $S$ than are majority oriented toward it.

Those for whom \( \sum_{i=1}^{s} (U_N - U_M)_i = 0 \) are ambivalent.\(^3\)

\(^3\) This notation assumes intrapersonal cardinality of utility, as stated earlier in the chapter. However, the verbal argument preceding it does not depend upon this assumption; it is equally valid under purely ordinal assumptions. For proof of this assertion, see footnote 14 of this chapter.
the majority on that one. In short, the incumbents cannot win when all three conditions hold.

If we retain the first two conditions but weaken condition three, the opposition still has an advantage, though it can conceivably lose. For instance, assume the same situation exists as in our previous example except for the following change: the opposition must commit itself on each issue in P after the incumbents reveal their stand on that issue but before they do so on the next one (we assume issues arise one at a time). In this case, it is possible for the incumbents to defeat the opposition whenever voter B's preference for the majority view is stronger on the first issue than on the second. The government chooses the majority view on the first issue in S (as it always must), and the opposition counters with the minority view. But on the second issue, the government picks the minority view, forcing the opposition to support the majority. Since B gains more from the independents' position on the first issue compared to that of the opposition than he loses from their position on the second, he prefers the independents to the opposition. C supports the opposition and A the government; hence the incumbents win even though conditions one and two hold.

Thus when the weakened version of condition three is in effect, the opposition can be certain of victory only if a fourth condition also holds:

4. No matter what stands the incumbents take on all issues in S after issue 1, the opposition party can always match these stands

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or adopt opposite ones in such a way that more voters will prefer the opposition's policy set than prefer the incumbents' policy set. We refer to this characteristic of S as condition four.

Condition four can be expressed more exactly in symbols as follows: there are more voters for whom \[ \sum_{i=1}^{r} (U_r)_i > \sum_{i=1}^{t} (U_x)_i \] for at least one possible opposition strategy than for whom \[ \sum_{i=1}^{r} (U_r)_i < \sum_{i=1}^{t} (U_x)_i \] for that strategy. Admittedly, this is a very general statement, but we cannot make it more specific because of the enormous number of strategies possible when conditions one and two hold and there are many issues or many voters or both.

If S conforms to condition four, the incumbents cannot gain victory by forcing the opposition to adopt a heterogeneous strategy instead of a straight coalition of minorities. A heterogeneous strategy is one in which each party supports some minorities and some majorities in S, as in the example given above. Though the incumbents can force the opposition to adopt such a strategy even when condition four holds, they cannot win by doing so. No maneuvering on their part can overcome the advantage seized by the opposition when it supported the minority on issue 1 in S. Thus when conditions one, two, and four hold, the incumbents are always defeated unless uncertainty is introduced into the model.

Of course, once the opposition party gets into office, it faces the same dilemma that its predecessor could not solve. Furthermore, if the same issues arise again, it must handle them in the manner indicated by its campaign promises; i.e., if it had upheld minority views on every issue, it will enact those views when it becomes the government. In this case it is vulnerable to the strategy whereby its rival matches it on every issue but one, on which the rival supports the majority. Thus unless conditions one, two, or four change, the
opposition can count on being defeated itself at the end of one term in office.

In short, the two parties regularly alternate in power, each lasting only one election period at a time. This conclusion may seem to undermine our hypothesis: if the government knows it will inevitably be defeated in the next election, why should it bother to maximize votes? The answer is twofold: (1) if it fails to do so, the voters may not reflect it when it is next due to take office, and (2) in reality, uncertainty prevents the opposition from defeating the incumbents with the regularity possible in a certain world even when conditions one, two, and four hold.7

In the real world, an opposition party is most likely to try a minority-coalition strategy after the incumbents have been in office a long time. Otherwise this maneuver is risky because no one knows with certainty whether conditions one, two, and four actually prevail. But when the “ins” have been governing for several terms consecutively, they have had to make so many decisions that (1) they have probably made many enemies and (2) the likelihood of a varying majority composition on several issues is high. Therefore the opposition may be willing to abandon the majority position on some issues in hopes of creating a successful alliance among the dissenters to government action.

