Costs and Challenges of Polycentric Governance: An Equilibrium Concept and Examples from U.S. Health Care

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Prepared for presentation at
Conference on Self-Governance, Polycentricity, and Development,
Renmin University of China, Beijing,
May 8, 2011

Revised May 2, 2011
Working Paper W11-3, The Vincent and Elinor Ostrom Workshop in Political Theory and Policy Analysis, Indiana University, Bloomington, http://php.indiana.edu/~mcginnis/Beijing_core.pdf, Available at SSRN: http://ssrn.com/abstract=2206980 or http://dx.doi.org/10.2139/ssrn.2206980

Abstract

The inherent complexity of polycentric systems of governance brings both benefits and costs. Institutional diversity facilitates collective action by diverse groups within a community, but at the cost of losing any clear sense of the responsibilities and accountability of public officials. Such systems are built up piece by piece over long periods of time, making it difficult to use analytical tools of political economy based on equilibrium concepts. This paper introduces an S-core equilibrium concept, based on the minimal costs of transactions (S, for subsidiarity costs) involved in the establishment of new formal organizations or informal mechanisms for collective action by specific groups. After surveying the factors affecting the relative costs and benefits of expanding existing arenas for collective action, this paper concludes with a brief overview of collaborative structures found in the U.S. healthcare system. This is definitely a complex, polycentric system, but one which too often lacks effective mechanisms for collective action at the community level.

Communities craft complex networks of institutions, both on their own and in the process of interacting with other communities. Bottom-up governance institutions are typically characterized by a shared sense of legitimacy, high levels of community participation, effective use of local information, and potential robustness in the face of ever-changing challenges. Top-down institutional initiatives complement community-based initiatives by facilitating the application of sufficient resources to address larger-scale policy issues and by enabling redistribution across communities in order to minimize the negative consequences of structural inequalities.

Both bottom-up and top-down initiatives are critical in the formation and sustainability of any polycentric system of governance. Elsewhere (McGinnis 2011) I define polycentricity as "a system of governance in which authorities from overlapping jurisdictions (or centers of authority) interact to determine the conditions under which these authorities, as well as the citizens subject to these jurisdictional units, are authorized to act as well as the constraints put upon their activities for public purposes." Among these jurisdictions will be ones organized at multiple levels (local, provincial, national, regional, global) and both the general purpose nested jurisdictions of traditional federalism and specialized, cross-jurisdictional political units (such as special districts).[1] Among the tasks assigned to different units of a polycentric system are production (of public goods and services), provision (selection of the public goods and services to be enjoyed by different groups), financing, coordination, monitoring, sanctioning, and dispute resolution. To carry out these tasks, public officials will typically engage in regularized and extensive relationships with each other, with constituency groups, and with the agents of private, voluntary, community-based and hybrid kinds of organizations. No analysis of the formation or consequences of public policy can be complete without careful consideration of the effects of non-market and non-governmental organizations and processes.

The term "polycentric political system" was introduced to the literature on governance systems in a classic article by Ostrom, Tiebout, and Warren (1961: 831). The basic idea is that any group of individuals facing some collective problem should be able to address that problem in whatever way they best see fit. To do so they might work through the existing system of public authorities, or they may establish a new governance unit that would impose taxes on

members of that group in order to achieve some common purpose, including monitoring and sanctioning of individual contributions.

Polycentric governance has been a consistent theme running throughout the research programs conducted by scholars associated with the Workshop in Political Theory and Policy Analysis over the last few decades (Ostrom 2010; McGinnis 1999a,b, 2000, Jagger et al 2009). Since this Workshop was established in 1973 at the Bloomington campus of Indiana University, some have attached the label of Bloomington School to this ever-expanding network of researchers (Mitchell, 1998, Aligica and Boetkke 2009, 2011). As the current Director of this Workshop, I prefer the term "Ostrom Workshop," as this term highlights the critical contributions made by Vincent and Elinor (Lin) Ostrom throughout the development of this body of work (McGinnis and Walker 2010).

