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Resilience in Public Administration: The Work of Elinor and Vincent Ostrom from a Public Administration Perspective

A Conversation with Elinor and Vincent Ostrom

This essay examines the remarkable careers of Elinor and Vincent Ostrom, exploring polycentricity and human management of common property resources from the “no-name fields” of public administration in the late 1950s, through the metropolitan public service industries and public choice approach to democratic administration in the 1960s and 1970s and the institutional analysis of common pool resource management of the 1980s and 1990s. It continues with the diagnosis of the self-governing capabilities of socio-ecological systems in the 2000s. Many continuities underlie focal shifts in attention. Their work will be related to developments in the public administration field along with illustrations of their pioneer example for public administration on research as a collaborative enterprise. The 2009 Nobel Laureate in economics, Elinor Ostrom has been working from an academic background and intellectual tradition that, particularly through her long-term collaboration with Vincent Ostrom, is strongly rooted in the classical and prevailing institutional concerns that may be seen as core to public administration as an academic field of education and research.

We simply study institutions, that is what we do.

—Elinor Ostrom

“There is no way you can write about my work without paying attention to the work of Vincent.” Elinor Ostrom—born in Los Angeles in 1933 and known as “Lin” to her friends and associates—reacts with her usual charm and straightforwardness to my request to contribute to a review article about her and her research for *PAR*. It is sometime in the summer of 2008. “Vincent” is Vincent Ostrom (1919). He is her long-term tutor, husband, and colleague, and has also collaborated with her as a researcher and teacher and, particularly, as founder and codirector (1973–2003) of the Workshop in Political Theory and Policy Analysis at Indiana University in Bloomington. Since 1990, Vincent has been the Arthur F. Bentley Professor Emeritus of Political Science at Indiana University. With a smile—and elegantly neglecting a master’s

degree in public administration from the University of California, Los Angeles (1962), that got her “trapped [because] [m]y courses were so fascinating that I decided to quit my full-time job and go back to graduate school at a time when women didn’t go to graduate school” (*PNAS* 2006, 19221)—Lin adds, “After all, Vincent is my link to the public administration community. I was his editorial assistant when he was editor-in-chief of *Public Administration Review*.” Vincent Ostrom held this position from 1963 to 1966, following John Perkins and preceding Dwight Waldo. Being at the beginning of her academic career, Lin helped out—in the way that academic wives did then—without compensation. “Later in my career, in terms of institutional affiliations and professional organizations, I have always been more involved with the Public Choice Society and the American Political Science Association.”

The message was clear: a combination of genuine embarrassment about all the attention, recognition, prizes, rewards, and honors individually bestowed on her in recent years—and much more was soon to follow—and her admiration of and gratitude for Vincent Ostrom’s substantial intellectual contribution to the production, quality, and development of her own work made Elinor’s willingness to cooperate with me on this review contingent on my promise to pay full credit and attention to the intellectual partnership that she considers part and parcel of, if not the key to, the development of her own work and academic career. This author was happy to comply.

Much of Elinor Ostrom’s current audience and readership, also in public administration, will associate her work with her vigorous interest in and rigorous treatment of the analysis of small-scale, self-regulatory systems, particularly in the domain of such natural resources as fisheries, forests, pastures, and water resource systems. Even for the relative outsider, it is easy to mark the publication of the book *Governing the Commons: The Evolution of Institutions for Collective Action* (E. Ostrom 1990) as the hallmark of a

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remarkable academic story with both a global outreach and a practical policy impact. Various books and numerous articles on common pool resource (CPR) management were to follow. In terms of quality and scientific status, her later work has been widely recognized and consolidated by recent publications in such highly esteemed scientific journals as *Science* (Dietz, Ostrom, and Stern 2003; E. Ostrom 2009) and the *Proceedings of the National Academy of Sciences* (E. Ostrom 2007). She is also one of the few women elected to two of the United States' most prestigious honorary academies: the National Academy of Sciences and the American Academy of Arts and Sciences. On October 12, 2009, the Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel—the Nobel Prize in Economics—was jointly awarded to Elinor Ostrom and Oliver E. Williamson for their work on nonmarket economic arrangements. Ostrom, the first woman to receive this honor, was awarded the prize “for her analysis of economic governance, especially the commons.”

Many continuities underlie the shifts in focus in Elinor Ostrom's work and writing with regard to conceptual frameworks and domains of research or fields of application: water, school districts, police, urban service delivery structures, metropolitan government organization, citizen coproduction, development policy, game theory, open access, and understanding knowledge as a commons. Lin notes, “My dissertation was on water resources. Then we began the police and public service industry studies that made us visible and put us on the map. This was followed by the institutional analysis and development framework—the three worlds of action—and the common pool resource management research, which amounted to the socio-ecological systems framework. But these are all examples of the more general theories we were testing.”

