

THE LOGIC OF
COLLECTIVE ACTION

Public Goods
and the
Theory of Groups

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Harvard University Press
Cambridge • Massachusetts
London • England

at various stages in the process of making this book, William Baumol, David Bayley, Arthur Benavie, James Buchanan, Edward Claiborn, Aldrich Finegan, Louis Fount, Gerald Garvey, Mohammed Guessous, W. E. Hamilton, Wolfram Hanrieder, Stanley Kelley, Roland McKean, Richard Musgrave, Robert Reichardt, Jerome Rothenberg, Craig Stubblebine, Gordon Tullock, Alan Williams, and Richard Zeckhauser made notable and constructive criticisms. Finally, I hope the dedication to my wife indicates how much I appreciate her help and encouragement. In addition to all of the other things she has done for me and for our three children, she helped with both the style and substance of this book.

I am also thankful that Professor F. A. von Hayek took the initiative in arranging for the translation of this book into German and in contributing a foreword to the German translation.

My work on this book was generously supported by the Social Science Research Council, the Shinner Foundation, and the Center for International Studies at Princeton University. I am also thankful to the Brookings Institution, whose hospitality greatly furthered my work on this and on a previous book.

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CONTENTS

Introduction

I. A Theory of Groups and Organizations

- A. The purpose of organization 5
- B. Public goods and large groups 9
- C. The traditional theory of groups 16
- D. Small groups 22
- E. "Exclusive" and "inclusive" groups 36
- F. A taxonomy of groups 43

II. Group Size and Group Behavior 5

- A. The coherence and effectiveness of small groups 53
- B. Problems of the traditional theories 57
- C. Social incentives and rational behavior 60

III. The Labor Union and Economic Freedom 61

- A. Coercion in labor unions 66
- B. Labor-union growth in theory and practice 76
- C. The closed shop and economic freedom in the latent group 88
- D. Government intervention and economic freedom in the latent group 91

IV. Orthodox Theories of State and Class 91

- A. The economists' theory of the state 98
- B. The Marxian theory of state and class 102
- C. The logic of the Marxian theory 105

V. Orthodox Theories of Pressure Groups 111

- A. The philosophical view of pressure groups 111
- B. Institutional economics and the pressure group—
John R. Commons 114
- C. Modern theories of pressure groups—Bentley,
Truman, Latham 117
- D. The logic of group theory 125

VI. The "By-Product" and "Special Interest"
Theories 132

- A. The "by-product" theory of large pressure groups 132
- B. Labor lobbies 135
- C. Professional lobbies 137
- D. The "special interest" theory and business lobbies 141
- E. Government promotion of political pressure 148
- F. Farm cooperatives and farm lobbies 153
- G. Noneconomic lobbies 159
- H. The "forgotten groups"—those who suffer in silence 165

Appendix 169

Index 179

THE LOGIC OF
COLLECTIVE ACTION

Introduction

It is often taken for granted, at least where economic objectives are involved, that groups of individuals with common interests usually attempt to further those common interests. Groups of individuals with common interests are expected to act on behalf of their common interests much as single individuals are often expected to act on behalf of their personal interests. This opinion about group behavior is frequently found not only in popular discussions but also in scholarly writings. Many economists of diverse methodological and ideological traditions have implicitly or explicitly accepted it. This view has, for example, been important in many theories of labor unions, in Marxian theories of class action, in concepts of "countervailing power," and in various discussions of economic institutions. It has, in addition, occupied a prominent place in political science, at least in the United States, where the study of pressure groups has been dominated by a celebrated "group theory" based on the idea that groups will act when necessary to further their common or group goals. Finally, it has played a significant role in many well-known sociological studies.

The view that groups act to serve their interests presumably is based upon the assumption that the individuals in groups act out of self-interest. If the individuals in a group altruistically disregarded their personal welfare, it would not be very likely that collectively they would seek some selfish common or group objective. Such altruism, is, however, considered exceptional, and self-interested behavior is usually thought to be the rule, at least when economic issues are at stake; no one is surprised when individual businessmen seek higher profits, when individual workers seek higher wages, or when individual consumers seek lower prices. The idea that groups tend to act in support of their group interests is supposed to follow logically from this widely accepted premise of rational, self-interested behavior. In other words, if the members of some group have a common interest or objective, and if they would all be better off if that objective were achieved, it has been thought to follow logically that the individuals in that group would, if they were rational and self-interested, act to achieve that objective.

But it is *not* in fact true that the idea that groups will act in their

self-interest follows logically from the premise of rational and self-interested behavior. It does *not* follow, because all of the individuals in a group would gain if they achieved their group objective, that they would act to achieve that objective, even if they were all rational and self-interested. Indeed, unless the number of individuals in a group is quite small, or unless there is coercion or some other special device to make individuals act in their common interest, *rational, self-interested individuals will not act to achieve their common or group interests*. In other words, even if all of the individuals in a large group are rational and self-interested, and would gain if, as a group, they acted to achieve their common interest or objective, they will still not voluntarily act to achieve that common or group interest. The notion that groups of individuals will act to achieve their common or group interests, far from being a logical implication of the assumption that the individuals in a group will rationally further their individual interests, is in fact inconsistent with that assumption. This inconsistency will be explained in the following chapter.

If the members of a large group rationally seek to maximize their personal welfare, they will *not* act to advance their common or group objectives unless there is coercion to force them to do so, or unless some separate incentive, distinct from the achievement of the common or group interest, is offered to the members of the group individually on the condition that they help bear the costs or burdens involved in the achievement of the group objectives. Nor will such large groups form organizations to further their common goals in the absence of the coercion or the separate incentives just mentioned. These points hold true even when there is unanimous agreement in a group about the common good and the methods of achieving it.

The widespread view, common throughout the social sciences, that groups tend to further their interests, is accordingly unjustified, at least when it is based, as it usually is, on the (sometimes implicit) assumption that groups act in their self-interest because individuals do. There is paradoxically the logical possibility that groups composed of either altruistic individuals or irrational individuals may sometimes act in their common or group interests. But, as later, empirical parts of this study will attempt to show, this logical possibility is usually of no practical importance. Thus the customary view that groups of individuals with common interests tend to further those common interests appears to have little if any merit.

None of the statements made above fully applies to small groups, for the situation in small groups is much more complicated. In small groups there may very well be some voluntary action in support of the common purposes of the individuals in the group, but in most cases this action will cease before it reaches the optimal level for the members of the group as a whole. In the sharing of the costs of efforts to achieve a common goal in small groups, there is however a surprising tendency for the "exploitation" of the *great* by the *small*.

The proofs of all of the logical statements that have been made above are contained in Chapter I, which develops a logical or theoretical explanation of certain aspects of group and organizational behavior. Chapter II examines the implications of this analysis for groups of different size, and illustrates the conclusion that in many cases small groups are more efficient and viable than large ones. Chapter III considers the implications of the argument for labor unions, and draws the conclusion that some form of compulsory membership is, in most circumstances, indispensable to union survival. The fourth chapter uses the approach developed in this study to examine Marx's theory of social classes and to analyze the theories of the state developed by some other economists. The fifth analyzes the "group theory" used by many political scientists in the light of the logic elaborated in this study, and argues that that theory as usually understood is logically inconsistent. The final chapter develops a new theory of pressure groups which is consistent with the logical relationships outlined in the first chapter, and which suggests that the membership and power of large pressure-group organizations does not derive from their lobbying achievements, but is rather a by-product of their other activities.

Though I am an economist, and the tools of analysis used in this book are drawn from economic theory, the conclusions of the study are as relevant to the sociologist and the political scientist as they are to the economist. I have, therefore, avoided using the diagrammatic-mathematical language of economics whenever feasible. Unfortunately, many noneconomists will find one or two brief parts of the first chapter expressed in an obscure and uncongenial way, but all of the rest of the book should be perfectly clear, whatever the reader's disciplinary background.

I

A Theory of Groups and Organizations

A. THE PURPOSE OF ORGANIZATION

Since most (though by no means all) of the action taken by or on behalf of groups of individuals is taken through organizations, it will be helpful to consider organizations in a general or theoretical way.¹ The logical place to begin any systematic study of organizations is with their purpose. But there are all types and shapes and sizes of organizations, even of economic organizations, and there is then some question whether there is any single purpose that would be characteristic of organizations generally. One purpose that is nonetheless characteristic of most organizations, and surely of practically all organizations with an important economic aspect, is the furtherance of the interests of their members. That would seem obvious, at least from the economist's perspective. To be sure, some organizations may out of ignorance fail to further their members' interests, and others may be enticed into serving only the ends of the leadership.²

1. Economists have for the most part neglected to develop theories of organizations, but there are a few works from an economic point of view on the subject. See, for example, three papers by Jacob Marschak, "Elements for a Theory of Teams," *Management Science*, I (January 1955), 127-137, "Towards an Economic Theory of Organization and Information," in *Decision Processes*, ed. R. M. Thrall, C. H. Combs, and R. L. Davis (New York: John Wiley, 1954), pp. 187-220, and "Efficient and Viable Organization Forms," in *Modern Organization Theory*, ed. Mason Haite (New York: John Wiley, 1959), pp. 307-320; two papers by R. Radner, "Application of Linear Programming to Team Decision Problems," *Management Science*, V (January 1959), 143-150, and "Team Decision Problems," *Annals of Mathematical Statistics*, XXXIII (September 1962), 857-881; C. B. McGuire, "Some Team Models of a Sales Organization," *Management Science*, VII (January 1961), 101-130; Okar Morgenstern, *Prolegomena to a Theory of Organization* (Santa Monica, Calif.: RAND Research Memorandum 734, 1951); James G. March and Herbert A. Simon, *Organizations* (New York: John Wiley, 1958); Kenneth Boulding, *The Organizational Revolution* (New York: Harper, 1953).

2. Max Weber called attention to the case where an organization continues to exist for some time after it has become meaningless because some official is making a living out of it. See his *Theory of Social and Economic Organization*, trans. Talcott Parsons and A. M. Henderson (New York: Oxford University Press, 1947), p. 318.

But organizations often perish if they do nothing to further the interests of their members, and this factor must severely limit the number of organizations that fail to serve their members.

The idea that organizations or associations exist to further the interests of their members is hardly novel, nor peculiar to economics; it goes back at least to Aristotle, who wrote, "Men journey together with a view to particular advantage, and by way of providing some particular thing needed for the purposes of life, and similarly the political association seems to have come together originally, and to continue in existence, for the sake of the *general* advantages it brings."³ More recently Professor Leon Festinger, a social psychologist, pointed out that "the attraction of group membership is not so much in sheer belonging, but rather in attaining something by means of this membership."⁴ The late Harold Laski, a political scientist, took it for granted that "associations exist to fulfill purposes which a group of men have in common."⁵

The kinds of organizations that are the focus of this study are *expected* to further the interests of their members.⁶ Labor unions are *expected* to strive for higher wages and better working conditions for their members; farm organizations are *expected* to strive for favorable legislation for their members; cartels are *expected* to strive for higher prices for participating firms; the corporation is *expected* to further the interests of its stockholders;⁷ and the state is *expected*

3. *Ethics* viii:9,1160a.

4. Leon Festinger, "Group Attraction and Membership," in *Group Dynamics*, ed. Dorwin Cartwright and Alvin Zander (Evanston, Ill.: Row, Peterson, 1953), p. 93.

5. *A Grammar of Politics*, 4th ed. (London: George Allen & Unwin, 1939), p. 67.

6. Philanthropic and religious organizations are not necessarily *expected* to serve only the interests of their members; such organizations have other purposes that are considered more important, however much their members "need" to belong, or are improved or helped by belonging. But the complexity of such organizations need not be debated at length here, because this study will focus on organizations with a significant economic aspect. The emphasis here will have something in common with what Max Weber called the "associative group";⁷ he called a group associative if "the orientation of social action with it rests on a rationally motivated agreement." Weber contrasted his "associative group" with the "communal group" which was centered on personal affection, erotic relationships, etc., like the family. (See Weber, pp. 136-139, and Grace Coyle, *Social Process in Organized Groups*, New York: Richard Smith, Inc., 1930, pp. 7-9.) The logic of the theory developed here can be extended to cover communal, religious, and philanthropic organizations, but the theory is not particularly useful in studying such groups. See my pp. 61-117, 159-162.

7. That is, its members. This study does not follow the terminological usage of those organization theorists who describe employees as "members" of the organization for which they work. Here it is more convenient to follow the language of everyday

to further the common interests of its citizens (though in this nationalistic age the state often has interests and ambitions apart from those of its citizens).

Notice that the interests that all of these diverse types of organizations are *expected* to further are for the most part *common* interests: the union members' common interest in higher wages, the farmers' common interest in favorable legislation, the cartel members' common interest in higher prices, the stockholders' common interest in higher dividends and stock prices, the citizens' common interest in good government. It is not an accident that the diverse types of organizations listed are all supposed to work primarily for the *common* interests of their members. Purely personal or individual interests can be advanced, and usually advanced most efficiently, by individual, unorganized action. There is obviously no purpose in having an organization when individual, unorganized action can serve the interests of the individual as well as or better than an organization; there would, for example, be no point in forming an organization simply to play solitaire. But when a number of individuals have a common or collective interest—when they share a single purpose or objective—individual, unorganized action (as we shall soon see) will either not be able to advance that common interest at all, or will not be able to advance that interest adequately. Organizations can therefore perform a function when there are common or group interests, and though organizations often also serve purely personal, individual interests, their characteristic and primary function is to advance the common interests of groups of individuals.