One of the fundamental assumptions shared by all associated with the Ostrom Workshop is the normative attractions of polycentricity as a foundation for both liberty and good governance. As a consequence, there has been little consideration of the costs of polycentricity, as such. Yet, self-governance requires that individuals be willing to expend considerable amounts of time and energy in seeking out a commonly acceptable solution and participating, in some fashion, in its implementation. Nor have we been self-conscious in providing a clear statement of precisely what polycentricity means, and how we might measure it empirically. Instead, the tendency has been to contrast a multi-centered governance order with a monocentric system, based on the Hobbesian "ideal" of unitary sovereignty. Of course, even Hobbes allowed for the possible existence of multiple units of government, provided that it was clear where the ultimate source of authority lay. So it's not just a measure of the number of governance units, but rather the fundamental logic by which these units interact.

Ostrom, Tiebout, and Warren (1961) used the governance of metropolitan areas in the United States as the exemplar of a polycentric system of governance, but there is nothing uniquely American about the concept of polycentric governance, nor its problems. The Holy Roman Empire may be taken as an exemplification of the complex social order that characterized medieval Europe. Berman (1983) stresses the complementary interactions among the legal orders formulated through the evolving practices of ecclesiastics, merchants, city-dwellers, lawyers and legal scholars, and the nobility of each European nation. This system certainly had its drawbacks,

especially in the slow development and implementation of new scientific knowledge and technological advances.

Ultimately, the Holy Roman Empire fell as a victim of the military power and administrative capacity of the centralized nation-state, which came to dominate first the European scene and later the world as a whole. This Westphalian system of sovereign states still dominates scholarly understanding, even though it remains an incomplete set of categories when confronted with the many diverse forms of shared sovereignty found in the modern world (McGinnis 2008). The Westphalian system stands as the antithesis of polycentricity, since in it state authorities assert control over all aspects of public policy. In reality, of course, nation-states have never completely dominated either domestic or international affairs.

For example, alongside an anemic law of nations that did not contribute much to the control of the policies of national governments grew a remarkably effective system of private international law. Originally grounded in the merchant law developed in medieval cities, this system continues in effect today, through the extensive efforts of private corporations and associations specializing in international business arbitration (Dezalay and Garth, 1996).

A system of governance is *fully polycentric* if it facilitates creative problem-solving at all levels of aggregation. I argue that protecting the rights of groups to self-organize and the resulting patterns of institutional diversity should be considered laudable goals for government policy. Their success at doing so should be as measurable as their success at achieving any of the myriad other goals of public policy.

This paper outlines a framework for the comparative evaluation of the costs and benefits of different levels of polycentricity. Such systems are built up piece by piece over long periods of time, making it difficult to use analytical tools of political economy based on equilibrium concepts. I introduce an S-core equilibrium concept, based on the minimal costs of transactions (S, for subsidiarity costs) involved in the establishment of new formal organizations or informal mechanisms for collective action by specific groups. After surveying the factors affecting the relative costs and benefits of expanding existing arenas for collective action, this paper concludes with a brief overview of collaborative structures found in the U.S. healthcare system. This is definitely a complex, polycentric system, but one which too often lacks effective mechanisms for collective action at the community level.

Governance Costs in a Polycentric Equilibrium

The normative basis of polycentric self-governance is the belief that any group of individuals facing a collective problem should be able to address that problem in whatever way they best see fit. Dewey (1927) famously defined a *public* in terms of the range of individuals affected by a particular policy problem. For our purposes, it is useful to conceptualize a collection of individuals facing a common policy problem as a *subset* of the overall set of individuals residing in that community. We are concerned with understanding the institutional resources available to each public or subset as they confront their shared condition.

Groups pursuing a shared interest may do so by establishing a formal organization for that purpose, or they may draw upon informal procedures or shared perceptions. As I use it, the term institution encompasses both formal organizations and informal practices. (Ostrom 2005: 3) offers a succinct definition of institutions as "prescriptions that humans use to organize all forms of repetitive and structured interactions."

In any area of public policy, many different organizations and institutions are likely to be available for use by participants in policymaking and/or by those affected by policy outcomes. Ostrom and Ostrom (1977) introduced the term "public service industry" to denote the complex network of inter-linked public, private, and voluntary organizations at multiple scales that are mutually engaged in an identifiable area of public policy. Organizations in a public service industry sector produce, provide/select, distribute, finance, and manage all public goods and services that are relevant to that policy area, and informal practices and expectations can facilitate or counteract the smooth operation of these formal processes.