These steps in the Ostroms' development will be explored here, and will also be related to some of the developments in the field of public administration. Both scholars are complementary and mutually reinforcing. The one serves as the base and source of inspiration for the other: Vincent is more philosophical and ideational, coming from political theory and administrative sciences, strongly rooted in the constitutional tradition in which the study of American public administration had its origin. Elinor is more analytic, empirical, and operational, with a strong drive to confront assumptions with social reality and to test hypotheses in an experimental laboratory setting or operational field survey against painstakingly defined conceptual indicators and self-collected data, even using satellite observations in later years (Ostrom and Nagendra 2006). Apart from their personal ties, the Ostroms are closely bound by both a deep appreciation for craftsmanship—at our meeting, Vincent, by way of illustration, handed me an interview with a much-admired master woodworker (Finch and Goodman 2007) with whom they had a long-standing

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Polycentricity

As early as the 1960s and 1970s, if not earlier, the Ostroms went beyond markets and hierarchies. At critical junctures in the development of the respective disciplines, their work triggered and contributed significantly to the governance turn in international public administration, policy sciences, and even political science (Toonen 1998). The Ostroms were outspoken advocates of and instrumental in breaking away from a monolithic and monocentric conception of administrative structure, public service, and the state. Their writings and research opened the door to studying polycentricity, a somewhat elusive but intellectually canvassing concept that persistently

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and in completely different institutional contexts stresses the need for and the importance of multiplicity, diversity, interdependency, checks and balances, complexity, and requisite variety in both the study and the actual operation of public administration and public service delivery (V. Ostrom 1972).

The contemporary social and political relevance of Elinor's research and writings on the commons has clearly benefited from—and contributed to—the current increase in attention to environmental issues, most notably in

relation to global warming, climate change, and the international debate on the exhaustion of natural resources. However, as a former student of Vincent's, Elinor acknowledges, “It should not be overlooked that it was Vincent, not me, who discovered and first used the concept of common pool resources in his teaching and writing on common property resource management at the end of the 1950s. I returned to it in the 1980s only to discover that there was a whole field of research that had organized itself around the concept.” Even in his dissertation (UCLA, 1950), Vincent already was focusing on water management. In the 1950s and 1960s, public administration was preoccupied with the nation-state as the organizing concept. Vincent was not so much interested in the discipline of public administration as in the practice of public administration. He interpreted the study of public administration as the study of how people operate in practice. He was looking for new concepts in order to include nongovernmental action in the analysis. Vincent nods and adds smilingly, “I understood public administration as the study of how people worked in the field rather than a study of bureaucracy in the 1950s and 1960s.”

When asked about the origin of their deep interest in self-organization, self-regulation, and self-government, both Ostroms refer to personal formative experiences. Elinor: “On one of my first jobs I witnessed a group of professionals exploring a topic for their political bosses by using a cost–benefit analysis. On the basis of their calculations they concluded that the benefits would not outweigh the costs. They also concluded that they could not tell that to their bosses.” Elinor compared that to other independent—nonhierarchical—institutions that did the opposite and that were not afraid of “speaking truth to power,” as Wildavsky (1979) would later sum up in a view on the art and craft of policy analysis that the Ostroms could easily relate to. Lin continues, “Early in my academic career I thus gradually became interested in sources of freedom and self-regulatory (nonhierarchical) systems: options to move freely, no monopoly, polycentricity, checks and balances. Not ‘small is beautiful’ but the need for institutional variety, layers within layers and a multi-scale society: large scale *and* small scale. Embedded in and next to one another.”

Elinor developed this interest in the sources of authenticity and independence in combination with a strong empirical drive. “This was triggered,” she explains, “by the large-scale amalgamation of school districts in the U.S.—from around 110,000 in 1910 to about 15,000 by 1950—which had been going on without much empirical underpinning, just on the belief that the districts would be more efficient and equitable. However, some of the biggest tragedies were precisely in these very large consolidated schools. In the early 1960s, this was being followed by a proposal to amalgamate and consolidate police districts without even knowing how the system worked!”

For Vincent as well, experiences early in his career are the point of reference. Lin: “After teaching high school in California at the end of World War II, Vincent moved to the University of Wyoming, where the president asked him to get involved in the study of the system of governing in Wyoming.” Vincent worked with local government officials for three years, which laid the foundation for his later work in Oregon and Los Angeles, where Lin became involved as a master’s and then doctoral student. Vincent elaborates: “In the assignment in Wyoming, I followed an empirical, bottom-up approach. Cattle turned out to be an important locus of interest. Systems of brands on cattle could be perceived in terms of property rights. The arrangement was that, in the winter, the cattle were on private land, but in the summer they were in the open, i.e., a common area. The roundup was a collective enterprise. Brands served as a way to appropriate young calves, for example. Part of the land was private, but in the summer feeding was on the open range. This made me aware of the need to think about ways to conceptualize common property in the domain between private and public ownership as part of the system of governing. I saw stockowners associating privately to commonly establish and enforce property rights.”

This insight was the starting point for a (re)conceptualization of coordination in the public sector, contrasted with an understanding of coordination in terms of bureaucratic government, public

management, and central control. Vincent also became convinced of the relevance of the constitutional dimension of natural and common resource management, but not only in an academic sense. As a consultant on natural resources at the Alaska Constitutional Convention in 1955–56, Vincent Ostrom was largely responsible for the inclusion of the famous Article 8, the Natural Resource Article of the Alaska Constitution, which is sometimes referred to as the first “constitutional sustainability article” in the world.

