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## INSTITUTIONAL ANALYSIS

Editors, Michael D. McGinnis and Elinor Ostrom

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## POLYCENTRICITY AND LOCAL PUBLIC ECONOMIES

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*Readings from the  
Workshop in Political Theory  
and Policy Analysis*

**Michael D. McGinnis, Editor**

*Ann Arbor*

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## Contents

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List of Figures	viii
List of Tables	x
Series Foreword	xiii
Acknowledgments	xviii

### Introduction *by Michael D. McGinnis*

1

### Part I. Conceptual Foundations of Institutional Analysis

Chapter 1.	The Organization of Government in Metropolitan Areas: A Theoretical Inquiry <i>by Vincent Ostrom, Charles M. Tiebout, and Robert Warren</i>	31
Chapter 2.	Polycentricity (Part 1) <i>by Vincent Ostrom</i>	52
Chapter 3.	Public Goods and Public Choices <i>by Vincent Ostrom and Elinor Ostrom</i>	75

### Part II. Frameworks for the Study of Public Economies

Chapter 4.	A Behavioral Approach to the Study of Intergovernmental Relations <i>by Vincent Ostrom and Elinor Ostrom</i>	107
Chapter 5.	Polycentricity (Part 2) <i>by Vincent Ostrom</i>	119
Chapter 6.	Metropolitan Reform: Propositions Derived from Two Traditions <i>by Elinor Ostrom</i>	139

### Part III. Empirical Research on Police Services

Chapter 7.	Why Do We Need Multiple Indicators of Public Service Outputs? <i>by Elinor Ostrom</i>	163
Chapter 8.	Does Local Community Control of Police Make a Difference? Some Preliminary Findings <i>by Elinor Ostrom and Gordon P. Whitaker</i>	176

Chapter 9.	Community Control and Governmental Responsiveness: The Case of Police in Black Neighborhoods <i>by Elinor Ostrom and Gordon P. Whitaker</i>	203
Chapter 10.	Size and Performance in a Federal System <i>by Elinor Ostrom</i>	232
<b>Part IV. Implications for Metropolitan Governance</b>		
Chapter 11.	Defining and Measuring Structural Variations in Interorganizational Arrangements <i>by Elinor Ostrom, Roger B. Parks, and Gordon P. Whitaker</i>	265
Chapter 12.	Neither Gargantua nor the Land of Lilliputs: Conjectures on Mixed Systems of Metropolitan Organization <i>by Elinor Ostrom and Roger B. Parks</i>	284
Chapter 13.	Citizen Voice and Public Entrepreneurship: The Organizational Dynamic of a Complex Metropolitan County <i>by Ronald J. Oakerson and Roger B. Parks</i>	306
Chapter 14.	Fiscal, Service, and Political Impacts of Indianapolis-Marion County's Unigov <i>by William Blomquist and Roger B. Parks</i>	329
Chapter 15.	Do We Really Want to Consolidate Urban Areas? [It's Like Deja Vu All Over Again] <i>by Roger B. Parks</i>	349
<b>Part V. Continuing Challenges for Research and Policy</b>		
Chapter 16.	Complex Models of Urban Service Systems <i>by Roger B. Parks and Elinor Ostrom</i>	355
Chapter 17.	Consumers as Coproducers of Public Services: Some Economic and Institutional Considerations <i>by Roger B. Parks, Paula C. Baker, Larry L. Kiser, Ronald J. Oakerson, Elinor Ostrom, Vincent Ostrom, Stephen L. Percy, Martha Vandivort, Gordon P. Whitaker, and Rick K. Wilson</i>	381
Suggested Further Readings		393
Contributors		397
Index		401

## Figures

3.1	Types of Goods	78
6.1	Posited Relations Among Variables in the Metropolitan Reform Tradition	144
6.2	Posited Relations Among Variables in the Political Economy Tradition	150
8.1	Posited Relations of Small Size and Community Control with Intervening and Dependent Variables	179
10.1	The Theoretical Consolidation Model (Simplified Form)	232
10.2	The Operational Consolidation Model (Simplified Form)	233
10.3	The Alternative Operational Model (Simplified Form)	234
10.4	A Rival Methodological Model	235
10.5	The Independent Effects of Training Levels on Citizen Evaluations Controlling for Size of Police Department and Socioeconomic Status of Neighborhood	247
11.1	Fayetteville, North Carolina, SMSA	270
12.1	Frontier Production Possibility Curves	287
12.2	Graphical Representation of Relative Technical Efficiency	288
14.1	Marion County Townships and Pre-Unigov City of Indianapolis	333
16.1	Iso-Benefits Residuum Contours	368
16.2	Possibility and Utility Curves	369
16.3	Relationship Between Risk of Exposure to Citizen Monitoring Efforts and Multiplicity of Industry Structure	372
16.4	Bureau Chiefs' Indifference Curves in High and Low Multiplicity SMSAs	373
16.5	Frontier and Average Production Functions—Number of On-Street Cars	376
16.6	Frontier Production Possibility Curves	376
17.1	Production Relationships and Budget Functions	385

## CHAPTER 2

## Polycentricity (Part 1)

Vincent Ostrom

A decade ago, Charles Tiebout, Robert Warren, and I proposed that patterns of governance in metropolitan areas might be viewed as polycentric political systems (Ostrom, Tiebout, and Warren 1961 [chap. 1 in this volume]). We identified a polycentric political system as having many centers of decision making that were formally independent of each other. We used the term *political* as synonymous with *government*. We indicated that the "business" of governments was the production (and provision) of various public goods and services. A "system" was viewed as a set of ordered relationships that persists through time.

By conceptualizing metropolitan areas as polycentric political systems, we were suggesting that a system of ordered relationships underlies the fragmentation of authority and overlapping jurisdictions that had frequently been identified as "chaotic" and as the principal source of institutional failure in the government of metropolitan areas. If an appropriate theory were developed, it should explain the patterns of behavior observed in an urban area and predict behavioral tendencies.

Given a theoretical understanding of the behavior of polycentric systems, we argued that no *prima facie* grounds existed for expecting less efficient performance from polycentric arrangements than from a fully integrated system with one governmental unit having exclusive jurisdiction over any particular metropolitan area. Individuals associated with the "efficiency and economy" reform movement had urged on grounds of efficiency that many local jurisdictions be consolidated or merged into a single overall unit of government for any particular metropolitan region. They inferred that overlapping jurisdictions created a duplication of services or functions. A dupli-

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This essay has been divided into two parts for publication in this volume. References for both parts are listed at the end of part 2 (chap. 5).

cation of services was presumed on *prima facie* grounds to be wasteful or inefficient. We challenged that presumption. Such inferences need not hold if agencies are offering similar but differentiated services that impinge upon diverse communities of interest. The FBI, for example, does not necessarily duplicate the services of state and local police forces.