C. THE ARROW PROBLEM

The opposition’s third possible strategy against the government, like the second, works only when there is a lack of consensus in the electorate. If voters disagree in certain particular ways about what goals are desirable, the government may be defeated because it cannot follow the majority principle even if it wants to do so. To study this situation, we drop the simplifying assumption that there are only two alternatives for each decision. Instead we assume that some issues can be resolved by any one of the three mutually exclusive policies f, g, and h.8 Let us further assume that on at least

7 See Chapter 7 for a discussion of the first point and Section III of this chapter in regard to the second point.
8 This three-choice case covers all cases involving more than two alternatives.
most every decision, we may assume *a priori* that it encounters this dilemma at least once during every election period. Any other conclusion requires an extreme degree of consensus among voters on every detail of every issue—a condition we believe unlikely. Therefore, as long as we hold to the other assumptions we made at the start of this analysis, the incumbents will always be defeated by the opposition. The opposition need only follow the policy-matching strategy, thus narrowing the election down to some Arrow-problem issue, and wait for the government to commit itself on that issue. Then it merely selects the policy that defeats whatever the government has chosen, and—presto!—it is elected!

### III. THE ROLE OF CERTAINTY IN THE MODEL

At this point, our model begins to disintegrate because of the assumption of certainty; i.e., parties know what voters prefer, and voters know the consequences of government acts. This perfect knowledge allows Arrow problems to dominate attention and force the social system into a breakdown, particularly if they involve important issues. For if no government can possibly be reelected, then party motivation for action cannot long remain the desire to be reelected. Experience will soon convince each party that this desire is futile.

Therefore, once elected, a government has no reason to follow the majority principle on any issue. It knows that if a single instance of the Arrow problem is encountered, no matter how trivial, it will lose to the opposition. Since this is overwhelmingly likely, the government will act according to some rule other than the majority principle, such as immediate material gain for its members. Our hypothesis that governments act so as to maximize votes seems to lead to its own abandonment.\(^{11}\)

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10. From now on, we refer to any such dilemma as an "Arrow problem."

11. Perhaps we can conclude from this that democracy cannot function in a certain world unless consensus among voters is almost complete on all issues. In the real world, uncertainty masks the dilemmas which society would face if it had to confront its diversity squarely; hence democracy is possible. This reasoning demonstrates how fundamental uncertainty is to political life in all large societies.

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However, this pessimistic conclusion depends upon the feasibility of an issue-matching strategy, i.e., the ability of the opposition to narrow the contest to a few issues by agreeing with the incumbents on all others. Such a strategy is possible only if the opposition is sure (1) which issues involve Arrow problems and (2) which alternative in each issue will defeat the one the government chooses. Without certainty on these matters, the opposition runs an enormous risk when it matches the incumbents everywhere else, since this removes any possibility of winning on any other issue.

On the other hand, the whole idea of the majority principle rests on the opposition's ability to adopt an issue-matching strategy if the incumbents even once fail to support the majority's views. Again, the opposition must be certain that on some particular issue the incumbents have adopted a minority position. Without such certainty, no party would dare reduce the whole election to one issue. Therefore, both the derivation of the majority principle and its undermining by the Arrow problem depend on the assumption of certainty.

Precisely the same argument applies to the minority-coalition strategy. If the opposition knows that conditions one, two, and four hold, it can always defeat the incumbents by taking minority positions on at least some issues. Therefore the incumbents have no incentive to please the majority at all, since their cause is hopeless. The certainty which allows the majority principle to function simultaneously undermines it whenever these three conditions hold.

If we try to escape these two dilemmas by introducing uncertainty, we save the incumbents from inevitable defeat, but at the same time we allow them to abandon the majority principle. However, we shall deal with these developments later.\(^{12}\) For the moment, we retain certainty but at the same time ignore its effect upon the motivation of party behavior; i.e., we assume that parties are never discouraged from their desire to be reelected by their continual defeat after one term in office. Hence maximization of votes remains the central goal of their behavior. This admitted dodge allows us to keep hold of the majority principle long enough to make some useful deductions from it.

12. See Chapters 5, 6, 7, and 9.
IV. THE PREVALENCE OF THE “WILL OF THE MAJORITY”

A. THE RULE OF THE PASSIONATE MAJORITY

From the preceding analysis, it is clear that government does not always follow the majority principle even in a certain world. When the opposition adopts a coalition-of-minorities strategy, government may support the minority occasionally so as to maximize chance of a tie outcome. Or if an opposition party gains office by following a minority-coalition strategy, it will carry out minority-pleasing policies whenever similar issues arise again. Finally, when Arrow problems arise, there is no majority position to support. Hence, first glance the majority principle seems to be a useless concept altogether.