Human Management of Common Property Resources

Vincent took these newly acquired insights with him to the University of California, Los Angeles (V. Ostrom 1967). Lin: “The water management system in the L.A. government system was a complex organization of public and private arrangements in service delivery. A new system of water rights emerged with new forms of relationships among people. A different system in the West compared to the East. River basins cut as a common unit across administrative sectors in the metropolitan area. The predominant assumption was that people with a common property had no organization in sharing the one source. Thus Vincent used the common pool resource concept to go against the predominant understanding of coordination in terms of bureaucratic control and governmental management and to be able to point to the many forms of coordination at various scale levels and from the bottom up. He’d witnessed this in Colorado, Montana, and New Mexico: irrigation systems on the basis of a common river basin in the arid region of the American West.”

Vincent: “Teaching at the Universities of Wyoming and Oregon had facilitated this understanding. Governance structures were

varied and related to physical circumstances; they put social reality in coherence with physical reality. The subject of Lin’s dissertation was the water pumping system; there was too much pumping of fresh water. She analyzed the role of equity courts in shaping boundaries and exclusion rules and the importance of *human* (as over and against bureaucratic) *management* in connecting sub-basins.”

Lin: “We aren’t antimanagement but we arrived at a different management concept.” Vincent: “Jurisprudence rather than top-down steering. Our mission became how to understand and fight against simplification rather than assume that strong executive leadership could solve the problem only to see that it could not.”

The “No-Name” Fields of Public Administration

Vincent Ostrom used the common pool resource concept in his teaching—classes that Lin attended—and thus could introduce nongovernmental organizations as part of the broader concept of public service as an “industry.” This concept, which he took from Joe Bain (1959), allowed him to study the interchange in a metropolitan area as an economy—a local public economy—rather than only in terms of a government organization. The common pool resource concept included the study of social self-regulatory, nonstate and nonmarket institutions, and decision-making processes in the analysis of critical domains of collective action and public

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intervention, thus effectively contributing to broadening the study of government and public administration beyond the boundaries of the state as a government. This amounted to a *behavioral approach to the study of intergovernmental relations* in metropolitan areas: “As the demand for public services tends to accelerate in an expanding economy, relationships among diverse public enterprises will assume an increasing importance in U.S. public life. Students of intergovernmental relationships have an important opportunity to extend our understanding of some of the basic patterns of behavior that exist among the complex variety of governmental agencies responsible for producing, financing, and arranging the provision of public goods and services . . . The operation of a public enterprise system composed of diverse public industries will require knowledge of both political and economic processes. Scholars in economics, political science, and related behavioral sciences have much to contribute toward an understanding of the structure, conduct, and performance of the different public industries that form part of the United States’ public enterprise system” (Ostrom and Ostrom 1965, 146).

Lin, Vincent, and their fellow researchers in the police studies project and public service industry (PSI) framework plugged into the early development of what later would become known as the new political economy, the public choice approach, or the new institutional economics. Vincent identified these approaches early on as among the “no-name” fields in public administration: “A ‘no-name’ conference was held at Charlottesville, Virginia, during the autumn of 1963. Sponsored by the Thomas Jefferson Center for Studies in Political Economy, the conference was variously characterized as dealing with the pure theory of collective decision making, the analysis of nonmarket decision making, the positive theory of collective agreement, and other such references. No one was especially pleased with any of the names suggested so it remained the ‘no-name conference.’” However, all of the conferees shared professor James M. Buchanan’s enthusiastic conviction that, as Vincent notes, “an important and exciting theoretical field of interest [was] emerging simultaneously in several places and under several guises.”

Most of the participants in the Charlottesville conference were economists and political scientists who had been working on common problems at the intersection of economic and political theory. Buchanan and Gordon Tullock’s work on *The Calculus of Consent* (1962) is a good illustration of such an effort. Ostrom: “Next to the more popularized work of Galbraith and Boulding . . . that bear upon intersecting interests in economics and political science, . . . the work of many others, including Baumol, Dahl, Downs, Lindblom, McKean, Musgrave, Schelling, Shackle, and Simon has added both depth and breadth to the field of inquiry.” Vincent urged scholars to “keep in touch with any newly emerging no-name fields that may represent important and exciting developments for the advancement of public administration” (V. Ostrom 1964, 62–63).

Public Service Industries and Democratic Administration

Lin, notes, at some point in the interview, “The interrelationships between people in compound systems—combining small, big and, large subsystems—are important. These days we will increasingly need to pay attention to large-scale systems, which link the global to the local and vice versa. Think about the Rhine, the Mekong or the Mississippi.” The spontaneous references to water are no coincidence in light of her early and more recent interest in global environmen-

tal policy issues. But it is important to note that there was a period in her career—in 1965, when she was defending her dissertation—when she told her graduate students, most notable among them Roger Parks, that she wanted “to study and research any policy area, but not water!” The graduate seminar in Bloomington, where she had arrived with Vincent after completing her dissertation, was on “how to measure public goods” and was inspired by the work of Herbert Simon: “We read Herb Simon in class, particularly his early books and articles on government, administration, and the public good.” Looking for a field of application, water having been excluded by the young PhD graduate, who was ready for a different subject, they chose the police. This was to determine her research agenda for the next 15 years. But it also laid the foundation to return refreshed, confidently and analytically well equipped to the subject of water and various other common pool resources some 20 years later.