We did not, however, assume that all polycentric systems were necessarily efficient. The efficiency of any particular polycentric system would depend upon how well operational relationships corresponded to the theoretically specified conditions for efficient performance. These necessary conditions for efficient performance were: (1) the correspondence of different units of government to the scales of effects for diverse public goods; (2) the development of cooperative arrangements among governmental units to undertake joint activities of mutual benefit; and (3) the availability of other decision-making arrangements for processing and resolving conflicts among units of government.

The prevailing theoretical orientation had construed the existence of fragmentation of authority and overlapping jurisdictions as generating a state of affairs often described as "chaotic." The characterization of some state of affairs as "chaotic" implies the absence of an explanatory theory to account for that state of affairs. Presumably, a truly chaotic state of affairs would not persist over time unless a grand randomizer were available to "maintain" a chaotic "order." Furthermore, a truly chaotic state can hardly be evaluated by performance criteria such as efficiency or responsiveness. For a polycentric political system to exist and persist through time, a structure of ordered relationships would have to prevail, perhaps, under an illusion of chaos. If such a structure of ordered relationships exists one might assume that specifiable structural conditions will evoke predictable patterns of conduct. Only if predictable patterns of ordered relationships could be established would it be possible to evaluate the performance of a polycentric system and anticipate its future performance as against some other structure of ordered relationships. The development of an explanatory theory must precede the evaluation of alternative patterns of organization in relation to normative criteria.

The thesis advanced in Ostrom, Tiebout, and Warren evoked a response among scholars that cast some doubt upon that formulation. The most consistent response was to identify the approach as a "market model." Once it had been so named, some scholars dismissed it as an inappropriate analogy. Others used the reference to "market model" as an occasion for free association about atomistic individualism and other attributes of classical economic theory. If Ostrom, Tiebout, and Warren were a simple market model, derived from classical economic theory, then every reason would exist for rejecting that formulation. From economic theory, we would predict that efforts to provide *public* goods and services to individuals under market conditions will fail.

However, we never intended to develop a strict market model for the supply of public goods and services to individual buyers. Nor did we intend to present an economic analogy based upon classical economic theory. On the other hand, we thought an indication that quasi-market mechanisms were operable in a public service economy would imply important new dimensions for a theory of public administration.

Another response was to identify the formulation in Ostrom, Tiebout, and Warren as a rationalization or defense of the status quo. A theory that accounts for an order under an illusion of chaos and explains the status quo has attained some small measure of success as positive theory. Presumably, any explanatory theory, if it is successful, will rationalize the status quo in the sense that relationships between conditions and consequences can be explained. However, a theory should also enable predictions to be made about different hypothetical outcomes under varying conditions. In this sense, a political theory should, also, enable political decision makers to alter structural arrangements and modify outcomes in a predictable manner. Thus, an adequate knowledge of the regularities present in an existing system, and the consequences likely to flow from changes in that system, is a necessary prerequisite for successful reform. An explanatory theory should, however, be consistent with normative solutions other than the status quo.

A theory of polycentric organization should be no more of a rationalization of the status quo in the contemporary United States than a theory of bureaucratic organization is a rationalization of the status quo in the ancien régimes of France or Russia. Any given political system is amenable to a larger range of alternative policy solutions than the existing set of policy solutions that evoke the status quo within any given time horizon. Indeed, a polycentric system should be amenable to a greater variety of policy solutions than a monocentric system.

These responses indicated some serious weaknesses in Ostrom, Tiebout, and Warren. The task we undertook was more difficult than we had realized. Polycentricity must be applicable to a large range of social tasks if the governance of metropolitan areas is to be subject to a polycentric ordering. Quasi-market structures in a public service economy will be generated only if conditions of polycentricity are applicable to various aspects of political organization.

Polycentricity poses fundamental issues in political theory that have broader ramifications than the governance of metropolitan areas. A resolution of these issues is, however, necessary to an understanding of the structural and behavioral characteristics of polycentric systems of government in metropolitan areas. In turn, such an understanding is also essential to anyone who is interested in the normative problems of designing alternative institutional arrangements for the governance of metropolitan areas.

The possibility that a polycentric political system *can* exist does not pre-

clude the possibility that a monocentric political system *can* exist. Each possibility depends upon conceptualizing the essential defining characteristics for each system and indicating the logically necessary conditions that must be met for the maintenance of a system having those defining characteristics. Furthermore, a predominantly monocentric political system need not preclude the possibility that elements of polycentricity may exist in the organization of such a system. Conversely, the existence of a predominantly polycentric political system need not preclude elements of monocentricity from existing in such a system.

Political relationships always exist as a set of possibilities within a much larger domain of all sets of possibilities inherent in the *potential variety* of human behavior. Social organization occurs when the *potential variety* in human behavior is *constrained* so as to exclude some possibilities and permit other possibilities. Decision rules or laws serve as a means for partitioning the set of all possibilities into authorized and proscribed relationships. However, proscribed relationships or unlawful actions are still technically or empirically *possible*.

The operation of legal constraints depends upon the actions taken by some decision makers (i.e., governmental officials) to determine, enforce, and alter legal relationships. Laws themselves are never self-generating, self-determining or self-enforcing. The maintenance of any pattern of social organization depends upon the potential use of sanctions by some decision makers to enforce legal relationships among other decision makers. Thus, *an unequal distribution of decision-making capabilities must necessarily exist in any political system* (V. Ostrom 1971a).

The essential defining characteristic for a monocentric political system is one where the governmental prerogatives for determining, enforcing and altering legal relationships are vested in some single office or decision structure that has an ultimate monopoly over the legitimate exercise of coercive capabilities in some particular society. In a monocentric political system the inequalities in decision-making capabilities between those vested with "ultimate authority" and those who are subject to that authority assume extreme proportions. The essential defining characteristic of a polycentric political system is one where many officials and decision structures are assigned limited and relatively autonomous prerogatives to determine, enforce and alter legal relationships. No one office or decision structure has an ultimate monopoly over the legitimate use of force in a polycentric political system. Inequalities in the authority of "rulers" and the "ruled" are purposely constrained and limited so that "rulers" can also be *subject* to a "rule" of law and be required to *serve* the "ruled."