Since public goods/services and toll goods are consumed or experienced by some group as a whole, this group can be treated as a "collective consumption unit" or CCU. Ostrom, Tiebout and Warren (1961) introduced the term provision to denote the processes through which the bundle (configuration) of public goods-services for a collective consumption unit is selected and financed. Provision decisions are typically made by elected or appointed agents, although members of that consumption unit may participate directly in these decision processes. Ultimately, however, provision decisions are binding on all members of that CCU, precisely because of the public nature of their consumption. Finally, financing may take form of complex combinations of taxes, user fees, and transfers from other organizations.

When it comes to the actual production of public goods or services, there is no reason to presume that this needs to be accomplished by the same organization that makes these provision decisions. As Ostrom, Tiebout, and Warren argue, different public goods can be most efficiently produced at different scales of organization, ranging from fire protection to national defense. In a polycentric order, communities can organize the production of different kinds of public goods at different scales of aggregation. In different circumstances, agents of a provision unit may contract with private firms, non-profit organizations, or other political entities of a larger or smaller scale to implement the actual process of production.

Other critical governance tasks include rule-making, coordination, monitoring, and dispute resolution. Given the importance now attached to outsourcing, public managers must lead through their skills at coordinating network interactions (see Goldsmith and Eggers 2004). New public management and network governance have become prominent topics in the literature on public administration, but, frankly, all of this had already been observed by Ostrom, Tiebout, and Warren back in 1961.

For this analysis I introduce the term **governance architecture** to refer to network governance at a higher level of abstraction. The architecture of governance includes all of the public, private, voluntary, and community organizations interacting in the determination and implementation of public policy. In other words, a governance architecture establishes connections between collective consumption units as subsets of the population and specific units of governance (provision, production, financing, coordination, etc.). Polycentricity can then be conceptualized as an attribute of governance architectures, which vary on the extent to which they realize this property of organized complexity.

Typically, governance architectures include instances of both Type I and Type II institutions, as defined by Hooghe and Marks (2001, 2003). Type I is exemplified by a federal arrangement, in which multi-purpose governance units have been established for non-overlapping jurisdictions at each of a few levels (local, district, national, international), with jurisdictions at one level being neatly nested within a jurisdiction at the next higher level.[2] In mathematical set theory, a *partition* of a set is defined as a collection of subsets such that each member of the original set belongs to exactly one of these subsets. Type I jurisdictions comprise a primary governance architecture that defines a structure of nested partitions upon the collection of individual subjects.

Type II encompasses specialized and often cross-border arrangements. They fill in the cracks that tend to open up along the borders of Type I units. Specifically, type II units emerge along "the public/private frontier" and "the national/international frontier." For example, since administrative boundaries rarely coincide with natural watersheds, the management of water resources frequently requires the establishment of Type II cross-jurisdictional units. Among specialized functional units are professional associations that set standards of good conduct for their members and private-public partnerships in particular areas of welfare policy.

The particular organizations of both types that co-exist in any given governance system are determined by the structure of interactions among the members of that society. Groups that are likely to repeatedly face similar problems are more likely to be willing to expend the costs needed to design, establish, and maintain a common organization. Type I organizations are particularly noticeable because of the frequency with which humans interact with their neighbors in a geographical sense, whereas Type II organizations reflect frequent interactions with those who share a common interest or expertise.

Once established, institutions for collective action shape subsequent patterns of interaction, precisely because they make it easier for some groups to interact with each other, while simultaneously erecting barriers (in a comparative sense) between those who do not share common access to such opportunities.

Governance architectures in general, and policy networks in specific policy sectors, locate both Type I and Type II public authorities within a broader, cross-sector context by maintaining contacts among organizations from all sectors of the public economy.

A society's existing set of governance institutions can be seen as a resource that is available for the use of its members. For example, whenever some dispute or shared problem arises that the primary parties are unable to resolve by themselves, the parties may then refer that dispute to a broader organization to which they all belong.

The widely-recognized normative principle of *subsidiarity* suggests that any dispute involving k individuals should be resolved by officials of the governance unit corresponding to the smallest subset that contains all of the affected parties. If the parties share a professional connection, they are likely to refer their dispute to some shared Type II institutions, but most complex problems end up in the laps of the agents of Type I institutions.

