

**A Role for Cooperatives in Managing and Governing
Common Pool Resources and Common Property Systems**

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When the 2009 Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel was awarded to Elinor Ostrom some found most remarkable her status as the first woman to receive such an honor. The prize, as significantly, acknowledged scholarship that addressed many inadequacies in the prevailing economic theories of the twentieth century. The Nobel committee recognized Ostrom for her “analysis of economic governance, especially the commons.”¹ Ostrom challenged the idea that shared resources (e.g. “the commons”) would inevitably suffer from overuse, resulting in the infamous “tragedy of the commons” coined in 1968 by Garrett Hardin. Her research demonstrated that individuals sharing a resource could organize themselves to sustain the commons on which each depended (1990).

My goal in this chapter is to present some of the ideas of Elinor Ostrom and Vincent Ostrom, her husband and, with her, co-founder of the Workshop in Political Theory and Policy Analysis (known colloquially as the Workshop). After outlining the conventional wisdom at mid-century about the commons and our hopes for cooperation, I turn to two of the earlier studies that offered ideas which Elinor Ostrom brought to her study of the commons. I will then outline the frameworks used at the Workshop which help us think about “what works” and why. But what does it mean to “work” well in governing the commons?

The Workshop’s primary value, principle, and focus of study was and remains self-governance. More than democracy, thought of as a voting rule, self-governance

¹ Ostrom shared the prize with Oliver Williamson, whose research examined and expanded the economic theory of the firm.

means that individuals have an on-going opportunity to constitute themselves as a community, an association. They have an on-going capacity to organize and establish the rules for their associations, particularly rules about how subsequent decisions will be made. Individuals have on-going opportunities to make decisions and act individually and collectively.

Individuals form many types of associations. Governments, in a self-governing society, are simply more universal associations than are most other associations. Governance many exhibit many voluntary aspects, so that even the conventional views of voluntary association as “opposite” government or, indeed private sphere as “opposite” public sphere may be inappropriate when thinking about “governance.” The ideas about self-governance developed at the Workshop, in fact, emerge from studies of governments, specifically municipal governments. These studies showed how “top down” thinking and administration often cost more and produced less in the way of public services on which a city’s inhabitants might depend. They also suggested that the increasingly centralized governments of the United States (including metropolitan-wide consolidation plans) diminished citizens’ capacity for self-governance. The Ostroms’ early work, undertaken in the 1960s, advanced an alternative form of organizing, called “polycentricity.”

The word may seem like social science jargon, but it has the virtue of saying exactly what it is: many centers; in this case, the term applied to many centers of authority, each acting concurrently and independently, sharing authority and responsibility for the results. . Polycentricity differed from the catchall ‘decentralization’. A polycentric system is not one in which a center had given out a bit of authority (and

could presumably take it back); a polycentric system is *un*-centralized. Polycentricity described accurately the kind of governance structure operating at the deepest level of organization to create the opportunities for self-governance that people in a self-governing society could experience in their daily lives.

When Elinor Ostrom turned specifically to studying common-pool resources and common property regimes, “the commons,” polycentricity was a guiding principle of organizational health. After nearly twenty years of studying cooperation in the realm of government administration, Workshop colleagues turned to the study of governance in the commons. The shift was logical and natural because governance of a commons often meant governance by (or among) the village(s) of a shared resource.

The Ostroms applied what they learned about cooperation from “public entrepreneurs” to the many situations where ordinary citizens as well as citizen-officials created associations, often crossing jurisdictional boundaries to handle a shared resource. Vincent Ostrom spoke of the citizen-sovereign as the forgotten, but critical authority for self-governance. The most basic lesson they took from studying successes and failures is no cookie cutter method; there is no single one and only one organizational form or rule; there is no panacea when it comes to achieving self-governance or the sustainable relationship of self-governing people to their physical environment. By studying the patterns of successful cooperation Elinor Ostrom described *principles* that worked. Above all she found that cooperative behavior can become a norm under conditions supplied by several specifiable constitutional choice and collective choice arrangements.

Cooperatives as well as cooperation are an important organizational form in governing a commons—and, as it turns out, many of our resources and ways of life either

are commons or touch upon them. The principles and ideas that emerge from Elinor and Vincent Ostroms' work, including equity, self-governance, participation, sustainability, preservation, and choice, are a part of cooperative economics and the co-op movement. Not every cooperative arrangement has been able to adhere to these ideas, however. Not every cooperative arrangement has been sustainable or beneficial to those outside of the arrangement or to the commons itself. The ideas that emerge from the Ostroms' work suggest a variety of arrangements each of which may fit some, but usually not all, of the variety of commons contexts.

The assumption and the *finding from research* is that self-governing associations wish to govern themselves and live in their world in a sustainable way. Human beings are not perfect, however. A foundational teaching from Workshop colleagues concerns our ability to diagnose the causes of social failures and to do something with what we have learned. Their emphasis on *diagnosis* as the key element in any effort toward human well-being reflects the importance of individual and social creativity, learning, and adaptation. This mental stance in itself challenged much of the thinking of mid-twentieth-century economic theory.