The basic structure of a polycentric political system will depend upon the feasibility of polycentric arrangements that are appropriate to the govern-

ance of different types of human relationships. Polycentricity in the structure of formal governmental arrangements will in itself be inadequate for the maintenance of polycentricity in the conduct of political and social relationships. In the discussion that follows, I shall refer to polycentricity in market organization as a means for governing a wide variety of human transactions. I shall then turn to polycentricity in judicial decision making as a means for enforcing legal relationships. I shall go on to consider polycentricity in constitutional rule as a means for enforcing provisions of constitutional law in relation to those who exercise the extraordinary prerogatives of government. I shall then examine polycentricity in the selection of political leadership and in the formation of political coalitions.

Finally, I shall examine the application of polycentricity to the provision and production of public goods and services in a public service economy. If polycentricity can be maintained in the structure of each of these sets of political relationships, then polycentricity in the *government* of metropolitan areas is both a theoretically and technically feasible possibility. In political theory the necessary *and* sufficient conditions can *never* be specified without resorting to highly arbitrary law and order assumptions that obviate essential problems by assuming them away.

I shall also be interested in the normative implications that follow as a consequence of utilizing polycentric forms of organization in structuring political relationships. A broad dispersion of decision-making capabilities that allows for substantial discretion or freedom to individuals and for effective and regular constraint upon the actions of governmental officials is an essential characteristic of democratic societies. Lasswell and Kaplan (1950), for example, define democracy in those terms. From a normative point of view, the viability of democratic societies will depend upon the existence of substantial elements of polycentricity in the governance of such societies. Polycentricity allows for autonomy among individual decision makers in reference to publicly formulated rules of law. Individual liberties and constraints upon the actions of officials depend upon constitutional "guarantees." The enforcement of constitutional "guarantees" depends critically upon the juridical status of constitutional law. The maintenance of an enforceable system of constitutional law would appear to be a theoretically necessary but insufficient condition for the realization of such values as "liberty," "freedom," and "justice."

To clarify the application of polycentricity to each of the elements in the governance of human societies, I shall draw upon the work of Michael Polanyi, who adds an essential element in the definition of a polycentric order. Polanyi also indicates the relevance of the concept of polycentricity for understanding patterns of behavior in market organization and judicial decision making. However, Polanyi does not resolve the problem of whether the gov-

ernment of a political system can be organized in a polycentric manner. The solution to that problem was formulated much earlier by Alexander Hamilton and James Madison in *The Federalist*. Hamilton and Madison do not use the term *polycentricity* but their conception of the principles of federalism and separation of powers within a system of limited constitutions meets the defining conditions for polycentricity. Fragmentation of authority in many centers of decision making will *necessarily* exist in a federal system of government with a separation of powers among different decision structures in each unit of government. Where a constitutional structure is designed as a polycentric arrangement, the maintenance of polycentricity in practice will depend upon whether conditions of polycentric organization prevail in the selection of political leadership and in the formation of political coalitions. Such conditions were anticipated by Madison and have been considered by Ostrogorski. There, then, remains the question of whether polycentricity can apply to the provision and production of public goods and services in a public service economy.

### The Concept of Polycentricity

The term *polycentricity* so far as I know was first used by Michael Polanyi in essays that were eventually published as *The Logic of Liberty* (1951). Polanyi distinguishes between two different methods for the organization of social tasks or two kinds of order. One is a *deliberate* or *directed order* that is coordinated by an ultimate authority exercising control through a unified command structure. In a deliberate or directed order, a superior-subordinate relationship exists where a superior A may direct subordinate B<sub>1</sub>, B<sub>2</sub>, B<sub>3</sub> . . . B<sub>n</sub> to perform specific tasks or to accomplish particular missions. In an extreme case, superior A might command subordinate B<sub>2</sub> to destroy subordinate B<sub>3</sub>. Such an order might also be conceptualized as a unitary or monocentric order.

The other type of order for organizing social tasks is identified by Polanyi as a *spontaneous* or *polycentric* order. A spontaneous or polycentric order is one where many elements are capable of making mutual adjustments for ordering their relationships with one another within a general system of rules where each element acts with independence of other elements. Within a set of rules, individual decision makers will be free to pursue their own interests subject to the constraints inherent in the enforcement of those decision rules.

In a theory of polycentric orders, individuals are the basic unit of analysis. Individuals are assumed to be interested decision makers who can calculate potential benefits and costs subject to elements of risk and uncertainty. Individuals will select those strategies that are anticipated to enhance their net welfare potential. Individuals may occupy positions where decisions are

taken on behalf of the interests of others. All such cases will involve a choice from among strategic opportunities in light of potential payoffs derived in part from the calculation of power and liability contingencies where each choice is a move in a series of simultaneous games. Business firms, legislatures, political parties, public agencies, or nation-states may also be used as units of analysis where structural conditions expose the sets of individual decision makers involved to similar strategic calculations.

Business firms can be used as units of analysis where the set of individual decision makers in each firm is exposed to similar strategic calculations established by the arena of market competition or rivalry. Nation-states can be used as units of analysis where each nation is exposed to similar strategic calculations in the international arena. In turn, political parties can be used as units of analysis where each party is exposed to similar strategic calculations in winning elections or in organizing governing coalitions. However, markets, elections and international relations may involve such different strategic calculations that *predictive inferences cannot be made in general, regarding all units of analysis across all decision-making arenas*. Predictive inferences can be made only in relation to units of analysis where arenas can be specified or where multiple arenas can be conceptualized as a series of simultaneous or concurrent games. A polycentric political system is one where each actor participates in a series of simultaneous games and where each act has the potential for being a move in simultaneous games.

Polanyi's emphasis upon a general system of rules as providing a framework for ordering relationships in a polycentric system is an issue that was seriously neglected in Ostrom, Tiebout, and Warren. Our implicit identification of the term *political* with *government* and our identification of the "business" of government with the production and provision of public goods and services led us to gloss over the essential relationship of rules to the structure of political systems. The task of formulating a general system of rules applicable to the conduct of governmental units in metropolitan areas and of maintaining institutional facilities appropriate to enforce such rules of law is a problem that we failed to treat. *Whether the governance of metropolitan areas can be organized as a polycentric system will depend upon whether various aspects of rule making and rule enforcing can be performed in polycentric structures.*

The organization of a single unit of government to have general jurisdiction or political authority over an entire metropolitan region reduces the magnitude of juridical relationships involved. Rules of law in such cases would presumably apply to private individuals and private associations. The question of whether general rules of law would apply to various units of government within a metropolitan area is removed by eliminating all units of government except one. Within that unit of government a directed order estab-

lishing relationships between superiors and subordinates can be substituted for a juridical order that is applicable to the conduct of numerous public agencies capable of acting with substantial independence.