The assumption that organizations typically exist to further the common interests of groups of people is implicit in most of the literature about organizations, and two of the writers already cited make this assumption explicit: Harold Laski emphasized that organizations exist to achieve purposes or interests which "a group of men have in common," and Aristotle apparently had a similar notion in mind when he argued that political associations are created and maintained because of the "general advantages" they bring. R. M.

usage instead, and to distinguish the members of, say, a union from the employees of that union. Similarly, the members of the union will be considered employees of the corporation for which they work, whereas the members of the corporation are the common stockholders.

Maclver also made this point explicitly when he said that "every organization presupposes an interest which its members all share."⁸

Even when unorganized groups are discussed, at least in treatments of "pressure groups" and "group theory," the word "group" is used in such a way that it means "a number of individuals with a common interest." It would of course be reasonable to label even a number of people selected at random (and thus without any common interest or unifying characteristic) as a "group"; but most discussions of group behavior seem to deal mainly with groups that do have common interests. As Arthur Bentley, the founder of the "group theory" of modern political science, put it, "there is no group without its interest."⁹ The social psychologist Raymond Cattell was equally explicit, and stated that "every group has its interest."¹⁰ This is also the way the word "group" will be used here.

Just as those who belong to an organization or a group can be presumed to have a common interest,¹¹ so they obviously also have purely individual interests, different from those of the others in the organization or group. All of the members of a labor union, for example, have a common interest in higher wages, but at the same time each worker has a unique interest in his personal income, which depends not only on the rate of wages but also on the length of time that he works.

8. R. M. Maclver, "Interests," *Encyclopaedia of the Social Sciences*, VII (New York: Macmillan, 1932), 147.

9. Arthur Bentley, *The Process of Government* (Evanston, Ill.: Principia Press, 1949), p. 211. David B. Truman takes a similar approach; see his *The Governmental Process* (New York: Alfred A. Knopf, 1958), pp. 33-35. See also Sidney Verba, *Small Groups and Political Behavior* (Princeton, N.J.: Princeton University Press, 1961), pp. 12-13.

10. Raymond Cattell, "Concepts and Methods in the Measurement of Group Syntality," in *Small Groups*, ed. A. Paul Hare, Edgard F. Borgatta, and Robert F. Bales (New York: Alfred A. Knopf, 1955), p. 115.

11. Any organization or group will of course usually be divided into subgroups or factions that are opposed to one another. This fact does not weaken the assumption made here that organizations exist to serve the common interests of members, for the assumption does not imply that intragroup conflict is neglected. The opposing groups within an organization ordinarily have some interest in common (if not, why would they maintain the organization?), and the members of any subgroup or faction also have a separate common interest of their own. They will indeed often have a common purpose in defeating some other subgroup or faction. The approach used here does not neglect the conflict within groups and organizations, then, because it considers each organization as a unit only to the extent that it does in fact attempt to serve a common interest, and considers the various subgroups as the relevant units with common interests to analyze the factional strife.

A Theory of Groups and Organizations

B. PUBLIC GOODS AND LARGE GROUPS

The combination of individual interests and common interests in an organization suggests an analogy with a competitive market. The firms in a perfectly competitive industry, for example, have a common interest in a higher price for the industry's product. Since a uniform price must prevail in such a market, a firm cannot expect a higher price for itself unless all of the other firms in the industry also have this higher price. But a firm in a competitive market also has an interest in selling as much as it can, until the cost of producing another unit exceeds the price of that unit. In this there is no common interest; each firm's interest is directly opposed to that of every other firm, for the more other firms sell, the lower the price and income for any given firm. In short, while all firms have a common interest in a higher price, they have antagonistic interests where output is concerned. This can be illustrated with a simple supply-and-demand model. For the sake of a simple argument, assume that a perfectly competitive industry is momentarily in a disequilibrium position, with price exceeding marginal cost for all firms at their present output. Suppose, too, that all of the adjustments will be made by the firms already in the industry rather than by new entrants, and that the industry is on an inelastic portion of its demand curve. Since price exceeds marginal cost for all firms, output will increase. But as all firms increase production, the price falls; indeed, since the industry demand curve is by assumption inelastic, the total revenue of the industry will decline. Apparently each firm finds that with price exceeding marginal cost, it pays to increase its output, but the result is that each firm gets a smaller profit. Some economists in an earlier day may have questioned this result,¹² but the fact that profit-maximizing firms in a perfectly competitive industry can act contrary to their interests as a group is now widely understood and accepted.¹³ A group of profit-maximizing firms can act to reduce their aggregate profits because in perfect competition each firm is, by definition, so small that it can ignore the effect of its output on price. Each firm finds it to its advantage to increase output to the point where mar-

12. See J. M. Clark, *The Economics of Overhead Costs* (Chicago: University of Chicago Press, 1923), p. 417, and Frank H. Knight, *Risk, Uncertainty and Profit* (Boston: Houghton Mifflin, 1921), p. 193.

13. Edward H. Chamberlin, *Monopolistic Competition*, 6th ed. (Cambridge, Mass.: Harvard University Press, 1950), p. 4.

ginal cost equals price and to ignore the effects of its extra output on the position of the industry. It is true that the net result is that all firms are worse off, but this does not mean that every firm has not maximized its profits. If a firm, foreseeing the fall in price resulting from the increase in industry output, were to restrict its own output, it would lose more than ever, for its price would fall quite as much in any case and it would have a smaller output as well. A firm in a perfectly competitive market gets only a small part of the benefit (or a small share of the industry's extra revenue) resulting from a reduction in that firm's output.

For these reasons it is now generally understood that if the firms in an industry are maximizing profits, the profits for the industry as a whole will be less than they might otherwise be.¹⁴ And almost everyone would agree that this theoretical conclusion fits the facts for markets characterized by pure competition. The important point is that this is true because, though all the firms have a common interest in a higher price for the industry's product, it is in the interest of each firm that the other firms pay the cost—in terms of the necessary reduction in output—needed to obtain a higher price.

About the only thing that keeps prices from falling in accordance with the process just described in perfectly competitive markets is outside intervention. Government price supports, tariffs, cartel agreements, and the like may keep the firms in a competitive market from acting contrary to their interests. Such aid or intervention is quite common. It is then important to ask how it comes about. How does a competitive industry obtain government assistance in maintaining the price of its product?

Consider a hypothetical, competitive industry, and suppose that most of the producers in that industry desire a tariff, a price-support program, or some other government intervention to increase the price for their product. To obtain any such assistance from the government, the producers in this industry will presumably have to organize a lobbying organization; they will have to become an active pressure group.¹⁵ This lobbying organization may have to conduct a con-

14. For a fuller discussion of this question see Mancur Olson, Jr., and David McFarland, "The Restoration of Pure Monopoly and the Concept of the Industry," *Quarterly Journal of Economics*, LXXXVI (November 1962), 613-631.

15. Robert Michels contends in his classic study that "democracy is inconceivable without organization," and that "the principle of organization is an absolutely essential condition for the political struggle of the masses." See his *Political Parties*,

siderable campaign. If significant resistance is encountered, a great amount of money will be required.¹⁶ Public relations experts will be needed to influence the newspapers, and some advertising may be necessary. Professional organizers will probably be needed to organize "spontaneous grass roots" meetings among the distressed producers in the industry, and to get those in the industry to write letters to their congressmen.¹⁷ The campaign for the government assistance will take the time of some of the producers in the industry, as well as their money.

There is a striking parallel between the problem the perfectly competitive industry faces as it strives to obtain government assistance, and the problem it faces in the marketplace when the firms increase output and bring about a fall in price. *Just as it was not rational for a particular producer to restrict his output in order that there might be a higher price for the product of his industry, so it would not be rational for him to sacrifice his time and money to support a lobbying organization to obtain government assistance for the industry. In neither case would it be in the interest of the individual producer to assume any of the costs himself. A lobbying organization, or indeed a labor union or any other organization, working in the interest of a large group of firms or workers in some industry, would get no assistance from the rational, self-interested individuals in that industry.* This would be true even if everyone in the industry were absolutely convinced that the proposed program was in their interest (though in fact some might think otherwise and make the organization's task yet more difficult).¹⁸

Although the lobbying organization is only one example of the logical analogy between the organization and the market, it is of trans. Eden and Cedar Paul (New York: Dover Publications, 1959), pp. 21-22. See also Robert A. Brady, *Business as a System of Power* (New York: Columbia University Press, 1943), p. 193.

16. Alexander Heard, *The Costs of Democracy* (Chapel Hill: University of North Carolina Press, 1960), especially note 1, pp. 95-96. For example, in 1947 the National Association of Manufacturers spent over \$4.6 million, and over a somewhat longer period the American Medical Association spent as much on a campaign against compulsory health insurance.

17. "If the full truth were ever known . . . lobbying, in all its ramifications, would prove to be a billion dollar industry." U.S. Congress, House, Select Committee on Lobbying Activities, Report, 81st Cong., 2nd Sess. (1950), as quoted in the *Congressional Quarterly Almanac*, 81st Cong., 2nd Sess., VI, 764-765.

18. For a logically possible but practically meaningless exception to the conclusion of this paragraph, see footnote 68 in this chapter.

some practical importance. There are many powerful and well-financed lobbies with mass support in existence now, but these lobbying organizations do not get that support because of their legislative achievements. The most powerful lobbying organizations now obtain their funds and their following for other reasons, as later parts of this study will show.

Some critics may argue that the rational person will, indeed, support a large organization, like a lobbying organization, that works in his interest, because he knows that if he does not, others will not do so either, and then the organization will fail, and he will be without the benefit that the organization could have provided. This argument shows the need for the analogy with the perfectly competitive market. For it would be quite as reasonable to argue that prices will never fall below the levels a monopoly would have charged in a perfectly competitive market, because if one firm increased its output, other firms would also, and the price would fall; but each firm could foresee this, so it would not start a chain of price-destroying increases in output. In fact, it does not work out this way in a competitive market; nor in a large organization. When the number of firms involved is large, no one will notice the effect on price if one firm increases its output, and so no one will change his plans because of it. Similarly, in a large organization, the loss of one dues payer will not noticeably increase the burden for any other one dues payer, and so a rational person would not believe that if he were to withdraw from an organization he would drive others to do so.

The foregoing argument must at the least have some relevance to economic organizations that are mainly means through which individuals attempt to obtain the same things they obtain through their activities in the market. Labor unions, for example, are organizations through which workers strive to get the same things they get with their individual efforts in the market—higher wages, better working conditions, and the like. It would be strange indeed if the workers did not confront some of the same problems in the union that they meet in the market, since their efforts in both places have some of the same purposes.

However similar the purposes may be, critics may object that attitudes in organizations are not at all like those in markets. In organizations, an emotional or ideological element is often also involved. Does this make the argument offered here practically irrelevant?

A most important type of organization—the national state—will serve to test this objection. Patriotism is probably the strongest non-economic motive for organizational allegiance in modern times. This age is sometimes called the age of nationalism. Many nations draw additional strength and unity from some powerful ideology, such as democracy or communism, as well as from a common religion, language, or cultural inheritance. The state not only has many such powerful sources of support; it also is very important economically. Almost any government is economically beneficial to its citizens, in that the law and order it provides is a prerequisite of all civilized economic activity. But despite the force of patriotism, the appeal of the national ideology, the bond of a common culture, and the indispensability of the system of law and order, no major state in modern history has been able to support itself through voluntary dues or contributions. Philanthropic contributions are not even a significant source of revenue for most countries. Taxes, *compulsory* payments by definition, are needed. Indeed, as the old saying indicates, their necessity is as certain as death itself.

If the state, with all of the emotional resources at its command, cannot finance its most basic and vital activities without resort to compulsion, it would seem that large private organizations might also have difficulty in getting the individuals in the groups whose interests they attempt to advance to make the necessary contributions voluntarily.¹⁹

The reason the state cannot survive on voluntary dues or payments,

19. Sociologists as well as economists have observed that ideological motives alone are not sufficient to bring forth the continuing effort of large masses of people. Max Weber provides a notable example:

"All economic activity in a market economy is undertaken and carried through by individuals for their own ideal or material interests. This is naturally just as true when economic activity is oriented to the patterns of order of corporate groups. . . . "Even if an economic system were organized on a socialistic basis, there would be no fundamental difference in this respect. . . . The structure of interests and the relevant situation might change; there would be other means of pursuing interests, but this fundamental factor would remain just as relevant as before. It is of course true that economic action which is oriented on purely ideological grounds to the interest of others does exist. But it is even more certain that the mass of men do not act in this way, and it is an induction from experience that they cannot do so and never will. . . .

"In a market economy the interest in the maximization of income is necessarily the driving force of all economic activity." (Weber, pp. 319-320.)