Some policy problems, however, are likely to evoke affected public subsets that cannot be directly related to an existing governance unit of either type. In a polycentric system, that subset of citizens enjoys the opportunity to devise its own institutional mechanism by establishing a new unit of governance. Typically, these will be specialized Type II units, but new general-purpose units can be established in some circumstances.[3]

Each new governance unit comes at a cost in terms of the transactions required to design, establish, and maintain that organization, as well as coordinating, as necessary, its decisions with those of other units, and resolving the disputes that inevitably arise.[4] Groups that are likely to repeatedly face similar problems are more likely to be willing to expend these costs. If it is possible to use the services provided by some existing organization to help them resolve a particular problem, then a group will not have much of an incentive to develop a new, specially designed set of institutional procedures.

Institutions are enduring artifacts. Once established, they can be maintained at a lower cost than would be involved in creating them anew, since any new organization would also entail the expenditure of maintenance effort. Governance institutions that have been previously established may remain available for use at a later time, and may be used by groups who were not directly responsible for paying the initial costs of set-up or of subsequent maintenance (McGinnis 1999c). Those sets of institutional procedures that are used frequently will tend to persist over time, whereas those that are not well-used will tend to atrophy. In this way is a society's political culture built up and sustained over time.

Since collective action is costly (in time, effort, resources), its success can be facilitated by public entrepreneurs who propose a "project" for a particular group: direct action, lobbying, self-regulation, management, etc. At least four distinct types of costs are involved in such efforts: start-up costs, negotiation/coordination costs, operational/implementation costs, and the costs of monitoring and dispute resolution.

Groups vary in the costs associated with collective action. Smaller, more homogeneous, more concentrated groups, with more effective leaders, face lower coordination costs, ceteris paribus (Ostrom 2007). The classic work of Mancur Olson (1965) demonstrated a bias in favor of groups of small size, but Ostrom (2007) shows that larger groups with homogeneous interests may find it easier to cooperate than a small heterogeneous group, for example. Similarly, homogeneity of interest makes cooperation easier, in most circumstances, but this effect can be

overwhelmed by other factors. Ties of communication, shared normative expectations and access to common rule systems, and other factors are all relevant.

Given these differences in the inherent propensity towards cooperation of groups of different sizes and composition, there is a pronounced inequality in the levels of social capital available to different groups.

Differences among groups' access to collective action can be represented formally by associating each subset of the population with a cumulative level of two kinds of transaction costs: (1) the start-up cost of establishing a new unit of shared governance unit and (2) the operational costs of bringing a dispute to the attention of agents responsible for making decisions within that unit. Those subsets whose population comports with the membership of an established unit of governance, of either the Type I or II variety, will be assigned a zero value for the first component, but there may still be substantial costs in getting the attention of the agents of that governance unit. These second costs are likely to be especially high in large jurisdictions. Conversely, subsets that do not correspond to a governance unit typically face higher transaction costs in the negotiation and implementation of coordinated responses.

In this baseline condition, groups advantaged by any of the factors that facilitate collective action will be more likely to be able to cooperate for joint action. In particular, advantaged groups will be better able pass the costs of their own collective action onto other groups. These victim groups will be unable to respond because of the greater difficulty they have in coordinating their own actions. Of course, their own victimization may generate an increased realization of the potential benefits of their cooperation, which may inspire them to greater efforts. In equilibrium, those groups able to exploit others will do so, those groups able to resist will also do, and still other groups will remain latent and unmobilized.

Public policy shapes these cost differentials in ways that can either minimize or aggravate these inequities. Since all political institutions have unequal distributional consequences (Knight 1992), the governance architecture currently in place will modify the differential advantages available to different groups. In particular, some groups will be especially well-placed to make use of the coercive capacity of public authorities to shift costs onto other victim groups.

This tendency of groups to use existing institutional opportunities to competitively mobilize in support of their interests generates a highly dynamic system of change and re-negotiation, as new collective entities are formed, old ones dissolve, and new bargains are

arrived at to deal with an unending series of new issues of public policy. If this can be said to be an equilibrium, it is a radically dynamic one with nothing fixed except the underlying complexity of the system as a whole.