In the PSI framework, government and its delivery structures consisted of an interdependent, market-like network of users, providers, and producers of public goods and services, large parts of which were critically dependent for their successful performance on the coproduction and cogovernance of citizens, neighborhoods, and societal organizations, as well as on governments among themselves. Although these concepts are commonly used today, they opened a completely new perspective on government service delivery in the early 1970s and 1980s (Parks et al. 1981). “Such a system may have large numbers of autonomous units of government with substantial degrees of overlap among multiple levels of government. Many private enterprises and voluntary associations may function as integral parts of such a public service economy. Substantial separation of powers within each unit of government may exist in which all decision-makers are constrained by enforceable legal or constitutional limits upon their authority. Each citizen participates in multiple consumption units organized around diverse communities of interest through overlapping levels of government and served by an array of different public and private production units supplying any particular bundle of public goods and services. Each citizen, in such circumstances, is served not by ‘the’ government, but by a variety of different public service industries” (Ostrom and Ostrom 1977, 10).

In an era of e-government and online service delivery, this vision of responsive, dedicated governance or customized government may resonate fairly well. But the words were written at a time when central planning, program-planning-budgeting systems, and the rationalization, simplification, and streamlining of administrative systems were considered by many the key to eliminating fragmentation, overlap, and redundancy. The institutional features stressed by the Ostroms were generally considered signs of waste and inefficiency rather than potential for responsiveness and resilience in the public sector. In advocating the concept of a PSI system, the Ostroms and their associates were going directly against a powerful current that identified robust government as centralized and consolidated. They theoretically stressed the potential value of institutional fragmentation and did this full force. The way in which the PSI framework was developed still provides a rare display of a research methodology textbook in full action in order to make social science more scientific (Taagepera 2008): a fundamental vision of polycentric metropolitan government (Ostrom, Tiebout, and Warren 1961), presented as an alternative to dual or consolidated structures

(Bish and Ostrom 1973; Ostrom and Ostrom 1971), developed in a set of rivaling hypothesis (E. Ostrom 1972), undergirded by a relatively simple but strong conceptual framework (Ostrom and Ostrom 1977), systematically developed into indicators of structure (Ostrom, Parks, and Whitaker 1974), that can be related to and tested against multiple indicators of outcome and performance (E. Ostrom 1977), amounting to rounded-off conclusions (E. Ostrom 1976; Parks 1985). Lin: “It is important to me that research consists of a well-developed theory, a tested, accurate instrument, and good, tight measurements.”

Vincent developed their alternative version of responsive government and democratic administration, a concept taken from Alexis de Tocqueville and “contrasted to the patterns of bureaucratic administration found in France” (V. Ostrom [1973] 2008a, 72), into a fully fledged criticism in *The Intellectual Crisis in American Public Administration*. This work was an elaborated series of master classes that built on Vincent’s constitutional orientation on the *Federalist Papers* and Elinor’s and other scholars’ operational field research experience in metropolitan areas. It used the emerging field of theory and research—the new political economy that was soon to become the public choice approach—to provide a contemporary formulation of the constitutional theory of Alexander Hamilton and James Madison. This approach was also meant to illustrate that the PSI version of concurrent administration actually fit better in the U.S. administrative tradition than did the mainstream belief in consolidated government. In the European context, the book became an instant classic among students of modern American public administration (Toonen 1983, 1988). The approach proposed by Vincent and subscribed to by Lin offered an orientation away from the formal legal structures of the state, which were still dominant in European administrative science at the time (Lynn 2006, 40). It also provided an alternative vision for the centralized government bureaucracy as the symbol of a growing but increasingly overloaded welfare state.

Crafting Independent Scholarship

Paradoxically, the interdisciplinary nature of the work and writings of Elinor and Vincent Ostrom, as well as their eagerness to incorporate new theoretical and methodological developments that were not always immediately incorporated into mainstream public administration and to abandon them if these developments went in a less productive direction, contributed to a somewhat distant and at times strained relationship with American public administration as an institutional field of teaching and research. This type of strained relationship would happen again later, albeit somewhat differently, with the Public Choice Society. In the United States, *The Intellectual Crisis* marked the beginning of a period in which the Ostroms were estranged from large parts of the establishment of the public administration discipline.

The criticism of the consolidation and amalgamation movement in metropolitan areas was based on empirical grounds and showed that policy beliefs did not necessarily reflect reality. The research project was highly visible, at one point comparing 80 metropolitan areas. The research showed that many presumptions about the economies of scale and the lack of central coordination were false. Lin: “On the whole, polycentric arrangements with small, medium, and large departmental systems generally outperformed cities that had only one or two departments.” In many cases, the consolidation reforms

were supported by liberal political forces and by many traditional public administration researchers searching to improve deteriorated regions and neighborhoods. This gave the no-nonsense research attitude of the Ostroms an inadvertent but sustained ideological undertone. In addition, large parts of the American public administration community seemed to take *The Intellectual Crisis* more or less personally or ignored it as just another book on the identity crisis in American public administration. The emergence of a critical public administration found its summit in the Minnowbrook Conference and in the early 1970s. The Ostroms, however, had little in common with these movements.