Talcott Parsons and Neil Smelser go even further in postulating that "performance" throughout society is proportional to the "rewards" and "sanctions" involved. See their *Economy and Society* (Glencoe, Ill.: Free Press, 1954), pp. 50-69.

but must rely on taxation, is that the most fundamental services a nation-state provides are, in one important respect,²⁰ like the higher price in a competitive market: they must be available to everyone if they are available to anyone. The basic and most elementary goods or services provided by government, like defense and police protection, and the system of law and order generally, are such that they go to everyone or practically everyone in the nation. It would obviously not be feasible, if indeed it were possible, to deny the protection provided by the military services, the police, and the courts to those who did not voluntarily pay their share of the costs of government, and taxation is accordingly necessary. The common or collective benefits provided by governments are usually called "public goods" by economists, and the concept of public goods is one of the oldest and most important ideas in the study of public finance. A common, collective, or public good is here defined as any good such that, if any person X_i in a group $X_1, \dots, X_n, \dots, X_n$ consumes it, it cannot feasibly be withheld from the others in that group.²¹ In

20. See, however, section E of this chapter, on "exclusive" and "inclusive" groups.

21. This simple definition focuses upon two points that are important in the present context. The first point is that most collective goods can only be defined with respect to some specific group. One collective good goes to one group of people, another collective good to another group; one may benefit the whole world, another only two specific people. Moreover, some goods are collective goods to those in one group and at the same time private goods to those in another, because some individuals can be kept from consuming them and others can't. Take for example the parade that is a collective good to all those who live in tall buildings overlooking the parade route, but which appears to be a private good to those who can see it only by buying tickets for a seat in the stands along the way. The second point is that once the relevant group has been defined, the definition used here, like Musgrave's, distinguishes collective good in terms of infeasibility of excluding potential consumers of the good. This approach is used because collective goods produced by organizations of all kinds seem to be such that exclusion is normally not feasible. To be sure, for some collective goods it is physically possible to practice exclusion. But, as Head has shown, it is not necessary that exclusion be technically impossible; it is only necessary that it be infeasible or uneconomic. Head has also shown most clearly that nonexcludability is only one of two basic elements in the traditional understanding of public goods. The other, he points out, is "jointness of supply." A good has "jointness" if making it available to one individual means that it can be easily or freely supplied to others as well. The polar case of jointness would be Samuelson's pure public good, which is a good such that additional consumption of it by one individual does not diminish the amount available to others. By the definition used here, jointness is not a necessary attribute of a public good. As later parts of this chapter will show, at least one type of collective good considered here exhibits no jointness whatever, and few if any would have the degree of jointness needed to qualify as pure public goods. Nonetheless, most of the collective goods to be studied here do display a large measure of jointness. On the definition and importance of public goods, see John G. Head,

other words, those who do not purchase or pay for any of the public or collective good cannot be excluded or kept from sharing in the consumption of the good, as they can where noncollective goods are concerned.

Students of public finance have, however, neglected the fact that *the achievement of any common goal or the satisfaction of any common interest means that a public or collective good has been provided for that group.*²² The very fact that a goal or purpose is common to a group means that no one in the group is excluded from the benefit or satisfaction brought about by its achievement. As the opening paragraphs of this chapter indicated, almost all groups and organizations have the purpose of serving the common interests of their members. As R. M. MacIver puts it, "Persons . . . have common interests in the degree to which they participate in a cause . . . which indivisibly embraces them all."²³ It is of the essence of an organization that it provides an inseparable, generalized benefit. It follows that the provision of public or collective goods is the fundamental function of organizations generally. A state is first of all an organization that provides public goods for its members, the citizens; and other types of organizations similarly provide collective goods for their members.

And just as a state cannot support itself by voluntary contributions, or by selling its basic services on the market, neither can other large organizations support themselves without providing some sanction,

²⁰ "Public Goods and Public Policy," *Public Finance*, vol. XVII, no. 3 (1962), 197-219; Richard Musgrave, *The Theory of Public Finance* (New York: McGraw-Hill, 1959); Paul A. Samuelson, "The Pure Theory of Public Expenditure," "Diagrammatic Exposition of A Theory of Public Expenditure," and "Aspects of Public Expenditure Theories," in *Review of Economics and Statistics*, XXXVI (November 1954), 387-390, XXXVIII (November 1955), 350-356, and XL (November 1958), 332-338. For somewhat different opinions about the usefulness of the concept of public goods, see Julius Margolis, "A Comment on the Pure Theory of Public Expenditure," *Review of Economics and Statistics*, XXXVII (November 1955), 347-349, and Gerhard Colm, "Theory of Public Expenditures," *Annals of the American Academy of Political and Social Science*, CLXXXVIII (January 1936), 1-11.

²² There is no necessity that a public good to one group in a society is necessarily in the interest of the society as a whole. Just as a tariff could be a public good to the industry that sought it, so the removal of the tariff could be a public good to those who consumed the industry's product. This is equally true when the public-good concept is applied only to governments; for a military expenditure, or a tariff, or an immigration restriction that is a public good to one country could be a "public bad" to another country, and harmful to world society as a whole.

²³ R. M. MacIver in *Encyclopaedia of the Social Sciences*, VII, 147.

or some attraction distinct from the public good itself, that will lead individuals to help bear the burdens of maintaining the organization. The individual member of the typical large organization is in a position analogous to that of the firm in a perfectly competitive market, or the taxpayer in the state: his own efforts will not have a noticeable effect on the situation of his organization, and he can enjoy any improvements brought about by others whether or not he has worked in support of his organization.

There is no suggestion here that states or other organizations provide *only* public or collective goods. Governments often provide noncollective goods like electric power, for example, and they usually sell such goods on the market much as private firms would do. Moreover, as later parts of this study will argue, large organizations that are not able to make membership compulsory *must also* provide some noncollective goods in order to give potential members an incentive to join. Still, collective goods are the characteristic organizational goods, for ordinary noncollective goods can always be provided by individual action, and only where common purposes or collective goods are concerned is organization or group action ever indispensable.²⁴

C. THE TRADITIONAL THEORY OF GROUPS

There is a traditional theory of group behavior that implicitly assumes that private groups and associations operate according to principles entirely different from those that govern the relationships among firms in the marketplace or between taxpayers and the state. This "group theory" appears to be one of the principal concerns of many political scientists in the United States, as well as a major preoccupation of many sociologists and social psychologists.²⁵ This traditional theory of groups, like most other theories, has been developed by different writers with varying views, and there is accordingly an inevitable injustice in any attempt to give a common

24. It does not, however, follow that organized or coordinated group action is *always* necessary to obtain a collective good. See section D of this chapter, "Small Groups."

25. For a discussion of the importance of "groups" of various sorts and sizes for the theory of politics, see Verba, *Small Groups and Political Behavior*; Truman, *Governmental Process*; and Bentley, *Process of Government*. For examples of the type of research and theory about groups in social psychology and sociology, see *Group Dynamics*, ed. Cartwright and Zander, and *Small Groups*, ed. Hare, Borgatta, and Bales.

treatment to these different views. Still, the various exponents of the traditional understanding of groups do have a common relationship to the approach developed in the present study. It is therefore appropriate to speak here in a loose way of a single traditional theory, provided that a distinction is drawn between the two basic variants of this theory: the casual variant and the formal variant.

In its most casual form, the traditional view is that private organizations and groups are ubiquitous, and that this ubiquity is due to a fundamental human propensity to form and join associations. As the famous Italian political philosopher Gaetano Mosca puts it, men have an "instinct" for "herding together and fighting with other herds." This "instinct" also "underlies the formation of all the divisions and subdivisions . . . that arise within a given society and occasion moral and, sometimes, physical conflicts."²⁶ Aristotle may have had some similar gregarious faculty in mind when he said that man was by nature a political animal.²⁷ The ubiquitous and inevitable character of group affiliation was emphasized in Germany by Georg Simmel, in one of the classics of sociological literature,²⁸ and in America by Arthur Bentley, in one of the best-known works on political science.²⁹ This universal joining tendency or propensity is often thought to have reached its highest intensity in the United States.³⁰

The formal variant of the traditional view also emphasizes the universality of groups, but does not begin with any "instinct" or "tendency" to join groups. Instead it attempts to explain the associations and group affiliations of the present day as an aspect of the evolution of modern, industrial societies out of the "primitive" societies that preceded them. It begins with the fact that "primary groups"³¹—groups so small that each of the members has face-to-face

26. *The Ruling Class* (New York: McGraw-Hill, 1939), p. 163.

27. *Politics* i.2,9,1253a. Many others have also emphasized the human propensity towards groups; see Coyle, *Social Process in Organized Groups*; Robert Lowie, *Social Organization* (New York: Rinehart & Co., 1948); Truman, especially pp. 14-43.

28. Georg Simmel, *Conflict and the Web of Group Affiliations*, trans. Kurt Wolff and Reinhard Bendix (Glencoe, Ill.: Free Press, 1950).

29. Bentley, *Process of Government*.

30. Alexis de Tocqueville, *Democracy in America* (New York: New American Library, 1956), p. 198; James Bryce, *The American Commonwealth*, 4th ed. (New York: Macmillan, 1910), pp. 281-282; Charles A. Beard and Mary R. Beard, *The Rise of American Civilization*, rev. ed. (New York: Macmillan, 1949), pp. 761-762; and Daniel Bell, *The End of Ideology* (Glencoe, Ill.: Free Press, 1960), esp. p. 30.

31. Charles H. Cooley, *Social Organization* (New York: Charles Scribner's Sons,

relationships with the others—like family and kinship groups are predominant in primitive societies. As Talcott Parsons contends, "it is well-known that in many primitive societies there is a sense in which kinship 'dominates' the social structure; there are few concrete structures in which participation is independent of kinship status."³² Only small family or kinship type units represent the interests of the individual. R. M. MacIver describes it this way in the *Encyclopaedia of the Social Sciences*: "Under more simple conditions of society the social expression of interests was mainly through caste or class groups, age groups, kin groups, neighborhood groups, and other unorganized or loosely organized solidarities."³³ Under "primitive" conditions the small, family-type units account for all or almost all human "interaction."

But, these social theorists contend, as society develops, there is structural differentiation: new associations emerge to take on some of the functions that the family had previously undertaken. "As the social functions performed by the family institution in our society have declined, some of these secondary groups, such as labor unions, have achieved a rate of interaction that equals or surpasses that of certain of the primary groups."³⁴ In Parsons' words, "It is clear that in the more 'advanced' societies a far greater part is played by non-kinship structures like states, churches, the larger business firms, universities and professional societies. . . . The process by which non-kinship units become of prime importance in the social structure inevitably entails 'loss of function' on the part of some or even all of the kinship units."³⁵ If this is true, and if, as MacIver claims, "the most marked structural distinction between a primitive society and a civilized society is the paucity of specific associations in the one

1909), p. 23; George C. Homans, *The Human Group* (New York: Harcourt, Brace, 1950), p. 1; Verba, pp. 11-16.

32. Talcott Parsons and Robert F. Bales, *Family* (Glencoe, Ill.: Free Press, 1955), p. 9; see also Talcott Parsons, Robert F. Bales, and Edward A. Shils, *Working Papers in the Theory of Action* (Glencoe, Ill.: Free Press, 1953).

33. MacIver in *Encyclopaedia of the Social Sciences*, VII, 144-148, esp. 147. See also Truman, p. 25.

34. Truman, pp. 35-36; see also Eliot Chapple and Carlton Coon, *Principles of Anthropology* (New York: Henry Holt, 1942), pp. 443-462.

35. Parsons and Bales, p. 9. See also Bernard Barber, "Participation and Mass Apathy in Associations," in *Studies in Leadership*, ed. Alvin W. Gouldner (New York: Harper, 1950), pp. 477-505, and Neil J. Smelser, *Social Change in the Industrial Revolution* (London: Routledge & Kegan Paul, 1959).

and their multiplicity in the other,"³⁶ then it would seem that the large association in the modern society is in some sense an equivalent of the small group in the primitive society, and that the large, modern association and the small, primitive group must be explained in terms of the same fundamental source or cause.³⁷

What then is the fundamental source which accounts alike for the small primary groups in primitive societies and the large voluntary association of modern times? This the advocates of the formal variant of the theory have left implicit and unclear. It could be the supposed "instinct" or "tendency" to form and join associations, which is the hallmark of the casual variant of the traditional view; this predilection for forming and joining groups would then manifest itself in small family and kinship groups in primitive societies and in large voluntary associations in modern societies. This interpretation would however probably be unfair to many of the theorists who subscribe to the formal variant of the traditional theory, for many of them doubtless would not subscribe to any theory of "instincts" or "propensities." They are no doubt aware that no explanation whatever is offered when the membership of associations or groups is said to be due to an "instinct" to belong; this merely adds a word, not an explanation. Any human action can be ascribed to an instinct or propensity for that kind of action, but this adds nothing to our knowledge. If instincts or propensities to join groups are ruled out as meaningless, what then could be the source of the ubiquitous groups and associations, large and small, posited by the traditional theory? Probably some of the traditional theorists were thinking in "functional" terms—that is of the functions that groups or associations of different types and sizes can perform. In primitive societies small primary groups prevailed because they were best suited (or at

36. MacIver in *Encyclopaedia of the Social Sciences*, VII, 144-148, esp. 147. See also Louis Wirth, "Urbanism as a Way of Life," *American Journal of Sociology*, XLIV (July 1938), 20; Walter Firey, "Coalition and Schism in a Regional Conservation Program," *Human Organization*, XV (Winter 1957), 17-20; Herbert Goldhamer, "Social Clubs," in *Development of Collective Enterprise*, ed. Seba Eldridge (Lawrence: University of Kansas Press, 1943), p. 163.

37. For a different interpretation of the voluntary association see Oliver Garceau, *The Political Life of the American Medical Association* (Cambridge, Mass.: Harvard University Press 1941), p. 3: "With the advent of political intervention and control, particularly over the economy, it became evident that the formation of policy could not be confined to ballot or legislature. To fill the gap the voluntary group was resorted to, not only by the individual who felt himself alone, but by the government which felt itself ignorant."

least sufficient) to perform certain functions for the people of these societies; in modern societies, by contrast, large associations are supposed to predominate because in modern conditions they alone are capable of performing (or are better able to perform) certain useful functions for the people of these societies. The large voluntary association, for example, could then be explained by the fact that it performed a function—that is, satisfied a demand, furthered an interest, or met a need—for some large number of people that small groups could not perform (or perform so well) in modern circumstances. This demand or interest provides an incentive for the formation and maintenance of the voluntary association.