A directed order where subordinates are subject to the command of superiors will be subject to serious theoretical limits unless ultimate authority is exercised by an omniscient observer and all subordinates are perfectly obedient. If all individuals have limited knowledge and limited capabilities, central decision makers will become overloaded. Subordinates will bias information that they transmit in order to please their superiors. Loss of information and the communication of biased information will lead to loss of control and a disparity between expectations and performance.

Patterns of organization analogous to a polycentric ordering may, thus, arise from system failure in a directed order. In such circumstances, polycentricity accrues more from a logic of political corruption (Loveman 1969) than from a conscious effort to design a polycentric order based upon principles of independence, self-determination or self-government. Our concern here will be with specifying the conditions that must be taken into account if the design of a system of government in metropolitan areas is to be consciously organized in a polycentric manner.

A critical element entering into the design of a polycentric system is the matter of spontaneity. Polanyi's use of the term *spontaneous* as synonymous with *polycentric* suggests that the attribute of spontaneity might be viewed as an additional defining characteristic of polycentricity. Spontaneity implies that patterns of organization within a polycentric system will be self-generating or self-organizing in the sense that *individuals* will have incentives to create or institute appropriate patterns of ordered relationships. For a polycentric system to manifest "spontaneity" in the development of ordered relationships, self-organizing tendencies will have to occur at several different levels of conduct.

One level in a pattern of ordered relationships applies to the *conditions of entry and exit* in a particular polycentric ordering. In the case of a relatively simple market, individual persons may be free to enter or exit as either buyers or sellers. However, in the case of an advanced technology, individual persons may not be viable market participants. If such were the case, the viability of the market as a polycentric ordering will depend upon whether individuals have incentives to organize firms that will be effective participants in such a market. Thus, the maintenance of market arrangements will depend upon whether individuals will be led to organize firms and whether such firms are free to enter the market and engage in trade.

This condition is especially important in the case of *public goods* and services where we would *not* expect individuals acting alone to be capable of producing public goods and services of any substantial proportions. Such

individuals would succeed only if they were able to organize an appropriately structured public enterprise where potential beneficiaries could be coerced to pay for the cost of the service. The principle of spontaneity, in this case, can be met only if individuals will be led to undertake the task of public entrepreneurship in the creation of appropriately structured public enterprises to supply public goods and services.

A second level of organization applies to the *enforcement* of general rules of conduct that provide the legal framework for a polycentric order. If individuals or units operating in a polycentric order have incentives to take actions to enforce general rules of conduct, then polycentricity will become an increasingly viable form of organization.

Still a third level of organization pertains to the *formulation and revision* of the basic rules of conduct that provide the framework any particular polycentric order. If individuals can know the relationship between particular rules and the social consequences that those rules tend to evoke under specifiable conditions, then specific polycentric orders can be created as a matter of conscious design. If conditions were to change and a particular set of rules failed to evoke an appropriate set of responses, rules could then be altered to evoke appropriate responses. These assumptions imply that if individuals have access to a warrantable political science, they would be able to design political structures that will conform to general rules of conduct and be appropriate to advance their own welfare. Such conditions must be met before an explicitly designed polycentric political system becomes a technically feasible, empirical possibility.

#### Polycentricity in the Organization of Various Decision-Making Arenas

##### Polycentricity in Market Systems

Since Adam Smith, market systems have been identified as spontaneous or polycentric orders where the conduct of any one person or firm is determined by a mutual adjustment to the activities of other persons and firms participating in any particular market. The ordering of market relationships occurs by mutual adjustment, and a market system behaves as though it were governed by an invisible or hidden hand. While each individual seeks to gain his own advantage, the market adjusts to variations in supply and demand so that each participant in the market tends to behave in a way that is consistent with the welfare of the larger community of persons.

Polanyi emphasizes that participants in a market system are not subject to *specific* commands by some superior authority but are free to pursue their individual advantage subject to general rules of law that are impersonal in

nature. "No marketing system can function without a legal framework which guarantees adequate proprietary powers and enforces contracts" (Polanyi 1951, 185). Individuals will have no incentive to trade if all goods are free goods and if no one can distinguish between mine and thine. Goods acquire a *public* value only by reference to a right to use, control and dispose of goods as property. Property rights depend upon a distinction between mine and thine, between ours and yours.

The pervasiveness of property and trade relationships in many different societies under varying political conditions would indicate that the essential legal relationships for the creation of market arrangements are not difficult to conceptualize. However, the maintenance of market arrangements depends critically upon the enforcement of property rights and contractual obligations. An essential question is whether the enforcement of legal relationships for a market system can also be conceptualized as a polycentric task subject to general rules of law applicable to persons who are assigned prerogatives of enforcement.

##### Polycentricity in Judicial Decision Making

Polanyi conceives of courts of law and the larger legal community who participate in the settlement of conflicts under common rules of law to be organized as a polycentric order. The judiciary and members of the legal profession are viewed as rendering judgments and resolving conflicts under conditions where each participant exercises substantial independence in relation to other participants subject to common rules of legal process and legal procedure.

The possibility of conceptualizing the judiciary and the legal profession as a polycentric ordering will depend upon the development of (1) legal concepts and terms that can be *known* in a *public* interpersonal context; (2) legal criteria that can be used as bases for judgment; and (3) methods of legal reasoning that can be used to organize thought and to array evidence as a basis for judgment. Unless a community of agreement (i.e., substantial unanimity) can exist regarding basic legal concepts, criteria for choice or judgment and methods of legal reasoning then the basis *cannot* exist for a polycentric ordering.

The sophisticated lawyer or political scientist will find many objections to an assumption that legal processes occur in a polycentric order. They will point to the existence of contradictions in legal judgments and inconsistencies in legal reasoning. Such conditions imply disagreement. If areas of disagreement can be confined to a few specific issues, a community of agreement can still be preserved for reaching reasoned solutions to ambiguous or undetermined problems.

Reasoned solutions are more likely to be evoked through open conten-

tion among autonomous colleagues who are learned in the law than by underlings in a unified command structure. If legal judgments turn only upon the discretion of superiors who are capable of directing persons as legal subordinates, then persons will have no security in their legal rights. Persons in a market economy who cannot have confidence about the enforcement of property rights and contractual obligations will stand legally exposed. Proprietors would have little incentive for taking economic risks when they stand legally exposed and have no confidence in their ability to enforce legal rights. Entrepreneurial initiative and the integrity of market structures depend upon the integrity of legal relationships. And integrity of legal relationships would, in turn, appear to depend upon a substantial degree of polycentricity in the legal community.