However, if we exclude Arrow problems, it leads directly to the following conclusion: in a two-party system, both parties nearly always adopt any policy that a majority of voters strongly prefer, no matter what strategies the parties are following. Neither party can gain from holding the minority view unless the majority hold their opinions lukewarmly; hence a passionate majority always determines policy.

To show just what a passionate majority is, let us assume that voters attach utility to various policy outcomes as depicted in Table 1.

<table>
<thead>
<tr>
<th>Issue 1</th>
<th>Alternative M</th>
<th>Alternative N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voters</td>
<td>A  10  8</td>
<td>100  9  5</td>
</tr>
<tr>
<td></td>
<td>B  10  8</td>
<td>100  9  5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Issue 2</th>
<th>Alternative M’</th>
<th>Alternative N’</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voters</td>
<td>10  10  16</td>
<td>9  9  20</td>
</tr>
</tbody>
</table>

Note: Numbers stand for units of utility.

If so, the opposition party cannot adopt a minority-coalition strategy (policies N and N’) to counteract the incumbents’ majority strategy (M and M’) even though voter A tremendously prefers receiving N to receiving M’. This possibility is ruled out because C would be willing to trade the minority outcome on issue 2 for the majority outcome on issue 1; i.e., he is more passionate about his majority view than he is about his minority view. If we alter his passion so that he would be willing to reverse the trade mentioned (as in Table 2), then the coalition-of-minorities strategy works.

This example illustrates several characteristics of the rule of the passionate majority. First, interpersonal cardinality is irrelevant. This is true because we can multiply any or all citizens’ utility figures by any positive numbers without changing the results, as long as all the figures for any one man are multiplied by the same number. Thus the fact that A’s utility income goes up 99 units if M’ is substituted for M does not necessarily overcompensate for B’s loss of one unit from the same change, since there is no way to compare units interpersonally.

Second, the factor which determines whether a man takes a passionate-majoirty stand is not his relative gain from each issue but his total gain from the whole combination of issues. For example, in Table 1, C gets 37.5 percent more utility from M than from N but only 6.25 percent more utility from N’ than from M; hence we might suspect that relative gain explains C’s willingness to trade N for M. But this is false, as Table 2 shows. C is now willing to trade M for N’ even though he gets only 25 percent more utility from N’ than from M’ and still gets 37.5 percent more from M than from N. Clearly his total gain on all issues taken together determines how he votes rather than the rate of gain on any particular issue.

13 It is clear from this reasoning that the conditions underlying a passionate majority are the exact opposite of conditions one and two.

14 Even intrapersonal cardinality can be eliminated without altering the rule of the passionate majority. We retain it here because (1) it makes exposition easier and (2) it fits into our use of utility in the rest of the study. However, we could use a strictly ordinal approach by comparing bundles of policies rather than utilities. For example, in Table 1, voter C prefers bundle MM’ to bundle NN’, but in Table 2 his preference is reversed. If we merely state that his taste for policies has changed, we can derive the same conclusions as before without men-
Finally, the example shows that a passionate majority is not necessarily more passionate about its views than the minority it outrules. In other words, parties do not compare the intensity of the majority’s feelings with those of the minority; they appraise the willingness of each citizen to trade the outcomes he prefers when in a majority for those he prefers when in a minority. Citizen A clearly has a more intense desire to get N instead of M than anyone else has about any issue; yet in Table 1 his passion is outweighed by the weaker passion of citizens B and C.

Thus we cannot judge how passionate a majority is by its feelings about any one issue. The members of a passionate majority may only care slightly whether alternative M is chosen rather than alternative N; while the minority may frantically desire N. The crucial point is whether the citizens in the majority have a greater preference for their position on this issue than they do for minority positions they hold on other issues. Thus parties do not judge passion by comparing voters with each other; instead they compare the intensity of each voter’s feelings on certain issues with the intensity of his feelings on others.

This fact raises two questions: (1) are there any interpersonal comparisons in politics? (2) what does the rule of the passionate majority really signify?