Both Lin and Vincent have always been rather relaxed about, if not indifferent to, this development, although it was one of the reasons Vincent launched himself into an intensive project to elaborate his vision on the constitutional foundations of the U.S. federal system first developed in *The Theory of a Compound Republic* (V. Ostrom 1991, [1971] 2008). Initially not always appreciated on its own merits, the publication was honored by the American Political Science Association at the turn of the millennium for its lasting impact on the study of American federalism and intergovernmental relations. The Ostroms merely observe that the title of Vincent’s 1973 contribution to the field of public administration had to be read properly: as a criticism of *American* rather than generic, international, or comparative public administration—that is, critical of the operational practice of American government rather than the institutionalized community of public administration as a discipline. When asked, they still have no strong opinion about public administration other than, in the words of Lin, “the neglect of the citizen.” This is a criticism that public administration shares with the political science. Lin: “Once while waiting at a meeting of the Political Science Association I was asked why I was reading a book on peasants. Political science was about presidents, parties, and Congress.”

The Ostroms (1971) eventually translated their joint venture in the no-name fields of public administration with some highly visible publications into the public choice approach to the study of public administration, which for a while determined their external profile in the academic world of public administration and policy analysis. Vincent: “You cannot test whole industries and you need theoretically grounded models and analytical simplifications for prediction and generalization.” Buchanan and Tullock’s *The Calculus of Consent* (1962), one of the cornerstones in the emerging no-name fields, was important to both Lin and Vincent. For Vincent, it meant the recognition of the importance of the constitutional aspect of collective choices among different goods. Later, he would speak about the constitutional level of analysis as “a forgotten tradition” (V. Ostrom 1982), to be included in any framework for institutional analysis. For Lin, the publication laid the foundation for her venture into game theory experiments in the late 1980s (Ostrom, Gardner, and Walker 1994) and her later interest in the experimental lab testing of cognitive and behavioral models for conflict resolution, social cooperation, trust, and reciprocity (Ostrom and Walker 2003).

Elinor: “A very important event to us was Vincent’s being invited to participate in the Bielefeld Interdisciplinary Project during the academic year 1981–82” (Kaufman, Majone, and Ostrom 1986). This project stimulated the future appetite for interdisciplinary work. It also meant a drastic push toward the internationalization of the

work at the workshop. Today, it is hard to imagine how far apart the worlds of public administration and policy analysis still were—physically, mentally and culturally—on both sides of the Atlantic in the late 1970s. According to the Ostroms, the Bielefeld debates between Vincent and Paul Sabatier on “how to do public administration” indirectly had a lasting influence on their work. This contact was based on mutual respect and connected the PSI approach to another growing body of literature and research at the operational level of government and public administration under the heading of—bottom up and top down—“implementation” (Sabatier 1986). The Bielefeld project thus directly and indirectly linked the Ostroms to hitherto largely unfamiliar European networks of institutional research and scholars involved in bottom-up implementation research. These scholars were struggling with some of the same questions and sometimes meeting the same institutional and academic resistance that the Ostroms had encountered in studying the shop floor of government and public administration (Hanf and Toonen 1985).

Lin was only there for part of the time, but she did get to meet the later Nobel laureate Reinhart Selten. He invited her back and, upon returning to Europe, Lin ended up taking classes in math and the use of experimental methods of empirical research in relation to game theory. This strengthened the methodological foundation of much of the advanced experimental and game theoretical lab testing and modeling that occurred later. At the time, she had already started her research on common pool resources. She had already used game theory—with the prisoner’s dilemma game as the icon—and, as a dedicated member of the Public Choice Society, she was, of course, familiar with Mancur Olson’s highly influential *Logic of Collective Action* (1965) and Garrett Hardin’s “Tragedy of the Commons” (1968). The latter has come to be regarded as a classic essay on environmental and nature conservation policy (Kennedy 2003).

Given certain conditions, the prisoner’s dilemma would predict a perverse outcome of joint decision-making efforts. Olson’s logic led to the prediction of inaction unless force, external sanctions, or selective incentives were introduced. Hardin drew attention to the tragedy of the commons: the natural resources that belong to everyone and consequently to no one. Common pool resources are accessible to many users. The valuable yields can be harvested at marginal rather than actual personal costs. The demand exceeds the supply. Overtaxing and overusing would ruin and undermine those natural resources considered to belong to the common pool—air, clean water, forests, the marine fish stock, inland lakes, irrigation systems, grasslands, natural reserves, wetlands, marine environments, river basins, and so on.