The fairness of the judicial process turns upon the principles of any fair game: that each participant have a fair chance. A fair chance depends upon the existence of known rules that give each participant an equal opportunity to pursue his interest. A fair judge is one who renders reasoned decisions that are considered to be reasonable by the various parties involved. A judge in a polycentric order is required to support his judgments both by findings of fact and critical reasoning about the implications of legal relationships. Such judgments are subject to critical scrutiny by appellate judges and by the members of the larger legal profession. Law evolves by adversary contention, consultation, reasoned argumentation and reasoned judgment among members of a learned profession. The large degree of political independence in such a judiciary is accompanied by a commensurate degree of intellectual discipline in rendering reasoned judgments within an organized system of thought.

If spontaneity is to apply to adjudicatory arrangements, traders in an established market who maintain trade relationships with one another over a period of time would be led to develop adjudicatory relationships in order to minimize the costs of conflict while maintaining their own prerogatives as proprietors and traders. Gordon Tullock in *The Logic of the Law* (1971) conceptualizes the conditions under which traders will be led to *contract* with one another for the *enforcement of contracts*. By specifying such conditions, Tullock has indicated where judicial arrangements will arise spontaneously among communities of traders.

If individuals have incentives to develop adjudicatory arrangements for the settlement of recurrent disputes, we would predict that specialized adjudicatory arrangements will be organized wherever such arrangements are less costly to use than official courts. Third party mediation and arbitration arrangements would be evidence of such possibilities. The prevalence of such arrangements in many different commercial settings, in professional societies, and in voluntary associations, including organized crime, indicates a

substantial propensity for self-organizing capabilities in creating adjudicatory arrangements to minimize the costs of recurrent conflict. The practice of most lawyers involves more mediation and arbitration of interests and the development of instrumentalities for the governance of human relationships than pleading before courts of law.

Polanyi does not extend his analysis of polycentricity beyond the structure of judicial decision making. In concluding *The Logic of Liberty*, Polanyi indicates that, "the tasks which can be achieved only by independent mutual adjustments demand an institutional framework which will uphold independent positions" (Polanyi 1951, 199). Polanyi implies that there are limits to polycentricity in the organization of government and that any society will depend upon the services of some oligarchy to exercise the ultimate authority of government. Governments, according to such a presumption, can provide an appropriate institutional framework for the maintenance of polycentricity in various sectors of society, but "an institutional framework which can uphold independent positions" does not apply to the organization of government itself.

#### Polycentricity in Constitutional Rule

Alexander Hamilton and James Madison writing in *The Federalist* were explicitly concerned with "an institutional framework which can be used to uphold independent positions" in the organization of a system of government. Such an institutional framework was conceptualized in terms of a constitution that specified a set of general decision rules that applied to those who participate in the conduct of government.

Solving the problem of constitutional rule is more difficult than designating some agency or office to exercise the prerogatives of government. For a constitution to provide a meaningful framework for the conduct of government, that constitution cannot be mere words or "a mere demarkation on parchment" (*Federalist*, 48) to use Madison's expression. If a constitution is to provide for a general institutional framework applicable to the conduct of government, then the terms of a constitution must be *enforceable* as against those who exercise the prerogatives of government.

But to specify a condition of enforceability when applied to a constitution would appear to create a contradiction. Institutions of government are precisely those that are assigned decision-making capabilities for determining, enforcing, and altering legal relationships. If legal relationships are to be operable in human conduct, institutions must exist for the enforcement of those legal relationships. How, then, can those who exercise governmental prerogatives be used to enforce the provisions of a constitution as against those who exercise governmental prerogatives? Such authorities would be

expected to enforce promises against themselves. This is equivalent to expecting an individual to enforce a contract that he entered into with himself (*Rousseau, The Social Contract*, bk. I, chap. 7).

Polycentricity in the general structure of governmental institutions is the necessary condition for resolving the seeming paradox inherent in the problem of constitutional rule (V. Ostrom 1971a; Vile 1967). The U.S. effort to solve the problem of constitutional rule included the following conditions.

First, the U.S. theory of the "limited" constitution conceives a "constitution," in contrast to a "law," to be a set of general enforceable decision rules assigning the prerogatives of government among diverse decision structures or decision-making authorities.

Second, processes of constitutional decision making are organized apart from ordinary processes of legislation so that the terms of a constitution can *not* be altered by a government acting upon its own authority. Alterations in the provision of a constitution require recourse to extraordinary processes of constitutional decision making (V. Ostrom 1971a, chap. 3).

Third, decision-making capabilities are assigned among the diverse decision structures of a government so that each decision structure can exercise essential prerogatives with independence of other decision structures (*Federalist*, 47–51). At the same time each decision structure can interpose limits or potential *veto capabilities* in relation to other decision structures. In short, constitutional government demands "an institutional structure that will uphold *independent positions*," and independence depends upon the exercise of veto capabilities.

Fourth, recourse to concurrent regimes with overlapping jurisdiction inherent in the federal principle is a means for reinforcing the principle of constitutional rule by creating diverse units of government that are subject to limited jurisdiction. Each person gains access to legal, political, administrative, and constitutional remedies afforded by different units of government. When "the system of each State within that State" (*Federalist*, 36; V. Ostrom 1971a, chap. 6) is taken into account the federal principle *can* be extended to several concurrent regimes.

Fifth, the placing of constitutional limitations upon governmental authorities is accompanied by an assignment of constitutional prerogatives to individual persons (V. Ostrom 1971a, chap. 7). Persons are, thus, entitled to assert claims for judicial remedies based upon their constitutional prerogatives as against governmental officials who threaten to impair those prerogatives. The maintenance of polycentricity in the organization of government, thus, depends upon the maintenance of polycentricity in the organization of the judiciary and in the conduct of the legal profession (*Federalist*, 78). Those who exercise governmental prerogatives can be used to enforce provisions of a constitution against those who exercise governmental prerogatives

only if governmental decision making is allocated among diverse decision structures where each is capable of imposing constitutional limits upon others. Ambition can be used to counter ambition; and each set of decision makers will be constrained by the decisions exercised by each other set of *independent* decision makers. Shifting coalitions that form under varying decision rules and veto positions in a polycentric political system are highly unstable coalitions. Such coalitions are unlikely to exercise long-term dominance over the prerogatives of government and acquire a monopoly over the authoritative allocation of values in a society.

Finally, an enforceable system of constitutional rule will, also, depend upon citizens who are prepared to pay the price of civil disobedience. Such citizens when they are persuaded that constitutional rules have been violated must be willing to challenge the constitutional validity of any law or official action and face punishment and official displeasure if their cause is not affirmed. The constitutional office of *persons* assumes substantial significance in the maintenance of a lawful constitutional order. Individuals occupying the office of persons can exercise their essential prerogatives only if provisions of constitutional law are a common body of law knowable to members of a political community and enforceable by the actions of persons as against officials.