Note, however, that a system of polycentric governance does not necessarily generate a "spontaneous order" if that term is taken to imply that the system automatically arrives at a socially optimal equilibrium. A polycentric order can be described as spontaneous in only the very limited sense of not being the result of the actions of a central planner. In all other respects, it is chock full of planners and schemers, private and public entrepreneurs of all types, actively engaged at all levels of aggregation (McGinnis 2005). Furthermore, complexity or the simultaneous existence of multiple actors is not enough to insure polycentricity, as that term has been understood by scholars associated with the Ostrom Workshop. Instead, a certain kind of complexity is required, a kind that sustains the ability of local communities to self-organize to cope with their own problems while still remaining congruent with basic principles of justice.[5]

Towards a Polycentric Core

What does equilibrium entail in a fully polycentric system of governance? Any form of collective action or coordination or creative problem-solving involves the expenditure of time, effort, and other resources. Whenever any group of individuals faces a common problem (or a common opportunity) that gives them a chance to obtain mutually beneficial results, they confront transaction costs of various types before they can realize these joint gains. If the costs of organizing for collective action are low, then more of these collective opportunities for joint gain should be realizable.

If the costs of collectively organizing are kept low for groups of all size and interest configuration, it should be extremely difficult for any one group (A) to pass the costs of their own collective action onto some other group (B). As long as B's costs of collective action are low, group B should be able to effectively resist any effort by A to force B to pay for some benefit desired by the members of group A. In this way, any compulsory externalization of transaction costs should be prohibitively expensive in a polycentric equilibrium. (Of course, members of group B may voluntarily contribute towards the amelioration of A's problems.)

By associating each subset of a population with the minimal level of transaction costs required for that group to solve collective action problems this notion of equilibrium in a governance system can be defined in a manner analogous to the core, a fundamental equilibrium solution concept in economics and game theory. As Hildenbrand (1989: 108) defines it, "The *core* of an economy consists of those states of the economy which no group of agents can 'improve upon'. A group of agents can improve upon a state of the economy if, by using the means available to that group, each member can be made better off." As Myerson (1991: 428) summarizes it, "if a feasible allocation x is not in the core, then there is some coalition S such that the players in S could all do strictly better than in x by cooperating together and dividing the [extra value] among themselves."[6]

In a polycentric core, no subset of individuals finds it worthwhile to establish a new organization to facilitate their collective action. Those subsets composed of individuals likely to interact frequently would, typically, have already established such an organization or institution. Nothing in this solution concept precludes those groups who currently do not consider it worthwhile investing in building a unique organization from doing so in the future, should their circumstances change. But, as an equilibrium concept, this *core of governance* would represent a matching up between the governance architecture and the existing structure of interactions, preference and capability distributions.

If the transaction costs entailed in establishing and maintaining an organization were zero, then each subset would have an associated governance unit. Conditions for such a fully-saturated governance architecture resemble the assumptions made by Coase (1960) in his still-influential thought experiment concerning distribution of property rights when transaction costs are negligible. But this is a preposterously unrealistic outcome, for the number of subsets is immense for even small population sizes.[7] Besides, the costs of transacting collective action are never exactly zero.

For purposes of illustration, let *S* denote the minimal start-up costs for establishing a new governance unit. (Here S is shorthand for the costs of realizing subsidiarity in practice.) In an *S-core*, all public subsets whose members expect that by coordinated action they could obtain an aggregate benefit (or team production externality) of greater than *S* have already formed an organization to facilitate that coordination. As a consequence, no group can reasonably expect to

transfer costs larger than *S* to any potential victim group. For if a group is made to suffer costs greater than *S*, then it would be easily able to establish an effective means of resistance.

In a polycentric system of governance, most groups already have access to a common jurisdiction or they face a low value of S (meaning they can easily coordinate in some other way). In addition, ideally, the value of S would not vary significantly among subsets of the relevant population. In a polycentric S-core equilibrium, no subset of individuals facing potential benefits less than S finds it worthwhile to establish a new organization for collective action.

As a consequence, no group can reasonably expect to transfer costs larger than S to any potential victim group, because that group would then be able to organize in response. A fully-articulated system of polycentric governance would require S=0, a condition that can never be realized in practice. But a low value of S sharply limits structural inequality.

In dynamic settings, new groups constantly form, some of which may act to increase the costs of collective action by their intended victims (Lichbach 1996). Thus, a uniformly low value of S cannot be sustained automatically. Instead, this requires the concerted effort of public authorities and of the citizenry as a whole.