The Challenge: How To Frame the Problem

In showing that self-organization is possible, Elinor Ostrom's work challenged not only the "tragedy of the commons" belief but also the conventional wisdom associated with the "(il)logic of collective action." The logic was straightforward: people often fail to produce a resource or good to which each would have access for their individual benefit. Instead they take advantage of those who do their part for the common

good, “free ride” at the expense of those who have contributed, hoping to “free ride” until they are forced to contribute. As Mancur Olson (1965) asserted, a rational individual will contribute to a shared benefit only if there is a “selective” incentive—a benefit available only to contributors—associated with producing the resource to be shared in common. In experiments Ostrom showed that the archetypal model of commons tragedy, the canonical game theory example of mutually destructive behavior known as the “prisoner’s dilemma” is not inevitable; in field research she found:

Under the right circumstances, people are willing to accept additional efforts and costs. It all depends on trust in the fact that others will also act. Humans have the capacity to engage and see that their own long-term future is harmed if they don't change their lifestyles. Under the right circumstances they understand: It's not me against you. It's all of us against ourselves, if we don't act. So trust really is the most important resource.²

In challenging the tragedy of the commons narrative, Ostrom argued that individuals using an existing commons could organize as commons users (a user-group) to manage collectively held properties or govern the use of common-pool resources. In challenging the logic of a collective action dilemma, she argued that individuals could form a “producer-group” to provide the shared good or by, for example, contracting with the producer of the good, create a “provider-group,” making the good available to itself or to other users. Perhaps most profoundly, she showed that the conventional wisdom about regulating the use, provision, or production of a commonly held resource had limited the

² “Nobel Laureate Elinor Ostrom: ‘Climate Rules Set from the Top Are Not Enough,’” *Der Spiegel On-Line*. 12/16/2009. Web. 25 Jun 2013. < <http://www.spiegel.de/international/world/nobel-laureate-elinor-ostrom-climate-rules-set-from-the-top-are-not-enough-a-667495.html>>

“solutions” to either a commons or a collective action dilemma to two, simplified abstractions: The Market or The State. In the prevailing theories either an invisible hand solved these dilemmas by dividing the commons into private properties, or authorities took control, tutoring the inexpert commons user in sustainable resource management and lawfully coercing wayward non-contributors with the threat of punishment.

In the abstract modeling of “economic man”, “rational actors”, and self-interested, if not selfish behavior, orthodox economic theory had failed to consider what people might be doing to organize and, perhaps, govern themselves for a sustainable future. Elinor Ostrom asked what fishers, herders, farmers, and urbanites actually did when they faced a commons or a collective action dilemma. She found that individuals can cooperate in taking the collective action necessary to create the governance structure to create or use a commons for their mutual benefit, but what factors helped to creating trustworthy members of an association?³

Describing the successful (or failing) approaches to commons governance is a first step, but analyzing why a group of fishers, for example, have responded to each other and to their commons requires asking questions about the context in which their responses and choices were made. Self-interest, altruism, and other motivations might produce observable patterns of behavior, but what motivates the behavioral motivation? As Vincent Ostrom, who greatly respected work on collective action problems, once asked Mancur Olson, “Are we looking at ...the eager beaver trying to get the fast

³ As becomes clear below, a “commons” may exist in nature because it is technically, economically, or politically difficult to “fence” or prohibit its use—for example areas of an ocean into which fish migrate. A commons may also be created as a resource that will be shared—for example, an irrigation system. In either case, a “commons” requires collective action if it is to be governed. In deciding to create a governing structure commons users face a collective action dilemma of how to create another commonly held “good” or benefit, the rules and enforcement tools that will allow them to regulate their use of the commons.

buck...? Or, are we looking at...the rules that facilitate opportunities to pursue the fast buck?"⁴ A variety of behavioral motivations exist. What rules not only promote or hinder a particular behavior but also a particular motivation?

Rules as Institutional Arrangements

Actions take place within a context of what is permitted, prohibited, or demanded—what we may, must not, and must do according to rules, norms, and so-forth. The starting point for analyzing what worked (or failed) was an understanding of “rule-ordered relationships” for a given context: what actions were authorized and who could give an authorization as an authoritative, accepted condition? At the heart of the Workshop thinking was the study of rules and how rules ordered our relationships. The aim of an analytical framework was to offer a way to think about rules and rule-ordered relationships or, in short, “institutional arrangements.”

Institutions “are the sets of rules governing the number of decision makers, allowable actions and strategies, authorized results, transformations internal to decision situations, and linkages among decision situations” (Kiser and Ostrom 2000 [1982], 64–65). Institutional arrangements are not “given” in the manner that is often assumed in, for example, economic theory or the analysis of public policies, but are the results of “rules, events, and community” as they interact over time (Kiser and Ostrom 2000 [1982], 65). Institutions create the opportunities and constraints that transformed individual action into results. Although the ideas about governing the commons emerged from the study of specific cases, the goal was to consider institutions at the most general level to see how the institutional foundation of order shapes relationships in a variety of contexts—from

⁴ Vincent Ostrom recorded in discussion at a Workshop in Political Theory and Policy Analysis conference, “Approaches to Institutional Analysis,” 17 May 1985, as transcribed by Barbara Allen.

families, commons, voluntary associations, cooperatives, and market, to legislatures, government agencies, or political “systems.”