The possibility of devising an enforceable system of constitutional rule carries the further implication that constitutional decision makers can use an "existing system of thought" to formulate a set of decision rules for inclusion within a constitution that will evoke appropriate consequences. Such a system of thought would presumably include the essential elements of a political science and would imply that "societies of men are really capable . . . of establishing good government from reflection and choice" (*Federalist*, 1).

Not any set of decision rules nor any constitution will induce an appropriate "rig" to the game of politics in order to facilitate the maintenance of a system of positive constitutional law. Only a constitution that allows for independence among diverse decision-making units with a broad dispersion of authority among persons can be a self-enforcing constitution. No one has yet conceptualized a system of government where a constitution can be enforced by a specialized enforcer.

The relationship of polycentricity to constitutional rule assumes special significance when it is recognized that Thomas Hobbes and John Austin both contend that an enforceable system of constitutional law is not possible in a unitary commonwealth where the prerogatives of government are vested with some single, ultimate center of authority. Hobbes argues that law as a human artifact depends upon arrangements for some person or set of persons to exercise ultimate authority to promulgate, enforce and alter rules of law if there is to be one system of law in a commonwealth. Those who exercise sovereign prerogatives are the source of law, are above the law, and thus cannot be held

accountable to the law. The human condition in a Hobbesian theory of sovereignty necessarily implies that some monarch or set of oligarchs will exercise the ultimate authority of government; and such a sovereign body cannot itself be subject to the rule of law.

John Austin in his *Province of Jurisprudence* ([1832] 1955) follows a similar line of reasoning to conclude that constitutional law can only be positive morality, not positive (i.e., enforceable) law. The provisions of a constitution can be an expression of moral sentiments, but they cannot be enforceable rules of law. Thus, a unitary commonwealth with a fully integrated structure of authority will foreclose the possibility of maintaining an enforceable system of constitutional rule. In that case those who are responsible for making, enforcing, and altering laws are above the law and are *not* themselves subject to enforceable rules of constitutional law.

If reformers transform a polycentric political system into a highly integrated monocentric system, we would infer from this analysis that one of the costs of such reforms would be to forego the maintenance of an enforceable system of constitutional law. Once an enforceable system of constitutional law is foregone, concepts like "freedom," "liberty," and "justice" may be no more than pious platitudes and meaningless rhetoric. The possibility of conceptualizing justice, for example, as a meaningful criterion for rendering judgments and taking decisions about alternative possibilities depends critically upon the establishment of requirements for due process of law that can be enforced as against those who exercise governmental prerogatives.

The design of a polycentric political system, thus, depends upon an explicit political theory where constitutional decision makers know what they are doing. The alteration or modification of such a system in order to realize new capabilities under radically changing social conditions should be equally well grounded in a political theory where reformers know what they are doing. An absence of such knowledge would imply that men may be seized by a maelstrom of crises without knowing the causes of their miseries nor their remedies (V. Ostrom 1973).

#### Polycentricity in the Selection of Political Leadership and in the Organization of Political Coalitions

Polycentricity in the essential structure of government is a necessary but insufficient condition for the maintenance of an enforceable system of constitutional law. Madison's concern about the dangers of majority faction and Tocqueville's consideration of majority tyranny point to the possibility that a single dominant coalition will be able to control all essential decision structures for its advantage and the detriment of others in the society. Under such circumstances, the powers of government can be usurped by political entre-

preneurs who are able to form a machine or an organization to dominate the various processes for collective choice. The machine or organization will then be able to superimpose a directed order upon a formally established polycentric order and mobilize the coercive capabilities exercised by various governmental authorities to dominate the allocation of values in a society for its own advantage and to the disadvantage of the society as a whole.

In examining the structure of different political machines, Ostrogorski explicitly recognizes that the costs of appealing to constituencies in excess of 100,000 population give an advantage to those who can make a regular *business* of organizing slates of candidates and conducting political campaigns to win elections. An entrepreneur engaged in such a business will, in the long run, be required to cover costs by payments for services rendered. Such an entrepreneur will be confronted with the problems inherent in the organization of collective enterprises supplying public goods and services. This problem can be surmounted if the coercive capabilities inherent in governmental authority can be utilized to the advantage of a machine or an organization. But this advantage can be gained only if those who exercise the prerogatives of government will render decisions in response to commands from the boss as a political entrepreneur.

If a boss is able to acquire control over all centers of governmental decision making, then effective patterns of polycentricity can be foreclosed. The boss who has acquired effective monopoly power to dominate all decision structures has transformed a formally constituted polycentric system into a monocentric system. Political bosses in the late nineteenth century were able to put together strong organizations in several cities and in several states. However, no political machine ever developed that was capable of dominating all decision centers in the United States. Ample latitudes of polycentricity continued to exist so that even the most successful bosses were still exposed to decisions beyond their control.

If the essential integrity of electoral laws and electoral machinery can be maintained, and if other political entrepreneurs are free to contest elections, then the success of each such entrepreneur will depend upon his appeal to the electorate. So long as voters have a choice among candidates, severe constraints will be placed upon the discretion that politicians can exercise over the conduct of government. Basic election laws and electoral machinery provide an institutional structure where politicians can pursue independent strategies in competition with other politicians. To the extent that such conditions prevail, elements of polycentricity will exist in the selection of political leadership.

A recurrent debate has persisted among U.S. political scientists over the course of the last century regarding the desirability of instituting reforms that would establish a system of *responsible party government*. Following the

British tradition, a system of responsible party government would mean that control over the executive establishment would be vested with an executive committee composed of the leadership of the party capable of procuring majority support in the representative assembly of the national legislature. The government—that is, the executive apparatus—is organized by that party that is able to form a majority coalition in a win-the-government game apart from popular elections.

The U.S. political system with its constitutional separation of powers is organized by reference to a variety of different electoral constituencies, terms of office and voting rules. Government occurs in a *public* context with open deliberation where varying coalitions may be required depending upon the relevant constitutional decision rule. A different coalition of interests is required for the passage of legislation through the House of Representatives, for example, than is required for its passage through the Senate. The intervention of a presidential veto requires a radically different coalition to be formed than is required for the initial passage of legislation by Congress.