It is characteristic of the traditional theory in all its forms that it assumes that participation in voluntary associations is virtually universal, and that small groups and large organizations tend to attract members for the same reasons. The casual variant of the theory assumed a propensity to belong to groups without drawing any distinctions between groups of different size. Though the more sophisticated variant may be credited with drawing a distinction between those functions that can best be served by small groups and those that can best be served by large associations, it nonetheless assumes that, when there is a need for a large association, a large association will tend to emerge and attract members, just as a small group will when there is a need for a small group. Thus in so far as the traditional theory draws any distinction at all between small and large groups, it is apparently with respect to the scale of the functions they perform, not the extent they succeed in performing these functions or their capacity to attract members. It assumes that small and large groups differ in degree, but not in kind.

But is this true? Is it really the case that small, primary groups and large associations attract members in the same way, that they are about equally effective in performing their functions, or that they differ only in size but not in their basic character? This traditional theory is called into question by the empirical research which shows that the average person does *not* in fact typically belong to large voluntary associations and that the allegation that the typical American is a "joiner" is largely a myth.³⁸ It is therefore worth

38. Murray Haussknecht, *The Joiners—A Sociological Description of Voluntary Association Membership in the United States* (New York: Bedminster Press, 1962); Mirra Komaravsky, "The Voluntary Associations of Urban Dwellers," *American*

asking if it is really true that there is no relation between the size of a group and its coherence, or effectiveness, or appeal to potential members; and whether there is any relation between the size of a group and the individual incentives to contribute toward the achievement of group goals. These are questions which must be answered before the traditional theory of groups can be properly assessed. What needs to be known, in the words of the German sociologist Georg Simmel, is "the bearing which the number of associated individuals has upon the form of social life."³⁹

One obstacle, it would seem, to any argument that large and small groups operate according to fundamentally different principles, is the fact, emphasized earlier, that any group or organization, large or small, works for some collective benefit that by its very nature will benefit all of the members of the group in question. Though all of the members of the group therefore have a common interest in obtaining this collective benefit, they have no common interest in paying the cost of providing that collective good. Each would prefer that the others pay the entire cost, and ordinarily would get any benefit provided whether he had borne part of the cost or not. If this is a fundamental characteristic of all groups or organizations with an economic purpose, it would seem unlikely that large organizations would be much different from small ones, and unlikely that there is any more reason that a collective service would be provided for a small group than a large one. Still, one cannot help but feel intuitively that sufficiently small groups would sometimes provide themselves with public goods.

This question cannot be answered satisfactorily without a study of the costs and benefits of alternative courses of action open to individuals in groups of different sizes. The next section of this chapter contains such a study. The nature of this question is such that some of the tools of economic analysis must be used. The following section contains a small amount of mathematics which, though extremely rudimentary, might naturally still be unclear to readers who have never studied that subject. Some points in the following section,

Sociological Review, XI (December 1946), 686-698; Floyd Dotson, "Patterns of Voluntary Membership Among Working Class Families," *American Sociological Review*, XVI (October 1951), 687; John C. Scott, Jr., "Membership and Participation in Voluntary Associations," *American Sociological Review*, XXII (June 1957), 315.

39. Georg Simmel, *The Sociology of Georg Simmel*, trans. Kurt H. Wolff (Glencoe, Ill.: Free Press [1950]), p. 87.

moreover, refer to oligopolistic groups in the marketplace, and the references to oligopoly may interest only the economist. Accordingly, some of the highlights of the following section are explained in an intuitively plausible, though loose and imprecise, way in the "non-technical summary" of section D, for the convenience of those who might wish to skip the bulk of the following section.

D. SMALL GROUPS

The difficulty of analyzing the relationship between group size and the behavior of the individual in the group is due partly to the fact that each individual in a group may place a different value upon the collective good wanted by his group. Each group wanting a collective good, moreover, faces a different cost function. One thing that will hold true in every case, however, is that the total cost function will be rising, for collective goods are surely like non-collective goods in that the more of the good taken, the higher total costs will be. It will, no doubt, also be true in virtually all cases that there will be significant initial or fixed costs. Sometimes a group must set up a formal organization before it can obtain a collective good, and the cost of establishing an organization entails that the first unit of a collective good obtained will be relatively expensive. And even when no organization or coordination is required, the lumpiness or other technical characteristics of the public goods themselves will ensure that the first unit of a collective good will be disproportionately expensive. Any organization will surely also find that as its demands increase beyond a certain point, and come to be regarded as "excessive," the resistance and the cost of additional units of the collective good rise disproportionately. In short, cost (C) will be a function of the rate or level (T) at which the collective good is obtained ($C = f(T)$), and the average cost curves will have the conventional U shape.

One point is immediately evident. If there is some quantity of a collective good that can be obtained at a cost sufficiently low in relation to its benefit that some one person in the relevant group would gain from providing that good all by himself, then there is some presumption that the collective good will be provided. The total gain would then be so large in relation to the total cost that some one individual's share would exceed the total cost.

An individual will get some share of the total gain to the group,

a share that depends upon the number in the group and upon how much the individual will benefit from that good in relation to the others in the group. The total gain to the group will depend upon the rate or level at which the collective good is obtained (T), and the "size" of the group (S_g), which depends not only upon the number of individuals in the group, but also on the value of a unit of the collective good to each individual in the group. This could be illustrated most simply by considering a group of property owners lobbying for a property tax rebate. The total gain to the group would depend upon the "size" (S_g) of the group, that is, the total assessed valuation of all the group property, and the rate or level (T) of tax rebate per dollar of assessed valuation of property. The gain to an individual member of the group would depend upon the "fraction" (F_i) of the group gain he got.

The group gain ($S_g T$) could also be called V_g for "value" to the group, and the gain to the individual V_i for "value" to the individual. The "fraction" (F_i) would then equal V_i/V_g , and the gain to the individual would be $F_i S_g T$. The advantage (A_i) that any individual i would get from obtaining any amount of the collective or group good would be the gain to the individual (V_i) minus the cost (C).

What a group does will depend on what the individuals in that group do, and what the individuals do depends on the relative advantages to them of alternative courses of action. So the first thing to do, now that the relevant variables have been isolated, is to consider the individual gain or loss from buying different amounts of the collective good. This will depend on the way the advantage to the individual ($A_i = V_i - C$) changes with changes in T , that is, on

$$dA_i/dT = dV_i/dT - dC/dT.$$

For a maximum, $dA_i/dT = 0$.⁴⁰ Since $V_i = F_i S_g T$, and F_i and S_g are, for now, assumed constant,⁴¹

$$\begin{aligned} d(F_i S_g T)/dT - dC/dT &= 0 \\ F_i S_g - dC/dT &= 0. \end{aligned}$$

40. The second-order conditions for a maximum must also be satisfied; that is, $d^2 A_i/dT^2 < 0$.

41. In cases where F_i and S_g are not constant, the maximum is given when:

$$F_i S_g + F_i T(dS_g/dT) - dC/dT = 0$$

$$F_i S_g + F_i T(dF_i/dT) - dC/dT = 0.$$

This indicates the amount of the collective good that an individual acting independently would buy, if he were to buy any. This result can be given a general, common-sense meaning. Since the optimum point is found when

$$dA_i/dT = dV_i/dT - dC/dT = 0$$

and since $dV_i/dT = F_i(dV_\sigma/dT)$

$$F_i(dV_\sigma/dT) - dC/dT = 0 \\ F_i(dV_\sigma/dT) = dC/dT.$$

This means that the optimal amount of a collective good for an individual to obtain, if he should obtain any, is found when the rate of gain to the group, multiplied by the fraction of the group gain the individual gets, equals the rate of increase of the total cost of the collective good. In other words, the rate of gain to the group (dV_σ/dT) must exceed the rate of increase in cost (dC/dT) by the same multiple that the group gain exceeds the gain to the individual concerned ($1/F_i = V_\sigma/V_i$).⁴²

But what matters most is *not* how much of the collective good will be provided if some is provided, but rather whether *any* of the collective good will be provided. And it is clear that, at the optimum point for the individual acting independently, the collective or group good will presumably be provided if $F_i > C/V_\sigma$.

For if

$$F_i > C/V_\sigma \\ V_i/V_\sigma > C/V_\sigma$$

then

$$V_i > C.$$

Thus, if $F_i > C/V_\sigma$, the gain to an individual from seeing that the collective good is provided will exceed the cost. This means there is a presumption that the collective good will be provided if the cost of the collective good is, at the optimal point for any individual in the group, so small in relation to the gain of the group as a whole

42. The same point could be made by focusing attention on the individual's cost and benefit functions alone, and neglecting the gains to the group. But this would divert attention from the main purpose of the analysis, which is studying the relation between the size of the group and the likelihood that it will be provided with a collective good.

from that collective good, that the total gain exceeds the total cost by as much as or more than the gain to the group exceeds the gain to the individual.

In summary, then, the rule is that there is a presumption that a collective good will be provided if, when the gains to the group from the collective good are *increasing* at $1/F_i$ times the *rate* of increase in the total cost of providing that good (that is, when $dV_\sigma/dT = 1/F_i(dC/dT)$), the total benefit to the group is a larger multiple of the cost of that good than the gains to the group are of the gains to the individual in question (that is, $V_\sigma/C > V_\sigma/V_i$).

The degree of generality of the basic idea in the foregoing model can be illustrated by applying it to a group of firms in a market. Consider an industry producing a homogeneous product, and assume that the firms in the industry *independently* seek to maximize profits. For simplicity, suppose also that marginal costs of production are zero. In order to avoid adding any new notational symbols, and to bring out the applicability of the foregoing analysis, assume that T now stands for price, that S_σ now stands for the physical volume of the group's or industry's sales, and S_i for the size or physical volume of the sales of firm i . F_i still indicates the "fraction" of the total accounted for by the individual firm or member of the group. It indicates now the fraction of the total group or industry sales going to firm i at any given moment: $F_i = S_i/S_\sigma$. The price, T , will affect the amount sold by the industry to an extent given by the elasticity of demand, E . The elasticity $E = -T/S_\sigma(dS_\sigma/dT)$, and from this a convenient expression for the slope of the demand curve, dS_σ/dT , follows: $dS_\sigma/dT = -ES_\sigma/T$. With no production costs, the optimum output for a firm will be given when:

$$dA_i/dT = d(S_i T)/dT = 0 \\ S_i + T(dS_i/dT) = 0 \\ F_i S_\sigma + T(dS_\sigma/dT) = 0.$$

Here, where it is assumed that the firm acts independently, i.e., expects no reaction from other firms, $dS_i = dS_\sigma$, so

$$F_i S_\sigma + T(dS_\sigma/dT) = 0$$

and since $dS_\sigma/dT = -ES_\sigma/T$,

$$F_i S_\sigma - T(ES_\sigma/T) = 0 \\ S_\sigma(F_i - E) = 0.$$

This can happen only when $F_i = E$. Only when the elasticity of demand for the industry is less than or equal to the fraction of the industry's output supplied by a particular firm will that firm have any incentive to restrict its output. A firm that is deciding whether or not to restrict its output in order to bring about a higher price will measure the cost or loss of the foregone output against the gains it gets from the "collective good"—the higher price. The elasticity of demand is a measure of this. If F_i is equal to E it means that the elasticity of demand for the industry is the same as the proportion of the output of the industry shared by the firm in question; if the elasticity of demand is, say, $1/4$, it means that a 1 per cent reduction in output will bring a 4 per cent increase in price, which makes it obvious that if a given firm has one fourth of the total industry output it should stop increasing, or restrict, its own output. If there were, say, a thousand firms of equal size in an industry, the elasticity of demand for the industry's product would have to be $1/1000$ or less before there would be any restriction of output. Thus there are no profits in equilibrium in any industry with a really large number of firms. A profit-maximizing firm will start restricting its output, that is, will start acting in a way consistent with the interests of the industry as a whole, when the rate at which the gain to the group increases, as more T (a higher price) is provided, is $1/F_i$, times as great as the rate at which the total cost of output restriction increases. This is the same criterion for group-oriented behavior used in the more general case explained earlier.

This analysis of a market is identical with that offered by Cournot.⁴³ This should not be surprising, for Cournot's theory is essentially a special case of a more general theory of the relationship between the interests of the member of a group and of the interests of the group as a whole. The Cournot theory can be regarded as a special case of the analysis developed here. The Cournot solution thus boils down to the common-sense statement that a firm will act to keep up the price of the product its industry sells only when the total cost of keeping up the price is not more than its share of the industry's gain from the higher price. The Cournot theory is, like the analysis of group action outside the market, a theory that asks

when it is in the interest of an individual unit in a group to act in the interest of the group as a whole.

The Cournot case is in one respect simpler than the group situation outside the marketplace that is the main concern of this study. When a group seeks an ordinary collective good, rather than a higher price through output restriction, it finds, as the opening paragraph of this section argued, that the first unit of the collective good obtained will be more expensive per unit than some subsequent units of the good. This is because of the lumpiness and other technical characteristics of collective goods, and because it may sometimes be necessary to create an organization to obtain the collective good. This calls to attention the fact that there are two distinct questions that an individual in a nonmarket group must consider. One is whether the total benefit he would get from providing some amount of the collective good would exceed the total cost of that amount of the good. The other question is how much of the collective good he should provide, if some should be provided, and the answer here depends of course on the relationship between marginal, rather than total, costs and benefits.