In thinking about the institutional arrangements in any of these contexts, it turned out that the category of permitted action—what may be done—proved especially helpful in understanding cooperative actions (Crawford and Ostrom 2000 [1995] and E. Ostrom 2005). The arena of “may” is a site of creative possibility. Some systems of ordering activity by rules and norms are more conducive than others when it came to creativity, learning, adaptation, and innovation.

In his earliest work, Vincent Ostrom found that a particular institutional environment encouraged creative responses to problems: a “polycentric order” that offers many centers or sites for experimenting with a variety of solutions that address a variety of problems. A polycentric, as contrasted with a monocentric or “top down” way of organizing relationships, acknowledged the diversity of contexts, physical environments, cultures, and ways of thinking about problems and solutions found in our diverse, complex worlds.

“Discovering” Polycentricity⁵

In 1961, Vincent Ostrom, Charles Tiebout, and Robert Warren developed a theory of how urban services such as electricity, water, police and fire protection, street cleaning, and sanitation may be delivered to a community’s inhabitants. Their fieldwork focused on

⁵ The term “polycentricity” has emerged in several grammatical and denotative forms in disparate academic disciplines and social contexts. In the late 1950s, Italian communist party leader, Palmiro Togliatti (1893–1964), described the working relations among post-Stalinist communist parties, countries, and regimes as a unified, yet diverse, “polycentrism.” In 1951, Michael Polanyi offered scientific knowledge and the economy as examples of “polycentric systems,” ordered spontaneously by the interactions among several “centers”.

homeowners' actions in "Lakewood," a housing development in southern California. Their findings held broad implications for how we think about collective choice, our capacity for self-government, and how we create and consume shared resources. Their study of the Lakewood Project resulted in two important changes in economists' understanding of "public" goods provision and evaluation. First, their investigation of the institutional requirements enabling cooperation and contract identified a *polycentric* system of relations as the framework enabling the contracting and cooperative arrangements. Second, they underscored the importance of criteria other than economic efficiency in evaluating public policy and public choice.

Framing Urban Services: Collective Action Problems and Economies of Scale

At mid-century, economic theory generally classified shared production and maintenance of infrastructure elements and services as "public goods." Public goods (defined as a resource to which anyone and everyone had access and whose use by one person had little impact on what remained for others) were arguably difficult to produce through voluntary contributions.⁶ Once the good existed, anyone could use it, so why should any single individual contribute to producing it? In the logic of collective action dilemmas, every potential user must be forced to contribute to the production of public goods, for example by taxation. As a result, the classification seemed to necessitate government ownership and administration of the resource.

⁶ Paul Samuelson (1954) defined two types of goods: private (from which one individual may exclude all others and the individual owner consumes the whole of the good) and public (from which no one can be excluded and use by one has no impact on the remaining amount of the good). In Samuelson's terms the two categories were defined by two characteristics "exclusion" (a private good is excludable, a public good is not) and "rivalrous consumption" (a private good is rivalrous, a public good is not). The thinking about two goods fit with then contemporary ideas of two (and only two) ways to deliver goods: as a private property exchange using a market or through a government enterprise organized as a public bureaucracy. Ostrom, Tiebout, and Warren lay the foundation for challenging the supposed methods of delivery and the dichotomy formed by the two characteristics of goods.

Many of the services that urban dwellers expected were also subject to “economies of scale:” the great investment required for production facilities and operation, maintenance, and administration *might* be less costly to individual users, if a larger operation produced more units of the good and served more people. When the production of a public good was conceptualized as a mega-scale project, costs were presumed to be beyond the capacity of entrepreneurs (including social entrepreneurs), cooperatives, or consortiums. When assumptions about large scale enterprises (especially the idea of “capturing” economies of scale) motivated policy makers, other important criteria for evaluating public service delivery often received far less attention.

Equity could become a significant issue for individuals who were paying but not benefitting or benefitting but not paying for the large-scale production of a public good. If a community could not raise boundaries around the good (e.g. limit a service area) to prevent use by those who did not pay their share, then the tax burden fell unfairly on only a portion of the good’s beneficiaries. If the group of individuals paying for the good was larger than the group benefitting, that also could cause inequities. In the conventional wisdom of Ostrom, Tiebout, and Warren’s contemporaries, large-scale governments (minimally metro-wide, and frequently state and in some cases federal regimes) offered the *only* way to deal with such “spillover effects.”

For Ostrom, Tiebout, and Warren such a conclusion seemed unduly limited, even counterintuitive. Not all urban concerns were metropolitan wide—a neighborhood park might better fall under the jurisdictions of smaller, local, perhaps neighborhood governments (Ostrom, Tiebout, and Warren 1961). In the classic economic description, the world of human enterprise divided into two realms, public and private, with public

and private goods mapping neatly upon government and market producers. Ostrom, Tiebout, and Warren challenged the idea that public goods necessarily require government provision and bureaucratic administration; the people using public goods often shared in (co-) producing the good. Ostrom ultimately challenged the entire frame in which we think about “public goods,” demanding a new understanding and expansion of the typology of goods beyond the public/private dichotomy.