As a consequence of varying constitutional decision rules, *shifting* coalitions formed in an *open public* context have characterized the U.S. system of government in contrast to the British tradition of *party* government. The British tradition of party government occurs in a context of strong party discipline reinforced by strong provisions for secrecy in government affairs. Members of cabinets are *privy* councillors whose oath of office is essentially a *secrecy* oath. This is reinforced by an Official Secrets Act that makes it unlawful (i.e., a criminal offense) to publish internal government documents or information derived from internal government sources. Such secrecy makes British governments virtually immune to public scandals. British governments are party governments; and open public deliberation is largely confined to those issues placed upon the agenda for debate by the government party.

The existence of concurrent regimes in a highly federalized political system adds a significant dimension to polycentricity in the selection of political leadership and in the organization of political coalitions. The probability that a political boss can successfully organize a machine to dominate all centers of decision making in a political system with as much fragmentation of authority and overlap among jurisdictions as the American political system is very small. In nearly 200 years, no one has succeeded in putting together such a political machine. Bosses have succeeded in organizing limited machines in the short run; but they have been exposed to high risks of defeat. As a consequence, most successful bosses have adjusted their own strategies to take account of their potential adversaries in appealing to the electorate and in responding to popular demand.

The success of political entrepreneurs in putting together limited politi-

cal machines for short periods of time has meant that substantial political corruption has existed in the United States. The enforcement of public law has suffered as a consequence. Yet, the inability of political entrepreneurs to maintain party control over the different instrumentalities of government has meant that constitutional and other types of reform have been available to the American people as a means for coping with political corruption and the tyranny of those who exercise governmental prerogatives.

A substantial reduction in the amount of polycentricity in the U.S. political system as recommended by those who urge a "responsible party system" can be expected to reduce the costs of political entrepreneurship and increase the probability that a single coalition can be formed to dominate all essential decision structures. If such a dominant coalition were formed, the possibility of maintaining an enforceable system of constitutional law would be forgone. Fundamental political reforms would become infeasible. Coups d'état and revolutionary action would become methods of basic political change. Basic *reforms* that are contrary to the interests of established authorities can occur only where political stalemates are possible. Polycentricity in the selection of political leadership and in the organization of political coalitions is thus a further condition for the maintenance of an enforceable system of constitutional law and for the maintenance of a lawful *public* order.

#### Polycentricity in a Public Service Economy

The development of a polycentric order in a public service economy can, I believe, be conceptualized as occurring under special conditions. Polycentricity in the organization of (1) market arrangements; (2) the legal community; (3) constitutional rule; and (4) political coalitions is a necessary precondition for the existence of polycentricity in a public service economy. Market structures provide the necessary conditions for the generation of prices to provide a *public* measure of value. Some public measure of value for most goods and services is necessary if individuals are to calculate the terms on which alternative possibilities will be available to them. A polycentrally ordered legal system is necessary if entrepreneurial independence is to exist within general rules of law and if criteria for judicial decision making and methods of legal reasoning are to be established in meaningful terms that are knowable in a public interpersonal context. Meaningful terms that are knowable in a public interpersonal context must exist if authority is to be challenged by methods that rely upon reason. Otherwise, law is no more than a mystery of high priests.

Polycentricity is also necessary in the operation of a system of government if the services of governmental authorities are to be available *upon demand* to serve the lawful interests of individuals living in such a society. The

maintenance of an enforceable system of public law, including constitutional law, and the maintenance of an open rivalry for political leadership and in the formation of political coalitions are necessary conditions before citizens will be able to enforce lawful demands as against officials.

Where these conditions of polycentricity exist, we might further imagine the existence of a general set of laws whereby individuals can initiate proceedings for the organization of various municipal corporations, quasi-municipal corporations and other forms of public enterprise to undertake the provision of public good or service. Such general rules of law might provide for incorporation, annexation, merger, separation and disincorporation proceedings. Other provisions of law might establish general rules for the organization and operation of any such enterprise. Such laws would, in effect, constitute general charters for public enterprises. Alternatively, individuals acting to incorporate a public enterprise might be assigned prerogatives to prepare their own charter under specifiable rules of constitutional decision making. In that case a community of individuals could prepare a home-rule charter for the governance of a public enterprise.

Such general rules of law will, in effect, provide a constitutional allocation of authority among the community of persons forming a public enterprise. Provisions for elections, representation, referenda, initiative, recall, authority to sue and be sued, and special provisions bearing upon the prerogatives of individuals vis-à-vis those exercising corporate prerogatives can be included in charters for public enterprises.

Under such conditions individuals will have an incentive to function as public entrepreneurs when they can conceptualize circumstances where common actions can be taken to realize a public benefit for a discrete community of people. If the projected benefits will exceed costs by a margin that is recognizable by any reasonable person, then individuals will have an incentive to risk an expenditure of some time, effort and money provided that known institutional facilities are available to bind each member of the community of beneficiaries to pay his proportion of the costs.

If such a community of individuals were essentially coterminous with an existing unit of government, individuals assuming the costs of entrepreneurship would have an incentive to use that existing unit of government as a sponsor for the new enterprise. If the public good to be provided were not coterminous with any existing unit of government, then the community of individuals would be confronted with the task of determining whether some alternative structure could be used to provide the service at a lesser cost.

We might further expect rational entrepreneurs associated with such public enterprises to develop mechanisms for the resolution of conflict that would enhance their net welfare. If other values remained constant we would expect such individuals to search out mechanisms for the resolution of con-

flict that would least jeopardize their autonomy. If opportunities arose where economies of scale could be realized through a larger production unit, we would not be surprised to see merger movements occur. Nor would we be surprised to see cooperative arrangements or overlapping organizations develop as alternative means to facilitate joint efforts for mutual gain.

The difficulty in measuring the output of a public enterprise poses serious obstacles for users of public services or their representatives to acquire information for evaluating the performance of those who are commissioned to produce a public good or service. As a consequence, managers of public enterprises will not be highly responsive to changes in user preferences and will have little incentive to search out the most efficient modes of production. The larger the enterprise, the greater its mix of services, the less voice any one user will have in articulating demands for his preferred bundle of public goods and services.

So long as these conditions prevail a public enterprise *system* supplying a diverse mix of public goods and services will be responsive to user preferences only so long as some public enterprises are organized on a small scale capable of responding to immediate neighborhood demands. If such small-scale enterprises have bargaining capabilities in dealing with larger-scale enterprises then there is an *increased probability* that an appropriate mix of public goods and services will be forthcoming. Where multiple public agencies or enterprises concurrently participate in rendering particular types of public goods or services, such agencies will take on the characteristics of public-service industries. Patterns of government in different metropolitan areas might be viewed as public service economies composed of many public service industries including a police industry, an education industry, a transportation industry, and so on. A fully integrated monopoly is among the structural variations that might exist either in a public service economy or in a particular public service industry. Other patterns of industrial organization will have reference to increasing measures of polycentricity.