Polycentricity can be sustained only if governing authorities take as one of their primary missions the task of minimizing the costs involved in bringing groups of all sizes and kinds together to resolve their own problems.[8]

Of course, like any criteria facing rational actors, the goal of reducing S or maintaining a low level of S can be pursued only by trading off other values, and these tradeoffs must be kept in mind. As *S* decreases, the aggregate transaction costs for governance in the society as a whole will increase. So does the complexity of the system. The goal of institutional diversity will be served by this end, but citizens risk losing a basic understanding of the very system they inhabit. Thus, public officials must take concerted efforts to alleviate this confusion by insuring easy access to information on diverse forms of institutional arrangements. Much of this responsibility falls upon academic researchers and instructors, who must resist any temptation to simplify their own professional lives by over-simplifying the range of relevant political institutions (see McGinnis 2002). In the next section we move to a brief application of this logic to the policy area of health care in the United States.

Polycentric Governance in U.S. Healthcare

Although policy debates tend to focus on issues located at the national level, it seems obvious to us that healthcare is an intrinsically local affair. Patients typically go to doctors and hospital facilities close to where they live, except for unusual situations requiring the services of highly specialized physicians. Also, healthcare practitioners within a given community interact with each other on a routine basis, and develop and maintain regional cultures of care that differ significantly across the country. To some extent, this diversity reflects the continuing influence of the federal nature of the U.S. political system. For example, responsibility for the regulation of insurance and of healthcare professions tends to be concentrated at the level of state agencies. National programs and medical technology links all regions together into a common system, but the most fundamental interactions critical to this area of public service remain local and intensely personal.

Most importantly, health conditions vary widely across regions. We find especially useful the concept of the **Hospital Referral Regions** introduced by scholars associated with the Dartmouth Atlas project. They have "empirically defined 306 relatively separate, geographically defined Hospital Referral Regions (HRRs), where the resident population receives most of its care." (Nolan 2010). HRRs are defined by examination of the zip codes of patients receiving care at hospitals located in a given community, based on Medicare data. Technically, a region is defined so that the majority of residents in an HRR get the majority of their care at one or more hospitals within that region. Overall, "80% of the US population lives in HRRs in which more than 85% of care is delivered by providers within that HRR." (Nolan 2010). In effect, then, a Hospital Referral Region can be treated as an approximate representation of natural health care markets.

These regions have proven so useful for analysis because of the surprisingly wide range of variation in many measures of healthcare input measures and overall health outcomes (Fisher et al. 2003, Wennberg et al. 2008, Skinner and Fisher 2010). Of course, different regions face a diverse range of challenges set by demographic and economic conditions, and other scholars have pointed to demographic variation as a primary source of this variation (Hines and Joshi 2008, Gottlieb et al. 2010, Abelson and Harris 2010, Skinner and Fisher 2010). This remains a

contentious issue within this field of study, and we take no position in these ongoing debates. Instead, we take this regional variation as a point of departure for our analysis.

Specifically, we presume that it is possible to learn from close examination of those regions which realize the best outcomes, in terms of overall population health, high quality care, lower cost, wider access. This regional approach fits very well with the findings of previous research projects associated with the Ostrom Workshop.

Finding the right scale for the production of different aspects of public services is a critical challenge in any area of public policy. Recent years have seen a significant growth in consolidation of hospital facilities in different communities, with most consolidations remaining within the borders of a single state (because of the continuing importance of state health departments in certifying and inspecting medical facilities, as well as rate financing and reporting). Yet, local organizations continue to play critical roles in health care delivery in all major markets, despite national trends towards consolidation.

It seems clear that these difficult problems are not amenable to solution by direct application of standard market or state-based solutions. National level solutions are difficult in principle because of the wide variability in conditions and outcomes in diverse regional settings. Although maintaining a meaningful range of choice on the part of consumers is critical, health policy is not an area in which we can reasonably expect competitive markets to work their ordinary magic (White 2007). There are several ways in which this particular type of product diverges from situations for which markets are ideally suited.

Market exchange works best for private goods that can be divided and consumed by individuals or households with minimal impact on the consumption of others. It is also easiest if the production and consumption processes can be clearly demarcated, with the exchange of economic resources serving as the critical link between producers and consumers. However, "co-production" is critical to "health," in the sense that only those individuals who are actively involved in changing their own unhealthy patterns of behavior are likely to obtain positive results – health is hardly the kind of product that can be purchased from healthcare professionals. In this sense, health is even more problematic to effectively marketize than post-experience goods.

Markets work most efficiently when both quality and costs can be easily measured, both by producers and by consumers. In the case of healthcare, consumers suffer substantial information asymmetries, especially regarding quality of and need for procedures. Also, the costs

for healthcare are far from transparent. Third-party payers separate consumers from realizing total costs. Uncoordinated billing further mystifies total cost, even service providers may not realize actual cost of procedures. A further complication is that reimbursement rates vary widely depending on insurance plan or its coverage.