As a starting point Ostrom, Tiebout, and Warren conceptualize public goods as existing in a “public economy” that complemented a market economy. Activities by leaders in a public economy necessitate thinking about issues of oversight, accountability, and representation, which, in Ostrom, Tiebout, and Warren’s discussion, must be handled in transparent, democratic processes. Indeed, democratic self-governance, a value that Vincent Ostrom would later develop more fully, stands out as a criterion for policy evaluation throughout Ostrom, Tiebout, and Warren’s analysis. The inhabitants of a community needed a voice in the activities of *their* public economy, they argued. Community leaders (whether elected or in some other way emergent) could function as public or social entrepreneurs in working out arrangements for the common good. In opposition to the centralized, “top-down” authority advocated by mid-twentieth-century economists and urban planners, Ostrom, Tiebout, and Warren imagined a public service “industry” comprised of many ways to produce, provide, and use public goods. Their study of Lakewood, California’s approach to founding a political community and providing its inhabitants with public services suggested that such an alternative was possible.

The Lakewood Example

Lakewood, a housing development in Los Angeles County, epitomized southern California's post-war housing boom and 1950s suburban migration. Soon after completion, Lakewood's houses, shopping centers, and parking lots became the focus of an annexation proposal launched by the City of Long Beach. Anticipating dramatic increases in property taxes and a loss of community authority from annexation, Lakewood residents pioneered a different approach from joining a mega-municipal institution. They incorporated as a smaller city and gained access to large-scale public service production by contracting with Los Angeles County.⁷

In the later language of Elinor Ostrom, the inhabitants of Lakewood formed a user-group whose individual members committed themselves to share the cost of obtaining public goods—in this case the public services of police and fire protection, street sweeping, road repair, water and other utilities. As a user-group, Lakewood residents obtained these goods by contracting with another public entity, the County of Los Angeles. Residents of Los Angeles County produced services that the residents of Lakewood could not afford to produce for themselves. Lakewood residents did not need to raise money to create their own power plant to get electricity. They did not need to fund the construction of the west coast power grid of which they were a very small part. They only needed to organize as a legal entity—a city, in this case—to buy such goods from an organization with a capacity to sell them.

The Lakewood collaboration among residents demonstrated how resource users can move from a voluntary cooperation among homeowners in a housing development to an enforceable agreement among citizens in an incorporated community. The

⁷ Interview by Barbara Allen with Robert Warren, 2006, Newark, Delaware.

collaboration between the user-group (the City of Lakewood) and the public goods producer (Los Angeles County) represented, in the language of Ostrom, Tiebout, and Warren a quasi-market arrangement in which the user-group would be free to seek services from an entity of its choice at a negotiated price. The insight that Ostrom, Tiebout, and Warren took from Lakewood, that public service production and public service provision are different activities, opened a new intellectual frontier for thinking about how consumers, clients, and citizens can provide themselves with a shared resource.

The response of Lakewood's residents to their potential collective action dilemma defied the conventional wisdom. It also underscores the crucial message that Elinor Ostrom delivered in every post-Nobel lecture: there is no panacea; there is no "one and only one" way. Entrepreneurial leadership can take a variety of forms in various "sectors" that, as Vincent and Elinor Ostroms' studies suggest, exceed the public/private dichotomy. A polycentric order had enabled the Lakewood homeowners' new institutional arrangement (Ostrom, Tiebout, and Warren 1961).

From Lakewood: A Theoretical Description of Polycentricity

Ostrom, Tiebout, and Warren (1961) defined polycentricity as "many centers of decision-making which are formally independent of each other." They observed that such decision-making centers might compete, contract, or enter into voluntary cooperative relations. Conflicts could arise in any of these types of relationships. When many authorities (e.g. different government bodies in a metropolitan area) could take their conflicts to a mutually acceptable authority for resolution, the whole arrangement worked as a "system" in which "the jurisdictions in a metropolitan area...function in a coherent

manner with consistent and predictable patterns of interacting behavior” (831). Breaking down this definition underscores several important points.

First, why have a diversity of “jurisdictions,” many different official boundaries that overlapped and divided authority? Why have precincts and parishes, villages, small cities, counties, metropolitan areas, special districts, state or provincial governments, regional governments, and so on? Why should inhabitants have so many identities as members of this or that governed group? First, equity requires that those affected by a given decision have a say in decision-making. Each person is affected by numerous issues *of diverse scale*; we need many arenas of choice if we hope to match the scale of an issue to the scale of decision making authority (V. Ostrom and E. Ostrom 1965). What was true regarding multiple avenues for using government authority, also applied to other types of associations (V. Ostrom 1972, E. Ostrom 1973, Allen 2005). Second, Ostrom, Tiebout and Warren view conflict as inevitable; Vincent Ostrom (e.g. 1975, 1983 and Ostrom and Ostrom 1965) later emphasized the possibility for conflict to produce information (particularly bringing inequities to light), learning, correction, and innovation. Third, to be *productive* conflict must be open to resolution. Ostrom, Tiebout, and Warren describe polycentric orders as those with several possible forums for addressing grievances, at least some of which will be amenable to all, and have sufficient ability to hold all parties to a resolution. Fourth, productive conflict occurred in the open—we can observe behavior and patterns of activity and authorities (in this case governments) (Ostrom 1991 and 1993). The authority may be shared and benefits may be mutual, but some barriers to collusion exist. The people who are to receive a service are

either directly involved in the process or have sufficient oversight and ways to hold authorities responsible and take action to stop irresponsible or dishonest behavior.