Lin: “Olson, PDG, the ‘Tragedy,’ they all said it could not work, but from my work with the CPR community I saw many cases and practical examples in which it did work. I saw self-organization in all parts of the world. Some researchers, for example Putnam (1993), point at social capital but do not use or provide a theory on how trust and reciprocity develops. Hardin can be tested. We confronted

the assumptions with survey research in the field and experiments in the lab. I got interested in the underlying rules, conditions, and design principles that induced self-organization in managing natural common property resources and how they *evolved* in interaction to one another. In order to study all of this, we had to deal with a maddening diversity. Vincent, who had worked with Ross Ashby at the Palo Alto Center for Advanced Studies in the Behavioral Sciences in California where Vincent was an invited fellow in 1955, was convinced about the need for requisite variety. Through Vincent I had become acquainted with the work of de Tocqueville, which helped in understanding the need to confront complexity in social organization. It was mind-boggling. At one point Doug North invited me to Harvard. After the lecture he suggested I put my ideas on CPR management together in a book. In short, this resulted in *Governing the Commons*, my first effort to make a beginning. It went totally against the Public Choice doctrine to keep it elegant and simple. We became devoted to understanding institutional diversity and allowing for complexity where needed” (Ashby 1956, 1962).

Institutional Variety: No Panaceas

The effort to understand institutional diversity amounted to the extended formulation of an elaborate approach: the institutional analysis and development (AID) framework (E. Ostrom 2005). This

The effort to understand institutional diversity amounted to the extended formulation of an elaborate approach: the institutional analysis and development (AID) framework. . . . This framework for analyzing and formulating design principles for robust resource governance in polycentric institutions builds further on earlier efforts.

framework for analyzing and formulating design principles for robust resource governance in polycentric institutions builds further on earlier efforts. It is a conceptually strongly elaborated, researched, and empirically grounded extension of the early effort with Larry Kiser to integrate various disciplinary approaches into the three worlds of action, as described in the publication of the same name (Kiser and Ostrom 1982): operational, collective choice, and constitutional action. These coexist as “holons,” nested systems that are systems in themselves but, at the same time, subsystems of larger systems without which they could not survive, and vice versa. The central topics of long-term Ostrom research return at various entries in the AID framework. For example, the insight that govern-

ance structures are related to physical circumstance is stressed in the need to pay attention to the physical nature of goods. The central role of citizens as coproducers of policy is translated into attributes of the relevant community and their institutional rules in use—jurisprudence rather than bureaucratic legislation—when communities themselves try to solve problems related to their environment.

More practical and applied publications stress potential policy consequences in dealing with the tragedy of the commons, and conclusions are mixed. The depletion of natural resources and common pool resources is not an unavoidable mechanical process. There is room to develop a view and to create choices. The human–environment interaction, which is part of the commons problem, is open to reflection and deliberation and can be influenced and changed. To a certain extent, the future of the commons is makeable, and the structure of how decision making is organized plays a crucial and strategic role. “The result is often not the tragedy described by Hardin but what McCay . . . has described as a ‘comedy’—a drama

for certain, but one with a happy ending. Three decades of empirical research have revealed many rich and complicated histories of commons management. Sometimes these histories tell of Hardin's tragedy. Sometimes the outcome is more like McCay's comedy. Often the results are somewhere in between, filled with ambiguity. But drama is always there" (Dietz et al. 2002, 3–4).

Socio-Ecological Systems

Elinor, in collaboration with many others, more recently developed the Ostroms' joint interest in the human capacity, willingness, and capability for self-organization into a general framework of analyzing the sustainability of socio-ecological systems (SES). "Without a framework to organize relevant variables identified in theories and empirical research, isolated knowledge acquired from studies of diverse resource systems in different countries by bio-physical and social scientists is not likely to accumulate. A framework is thus useful in providing a common set of potentially relevant variables and their subcomponents to use in the design of data collection instruments, the conduct of fieldwork, and the analysis of findings about the sustainability of complex SESs" (E. Ostrom 2009, 420).

The SES framework is certainly not the first one that Lin crafted and developed in her academic career. To put it differently, like the research on common pool resources, the SES framework is based on the experience, findings and conclusions of a lifetime career of theory-driven but radically empirical research, not only in the environmental domain. The SES framework is intended to contribute to the integrated study of the interplay of ecological, technological, social, economic, and political factors as strategic components of modern, globally perceived ecosystems. The general SES framework is an application of the AID framework with a more prominent place for the ecologists. The question is when the users of a resource will invest time and energy to avert a tragedy of the commons. The general framework is to identify 10 subsystem variables that affect the likelihood of self-organization in efforts to achieve sustainable socio-ecological systems (Anderies, Janssen, and Ostrom, 2004).

The SES framework reflects the long-term and fundamentally interdisciplinary orientation of the Ostroms. The actions of people are not external, but are endogenous to the development of ecosystems. It is the mutual interaction between person and environment that contributes to the exhaustion or preservation of natural resources. The social embeddedness of natural and artificial—technological—resource systems is key to the understanding of their operation and impact on earth system development and governance. Socio-ecological systems are conceived by the Ostroms as compound, nested, and multilayered structures of man-made and natural resources and resource systems. The interaction of those resource systems with man's behavior as subjects, users, and governors of these systems and resources, as well as the sanctions and incentives embedded in the governance systems that rule and regulate these interactions, determine, in a strongly contingent and contextual fashion, the outcome in terms of exhaustion, preservation, or resilience. Governance systems in the SES framework are typically conceived of as networks of governmental and nongovernmental organizations and related associations (Janssen and Ostrom 2006). "A core challenge in diagnosing why some SESs are sustainable whereas others collapse is the identification and analysis of relationships among multiple levels of these complex systems at different spatial and temporal scales.