Ostrom, Tiebout, and Warren proposed that the theory of public goods be used to conceptualize the task of governance as the maintenance of preferred states of community affairs. The existence of public goods of diverse sizes and shapes implies the maintenance of diversely sized and shaped states of community affairs. We further suggested that criteria of (1) control; (2) efficiency; (3) political representation; and (4) self-determination could be used in determining how to "package" or bound diversely sized and shaped states of community affairs as governmental jurisdictions.

The criterion of control implies that choice of appropriate boundary conditions would include the relevant field of effects. Some fields of effects such as play spaces for children might be quite small; others such as the airshed over a metropolitan region might be quite large. The criterion of efficiency

implies that patterns of organization would be selected so as to maximize the aggregate net benefit. The criterion of political representation implies that those who are affected by the maintenance of some public good or service will be organized as a political community and be represented by common council in collective decision making. The criterion of self-determination implies that the government of a public enterprise will be controlled by the decisions of its constituents.

We further suggested that the *production* of a public good or service can be distinguished from the *provision* of a public good or service. Provision pertains to arrangements for financing and using or consuming a public good or service as distinguished from production as combining various factors or inputs to generate outputs. If sufficient redundancy were to exist among the units of government serving any particular metropolitan area then communities of people could take advantage of that redundancy or overlap by using one unit of government as a buyer's cooperative to contract with other units of government and/or private vendors to produce different public goods and services.

Thus, competitive rivalry and quasi-market conditions are artifacts of polycentricity and can be induced in a polycentrally organized public service economy. Efforts to supply public goods and services directly to individual users through market arrangements will *fail*. The provision of public goods and services must be collectively organized *before* quasi-market mechanisms can be generated in a public service economy. A polycentric political system is not a market; and a theory of polycentric organization is not a metaphor for a market model. Polycentric systems can be organized so as to induce elements of market organization *among* public enterprises. Such conditions can exist only if advantage can be taken of a rich structure of overlapping jurisdictions and fragmentation of authority.

Competitive rivalry among public enterprises can generate adverse social consequences as well as beneficial effects. Cooperative arrangements among public entrepreneurs can also degenerate into collusive efforts to raid the public treasury. These circumstances call for obvious remedies. The extension of full monopoly power over the production of all public goods and services would appear to diminish the prospect for attaining appropriate remedies. The alternative is to rely upon the likelihood that a polycentric system will lead those who may be injured to articulate their grievances and demand remedies from other governmental officials.

Finally, we suggested that the larger units of government provided a structure of institutional arrangements for the resolution of conflicts that cannot otherwise be resolved by mutual adjustment and mutual agreement. Individuals in a metropolitan community can exercise their constitutional prerogatives as persons and secure the services of other governmental officials

in procuring remedies where the actions of some cause injuries for others. The pursuit of strategic opportunity in a series of simultaneous political games provides the basis for reordering and reconstituting political relationships in metropolitan areas when individuals know the appropriate grammar of polycentric political forms.

The reliance upon multiorganizational arrangements for the provision and production of public goods and services need not be confined to metropolitan areas. Bain, Caves, and Margolis, for example, have used the approach of industrial organization to analyze the comparative efficiency of diverse public enterprises in the water industry operation described in their book *Northern California's Water Industry* (1966). A similar analysis of the legal and political structure of the California water industry was made in my *Institutional Arrangements for Water Resource Development* (V. Ostrom 1971b). Multiple jurisdictions provide opportunities to realize diverse economies of scale and to articulate the preferences of diverse communities of interests. Concurrent use of processes of popular control in different jurisdictions allows for the amplification of democratic powers (Gregg 1972). The availability of the judiciary to resolve interjurisdictional conflicts can be used to develop a rule of law as among public jurisdictions. A system of public administration operating through a multiplicity of jurisdictions subject to strong democratic controls, to adjudication of interjurisdictional conflicts and to competitive rivalry under quasi-market conditions engenders patterns of democratic administration that have radically different characteristics from those of bureaucratic administration (V. Ostrom 1973).

### Conclusion

A polycentric organization has been defined as a pattern of organization where many independent elements are capable of mutual adjustment for ordering their relationships with one another within a general system of rules. The occurrence of polycentricity in market systems, judicial decision making, constitutional rule, coalition formation and the operation of a public service economy has been considered. Each of these structures of relationships has reference to decision-making arenas where many elements are capable of mutual adjustment with one another within a general system of rules where each element can act with independence of each other element. The existence of polycentricity in each of these decision-making arenas suggests that the governance of metropolitan areas *can occur* in a *polycentric political system* so long as no single set of decision makers is able to gain dominance over all decision-making structures. Polycentricity is not confined to market structures but can be extended to the organization of diverse political processes and by implication can apply to the political process in general.

Having explored the relationship of polycentricity to different aspects of political decision making, I shall turn [in part 2] to some implications that polycentricity has for organizing research in the governance of metropolitan areas. Polycentricity implies quite different configurations of political relationships in metropolitan areas than would exist in a monocentric order. We can expect scholars from the two traditions to use different approaches, different concepts and languages and different methods. However, if these differences can be focused upon contradictory conclusions that derive from different theoretical analyses, then empirical research can be used to sort out the competing contentions.

## CHAPTER 3

### Public Goods and Public Choices

*Vincent Ostrom and Elinor Ostrom*

Until recently, the private sector and the public sector have been viewed as two mutually exclusive parts of the economy. The private sector is generally viewed as organized through market transactions. The public sector is generally viewed as being organized only through governmental institutions where services are delivered through a system of public administration. Principles of public administration traditionally called for the organization of services through an integrated command structure where all personnel are accountable to a single chief executive. Coordination in the private sector is attained by the market system that governs economic relationships through competitive buying and selling. Coordination in the public sector presumably is attained, by contrast, through a bureaucratic system in which superiors control subordinates in an integrated command structure that holds each public employee accountable to a chief executive as an elective public official.

During the last two decades, traditional presumptions about public sector organization have been subject to serious challenge. Economists studying public sector investment and expenditure decisions have observed that institutions designed to overcome problems of market failure often manifest serious deficiencies of their own. Market failures are not necessarily corrected by recourse to public sector solutions.

This section analyzes the basic characteristics of public services and the important role for diverse organizations, including private enterprises, in the delivery of such services. The public economy need not be an exclusive government monopoly. It can be a mixed economy with substantial private participation in the delivery of public services. Such a possibility offers impor-

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