These were among the important aims and values that polycentricity was theorized to achieve. Most broadly the idea of polycentricity underscored the relational aspect of actions, whether they are explicitly collective actions or individual deeds, bringing us back to the motivators of motivations, rules. All relationships are ordered by rules that create motivations and obligations (to act) and capacities (for action). Rules may be enforced by the parties to a relationship themselves, by a third party in which those in relationship have vested this authority, or by a multiplicity of vested third parties that share authority in ways permitting them to address shared problems of various scope and scale. A monocentric order vested the authority and power for defining and enforcing rules in “a single decision structure that has an ultimate monopoly over the legitimate exercise of coercive capabilities”; in a polycentric system “many officials and decision structures are assigned limited and relatively autonomous prerogatives to determine, enforce and alter legal relationships” (Ostrom 1972 reprinted in McGinnis 1999, 55). The Lakewood example demonstrated that neither hierarchy nor a monocentric order necessarily deliver public goods more efficiently than could a number of other approaches; these were empirical questions worthy of investigation. In fact, a close examination of the goods in question might lead policy makers to conclude that the “default” approach should be a polycentric order. In evaluating public goods provision, policy makers might also find that several criteria should be added to their customary concern, “efficiency.”

From Lakewood: New Ideas about Evaluating Public Goods and Public Choices

“Efficiency” is generally understood as a relevant measure for evaluating exchanges of private goods, but the concept may not reveal inadequacies in transactions that produce or provide public goods. Equity, which economists conceptualized in terms of “spillover” is also an important value in thinking about public goods provision. Ostrom, Tiebout, and Warren used the word “fit” in thinking about equity. They distinguished between the “public,” those affected by the provision of a public good, and the “political community,” those who are taken into account (that is, whose interests are in some manner represented) when making decisions about public goods provision. “Fit” between the public and the political community was among the most important criteria for evaluating whether and how to provide a public good (Ostrom, Tiebout, and Warren 1961, 836). A public organization or authority such as a city often contained multiple political communities and publics, raising an empirical question of whether the political community seeking a public good coincided with the public that was authorized to decide or to bear costs. If we cannot expect to find a near-equivalence between the potentially *numerous* political communities and *numerous* publics, we cannot assume that a governance framework comprised of a single dominant authority will perform well. Differences in the scale of publics and political communities require us to pay attention to such criteria as fairness and fit between the distribution of benefits and costs of public goods. Ostrom, Tiebout, and Warren argued that it was counterintuitive to assert, for the sake of equity, that “spillover” would be contained by enlarging a provision area *for all services*. The concept “fit” reflected the complex nature of equity issues and emphasized the importance of participation in a decision making process. Decision-makers and the

beneficiaries of a good must coincide; beneficiaries not only must be prevented from shifting costs to those who receive no benefits of a public choice but also to those who have no voice in that public choice.

Thinking about choices in a public economy raises questions about the methods of regulation, oversight, and other aspects of the relations between producers, providers, and consumers. Whether authority is structured in a polycentric manner that produces a quasi-market, or in monocentric way, public organizations must address these concerns. The redundancies, checks, and balances of polycentric organization offer an important alternative to vesting monopoly authority in the unitary command structure of a monocentric order.

In Ostrom, Tiebout, and Warren (1961), considerations of equity align closely with principles of self-determination and self-governance. Equity demands adequate representation of diverse public interests. Cooperative ventures among user–producer– and provider-groups must serve a public interest as well as the interest of the cooperating entities. As Ostrom, Tiebout, and Warren concluded, the impact of public goods provision on representative governance arrangements is a practical as well as a normative criterion for evaluating the decision processes and delivery of public goods.

Adequate (i.e. democratic, self-governing) representation in a polycentric governance system suggested “choice” itself as an important indication of performance (Ostrom and Ostrom 1965; E. Ostrom 1983). On what basis are public choices made? The many dimensions of the “common good,” which public goods enhance, cannot be converted to a single measure of value (Ostrom and Ostrom 1965). Ideas of preference and price, well understood in market exchanges, may have uncertain meaning in public

economies. As later work made clear, a value scale may include not only equity and democratic participation but also such important factors as use and preservation, tradition and innovation, as well as other relevant matters that go beyond one-dimensional measures of utility, efficiency, and price. The consequences of a community's decisions may last longer than a human generation and some values and objects may in fact be priceless (V. Ostrom 1993). A polycentric order characterized by openness and transparency, adequate ways of resolving conflicts, identifying errors, and diagnosing the causes of failure and success could go a long way in the consideration of many values in evaluating the many possible ways of achieving common and individual good.