There are similarly also two distinct questions that must be answered about the group as a whole. It is not enough to know whether a small group will provide itself with a collective good; it is also necessary to determine whether the amount of the collective good that a small group will obtain, if it obtains any, will tend to be Pareto-optimal for the group as a whole. That is, will the group gain be maximized? The optimal amount of a collective good for a group as a whole to obtain, if it should obtain any, would be given when the gain to the group was increasing at the same rate as the cost of the collective good, i.e., when $dV_g/dT = dC/dT$. Since, as shown earlier, each individual in the group would have an incentive to provide more of the collective good until $F_i(dV_g/dT) = dC/dT$, and since $\sum F_i = 1$, it would at first glance appear that the sum of what the individual members acting independently would provide would add up to the group optimum. It would also seem that each individual in the group would then bear a fraction, F_i , of the total burden or cost, so that the burden of providing the public good would be shared in the "right" way in the sense that the cost would be shared in the same proportion as the benefits.

But this is not so. Normally, the provision of the collective good will be strikingly suboptimal and the distribution of the burden will

43. Augustin Cournot, *Researches into the Mathematical Principles of the Theory of Wealth*, trans. Nathaniel T. Bacon (New York: Macmillan, 1897), especially chap. vii, pp. 79-90.

be highly arbitrary. This is because the amount of the collective good that the individual obtains for himself will automatically also go to others. It follows from the very definition of a collective good that an individual cannot exclude the others in the group from the benefits of that amount of the public good that he provides for himself.⁴⁴ This means that no one in the group will have an incentive independently to provide any of the collective good once the amount that would be purchased by the individual in the group with the largest F_i was available. This suggests that, just as there is a tendency for large groups to fail to provide themselves with any collective good at all, so there is a tendency in small groups toward a suboptimal provision of collective goods. The suboptimality will be the more serious the smaller the F_i of the "largest" individual in the group. Since the larger the number in the group, other things equal, the smaller the F_i 's will be, the more individuals in the group, the more serious the suboptimality will be. Clearly then groups with larger numbers of members will generally perform less efficiently than groups with smaller numbers of members.

It is not, however, sufficient to consider only the number of individuals or units in a group, for the F_i of any member of the group will depend not only on how many members there are in the group, but also on the "size" (S_i) of the individual member, that is, the extent to which he will be benefited by a given level of provision of the collective good. An owner of vast estates will save more from a given reduction in property taxes than the man with only a modest cottage, and other things equal will have a larger F_i .⁴⁵ A group com-

44. In the rest of this section it is convenient and helpful to assume that every member of the group receives the same amount of the public good. This is in fact the case whenever the collective good is a "pure public good" in Samuelson's sense. This assumption is, however, more stringent than is usually necessary. A public good may be consumed in unequal amounts by different individuals, yet be a full public good in the sense that one individual's consumption does not in any way diminish that of another. And even when additional consumption by one individual does lead to marginal reductions in the amount available to others, the qualitative conclusions that there will be suboptimality and disproportionate burden sharing still hold.

45. Differences in size can also have some importance in market situations. The large firm in a market will get a larger fraction of the total benefit from any higher price than a small firm, and will therefore have more incentive to restrict output. This suggests that the competition of a few large firms among the many small ones, contrary to some opinions, can lead to a serious misallocation of resources. For a different view on this subject, see Willard D. Arant, "The Competition of the Few among the Many," *Quarterly Journal of Economics*, LXX (August 1956), 327-345.

posed of members of unequal S_i , and, therefore, unequal F_i , will show less of a tendency toward suboptimality (and be more likely to provide itself with some amount of a collective good) than an otherwise identical group composed of members of equal size.

Since no one has an incentive to provide any more of the collective good, once the member with the largest F_i has obtained the amount he wants, it is also true that the distribution of the burden of providing the public good in a small group will *not* be in proportion to the benefits conferred by the collective good. The member with the largest F_i will bear a disproportionate share of the burden.⁴⁶ Where small groups with common interests are concerned, then, there is a systematic tendency for "exploitation" of the great by the small.⁴⁷ The behavior of small groups interested in collective goods can sometimes be quite complex—much more complex than the preceding paragraphs would suggest.⁴⁸ There are certain institutional

46. The discussion in the text is much too brief and simple to do full justice even to some of the most common situations. In what is perhaps the most common case, where the collective good is *not* a money payment to each member of some group, and not something that each individual in the group can sell for money, the individuals in the group must compare the additional cost of another unit of the collective good with the additional "utility" they would get from an additional unit of that good. They could not, as the argument in the text assumes, merely compare a money cost with a money return, and indifference curves would accordingly also have to be used in the analysis. The marginal rate of substitution would be affected not only by the fact that the taste for additional units of the collective good would diminish as more of the good was consumed, but also by the income effects. The income effects would lead a group member that had sacrificed a disproportionate amount of his income to obtain the public good to value his income more highly than he would have done had he got the collective good free from others in the group. Conversely, those who had not borne any of the burden of providing the collective good they enjoyed would find their real incomes greater, and unless the collective good were an inferior good, this gain in real income would strengthen their demand for the collective good. These income effects would tend to keep the largest member of the group from bearing *all* of the burden of the collective good (as he would in the much too simple case considered in the text). I am thankful to Richard Zeckhauser for bringing the importance of income effects in this context to my attention.

47. The moral overtones of the word "exploitation" are unfortunate; no general moral conclusions can follow from a purely logical analysis. Since the word "exploitation" is, however, commonly used to describe situations where there is a disproportion between the benefits and sacrifices of different people, it would be pedantic to use a different word here.

48. For one thing, the argument in the text assumes independent behavior, and thus neglects the strategic interaction or bargaining that is possible in small groups. As later parts of this chapter will show, strategic interaction is usually much less important in nonmarket groups seeking collective goods than it is among groups of firms in the marketplace. And even when there is bargaining, it will often be

arrangements and behavioral assumptions that will not always lead to the suboptimality and disproportionality that the preceding paragraphs have described. Any adequate analysis of the tendency toward suboptimal provision of collective goods, and toward disproportionate sharing of the burdens of providing them, would be too long to fit comfortably into this study, which is concerned mainly with large groups, and brings in small groups mainly for purposes of comparison and contrast. The problem of small groups seeking collective goods is of some importance, both theoretically⁴⁹ and practically, and has not been adequately treated in the literature. It will accordingly be analyzed in more detail in forthcoming articles. The Nontechnical Summary of this section will list a few of the specific cases that this approach to small groups and organizations can be used to study.

The necessary conditions for the optimal provision of a collective good, through the voluntary and independent action of the members of a group, can, however, be stated very simply. The marginal cost of additional units of the collective good must be shared in exactly the same proportion as the additional benefits. Only if this is done will each member find that his own marginal costs and benefits are the case that there will be a disparity of bargaining power that will lead to about the same results as are described in the text. When a group member with a large F_i bargains with a member with a small F_j , all he can do is threaten the smaller member by saying, in effect, "If you do not provide more of the collective good, I will provide less myself, and you will then be worse off than you are now." But when the large member restricts his purchase of the public good, he will suffer *more* than the smaller member, simply because his F_i is greater. The large member's threat is thus not apt to be credible. Another factor that works in the same direction is that the maximum amount of collective good provision that a successful bargain can extract from the small member is less than the amount a successful bargain can bring forth from the large member. This means that the large member can bring enough even from successful bargaining to justify the risks or other costs of bargaining, while the small member by contrast finds that the gain from a successful bargain is large in relation to his costs of bargaining. The bargaining problem is of course more complex than this, but it is nonetheless clear that bargaining will usually lead toward the same results as the forces explained in the text.

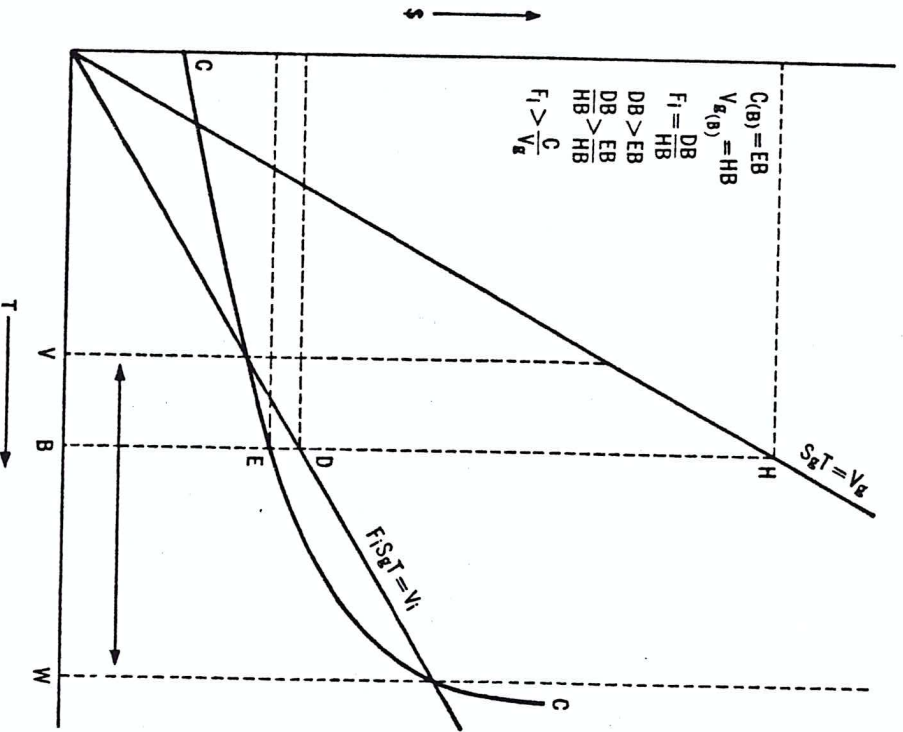
49. Erik Lindahl's famous "voluntary theory of public exchange" can, I believe, usefully be amended and expanded with the aid of the analysis adumbrated in the text. I am thankful to Richard Musgrave for bringing to my attention the fact that Lindahl's theory and the approach used in this study must be closely related. He sees this relationship in a different way, however. For analyses of Lindahl's theory see Richard Musgrave, "The Voluntary Exchange Theory of Public Economy," *Quarterly Journal of Economics*, LIII (February 1939), 213-237; Laif Johansen, "Some Notes on the Lindahl Theory of Determination of Public Expenditures," *International Economic Review*, IV (September 1963), 346-358; John G. Head, "Lindahl's Theory of the Budget," *Finanzarchiv*, XXIII (October 1964), 421-454.

equal at the same time that the total marginal cost equals the total or aggregate marginal benefit. If marginal costs are shared in *any* other way, the amount of collective good provided will be *sub-optimal*.⁵⁰ It might seem at first glance that if some cost allocations lead to a suboptimal provision of a collective good, then some other cost allocations would lead to a supraoptimal supply of that good; but this is not so. In any group in which participation is voluntary, the member or members whose shares of the marginal cost exceed their shares of the additional benefits will stop contributing to the achievement of the collective good *before* the group optimum has been reached. And there is no conceivable cost-sharing arrangement in which *some* member does not have a marginal cost greater than his share of the marginal benefit, except the one in which every member of the group shares marginal costs in exactly the same proportion in which he shares incremental benefits.⁵¹

50. There is an illustration of this point in many farm tenancy agreements, where the landlord and tenant often share the produce of the crop in some prearranged proportion. The farm's output can then be regarded as a public good to the landlord and tenant. Often the tenant will provide *all* of the labor, machinery, and fertilizer, and the landlord will maintain *all* of the buildings, drainage, ditches, etc. As some agricultural economists have rightly pointed out, such arrangements are inefficient, for the tenant will use labor, machinery, and fertilizer only up to the point where the marginal cost of these factors of production equals the marginal return from his *share* of the crop. Similarly, the landlord will provide a suboptimal amount of the factors he provides. The only way in which this suboptimal provision of the factors can be prevented in a share-tenancy is by having the landlord and tenant share the costs of each of the (variable) factors of production in the *same* proportion in which they share the output. Perhaps this built-in inefficiency in most share-tenancy agreements helps account for the observation that in many areas where farmers do not own the land they farm, land reform is necessary to increase agricultural efficiency. See Earl O. Heady and E. W. Kehrberg, *Effect of Share and Cash Renting on Farming Efficiency* (Iowa Agricultural Experiment Station Bulletin 386), and Earl O. Heady, *Economics of Agricultural Production and Resource Use* (New York: Prentice-Hall, 1952), esp. pp. 592 and 620.

51. A similar argument could sometimes be used to help explain the common observation that there is "public squalor" midst "private splendor," that is, a sub-optimal supply of public goods. Such an argument would be relevant at least in those situations where proposed Pareto-optimal public expenditures benefit a group of people smaller than the group that would be taxed to pay for these expenditures. The point that even Pareto-optimal public expenditures usually benefit groups of people smaller than the group taxed to pay for these expenditures was suggested to me by Julius Margolis' useful paper on "The Structure of Government and Public Investment," in *American Economic Review: Papers and Proceedings*, LIV (May 1964), 236-247. See my "Discussion" of Margolis' paper (and others) in the same issue of the *American Economic Review* (pp. 250-251) for a suggestion of a way in which a model of the kind developed in this study can be used to explain private

Though there is a tendency for even the smallest groups to provide suboptimal amounts of a collective good (unless they arrange marginal cost-sharing of the kind just described), the more important point to remember is that some sufficiently small groups can pro-



affluence and public squalor. It is interesting that John Head (*Finanzarchiv*, XXIII, 453-454) and Leif Johansen (*International Economic Review*, IV, 353), though they started out at different points from mine and used instead Lindahl's approach, still had arrived at conclusions on this point that are not altogether different from mine. For interesting arguments that point to forces that could lead to supra-optimal levels of government expenditure, see two other papers in the issue of the *American Economic Review* cited above, namely "Fiscal Institutions and Efficiency in Collective Outlay" (pp. 227-235) by James M. Buchanan, and "Divergencies between Individual and Total Costs within Government" (pp. 243-249) by Roland N. McKean.

vide themselves with some amount of a collective good through the voluntary and rational action of one or more of their members. In this they are distinguished from really large groups. There are two things to determine in finding out whether there is any presumption that a given group will voluntarily provide itself with a collective good. First, the optimal amount of the collective good for each individual to buy, if he is to buy any, must be discovered; this is given when $F_i(dV_g/dT) = dC/dT$.⁵² Second, it must be determined whether any member or members of the group would find at that individual optimum that the benefit to the group from the collective good exceeded the total cost by more than it exceeded the member's own benefit from that collective good; that is, whether $F_i > C/V_g$. The argument may be stated yet more simply by saying that, if at any level of purchase of the collective good, the gain to the group exceeds the total cost by more than it exceeds the gain to any individual, then there is a presumption that the collective good will be provided, for then the gain to the individual exceeds the total cost of providing the collective good to the group. This is illustrated in the accompanying figure, where an individual would presumably be better off for having provided the collective good, whether he provided amount *V* or amount *W* or any amount in between. If any amount of the collective good between *V* and *W* is obtained, even if it is not the optimal amount for the individual, F_i will exceed C/V_g .