Healthcare markets are often said to be characterized by supply-driven demand, especially relating to the overuse of high tech test facilities. In many cases, excessive tests are given in order to protect healthcare providers from malpractice liability concerns. Given the high-tech nature of today's healthcare industry, competition often takes the form of excessive building of high-tech facilities, which may have the perverse tendency of increasing costs. In situations where competitive markets are most appropriate, competition would lower costs rather than helping to raise costs.

Consolidation of health care providers within a given region can result in local monopoly power, and vertical integration across different service sectors may tend to aggravate the perverse effects discussed above. Also, insurance coverage is often determined by factors remote from health care needs (i.e., employment), thus further de-coupling choices regarding insurance coverage and the actual benefits or costs of those packages. Finally, choices regarding one's own healthcare are often intensely emotional and fear-driven, which is hardly the purely rational context typically presumed to characterize efficient market exchange.

Since healthcare problems are not amenable to solution by direct application of standard market or state-based solutions, progress requires strategic consideration of opportunities for institutional innovation at the community level. A complicating factor is that there are not many formal organizations set up to coordinate operations at the level of a HRR. Still, informal coordination can be effective, if sustained by a shared trust among the relevant stakeholders. Many different forms of consolidation have already been tried, (hospital systems, independent physician associations, HMOs, insurance plans, other integrated organizations). Recent innovations include accountable care organizations (ACOs) and patient-centered medical homes (PCMHs).

This level of experimentation by stakeholders provides a range of institutional alternatives from which to build comprehensive networks. In short, there is certainly enough institutional diversity in the healthcare public service industry to warrant this kind of analysis.

Entrepreneurs facing decisions about whether or not to develop a potential project of collective action (with regard to healthcare or any other area of public policy) face a complex array of considerations. One promising mode of analysis draws on recent innovations in the study of "games on networks" (Goyal 2007, Jackson 2008). In this rapidly-growing literature game models are built that incorporate the effects of network or other social ties among game players. In many applications, players are given the opportunity to establish new links or sever an existing one, and analysis focuses on the implications of these choices for the eventual outcome, and especially for the resulting network structure of connections among the participants.

This basic logic could be applied to the current setting by setting up formal specifications of several inter-related tradeoffs. Entrepreneurs considering expansion of an existing group must weigh the benefits of adding a new member (in terms of an improvement in the group's ability to achieve additional goals) vs. the higher transaction costs that will necessarily arise. Similarly, efforts to make a group work more smoothly by excluding especially troublesome or unproductive partners would decrease costs of transactions, but potentially at the cost of making it more difficult to continue to achieve their current levels of success.

Different coalitions or subsets of stakeholder groups are likely to be able to realize different ranges of group goals. Since different actors will have different levels of control over different types of outcomes, only those coalitions that include members with direct influence over an outcome dimension are likely to prove effective at achieving goals related to that particular dimension. That same coalition may be able to accomplish other goals by working together, specifically those aspects under the direct control of existing members. Any effort to accomplish additional goals will require the addition of new members with complementary capabilities.

The first step in implementing this mode of strategic coalition formation analysis requires specification of the major stakeholders involved in that particular policy area. Below is my current list of key healthcare stakeholders (where a stakeholder group is defined as grouping together actors with similar economic interests and similar modes of thought and value systems as inculcated by professional training and experience):[9]

1. Individual Patients and Households
2. Physicians and Other Healthcare Professionals (primary and specialized care)
3. Administrators of facilities (general-purpose hospitals and specialized clinics)
4. Insurers (Private and Public)
5. Purchasers of Insurance (Employers, Government programs, Citizens)
6. Administrators of government-run programs
7. Public health officials
8. Government Regulators and officials of certification organizations
9. Health Information Exchanges (HIEs) and other information services
10. Community Service Organizations (CSOs)

Table 1 summarizes the primary interests and scope of control that each of these stakeholder types can exert over a few specified dimensions of health and healthcare outcomes. Clearly, this is a grossly oversimplified representation of an incredibly complex policy area, but it suffices to illustrate the point I will use to conclude this paper. To sharpen this analysis, I have underlined those points of actor-control that strike me as being especially critical in the determination of outcomes in each of the columns corresponding to outcome dimensions.