Empirical Studies of Polycentric Order: Citizens as Co-Producers of Urban Services

Polycentricity developed conceptually as Elinor Ostrom and her colleagues at the Workshop in Political Theory and Policy Analysis began observing and measuring urban service delivery empirically in the hotly contested era of police and school consolidation (Ostrom 1976 and 1983).⁸ At that time, public administration experts viewed “overlapping” authority (when authorities from several political jurisdictions had a say) and “fragmentation” of authority (when no political authority had the “last word” because several shared decision making power)—in short, the essence of polycentric arrangements—as the *cause* of most urban problems. Ostrom studied polycentricity by comparing the police service “industry.” She evaluated the efficiency and effectiveness of

⁸ In the United States, the school consolidation movement, which began with a professionalization movement in the 1930s, decreased the number of independent school districts from about 130,000 in 1930 to fewer than 16,000 (about 90 percent) by 1980. More than 100,000 schools closed and school size increased about five-fold. The largest percentage change occurred after 1950, when the number of school districts fell from 83,642 to 15,987 in 1980. As Elinor Ostrom said in an interview, “We would have studied schools, but they had already been destroyed. Police and fire were coming next.” (Interview with Elinor Ostrom by Barbara Allen 13 February 2012.)

smaller, independent city departments with adjacent neighborhoods that depended on consolidated metropolitan police departments. The evidence collected on the police services in Indianapolis and Chicago showed that smaller—to medium-sized departments in cities performed at least as well as and, in many cases, outperformed the large consolidated departments—and at a lower costs (Ostrom 1976; Ostrom, Baugh, Guarasci, Parks, and Whitaker 1973). More complex studies in St. Louis, Rochester, and Tampa-St. Petersburg corroborated these efforts, demonstrating that small departments performed at least as well as medium-sized department, while medium-sized departments often outperform both their larger and smaller counterparts (Ostrom and Parks 1976; Ostrom and Smith 1976).

High performing departments often achieved an appropriate fit between the scale and scope of service boundaries and decision-making authority as well as citizens' positive evaluations of effective service delivery by forming cooperative producer- and provider-groups. Using voluntary and contractual arrangements, cooperating agencies crossed jurisdictional boundaries, shared technical resources and personnel. Eventually the study covered 80 U.S. metropolitan areas, finding that well performing police agencies depend on a number of cooperative producer-provider interorganizational arrangements that included contracts, mutual aid agreements and joint operations (Ostrom, Parks, and Whitaker 1978).

These studies demonstrated empirically what Ostrom, Tiebout, and Warren (1961) had deduced and offered as theory: polycentric orders make it possible for a variety of public goods providers to take effective independent, coordinated, and cooperative actions. Polycentricity enables choice, self-determination, adaptation, and

innovation among diverse communities seeking a variety of public goods. Small municipal governments could act as a buyers' association, representing their constituents (V. Ostrom 1973); providers and producers could pool resources to share costs in providing services fit to specific needs. Policies for providing or consuming shared resources must be evaluated according to the effect on a political community comprised of many "publics." Polycentricity may appear as federated associations and networks. To evaluate such *un*-centralized institutional designs we must look to the strength of relationships among the participant associations rather than judging an organization form that has avoided centralizing power as simply diffused and weak.

By looking more closely at the term "public good," Ostrom and Ostrom fundamentally changed our understanding of governing resources used in common. Indeed, building on this early work, they introduced the concept of common-pool resources, common property regimes—the commons—into the vocabulary of several disciplines. Their work had been conducted in the arenas of *government* authority, but for Ostrom and Ostrom the concepts applied broadly to *governance*. All associations used rules—a governance structure. Families, colleagues in a workplace, a business cooperative, or voluntary associations that read books or made quilts together—all associations had worked out institutional arrangements of "how things are done around here." In view of Ostrom and Ostrom governments were associations, and an individual or a voluntary association could be a member of many governments simultaneously. Governments, like all associations, might be of differing scales and, on a given question, more or less universal in their reach (Allen 2005). These ideas could apply broadly to a variety of problems that fall under the umbrella of "the commons."

Polycentricity and the Commons: Beyond the Dichotomy of Public v. Private Goods

Early efforts to characterize public goods emphasized the impossibility of excluding anyone from consuming the good (*exclusion*) and the impact that one unit of use had on the remaining supply (*subtraction*, capable or not of being *separated* into packaged units, or, as noted earlier in the Samuelson (1954) definition, *rivalrous consumption*). A good characterized by low subtraction (non-rivalrous consumption), in which the consumption of the good by one person does not subtract from the supply, was termed a “public good.” The difficulty of excluding non-contributors was identified as the “free rider” problem of public goods provision. Subtraction (separable-ness, non-rivalrous consumption) and exclusion went hand-in-hand.

Elinor and Vincent Ostrom recognized another concern by viewing exclusion and subtraction as distinct attributes: a good might be characterized by the difficulty of excluding non-contributors and by *separable* consumption in which each use subtracted from the remaining supply. By emphasizing both attributes of goods, Ostrom and Ostrom expanded the dichotomy of “private” and “public” goods to a four-part typology that included a new term, *common-pool resources*. This term signified a type of good that shared the characteristic of subtraction or separable use with private goods, while also sharing with public goods the difficulties of finding a feasible method of excluding non-contributors from using the resource. By expanding the typology of goods beyond the dichotomy of public or private, Ostrom and Ostrom directly challenged the idea that the only options available in dealing with the dilemmas of commons governance were “Market” or “State/Government”.