Understanding a complex whole requires knowledge about specific variables and how their component parts are related. Thus we must learn how to dissect and harness complexity rather than eliminate it from such systems" (E. Ostrom 2009, 420).

This introduction to her contribution to the special section of *Pushing Networks to the Limit* in the summer 2009 issue of *Science* neatly sums up the scientific topics and analytical concerns that have been central to her work since she got her start on the faculty at Indiana University in 1965 as a visiting assistant professor, teaching American government at 7:30 in the morning on Tuesday, Thursday, and Saturday. For those long acquainted with the Ostroms' work, research, and intellectual development, the echo and imprint of Vincent's consolidated message and repeated mantras for doing institutional research and for the applied policy consequences sound through loud and clear.

Research as a Collaborative Enterprise

For Elinor Ostrom, self-governance is not something only to be academically preached. She practices academic governance in her daily environment. She has established and codirected various advanced graduate training and research institutions. At various points in time, she has been chair and acting chair of her Indiana University political science faculty. Since 1982, she has served on the executive council of the Public Choice Society; as president (1982–84), she set out "An Agenda for the Study of Institutions" (1986). She was vice president of the American Political Science Association (APSA) from 1975 to 1976, president of the Midwest Political Science Association from 1982 to 1984, and president of APSA from 1996 to 1997. Many of these appointments have to be interpreted as tokens of appreciation for and recognition of her standing in the respective academic communities. Her impact in traditional public administration and political science is still considerable, as shown, for example, by the European debate on multilevel governance. Yet chances are that the current, younger generation of academic researchers and scholars around the world will directly or indirectly associate Elinor Ostrom with a different background. The International Association for the Study of Common Property was founded in 1989. Elinor was president in 1990–91 and has been a caring and active member ever since. The association is devoted to bringing together interdisciplinary researchers, practitioners, and policy makers for the purpose of fostering a better understanding, improvements, and sustainable solutions for environmental, electronic, and any other type of shared resource that is a commons or a common pool resource. In addition to her traditional fields, Elinor Ostrom has become a visible social science scholar in the area of environmental sciences, biology, and life and earth sciences.

To Elinor and Vincent Ostrom, research is not an individual enterprise but a collaborative industry. It is remarkable to see that such an immensely productive, renowned, and internationally acclaimed researcher as Elinor Ostrom has not shied away from administrative duties during her long career. Nor did she shy away from the professional executive responsibilities that come with success in academia. She joined Vincent in taking responsibility for building up and governing a research network and infrastructure with a strong and stimulating intellectual climate at the workshop from which many of her associates, collaborators, visitors, and graduate students would benefit. The workshop is a long-term model for

a contemporary, interdisciplinary graduate school. When asked about the key to her success, Lin first points to the workshop as an important tool and infrastructure that she could not have done without. It also kept her in Indiana despite attractive offers from Harvard and other renowned research centers. "The infrastructure here is so important to everything I want to do. I just couldn't walk away from it," she publicly confided to a relieved Indiana University official some time ago (IU 2002, 10). In addition to a game lab and secretarial and modern documentation facilities, it is particularly the social network infrastructure of researchers and graduate students she is referring to. The workshop has developed into something of a value-based institution itself.

The creation of the workshop in 1973 was not merely a coincidence or an outgrowth or by-product of a fruitful research enterprise. Lin: "We have always strongly believed in interdisciplinary and cooperative networks and person-to-person interaction in crafting and in conducting training, research, and education in an integrated fashion." She refers to an early statement of Vincent's, one to which Vincent still strongly adheres. It is in the same editorial comment he made as editor-in-chief of *PAR* when referencing the no-name fields of public administration. Long before the concepts of a knowledge economy, a knowledge-based society, or a knowledge democracy were to become part and parcel of the common language in contemporary research and development and higher education development, Vincent wrote, "Knowledge is [to be] viewed as a product, and the various agencies concerned with its production and distribution are viewed as a part of the knowledge industry . . . which includes such components as education, research and development, media of communication, information machines, and information services. This approach permits a new mode of attack upon familiar problems of public management and intergovernmental relations and promises to contribute to a better understanding both of the American public enterprise system and the opportunities for public entrepreneurship in American society . . . [T]he task of keeping in touch with new developments in established fields of inquiry or in unnamed fields which have not coalesced sufficiently to be identified as distinct areas of inquiry and intellectual interest is perhaps one of the more difficult problems confronting a professional association concerned with the production and distribution of knowledge relevant to its practice" (V. Ostrom 1964, 62). It was his rationale for extending the editorial board of *PAR* at the time with new editorial associates. But it also provided the basic idea behind setting up the workshop as a collaborative research infrastructure and community once the occasion arose.