B. THE POLITICAL SIGNIFICANCE OF PASSIONATE MAJORITY

Interpersonal comparisons are in fact the essence of politics, because its function is the settlement of conflicts between men. Furthermore, since we have defined utility as a measure of benefit, and since

tioning utility at all. Every other part of our study involving utility can be similarly transposed into ordinal or indifference analysis; hence none of our conclusions depend upon cardinality of utility, whether inter- or interpersonal. The only reason we do not use a strictly ordinal approach throughout is that it renders exposition more difficult.

This outcome is even more striking if we assume that the utilities of all three voters are measured in the same units, i.e., that interpersonal cardinality is possible. Clearly, A could then bribe B and C to prefer N and everyone would gain—perhaps substantially. Yet when vote-selling is prohibited, A’s relatively enormous desire for N is inevitably frustrated. For a detailed discussion of vote-selling in such situations, see Chapter 10.

all conflicts concern benefits, these comparisons are at root utility comparisons. However, they are ordinal, not cardinal; cardinality is supplied by the assumption that each citizen can cast one and only one vote. This axiom implies that each man’s political views are just as important as any other man’s, even if one holds his views with intense fervor and the other is nearly indifferent. The fact that each is a citizen makes his views significant, not the fact that he is (or is not) fervent about them. Hence neither passion nor its absence adds to the political weight of his opinions in a certain world.

But if this is true, what can the rule of the passionate majority signify? Its real meaning is that majority rule prevails in government policy formation only when there is a consensus of intensities as well as a consensus of views. By consensus of intensities we mean that most citizens agree on which issues are most important even if they disagree about what policy to follow on each issue; i.e., they care most about having the right policy followed on the same issues, though they may have different ideas about what the right policies are. By consensus of views we mean that on any issue a majority of citizens favor one alternative over the others—they have the same opinion about which policy is right.

These two types of consensus are independent of each other, since each may exist alone. Even when they both exist at once, the majority supporting a given policy may not be the same majority which supports some other policy. However, there will be a single set of citizens, comprising a majority of voters, who have very similar importance rankings of all issues. This similarity need not eliminate the possibility of minority-favoring actions, because there may be a small subset of policies within which conditions one, two, and four hold. By matching the incumbents on all other policies, the opposition can narrow the election to this subset and apply the coalition-of-minorities strategy. Nevertheless, the fact that it matches the incumbents on all other policies shows that the majority position usually prevails even in this case.

Furthermore, even when Arrow problems are encountered, the rule of the passionate majority has significant repercussions. Be-
neath a complex of alternatives that causes Arrow problems, there usually rests some more fundamental policy decision. For example, there are myriad ways to set up a social security program; hence adoption of any one may involve the government in an Arrow problem. But the question of whether or not aged people should somehow receive more than token public assistance can be reduced to a yes or no basis, and a majority opinion found. If the majority appears strongly to favor this principle, both parties will adopt it. The range of alternatives on the social security issue is thus narrowed to different definitions of “more-than-token” and different methods of administration. Though this still leaves a large area of choice, it does provide a standpoint on the basic issue which both parties adopt and around which the actual alternatives cluster. We conclude that in a two-party democracy, government policies at root follow whatever a majority strongly desires, and the range of deviation from its aspirations is relatively small.

Thus democracy leads to the prevalence of the majority’s views whenever most citizens agree with each other more emphatically than they disagree with each other. One extremely important social force causing both agreement and disagreement is the division of labor. Because it increases men’s dependence on one another, it creates a need for agreement. However, it also increases specialization; therefore it breeds disparate points of view about what policies are best for society.

Furthermore, because each man earns most of his income in his area of specialization, and because the benefits of social cooperation are largely indivisible, every citizen is likely to have more intense feelings about his specialty—which is relatively unique—than about his general interests—which he shares with most others. Thus specialization is a politically divisive force in a democracy which encourages men to ally as minorities to thwart the will of the majority.\textsuperscript{19} We shall see later how this fact leads to logrolling and

\textsuperscript{19} This conclusion is similar to the one reached by David Riesman in his analysis of “veto groups.” See David Riesman, The Lonely Crowd (New Haven: Yale University Press, 1950), pp. 244–255. For a further discussion of how such disunity may paralyze democracy, see Chapters 8 and 9 of the present study.

