

*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-

### 3

## 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,

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  $t$ . (In the first part of the analysis, we assume a two-party system.)
- $U^e$  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.<sup>1</sup> 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:

$$E(U_{t+1}^A) - E(U_{t+1}^B)$$

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.<sup>2</sup>

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.<sup>3</sup>

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.<sup>4</sup> But

<sup>1</sup> From now on, the term *utility income* refers specifically to utility income from government activity unless otherwise noted.

<sup>2</sup> We discuss the decision rule for multiparty systems later in this chapter.

<sup>3</sup> 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.

<sup>4</sup> The tendency of every rational party to maintain continuity in its policies is discussed in Chapter 7.

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.<sup>5</sup> Algebraically, this entity is calculated as follows:

$$(U_t^A) - E(U_t^B)$$

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.

<sup>5</sup> 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 expertness 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.<sup>6</sup> 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

<sup>6</sup> When perfect information exists, citizens think parties' policies are identical only when they really are identical. But in a world where men are not fully informed, some actual differences between parties may escape notice because they are not significant enough to exceed voters' perception thresholds. For a further explanation of this possibility, see Section III of this chapter.

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.<sup>7</sup> Algebraically, it is computed as follows:

$$\left[ \frac{U_t}{U_t^0} \right]$$

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

<sup>7</sup> 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.

<sup>8</sup> 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.<sup>9</sup> 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

<sup>9</sup> 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.<sup>10</sup>

## 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-

<sup>10</sup> 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:<sup>11</sup>

- 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.

<sup>11</sup> 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

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### 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.