Ostrom and Ostrom brought reality to bear on speculation about “the commons.”⁹ They showed that individuals facing a “commons dilemma” could resist the logic of mutual destruction. Consumers of common-pool resources need not be viewed as rivals (although they may become so), but as users whose actions affect others and who have the capacity to design strategies that benefit all users (V. Ostrom 1975). They also found that people had developed many methods of dealing with collective action and commons dilemmas, advancing beyond prescriptions of government coerced compliance or market arrangements based on individual property rights (V. Ostrom 1983; E. Ostrom 1977 and 1990). They found producer-cooperatives that pooled resources in bringing a product to market exchange, consumer-cooperatives that pooled individual buying power, providers and co-producers (e.g. cooperation between consumer and producers or “self-help”) in public and market economies. Their aim was to describe at the most generally applicable level possible the framework that encouraged long-enduring institutions (E. Ostrom 2005).

Their framework of institutional analysis looked to the terms and conditions of law—rule-ordered relations—as well as to the physical and social circumstances determining the attributes of goods. They studied the nexus of relationships occurring in the operation of collectivities, while insisting that prior collective choices, processes that are regulated by antecedent constitutional choice, set the terms and conditions of operational decision-making (V. Ostrom 1989; 1993; 2012 [1991]; 2012 [1993]). The choices that a community makes about how to choose—constitutional choice—determine what is possible for everyone engaged in later collective choices. Constitutional choices

⁹ In the latter half of the twentieth-century, “the commons” and “commons dilemmas” became synonymous with the “tragedy of the commons” (Hardin 1968).

are often ignored in analyzing why a group makes a decision to move forward in a particular way. Questions about how collective decision-making is constituted are vital: Who is eligible to participate? What is the scope of their authority as a group? What happens if the scope is inaccurately defined? Are there ways to hear opposing views? Are there ways to measure consequences? Are there ways to amend choices, including those about who is eligible to participate? Constitutional choice is not necessarily a matter of grand occasions, major discussions, and ratification (although these are all possible).

Constitutional choices may be on-going (and in resilient self-governing groups they are continuous) and may guide subsequent action with far less ceremonial but no less authoritative “that’s just how it is” statements. As important as they are, questions about “how it is” that “it got to be” often are *not* asked when collective choices take a group down the wrong path. Operational decisions concern day-to-day activities occurring according to the collective choices about how action and choice are to take place. Again, when things go wrong, questions might be similarly advanced about the governing collective choices. To get a handle on how to look at such questions Elinor Ostrom and colleagues developed first the Institutional Analysis and Development (IAD) and subsequently the Social-Ecological Systems (SES) frameworks (E. Ostrom 2009).

When the worlds of action are described in terms of linked and overlapping arenas of action, constitutional, collective, and operational choices, and the encompassing social-ecological system, it becomes obvious why Elinor Ostrom insisted that there are no panaceas in addressing micro, meso, and macro issues and problems (Ostrom 2007). Recognizing the importance of a polycentric order (E. Ostrom 2010) and understanding its constitutional structure is a starting point; a vital aspect of such an order is the

community's understanding of how such an order is constituted. Cooperative relations among commons users and common resource producers and providers also depend on institutions based on principles of equity and effectiveness. In addition to equity, effectiveness, and efficiency, the criteria for evaluating such institutional arrangements include representation, possibilities for self-organization and self-governance, methods of holding authorized actors accountable, conformity to norms and values (in Ostrom's terms, "general morality"), choices of sufficient variety to enhance capacities for adaptation to new circumstances (E. Ostrom 2005, 66–67; V. Ostrom 2012 [1985]; 1987). In light of these principles, a polycentric order offers a complex framework in which to address the complex reality that characterizes self governance. Each "solution" to a problem establishes a next context, which inevitably reveals new institutional weaknesses, calling for further learning, choice, and adaptation— responses that may be possible if we maintain the sufficient variety, alternatives, and 'redundancy' (the 'backup' system) in a polycentric order.

References

- Allen, Barbara. 2005. *Tocqueville on Covenant and the Democratic Revolution: Harmonizing Earth with Heaven*. Lanham, MD: Lexington Books.
- Crawford, Sue E. S., and Elinor Ostrom. 2000 [1995]. "A Grammar of Institutions." *American Political Science Review*. 89 (3): 582–600. Reprinted in McGinnis, Michael D. *Polycentric Games and Institutions: Readings from the Workshop in Political Theory and Policy Analysis*. Ann Arbor, MI: University of Michigan Press. 114–55.

Hardin, Garrett. 1968. "The Tragedy of the Commons." *Science*, 162 (3859): 1243–48.

Kiser, Larry L., and Elinor Ostrom. 1982. "The Three Worlds of Action: A Metatheoretical Synthesis of Institutional Approaches." In *Strategies of Political Inquiry*, ed. Elinor Ostrom. Beverly Hills, CA: Sage. 179–222. Reprinted in McGinnis, Michael D. 2000. *Polycentric Games and Institutions: Readings from the Workshop in Political Theory and Policy Analysis*. Ann Arbor, MI: University of Michigan Press. 56–88.

Larry Kiser, and Elinor Ostrom. 1987. "Reflections on the Elements of Institutional Analysis. Bloomington: Workshop in Political Theory and Policy Analysis Working Papers # W87-22.

Ostrom, Elinor. 1973. "The Need for Multiple Indicators in Measuring the Output of Public Agencies." *Policy Studies Journal* 2 (2): 85–92.