other tactics by which a group of minorities agree to exploit the majority.\textsuperscript{17}

V. THE BUDGET PROCESS

A. BUDGET DECISIONS UNDER THE MAJORITY PRINCIPLE

At the beginning of this chapter we stated that the government increases its spending until the vote gain of the marginal dollar spent equals the vote loss of the marginal dollar of financing. In other words, when a newly elected (or reelected) government sets up its plan of action, it asks about each expenditure, “Is it worth its cost in votes in terms of votes gained?” just as a profit-making firm asks about each of its expenditures, “Is it worth its cost in dollars in terms of added revenue?”

But the government takes over many of the activities of its predecessor without really considering doing away with them, though it may consider marginal alteration of their quantity or reorganization of their administration. Hence it starts out with a mass of essential activities which it knows by experience are worth their cost in votes. Also, there will probably exist a set of basic revenue-raising devices which the government knows cost less in votes than would cessation of those activities they support. Thus the crucial weighing of votes occurs at the margins of both expenditure and revenue patterns.

Most governments separate the early stages of expenditure-planning from the early stages of revenue-planning as a part of their internal division of labor. Two sets of plans are drawn up and submitted to some central balancing agency, which must delimit the expenditure pattern and find some kind of financing, whether taxed, printed, or borrowed, for all of it. If a government is acting so as to maximize votes, these plans are rated by their additions to or subtractions from the individual utility incomes of every voter. The balancing agency weighs each additional act of spending against the additional financing needed for it and decides whether it will gain

\textsuperscript{17} See Chapters 12 and 13.
or lose votes, in light of the utility functions of all voters and the possible strategy of the opposition.

The government is likely to adopt any act of spending which, coupled with its financing, is a net addition of utility to more voters than it is a subtraction, i.e., it pleases more than it irritates. Otherwise the opposition may approve it and make an issue of it in the forthcoming campaign. Conversely, whenever a proposed expenditure irritates more voters than it pleases, the party in power will most likely refuse to carry it out. The government continues to weigh proposals in this manner long after its first plan is formulated, since conditions change and new possibilities must be considered.

Thus the pressure of competition motivates the government in the same way that it motivates private firms, though the number of competitors is much smaller, and the competition is for votes instead of dollars. This pressure even causes parties to innovate so as to meet new social needs and keep technically in step with their competition.

**B. BUDGET DECISIONS UNDER OTHER CONDITIONS**

The preceding description of government budgeting applies when the government follows the majority principle, but it need not employ that principle under all conditions. As we have seen, whenever the opposition uses a coalition-of-minorities strategy or is kept from adopting an issue-matching strategy by uncertainty, the government is freed from the necessity of agreeing with the majority on every issue.

As a result, it is not interested in the net impact upon a voter's utility income of each action but of all its actions taken together. Upon occasion, it is willing to irritate more voters than it pleases, if subsequent actions will placate those irritated and yet not completely cancel the satisfaction of those pleased. This means the government can no longer weigh acts individually, but must look at the effect of all of them as a unit. Consequently its decisions become much more complex.

As an example, let us say that the government is pondering some problem that has just arisen at \( T_a \), which is any moment between \( T_b \), the beginning of the election period, and \( T_e \), the date of the election. All of its actions from \( T_b \) to \( T_e \) must be considered as given, since they are already affecting individual utility incomes. Also, a blueprint has previously been drawn up for the future acts from \( T_e \) to \( T_a \), which were originally coordinated with the now-given acts into a single master plan covering the whole period. Unforeseen events cause constant deviations from this master plan, each of which is actually a reformulation of the whole plan from \( T_e \) to \( T_a \), in the light of the acts already taken from \( T_b \) to \( T_e \). Thus every single unforeseen decision involves a new prediction of every voter's net utility income position on election day.

In practice, no government actually carries out such elaborate calculations. Not only does it lack information about the shapes of individual utility functions, but also it cannot possibly make such staggering calculations for each decision. Nevertheless, the rudiments of this kind of thinking appear in the government's keeping an eye on various groups in society to see how they are doing and to discover what actions should be taken to appease them or ensure their votes. By simplifying the millions of voters into a small number of blocs, and merging the thousands of acts into a few major policy groups, the government can actually make the kind of recalculations discussed. It can take into account how a given policy will affect farmers, labor, businessmen, etc., and how this policy will fit into the net effect that its whole program will have had on each of these homogeneous groups by election day, given the actions already taken.