Nontechnical summary of Section D

The technical part of this section has shown that certain small groups can provide themselves with collective goods without relying on coercion or any positive inducements apart from the collective good itself.⁵³ This is because in some small groups each of the mem-

52. If F_i is not a constant, this individual optimum is given when:

$$F_i(dV_g/dT) + V_g(dF_i/dT) = dC/dT$$

53. I am indebted to Professor John Rawls of the Department of Philosophy at Harvard University for reminding me of the fact that the philosopher David Hume sensed that small groups could achieve common purposes but large groups could not. Hume's argument is however somewhat different from my own. In *A Treatise of Human Nature*, Everyman edition (London: J. M. Dent, 1952), II, 239, Hume wrote: "There is no quality in human nature which causes more fatal errors in our conduct, than that which leads us to prefer whatever is present to the distant and remote, and makes us desire objects more according to their situation than their intrinsic value. Two neighbours may agree to drain a meadow, which they possess

bers, or at least one of them, will find that his personal gain from having the collective good exceeds the total cost of providing some amount of that collective good; there are members who would be better off if the collective good were provided, even if they had to pay the entire cost of providing it themselves, than they would be if it were not provided. In such situations there is a presumption that the collective good will be provided. Such a situation will exist only when the benefit to the group from having the collective good exceeds the total cost by more than it exceeds the gain to one or more individuals in the group. Thus, in a very small group, where each member gets a substantial proportion of the total gain simply because there are few others in the group, a collective good can often be provided by the voluntary, self-interested action of the members of the group. In smaller groups marked by considerable degrees of inequality—that is, in groups of members of unequal "size" or extent of interest in the collective good—there is the greatest likelihood that a collective good will be provided; for the greater the interest in the collective good of any single member, the greater the likelihood that that member will get such a significant proportion of the total benefit from the collective good that he will gain from seeing that the good is provided, even if he has to pay all of the cost himself.

Even in the smallest groups, however, the collective good will not ordinarily be provided on an optimal scale. That is to say, the members of the group will not provide as much of the good as it would be in their common interest to provide. Only certain special

in common: because it is easy for them to know each other's mind; and each must perceive, that the immediate consequence of his failing in his part is the abandoning of the whole project. But it is very difficult, and indeed impossible, that a thousand persons should agree in any such action; it being difficult for them to concert so a pretext to free himself of the trouble and expense, and would lay the whole burden on others. Political society easily remedies both these inconveniences. Magistrates find an immediate interest in the interest of any considerable part of their subjects. They need consult nobody but themselves to form any scheme for promoting that interest. And as the failure of any one piece in the execution is connected, though not immediately, with the failure of the whole, they prevent that failure, because they find no interest in it, either immediate or remote. Thus, bridges are built, harbours opened, ramparts raised, canals formed, fleets equipped, and armies disciplined, all human infirmities, becomes, by one of the finest and most subtle inventions imaginable, a composition which is in some measure exempted from all these infirmities."

institutional arrangements will give the individual members an incentive to purchase the amounts of the collective good that would add up to the amount that would be in the best interest of the group as a whole. This tendency toward suboptimality is due to the fact that a collective good is, by definition, such that other individuals in the group cannot be kept from consuming it once any individual in the group has provided it for himself. Since an individual member thus gets only part of the benefit of any expenditure he makes to obtain more of the collective good, he will discontinue his purchase of the collective good before the optimal amount for the group as a whole has been obtained. In addition, the amounts of the collective good that a member of the group receives free from other members will further reduce his incentive to provide more of that good at his own expense. Accordingly, *the larger the group, the farther it will fall short of providing an optimal amount of a collective good.*

This suboptimality or inefficiency will be somewhat less serious in groups composed of members of greatly different size or interest in the collective good. In such unequal groups, on the other hand, there is a tendency toward an arbitrary sharing of the burden of providing the collective good. The largest member, the member who would on his own provide the largest amount of the collective good, bears a disproportionate share of the burden of providing the collective good. The smaller member by definition gets a smaller fraction of the benefit of any amount of the collective good he provides than a larger member, and therefore has less incentive to provide additional amounts of the collective good. Once a smaller member has the amount of the collective good he gets free from the largest member, he has more than he would have purchased for himself, and has no incentive to obtain any of the collective good at his own expense. In small groups with common interests there is accordingly *a surprising tendency for the "exploitation" of the great by the small.*

The argument that small groups providing themselves with collective goods tend to provide suboptimal quantities of these goods, and that the burdens of providing them are borne in an arbitrary and disproportionate way, does not hold in all logically possible situations. Certain institutional or procedural arrangements can lead to different outcomes. The subject cannot be analyzed adequately in any brief discussion. For this reason, and because the main focus of this book is on large groups, many of the complexities of small-group

behavior have been neglected in this study. An argument of the kind just outlined could, however, fit some important practical situations rather well, and may serve the purpose of suggesting that a more detailed analysis of the kind outlined above could help to explain the apparent tendency for large countries to bear disproportionate shares of the burdens of multinational organizations, like the United Nations and NATO, and could help to explain some of the popularity of neutralism among smaller countries. Such an analysis would also tend to explain the continual complaints that international organizations and alliances are not given adequate (optimal) amounts of resources.⁵⁴ It would also suggest that neighboring local governments in metropolitan areas that provide collective goods (like commuter roads and education) that benefit individuals in two or more local government jurisdictions would tend to provide inadequate amounts of these services, and that the largest local government (e.g., the one representing the central city) would bear disproportionate shares of the burdens of providing them.⁵⁵ An analysis of the foregoing type might, finally, provide some additional insight into the phenomenon of price leadership, and particularly the possible disadvantages involved in being the largest firm in an industry.

The most important single point about small groups in the present context, however, is that they may very well be able to provide themselves with a collective good simply because of the attraction of the collective good to the individual members. In this, small groups differ from larger ones. The larger a group is, the farther it will fall short of obtaining an optimal supply of any collective good, and the less likely that it will act to obtain even a minimal amount of such a good. In short, the larger the group, the less it will further its common interests.

E. "EXCLUSIVE" AND "INCLUSIVE" GROUPS

The movement in and out of the group must no longer be ignored. This is an important matter; for industries or market groups differ

54. Some of the complexities of behavior in small groups are treated in Mancur Olson, Jr., and Richard Zeckhauser, "An Economic Theory of Alliances," *Review of Economics and Statistics*, XLVIII (August 1966), 266-279, and in "Collective Goods, Comparative Advantage, and Alliance Efficiency," in *Issues of Defense Economics* (A Conference of the Universities-National Bureau-Committee for Economics Research), Roland McKean, ed., (New York: National Bureau of Economic Research, 1967), pp. 25-48. [Footnote added in 1970.]

55. I am indebted to Alan Williams of York University in England, whose study of local government brought the importance of these sorts of spillovers among local governments to my attention.

fundamentally from nonmarket groups in their attitudes toward movement in and out of the group. The firm in an industry wants to keep new firms from coming in to share the market and wants as many as possible of those firms already in the industry to leave the industry. It wants the group of firms in the industry to shrink until there is preferably only one firm in the group: its ideal is a monopoly. Thus the firms in a given market are competitors or rivals. In nonmarket groups or organizations seeking a collective good the opposite is true. Usually the larger the number available to share the benefits and costs the better. An increase in the size of the group does not bring competition to anyone, but may lead to lower costs for those already in the group. The truth of this view is evident from everyday observation. Whereas firms in a market lament any increase in competition, associations that supply collective goods in nonmarket situations almost always welcome new members. Indeed, such organizations sometimes attempt to make membership compulsory.

Why is there this difference between the market and nonmarket groups which previous sections of this chapter have shown to have striking similarities? If the businessman in the market, and the member of the lobbying organization, are alike in that each of them finds that the benefits of any effort made to achieve group goals would accrue mostly to other members of the group, then why are they so much different where entry and exit from the group are concerned? The answer is that in a market situation the "collective good"—the higher price—is such that if one firm sells more at that price, other firms must sell less, so that the benefit it provides is fixed in supply; but in nonmarket situations the benefit from a collective good is *not* fixed in supply. Only so many units of a product can be sold in any given market without driving down the price, but any number of people can join a lobbying organization without necessarily reducing the benefits for others.⁵⁶ Usually in a market situation what one firm captures another firm cannot obtain; essentially in a nonmarket situation what one consumes another may also enjoy. If a firm in a market situation prospers, it becomes a more formidable rival; but if an individual in a nonmarket group prospers, he may

56. In a social club that gives members status because it is "exclusive," the collective good in question is like a supracompetitive price in a market, not like the normal nonmarket situation. If the top "400" were to become the top "4,000," the benefits to the entrants would be offset by the losses of old members, who would have traded an exalted social connection for one that might be only respectable.

well then have an incentive to pay a larger share of the cost of the collective good.

Because of the fixed and thus limited amount of the benefit that can be derived from the "collective good"—the higher price—in the market situation, which leads the members of a market group to attempt to reduce the size of their group, this sort of collective good will here be called an "exclusive collective good."⁵⁷ Because the supply of collective goods in nonmarket situations, by contrast, automatically expands when the group expands, this sort of public good should be called an "inclusive collective good."⁵⁸

57. This usage of the idea of the collective good is, to be sure, in some respects over-broad, in that the collective-good concept is not needed to analyze market behavior; other theories are usually better for that purpose. But it is helpful in this particular context to treat a supracompetitive price as a special type of collective good. It is a useful expositional technique for bringing out parallels and contrasts between market and nonmarket situations with respect to the relationships between individual interests and group-oriented action. I hope that in the following pages it will also offer some insight into organizations that have functions both inside and outside the market, and into the extent of bargaining in market and nonmarket groups.

58. There are some interesting parallels between my concepts of "exclusive" and "inclusive" collective goods and some recent work by other economists. There is, first, a relationship between these concepts and John Head's previously cited article on "Public Goods and Public Policy" (*Public Finance*, XVII, 197-219). I did not understand all of the implications of my discussion of inclusive and collective goods until I had read all of Head's article. As I now see it, these concepts can be explained in terms of his distinction between the two defining characteristics of the traditional public good: infeasibility of exclusion and jointness of supply. My exclusive collective good is then a good such that, at least within some given group, exclusion is not feasible, but at the same time such that there is no jointness of supply whatever, so that the members of the group hope that others can be kept out of the group. My inclusive collective good is also such that exclusion is infeasible, at least within some given group, but it is however also characterized by at least some considerable degree of jointness in supply, and this accounts for the fact that additional members can enjoy the good with little or no reduction in the consumption of the old members.

There is, second, a relationship between my inclusive-exclusive distinction and a paper by James M. Buchanan entitled "An Economic Theory of Clubs" (mimeo.). Buchanan's paper assumes that exclusion is possible, but that a (severely limited) degree of jointness in supply exists, and shows that on these assumptions the optimal number of users of a given public good is normally finite, will vary from case to case, and may sometimes be quite small. Buchanan's approach and my own are related in that both of us ask how the interests of a member of a group enjoying a collective good will be affected by increases or decreases in the number of people who consume the good. Both of us have been working on this problem independently, and until very recently in ignorance of each other's interest in this particular question. Buchanan generously suggests that I may have asked this question earlier than he did, but whereas I have barely touched upon the question merely to facilitate other parts of my general argument, he has developed an interesting and general model which shows the relevance of this question to a wide range of policy problems.

Whether a group behaves exclusively or inclusively, therefore, depends upon the nature of the objective the group seeks, not on any characteristics of the membership. Indeed, the same collection of firms or individuals might be an exclusive group in one context and an inclusive group in another. The firms in an industry would be an exclusive group when they sought a higher price in their industry by restricting output, but they would be an inclusive group, and would enlist all the support they could get, when they sought lower taxes, or a tariff, or any other change in government policy. The point that the exclusiveness or inclusiveness of a group depends on the objective at issue, rather than on any traits of the membership, is important, since many organizations operate both in the market to raise prices by restricting output, and also in the political and social systems to further other common interests. It might be interesting, if space permitted, to study such groups with the aid of the distinction between exclusive and inclusive collective goods. The logic of this distinction suggests that such groups would have ambivalent attitudes toward new entrants. And in fact they do. Labor unions, for example, sometimes advocate the "solidarity of the working class" and demand the closed shop, yet set up apprenticeship rules that limit new "working class" entrants into particular labor markets. Indeed, this ambivalence is a fundamental factor with which any adequate analysis of what unions seek to maximize must deal.