In the course of the 1990s, the workshop grew into a globalized meeting place of people from many different disciplines—economics, political science, law, environmental policy, anthropology, psychology, public administration, methodology, and even from across the great divide between natural and social sciences—and from literally all regions of the world (Jagger 2004). Vincent had a background as a high school teacher. In Lin, he found a willing and able ally to stress the critical importance of teaching. Asking what

the problem is became a basic orientation of the workshop. Lin continues, "We have never been mainstream in our attention. Now there is gradually more acceptance of interdisciplinary research. We developed our own pedagogical methodology to accompany the mission of research. A civic education: how do we teach students not to dismiss publications from other disciplines? We've come to use mini-conferences as a tool to bridge variety. First present the position and understanding of the other, then reflect and criticize. We have always invested in close feedback, in writing papers, writing responses, relating papers to the main theme of a seminar, stressing the importance of student memos, and encouraging students to be contributors. Over time we have had excellent students. We have benefited a lot from them."

Conclusion

In addition to the common pool resource and socio-ecological system approaches to the study of environmental policy and adaptive governance in climate adaptation, the concept of polycentricity has found its way into European urban studies and spatial planning theory (Faludi 2008; Herrschel and Newman 2002; Metrex 2007). The Type 1 and Type 2 versions of European multilevel governance distinguished by Lisbet Hooghe and Gary Marks (2003) acknowledge and are directly derived from the "two traditions" that Elinor and Vincent Ostrom once distinguished in their behavioral approach to the study of intergovernmental relations. If, in the modern European context, the Westphalian understanding of regional or local autonomy is either no longer valid or of limited operational meaning "in an emerging polycentric order without an overarching source of jurisdictional authority" (Skelcher 2005, 95), the PSI and democratic government approach and the debates it triggered in the United States on metropolitan and intergovernmental systems management are highly relevant. They are most likely a fruitful source of inspiration and comparative modeling in an obvious and important field of transatlantic comparative research in a steadily globalizing public administration (Toonen, forthcoming).

Together with other work by [the Ostroms] dating from that time, *The Intellectual Crisis* may be seen as a trailblazer for the later governance turn in European public administration. The Ostroms would actively contribute to this development, which took shape in the course of the 1980s.

Together with other work by Lin and Vincent dating from that time, *The Intellectual Crisis* may be seen as a trailblazer for the later governance turn in European public administration. The Ostroms would actively contribute to this development, which took shape in the course of the 1980s. On the waves of an emerging European integration in the 1990s, in which the former sovereign and monopolistic nation-state was being replaced as the dominant administrative structure to pave the way for a more European-wide administrative space, the governance concept surfed to a broad and increasingly undifferentiated

network approach. In its broadness and procedural orientation, the network approach in its current fashion has probably become too generic—if not too postmodern—for the Ostroms to handle. The development as such makes it relatively easy to relate, incorporate, and adopt their joint work on nonmarket or nongovernmental self-governance and common pool resource management into the core of European public administration studies and policy sciences—easier perhaps than in the more managerial U.S. setting. But from their work it also follows that public and constitutional law, the question

of legitimacy and checks and balances, and rule-ordered relationships should not be too easily dismissed or neglected. And last but not least, they would say, bring the citizen back in as an agent of reform and transformation.

Under the impact of the debate on globalization, global warming, the energy crisis, and climate change, various disciplines are currently blending together in a distinct movement toward the emergence of something like a climate or earth governance science, in which the field of public administration is still frightfully absent in many respects. This leaves the current debate wide open to the governance ideas of natural scientists, biologists, meteorologists, engineers, economists, environmental policy scientists, or the established international politics and international law specialists, who are most likely to turn out a rather technical, process-oriented, and instrumental version that omits the hardware of governmental legitimization: the institutional side of governance. Elinor Ostrom is one of the few high-profile, interdisciplinary social scientists participating in this domain. Although not a self-perceived public administration agent, she has clearly been working from an academic background and intellectual tradition that, particularly through her long-term collaboration with Vincent Ostrom, is strongly rooted in the classical institutional concerns and types of organization, policy, governance, and (public) management questions that may be seen as the core of public administration as an academic field of education and research. The Ostroms' work provides the field of public administration with various clues on how to effectively tie institutional, value-based concerns and democratic considerations to the study of the major concerns of today's globalized world. Indeed, "the natural, ecological, technological, and social sciences have developed independently and do not combine easily" (E. Ostrom 2009, 419). In the tradition of exploring Vincent Ostrom's no-name fields of public administration, it is only logical that Elinor Ostrom has set a powerful example of how to go "beyond panaceas" (Ostrom, Janssen, and Anderies 2007)—in academia and research.

Acknowledgments

For a large part of 1984, I was an invited fellow at the Workshop of Political Theory and Policy Analysis. As a distant, benevolent European observer, I have been a longtime personal witness of and participant in the professional activities of Vincent and Elinor Ostrom, as well as a willing recipient of the inspiration and discourse generated by the intellectual spin-off of their vast scientific oeuvre and academic institution building. For this review, I had two lengthy interviews with Elinor and Vincent Ostrom at their home on the outskirts of Bloomington, Indiana, in the summer of 2008 and one follow-up conversation with Elinor in Stockholm in the spring of 2009. The excellent staff of the workshop provided biographies and background readings. Subsequently, I reread various books, texts, and articles by and about a long-term collaborative and very productive research duo. The Nobel Prize Committee in 2009 took all of us by surprise, but this merely required a few editorial adaptations of a text that was nearly completed. The Ostrom story already stood by and of itself.

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