_____. 1976. *The Delivery of Urban Services: Outcomes of Change*, ed. Urban Affairs Annual Reviews, vol. 10 Beverly Hills, CA: Sage Publications.

_____. 1977. "Collective Action and the Tragedy of the Commons." In *Managing the Commons*, ed. Garrett Hardin and John Baden. San Francisco: W. H. Freeman. 173–81.

_____. 1983. "A Public Service Industry Approach to the Study of Local Government Structure and Performance." *Policy and Politics* 11(3): 313–41.

_____. 1990. *Governing the Commons: The Evolution of Institutions for Collective Action*. New York: Cambridge University Press.

- . 2005. *Understanding Institutional Diversity*. Princeton, NJ: Princeton University Press.
- . 2007. “A Diagnostic Approach for Going Beyond Panaceas.” *Proceedings of the National Academy of Sciences*. 104(39): 15181–87.
- . 2009. “A General Framework for Analyzing the Sustainability of Social-Ecological Systems.” *Science*. 325(5939): 419–22.
- . 2010b. “Beyond Markets and States: Polycentric Governance of Complex Economic Systems.” *American Economic Review*. 100 (3): 641–72.
- Ostrom, Vincent. 1972. “Polycentricity.” Workshop Working Paper Series, Workshop in Political Theory and Policy Analysis, Presented at the Annual Meeting of the American Political Science Association, September 5–9. Reprinted in McGinnis, Michael D. 1999. *Polycentricity and Local Public Economies: Readings from the Workshop in Political Theory and Policy Analysis*. Ann Arbor, MI: University of Michigan Press. 52–74.
- . 1973. “Can Federalism Make a Difference?” *Publius* 3(2): 197–237.
- . 1975. “Competition, Monopoly, and the Organization of Government in Metropolitan Areas: Comment.” *Journal of Law and Economics*. 18 (3): 691-694.
- . 1983. “Nonhierarchical Approaches to the Organization of Public Activity.” *Annals of the American Academy of Political and Social Science*, 466 (2, March): 135-147.

———. 1989. “Some Developments in the Study of Market Choice, Public Choice, and Institutional Choice.” In *Handbook of Public Administration*, edited by Jack Rabin, W. Bartley Hildreth, and Gerald Miller, 861–82. New York: Marcel Dekker.

———. 1991. *The Meaning of American Federalism: Constituting a Self-Governing Society*. San Francisco: ICS Press.

———. 1993. Epistemic Choice and Public Choice. *Public Choice* 77 (1): 163–76.

———. 2012 [1985]. “Conceptualizing the Nature and Magnitude of the Task of Institutional Analysis and Development.” In *The Quest to Understand Human Affairs: Essays on Collective, Constitutional, and Epistemic Choice*. Vol. 2. Ed. Barbara Allen. Lanham, MD: Lexington Books. 181–217.

———. 2012 [1991]. “Some Ontological and Epistemological Puzzles in Policy Analysis.” In *The Quest to Understand Human Affairs: Essays on Collective, Constitutional, and Epistemic Choice*. Vol. 2. Ed. Barbara Allen. Lanham, MD: Lexington Books. 253–296.

———. 2012 [1993]. “Interpreting Social Experiments: An Agenda for Critical Reflections and Inquiry about a Research Program in Comparative Institutional Analysis and Development.” In *The Quest to Understand Human Affairs: Essays on Collective, Constitutional, and Epistemic Choice*. Vol. 2. Ed. Barbara Allen. Lanham, MD: Lexington Books. 297–321.

Ostrom, Elinor, William Baugh, Richard Guarasci, Roger B. Parks, and Gordon P.

Whitaker. 1973. *Community Organization and the Provision of Police Services*.

- Sage Professional Papers in Administrative and Policy Studies, 03–001. Beverly Hills, CA: Sage Publications.
- Ostrom, Elinor and Roger B. Parks. 1976. “Suburban Police Departments: Too Many and Too Small?” In Louis H. Masotti and Jeffrey K. Hadden, eds. *The Urbanization of the Suburbs*. Urban Affairs Annual Reviews, Vol. 7. Beverly Hills: Sage Publications. 367–402.
- Ostrom, Elinor, Roger B. Parks and Gordon P. Whitaker. 1978. *Patterns of Metropolitan Policing*, with Cambridge, MA: Ballinger Books.
- Ostrom, Elinor and Dennis Smith. 1976. “On the Fate of Lilliputs in Metropolitan Policing.” *Public Administration Review* 32 (3): 192–200.
- Ostrom, Vincent, Charles Tiebout, and Robert Warren. 1961. “The Organization of Government in Metropolitan Areas: A Theoretical Inquiry,” *The American Political Science Review*, 55: 4 (December). 831–842.
- Ostrom, Vincent and Elinor Ostrom. 1965. “A Behavioral Approach to the Study of Intergovernmental Relations.” *The ANNALS of the American Academy of Political and Social Sciences* 359 (1): 137–46. Reprinted in McGinnis, Michael D. 1999. *Polycentricity and Local Public Economies: Readings from the Workshop in Political Theory and Policy Analysis*. Ann Arbor: University of Michigan Press. 107–18.
- Samuelson, Paul A. 1954. “The Pure Theory of Public Expenditure.” *Review of Economics and Statistics*, 36(4): 387–89.