A further difference between inclusive and exclusive groups is evident when formally organized, or even informally coordinated,

59. There is some uncertainty about what unions maximize. It is sometimes thought that unions do not maximize wage rates, since higher wages reduce the quantity of labor demanded by the employer and thereby also union membership. This reduction in membership is in turn contrary to the institutional interests of the union and harmful to the power and prestige of the union leaders. Yet some unions, such as the United Mine Workers, have in fact raised wages to a point they conceded would reduce employment in their industry. One possible explanation is that unions seek inclusive collective goods from government, as well as higher wages in the market. In this nonmarket capacity each union has an interest in acquiring new members, outside its "own" industry or craft as well as inside it. Higher wages do not hinder the expansion of a union in other industries or skill categories. Indeed, the higher the wages a union wins in any given labor market the greater the prestige of its leaders and the greater its appeal to workers in other labor markets, thus facilitating the growth of union membership outside its original clientele. This is something a union may be happy to do because this will help it fulfill its political, lobbying function. Interestingly, the CIO, and the catch-all District 50 of the UMW, may possibly have allowed the influence of John L. Lewis and the UMW to expand at some times when union wage levels limited employment in coal mining. I am thankful to one of my former students, John Beard, for stimulating ideas on this point.

behavior is attempted. When there is organized or coordinated effort in an inclusive group, as many as can be persuaded to help will be included in that effort.⁶⁰ Yet it will *not* (except in marginal cases, where the collective good is only just worth its cost) be essential that every individual in the group participate in the organization or agreement. In essence this is because the nonparticipant normally does not take the benefits of an inclusive good away from those who do cooperate. An inclusive collective good is by definition such that the benefit a noncooperator receives is not matched by corresponding losses to those who do cooperate.⁶¹

When a group seeks an exclusive collective good through an agreement or organization of the firms in the market—that is, if there is explicit or even tacit collusion in the market—the situation is much different. In such a case, though the hope is that the number of firms in the industry will be as small as possible, it is paradoxically almost always essential that there be 100 per cent participation of those who

60. Riker's interesting argument, in *The Theory of Political Conditions*, that there will be a tendency toward minimum winning coalitions in many political contexts, does not in any way weaken the conclusion here that inclusive groups try to increase their membership. Nor does it weaken any of the conclusions in this book, for Riker's argument is relevant only to zero-sum situations, and no such situations are analyzed in this book. Any group seeking an inclusive collective good would not be in a zero-sum situation, since the benefit by definition increases in amount as more join the group, and as more of the collective good is provided. Even groups seeking exclusive collective goods do not fit Riker's model, for though the amount that can be sold at any given price is fixed, the amount the price will be raised and thus the gain to the group are variable. It is unfortunate that Riker's otherwise stimulating and useful book considers some phenomena, like military alliances, for which his zero-sum assumption is most inappropriate. See William H. Riker, *The Theory of Political Conditions* (New Haven, Conn.: Yale University Press, 1962).

61. If the collective good were a "pure public good" in Samuelson's sense, the benefit the noncooperator receives would not only not lead to a corresponding loss to those who did cooperate; it would not lead to any loss whatever for them. The pure-public-good assumption seems, however, to be unnecessarily stringent for present purposes. It would surely often be true that after some point, additional consumers of a collective good would, however slightly, reduce the amount available to others. The argument in the text therefore does not require that inclusive collective goods be pure public goods. When an inclusive collective good is not a pure public good, however, those in the group enjoying the good would not welcome additional members who failed to pay adequate dues. Dues would not be adequate unless they were at least equal in value to the reduction in the consumption of the old members entailed by the consumption of the new entrant. As long as any significant degree of "jointness in supply" remains, however, the gains to new entrants will exceed the dues payment needed to ensure that the old members will be adequately compensated for any curtailment in their own consumption, so the group will remain truly "inclusive."

remain in the group. In essence this is because even one nonparticipant can usually take all the benefits brought about by the action of the collusive firms for himself. Unless the costs of the nonparticipating firm rise too rapidly with increases in output, it can continually expand its output to take advantage of the higher price brought about by the collusive action until the collusive firms, if they foolishly continue to maintain the higher price, have reduced their output to zero, all for the benefit of the nonparticipating firm. The nonparticipating firm can deprive the collusive firms of all the benefits of their collusion because the benefit of any given supracompetitive price is fixed in amount; so whatever he takes the collusive firms lose. There is then an all-or-none quality about exclusive groups, in that there must often be either 100 per cent participation or else no collusion at all. This need for 100 per cent participation has the same effects in an industry that a constitutional provision that all decisions must be unanimous has in a voting system. Whenever unanimous participation is required, any single holdout has extraordinary bargaining power; he may be able to demand for himself most of the gain that would come from any group-oriented action.⁶² Moreover, any one in the group can attempt to be a holdout, and demand a greater share of the gain in return for his (indispensable) support. This incentive to holdouts makes any group-oriented action less likely than it would otherwise be. It also implies that each member has a great incentive to bargain; he may gain all by a good bargain, or lose all in a bad one. This means much more bargaining is likely in any situation where 100 per cent participation is required than when some smaller percentage can undertake group-oriented activity.

It follows that the relationship among individuals in inclusive and

62. If marginal costs rise very steeply, and accordingly no firm has an incentive to increase output greatly in response to the higher price, a single holdout need not be fatal to a collusive agreement. But a holdout will still be costly, for he will tend to gain more from the collusion than a firm that colludes, and whatever he gains the collusive firms lose.

63. On the implications of a unanimity requirement, see the important book by James M. Buchanan and Gordon Tullock, *The Calculus of Consent: Logical Foundations of Constitutional Democracy* (Ann Arbor: University of Michigan Press, 1962), especially chap. viii, pp. 96–116. I believe that some complications in their useful and provocative study could be cleared up with the aid of some of the ideas developed in the present study; see for example my review of their book in the *American Economic Review*, LII (December 1962), 1217–1218.

exclusive groups usually is quite different, whenever groups are so small one member's action has a perceptible effect on any other member, so that individual relationships matter. The firms in the exclusive group want as few others in the group as possible, and therefore each firm warily watches other firms for fear they will attempt to drive it out of the industry. Each firm must, before it takes any action, consider whether it will provoke a "price war" or "cut-throat competition." This means that each firm in an exclusive group must be sensitive to the other firms in the group, and consider the reactions they may have to any action of its own. At the same time, any group-oriented behavior in an exclusive group will usually require 100 per cent participation, so each firm in an industry is not only a rival of every other firm, but also an indispensable collaborator in any collusive action. Therefore, whenever any collusion, however tacit, is in question, each firm in the industry may consider bargaining or holding out for a larger share of the gains. The firm that can best guess what reaction other firms will have to each move of its own will have a considerable advantage in this bargaining. This fact, together with the desire of the firms in an industry to keep the number in that industry as small as possible, makes each of the firms in any industry with a small number of firms very anxious about the reactions other firms will have to any action it takes. In other words, both the desire to limit the size of the group, and the usual need for 100 per cent participation in any kind of collusion, increase the intensity and complexity of oligopolistic reactions. The conclusion that industries with small numbers of firms will be characterized by oligopolistic interaction with mutual dependence recognized is of course familiar to every economist.

It is not however generally understood that in inclusive groups, even small ones, on the other hand, bargaining or strategic interaction is evidently much less common and important. This is partly because there is no desire to eliminate anyone from the inclusive group. It is also partly because nothing like unanimous participation is normally required, so that individuals in the inclusive group are not so likely to try to be holdouts in order to get a larger share of the gain. This tends to reduce the amount of bargaining (and also makes group-oriented action more likely). Though the problem is extremely complex, and some of the tools needed to determine exactly how much bargaining there will be in a given situation do not now exist, it nonetheless seems very likely that there is much less strategic

interaction in inclusive groups, and that the hypothesis of independent behavior will frequently describe members of these groups reasonably well.

F. A TAXONOMY OF GROUPS

To be sure, there can also be many instances in inclusive or non-market groups in which individual members do take into account the reactions of other members to their actions when they decide what action to take—that is, instances in which there is the strategic interaction among members characteristic of oligopolistic industries in which mutual dependence is recognized. In groups of one size range at least, such strategic interaction must be relatively important. That is the size range where the group is not so small that one individual would find it profitable to purchase some of the collective good himself, but where the number in the group is nonetheless sufficiently small that each member's attempts or lack of attempts to obtain the collective good would bring about noticeable differences in the welfare of some, or all, of the others in the group. This can best be understood by assuming for a moment that an inclusive collective good is already being provided in such a group through a formal organization, and then asking what would happen if one member of the group were to cease paying his share of the cost of the good. If, in a reasonably small organization, a particular person stops paying for the collective good he enjoys, the costs will rise noticeably for each of the others in the group; accordingly, they may then refuse to continue making their contributions, and the collective good may no longer be provided. However, the first person could realize that this might be the result of his refusal to pay anything for the collective good, and that he would be worse off when the collective good is not provided than when it was provided and he met part of the cost. Accordingly he might continue making a contribution toward the purchase of the collective good. He might, or he might not. As in oligopoly in a market situation, the result is indeterminate. The rational member of such a group faces a strategic problem and while the Theory of Games and other types of analyses might prove very helpful, there seems to be no way at present of getting a general, valid, and determinate solution at the level of abstraction of this chapter.⁶⁴

⁶⁴ It is of incidental interest here to note also that oligopoly in the marketplace is in some respects akin to logrolling in the organization. If the "majority" that vari-

What is the range of this indeterminateness? In a small group in which a member gets such a large fraction of the total benefit that he would be better off if he paid the entire cost himself, rather than go without the good, there is some presumption that the collective good will be provided. In a group in which no one member got such a large benefit from the collective good that he had an interest in providing it even if he had to pay all of the cost, but in which the individual was still so important in terms of the whole group that his contribution or lack of contribution to the group objective had a noticeable effect on the costs or benefits of others in the group, the result is indeterminate.⁶⁵ By contrast, in a large group in which no single individual's contribution makes a perceptible difference to the group as a whole, or the burden or benefit of any single member of the group, it is certain that a collective good will *not* be provided unless there is coercion or some outside inducements that will lead the members of the large group to act in their common interest.⁶⁶

ous interests in a legislature need is viewed as a collective good—something that a particular interest cannot obtain unless other interests also share it—then the parallel is quite close. The cost each special-interest legislator would like to avoid is the passage of the legislation desired by the other special-interest legislators, for if these interests gain from their legislation, often others, including his own constituents, may lose. But unless he is willing to vote for the legislation desired by the others, the particular special-interest legislator in question will not be able to get his own legislation passed. So his goal would be to work out a coalition with other special-interest legislators in which they would vote for exactly the legislation he wanted, and he in turn would give them as little in return as possible, by insisting that they moderate their legislative demands. But since every potential logroller has this same strategy, the result is indeterminate: the logs may be rolled or they may not. Every one of the interests will be better off if the logrolling is done than if it is not, but as individual interests strive for better legislative bargains the result of the competing strategies may be that no agreement is reached. This is quite similar to the situation oligopolistic groups are in, as they all desire a higher price and will all gain if they restrict output to get it, but they may not be able to agree on market shares.

65. The result is clearly indeterminate when F_i is less than C/V_i , at every point and it is also true that the group is not so large that no one member's actions have a noticeable effect.

66. One friendly critic has suggested that even a large pre-existing organization could continue providing a collective good simply by conducting a kind of plebiscite among its members, with the understanding that if there were not a unanimous or nearly unanimous pledge to contribute toward providing the collective good, this good would no longer be provided. This argument, if I understand it correctly, is mistaken. In such a situation, an individual would know that if others provided the collective good he would get the benefits whether he made any contribution or not. He would therefore have no incentive to make a pledge unless a completely unanimous set of pledges was required, or for some other reason his one pledge would decide whether or not the good would be provided. But if a pledge were required

The last distinction, between the group so large it definitely cannot provide itself with a collective good, and the oligopoly-sized group which may provide itself with a collective good, is particularly important. It depends upon whether any two or more members of the group have a perceptible interdependence, that is, on whether the contribution or lack of contribution of any one individual in the group will have a perceptible effect on the burden or benefit of any other individual or individuals in the group. Whether a group will have the possibility of providing itself with a collective good without coercion or outside inducements therefore depends to a striking degree upon the number of individuals in the group, since the larger the group, the less the likelihood that the contribution of any one will be perceptible. It is not, however, strictly accurate to say that it depends solely on the number of individuals in the group. The relation between the size of the group and the significance of an individual member cannot be defined quite that simply. A group which has members with highly unequal degrees of interest in a collective good, and which wants a collective good that is (at some level of provision) extremely valuable in relation to its cost, will be more apt to provide itself with a collective good than other groups with the same number of members. The same situation prevails in the study of market structure, where again the number of firms an industry can have and still remain oligopolistic (and have the possibility of supracompetitive returns) varies somewhat from case to case. The standard for determining whether a group will have the capacity to act, without coercion or outside inducements, in its group interest is (as it should be) the same for market and non-market groups: it depends on whether the individual actions of any one or more members in a group are noticeable to any other individuals in the group.⁶⁷ This is most obviously, but not exclusively, a function of the number in the group.

of every single member, or if for any other reason any one member could decide whether or not the group would get a collective good, this one member could deprive all of the others in the group of great gains. He would therefore be in a position to bargain for bribes. But since any other members of the group might gain just as much from the same holdout strategy, there is no likelihood that the collective good would be provided. See again Buchanan and Tullock, pp. 96–116.