We conclude that governments in our model world either (1) make each spending decision separately by means of the majority principle, or (2) fit each decision into the entire pattern and recalculate the whole impact of their spending program upon all voters. Which of the two methods they follow depends upon the degree of uncertainty in their knowledge of voters' utility functions, and the strategies adopted by opposition parties.
VI. HOW GOVERNMENT ACTS ARE RELATED TO VOTERS’ UTILITY FUNCTIONS

In Chapter 3, we stated that how a voter casts his ballot depends upon what actions the government takes and what actions the opposition says it would take were it in office. In this chapter, we have shown that the actions a government takes depend upon how the government thinks voters will cast their ballots. These statements delineate a relationship of mutual interdependence, which can be transposed into a set of equations as follows:

- \( t \) stands for the whole election period.
- \( V \) stands for actual votes cast for the incumbents.
- \( V' \) stands for expected votes the government feels will be cast for it.
- \( A \) stands for government actions.
- \( U \) stands for voters’ utility incomes from government action.
- \( e \) stands for the date of the election at the end of period \( t \).
- \( P \) stands for the strategies of the opposition parties.
- \( f_1 \) stands for a functional relationship.

1. The actions of the government are a function of the way it expects voters to vote and the strategies of its opposition:
   \[ A_t = f_1(V'_t, P_t) \]

2. The government expects voters to vote according to changes in their utility incomes and the strategies of opposition parties:
   \[ V'_t = f_2(U_t, P_t) \]

3. Voters actually vote according to changes in their utility incomes and alternatives offered by the opposition:
   \[ V_t = f_3(U_t, P_t) \]

4. Voters’ utility incomes from government activity depend upon the actions taken by government during the election period:
   \[ U_t = f_4(A_t) \]

5. The strategies of opposition parties depend upon their views of the voters’ utility incomes and the actions taken by the government in power:
   \[ P_t = f_5(U_t, A_t) \]

This set of five equations has five unknowns: expected votes, actual votes, opposition strategies, government actions, and individual utility incomes.

We have rearranged our ideas in equation form to show the circularity of our analytical structure: votes depend upon actions, and actions depend upon votes. The media through which the dependence operates are, in each case, the utility incomes of individuals and the strategies adopted by opposition parties. Other variables must be added later when we introduce the cost of information, but the basic relationship remains the same.

VII. SUMMARY

According to our hypothesis, governments continue spending until the marginal vote gain from expenditure equals the marginal vote loss from financing. The determinants of vote loss and vote gain are the utility incomes of all voters and the strategies of opposition parties. Thus governments are engaged in political warfare as well as maximization problems.

Under conditions of certainty, a government’s best strategy is to adopt choices which are favored by a majority of voters. Before making any expenditure, it takes a hypothetical poll to see how voters’ utility incomes are affected by the expenditure and the necessary financing. If it fails to adopt the majority’s views, its opponents will do so and will fight the election on this issue only, thereby insuring defeat for the incumbents.

However, conforming to the will of the majority does not guarantee reelection for the incumbents. Sometimes the opposition can form a coalition of dissenters and win by upholding the minority view on key issues, and at other times no clear majority position exists. In both cases, the incumbents’ downfall is caused by lack of strong consensus in the electorate combined with the opposition’s ability to refrain from committing itself until after the government acts.

Thus majority rule does not always prevail on specific issues, but it usually does in a two-party system whenever the majority strongly
favors a certain policy. Such passionate majorities exist when citizens feel more strongly about the policy views most others share with them than about those regarding which they are in the minority. By encouraging specialization of viewpoint, the division of labor tends to break up passionate majorities and foster minority-coalition governments.

When government is following the majority principle, it plans its budget by taking a hypothetical poll on each decision. When it is using some other strategy, it judges every action as a part of its whole spending plan for the election period. Unforeseen events force it to recalculate the whole plan in the light of what it has already done.

Since governments plan their actions to please voters and voters decide how to vote on the basis of government actions, a circular relation of mutual interdependence underlies the functioning of government in a democracy.

Part II

The General Effects of Uncertainty