67. The noticeability of the actions of a single member of a group may be influenced by the arrangements the group itself sets up. A previously organized group, for example, might ensure that the contributions or lack of contributions of any member of the group, and the effect of each such member's course on the burden and benefit for others, would be advertised, thus ensuring that the group effort

It is now possible to specify when either informal coordination or formal organization will be necessary to obtain a collective good. The smallest type of group—the group in which one or more members get such a large fraction of the total benefit that they find it worthwhile to see that the collective good is provided, even if they have to pay the entire cost—may get along without any group agreement or organization. A group agreement might be set up to spread the costs more widely or to step up the level of provision of the collective good. But since there is an incentive for unilateral and individual action to obtain the collective good, neither a formal organization nor even an informal group agreement is indispensable to obtain a collective good. In any group larger than this, on the other hand, no collective good can be obtained without some group agreement, coordination, or organization. In the intermediate or oligopoly-sized group, where two or more members must act simultaneously before a collective good can be obtained, there must be at least tacit coordination or organization. Moreover, the larger a group is, the more agreement and organization it will need. The larger the group, the greater the number that will usually have to be included in the group agreement or organization. It may not be necessary that the entire group be organized, since some subset of the whole group may be able to provide the collective good. But to establish a group agreement or organization will nonetheless always tend to be more difficult the larger the size of the group, for the larger the group the more difficult it will be to locate and organize even a subset of the group, and those in the subset will have an incentive to continue bargaining with the others in the group until the burden is widely shared, thereby adding to the expense of bargaining. In short, costs of organization are an increasing function of the number of individuals in the group. (Though the more

would not collapse from imperfect knowledge. I therefore define "noticeability" in terms of the degree of knowledge, and the institutional arrangements, that actually exist in any given group, instead of assuming a "natural noticeability" unaffected by any group advertising or other arrangements. This point, along with many other valuable comments, has been brought to my attention by Professor Jerome Rothenberg, who does, however, make much more of a group's assumed capacity to create "artificial noticeability" than I would want to do. I know of no practical example of a group or organization that has done much of anything, apart from improve information, to enhance the noticeability of an individual's actions in striving for a collective good.

members in the group the greater the total costs of organization, the costs of organization per person need not rise, for there are surely economies of scale in organization.) In certain cases a group will already be organized for some other purpose, and then these costs of organization are already being met. In such a case a group's capacity to provide itself with a collective good will be explained in part by whatever it was that originally enabled it to organize and maintain itself. This brings attention back again to the costs of organization and shows that these costs cannot be left out of the model, except for the smallest type of group in which unilateral action can provide a collective good. The costs of organization must be clearly distinguished from the type of cost that has previously been considered. The cost functions considered before involved only the direct resource costs of obtaining various levels of provision of a collective good. When there is no pre-existing organization of a group, and when the direct resource costs of a collective good it wants are more than any single individual could profitably bear, additional costs must be incurred to obtain an agreement about how the burden will be shared and to coordinate or organize the effort to obtain the collective good. These are the costs of communication among group members, the costs of any bargaining among them, and the costs of creating, staffing, and maintaining any formal group organization.

A group cannot get infinitesimally small quantities of a formal organization, or even of an informal group agreement; a group with a given number of members must have a certain minimal amount of organization or agreement if it is to have any at all. Thus there are significant initial or minimal costs of organization for each group. Any group that must organize to obtain a collective good, then, will find that it has a certain minimum organization cost that must be met, however little of the collective good it obtains. The greater the number in the group, the greater these minimal costs will be. When this minimal organizational cost is added to the other initial or minimal costs of a collective good, which arise from its previously mentioned technical characteristics, it is evident that the cost of the first unit of a collective good will be quite high in relation to the cost of some subsequent units. However immense the benefits of a collective good, the higher the absolute total costs of getting any

amount of that good, the less likely it is that even a minimal amount of that good could be obtained without coercion or separate, outside incentives.

This means that there are now three separate but cumulative factors that keep larger groups from furthering their own interests. First, the larger the group, the smaller the fraction of the total group benefit any person acting in the group interest receives, and the less adequate the reward for any group-oriented action, and the farther the group falls short of getting an optimal supply of the collective good, even if it should get some. Second, since the larger the group, the smaller the share of the total benefit going to any individual, or to any (absolutely) small subset of members of the group, the less the likelihood that any small subset of the group, much less any single individual, will gain enough from getting the collective good to bear the burden of providing even a small amount of it; in other words, the larger the group the smaller the likelihood of oligopolistic interaction that might help obtain the good. Third, the larger the number of members in the group the greater the organization costs, and thus the higher the hurdle that must be jumped before any of the collective good at all can be obtained. For these reasons, the larger the group the farther it will fall short of providing an optimal supply of a collective good, and very large groups normally will not, in the absence of coercion or separate, outside incentives, provide themselves with even minimal amounts of a collective good.⁶⁸

68. There is one logically conceivable, but surely empirically trivial, case in which a large group could be provided with a very small amount of a collective good without coercion or outside incentives. If some very small group enjoyed a collective good so inexpensive that any one of the members would benefit by making sure that it was provided, even if he had to pay all of the cost, and if millions of people then entered the group, with the cost of the good nonetheless remaining constant, the large group could be provided with a little of this collective good. This is because by hypothesis in this example the costs have remained unchanged, so that one person still has an incentive to see that the good is provided. Even in such a case as this, however, it would still not be quite right to say that the large group was acting in its group interest, since the output of the collective good would be incredibly suboptimal. The optimal level of provision of the public good would increase each time an individual entered the group, since the unit cost of the collective good by hypothesis is constant, while the benefit from an additional unit of it increases with every entrant. Yet the original provider would have no incentive to provide more as the group expanded, unless he formed an organization to share costs with the others in this (now large) group. But that would entail incurring the considerable costs of a large organization, and there would be no way these costs could be covered through the voluntary and rational action of the individuals in the group. Thus,

Now that all sizes of groups have been considered, it is possible to develop the classification of groups that is needed. In an article that was originally part of this study, but which has been published elsewhere,⁶⁹ this writer and his co-author argued that the concept of the group or industry can be given a precise theoretical meaning, and should be used, along with the concept of pure monopoly, in the study of market structure. In that article the situation in which there was only one firm in the industry was called pure monopoly. The situation where the firms are so few that the actions of one firm would have a noticeable effect on some one other firm or group of firms was called oligopoly; and the situation where no one firm had any noticeable effect on any other firm was called "atomistic competition." The category of atomistic competition was subdivided into pure competition and monopolistic competition within the large group, and oligopoly was also divided into two subdivisions according as the product was homogeneous or differentiated.

For inclusive or nonmarket groups the categories must be slightly different. The analog to pure monopoly (or pure monopsony) is obviously the single individual outside the market seeking some non-collective good, some good without external economies or diseconomies. In the size range that corresponds to oligopoly in market groups, there are two separate types of nonmarket groups: "privileged" groups and "intermediate" groups. A "privileged" group is a

if the total benefit from a collective good exceeded its costs by the thousandfold or millionfold, it is logically possible that a large group could provide itself with some amount of that collective good, but the level of provision of the collective good in such a case would be only a minute fraction of the optimal level. It is not easy to think of practical examples of groups that would fit this description, but one possible example is discussed on page 161, note 94. It would be easy to rule out even any such exceptional cases, however, simply by defining all groups that could provide themselves with some amount of a collective good as "small groups" (or by giving them other names), while putting all groups that could not provide themselves with a collective good in another class. But this easy route must be rejected, for that would make this part of the theory tautologous and thus incapable of refutation. Therefore the approach here has been to make the (surely reasonable) empirical hypothesis that the total costs of the collective goods wanted by large groups are large enough to exceed the value of the small fraction of the total benefit that an individual in a large group would get, so that he will not provide the good. There may be exceptions to this, as to any other empirical statement, and thus there may be instances in which large groups could provide themselves with (at most minute amounts of) collective goods through the voluntary and rational action of one of their members.

69. Olson and McFarland (note 14 above).

group such that each of its members, or at least some one of them, has an incentive to see that the collective good is provided, even if he has to bear the full burden of providing it himself. In such a group there is a presumption⁷⁰ that the collective good will be obtained, and it may be obtained without any group organization or coordination whatever. An "intermediate" group is a group in which no single member gets a share of the benefit sufficient to give him an incentive to provide the good himself, but which does not have so many members that no one member will notice whether any other member is or is not helping to provide the collective good. In such a group a collective good may, or equally well may not, be obtained, but no collective good may ever be obtained without some group coordination or organization.⁷¹ The analog to atomistic competition in the nonmarket situation is the very large group, which will here be called the "latent" group. It is distinguished by the fact that, if one member does or does not help provide the collective good, no other one member will be significantly affected and therefore none has any reason to react. Thus an individual in a "latent" group, by definition, cannot make a noticeable contribution to any group effort, and since no one in the group will react if he makes no contribution, he has no incentive to contribute. Accordingly, large or "latent" groups have no incentive to act to obtain a collective good because, however valuable the collective good might be to the group as a whole, it does not offer the individual any incentive to pay dues

70. It is conceivable that a "privileged" group might not provide itself with a collective good, since there might be bargaining within the group and this bargaining might be unsuccessful. Imagine a privileged group in which every member of the group would gain so much from the collective good that he would be better off if he paid the full cost of providing the collective good than he would be if the good were not provided. It is still conceivable that each member of the group, knowing that each of the others would also be better off if they provided the good alone than they would be if no collective good were obtained, would refuse to contribute anything toward obtaining the collective good. Each could refuse to help provide the collective good on the mistaken assumption that the others would provide it without him. It does not seem very likely that all of the members of the group would go on making this mistake permanently, however.

71. "The character of the numerically intermediate structure, therefore, can be explained as a mixture of both: so that each of the features of both the small and large group appears in the intermediate group, as a fragmentary trait, now emerging, now disappearing or becoming latent. Thus, the intermediate structures objectively share the essential character of the smaller and larger structures—partially or alternately. This explains the subjective uncertainty regarding the decision to which of the two they belong." (Simmel, *Sociology of Georg Simmel*, pp. 116-117.)

to any organization working in the latent group's interest, or to bear in any other way any of the costs of the necessary collective action.

Only a *separate and "selective" incentive* will stimulate a rational individual in a latent group to act in a group-oriented way. In such circumstances group action can be obtained only through an incentive that operates, not indiscriminately, like the collective good, upon the group as a whole, but rather *selectively* toward the individuals in the group. The incentive must be "selective" so that those who do not join the organization working for the group's interest, or in other ways contribute to the attainment of the group's interest, can be treated differently from those who do. These "selective incentives" can be either negative or positive, in that they can either coerce by punishing those who fail to bear an allocated share of the costs of the group action, or they can be positive inducements offered to those who act in the group interest.⁷² A latent group that has been led to act in its group interest, either because of coercion of the individuals in the group or because of positive rewards to those individuals, will here be called a "mobilized" latent group.⁷³ Large groups are thus called "latent" groups because they have a latent power or capacity for action, but that potential power can be realized or "mobilized" only with the aid of "selective incentives."

The chances for group-oriented action are indeed different in each of the categories just explained. In some cases one may have some expectation that the collective or public good will be provided; in other cases one may be assured that (unless there are selective incentives) it will not; and still other cases could just as easily go either

72. Coercion is here defined to be a punishment that leaves an individual on a lower indifference curve than he would have been on had he borne his allocated share of the cost of the collective good and not been coerced. A positive inducement is defined to be any reward that leaves an individual who pays his allocated share of the cost of a collective good and receives the reward, on a higher indifference curve than he would have been had he borne none of the cost of the collective good and lost the reward. In other words, selective incentives are defined to be greater in value, in terms of each individual's preferences, than each individual's share of the cost of the collective good. Sanctions and inducements of smaller value will not be sufficient to mobilize a latent group. On some of the problems of distinguishing and defining coercion and positive incentives see Alfred Kuhn, *The Study of Society: A Unified Approach* (Homewood, Ill.: Richard D. Irwin, Inc. and the Dorsey Press, Inc., 1963), pp. 365-370.

73. Deutsch has also used the term "mobilization" in a somewhat similar context, but his use of the word is not the same. See Karl Deutsch, "Social Mobilization and Political Development," *American Political Science Review*, LV (September 1961), 493-514.

way. In any event, size is one of the determining factors in deciding whether or not it is possible that the voluntary, rational pursuit of individual interest will bring forth group-oriented behavior. Small groups will further their common interests better than large groups.

The question asked earlier in this chapter can now be answered. It now seems that small groups are not only quantitatively, but also qualitatively, different from large groups, and that the existence of large associations cannot be explained in terms of the same factors that explain the existence of small groups.

II

Group Size and Group Behavior

A. THE COHERENCE AND EFFECTIVENESS OF SMALL GROUPS

The greater effectiveness of relatively small groups—the “privileged” and “intermediate” groups—is evident from observation and experience as well as from theory. Consider, for example, meetings that involve too many people, and accordingly cannot make decisions promptly or carefully. Everyone would like to have the meeting end quickly, but few if any will be willing to let their pet concern be dropped to make this possible. And though all of those participating presumably have an interest in reaching sound decisions, this all too often fails to happen. When the number of participants is large, the typical participant will know that his own efforts will probably not make much difference to the outcome, and that he will be affected by the meeting’s decision in much the same way no matter how much or how little effort he puts into studying the issues. Accordingly, the typical participant may not take the trouble to study the issues as carefully as he would have if he had been able to make the decision by himself. The decisions of the meeting are thus public goods to the participants (and perhaps others), and the contribution that each participant will make toward achieving or improving these public goods will become smaller as the meeting becomes larger. It is for these reasons, among others, that organizations so often turn to the small group; committees, subcommittees, and small leadership groups are created, and once created they tend to play a crucial role.

This observation is corroborated by some interesting research results. John James, among others, has done empirical work on this subject, with results that support the theory offered in this study, though his work was not done to prove any such theory. Professor James found that in a variety of institutions, public and private, national and local, “action taking” groups and subgroups tended to be much smaller than “non-action taking” groups and subgroups. In