This configuration of interests and capabilities suggests reasons why each of the following types of collective organizations has been able to achieve certain, limited objectives. Space precludes detailed justification of these claims.[10]

1. IPAs (Independent Physician Associations) can provide management services to physicians and thereby lower operating costs. They can also improve bargaining power vis-à-vis hospitals and insurers.
2. Integration of hospitals and specialty clinics can capture market share via control over patient referrals. Consolidation also allows managers to optimize facility construction, improve quality, facilitate information exchange.
3. National programs (like Medicare) determine extent of safety net, and their resulting market and regulatory power allows program officers to unilaterally set reimbursement levels and other requirements.

4. Loose networks of regulators, hospitals, community clinics can guarantee access to minimal level of emergency care.
5. HMOs establish networks of patients, providers, facilities, payers, and can contain costs by restricting patient choice.
6. ACOs add monitoring and reward based on quality of care, but may tend to focus on cost savings, esp. if backed by national incentives.
7. Community-level integration of medical services stakeholders can paternalistically manage healthcare system as a community asset. However, such efforts may be restricted if seen as a restraint of free trade or other violation of anti-trust laws.

This last pattern is very much in line with the spirit of polycentric governance. In unusually successful cases, such as Grand Junction, Colorado, patterns of community-level collaboration have been established that enable healthcare leaders in these communities to achieve unusually high levels of community health and quality of healthcare at comparatively low costs, and to make that care available widely to all segments of their communities. Our impression is that health professionals in these communities have adopted procedures that resemble the conditions identified by Ostrom (1990) as being conducive to sustainable management of a common-pool resource. [11] Of course, even those enjoying successful collective action face continuous challenges to sustaining these conditions and behaviors.

Ultimately, citizen behavior is THE critical determinant of population health outcomes. As mentioned above, co-production is a critical component of both personal health and of the long-term sustainability of polycentric systems of governance. Formal organizations and informal networks and institutional procedures can help facilitate collective action, but, in the final analysis, individuals have to take advantage of these opportunities, and to do so they much learn how to cooperate with each other in an effective and sustainable manner.

Notes

Author's Note: My discussion of healthcare in this paper draws heavily upon an ongoing collaboration with Claudia Brink, Ryan Conway, Kathy Gilbert, Carrie Lawrence, Joan Pong Linton, and Elinor Ostrom funded by the Fannie E. Rippel Foundation. Any misrepresentation of this policy area remains my sole responsibility. Earlier versions of a very different paper with the same title (but with no subtitle and no reference to healthcare policy) were presented at the Workshop on Analyzing Problems of Polycentric Governance in the Growing EU, Humboldt University, Berlin, June 16-17, 2005, and in a Spring 2002 seminar at Indiana University. I wish to thank Volker Beckmann, William Blumquist, Roy Gardner, Konrad Hagedorn, Markus Hanisch, Stephan Kuhnert, Lauren Morris MacLean, Elinor Ostrom, and other participants in both settings for their helpful comments and suggestions.

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[1] Hooghe and Marks (2001, 2003) introduce the term Type I and Type II for general and specialized jurisdictions. See also the influential work on FOCJ by Frey and Eichenberg (1996, 2004).

[2] Much of the literature on federalism focuses on the question of how best to allocate different functions of governance to these different levels (McKinnon and Nechyba, 1997; Boadway and Shah 2009). However, Vincent Ostrom insists on a more expansive conceptualization of federalism, which he has informally defined as "the efforts of people as communities of individuals to achieve self-governing capacities consistent with requirements of liberty and justice" (Ostrom 2002, pp. 440). For Ostrom true federalism requires a "polycentric" system of governance in which multiple units of government with overlapping jurisdictions find some way to coordinate their efforts to provide public services for citizens, and especially to encourage citizen participation in the process of their own governance.

[3] In the U.S., it is quite common for special districts to be established to manage collective problems that cross standard jurisdictional boundaries.

[4] The nature of the firm as an economic organization set up to minimize transaction costs is one of the defining concerns of the new institutional economics (Coase 1937, Williamson 1975, 1985, 1996, 2010).

[5] With regard to justice, Vincent Ostrom (1997) attaches particular prominence to the dictates of the Golden Rule, which has been articulated by thinkers as diverse as Jesus, Confucius, and Hobbes.

[6] In effect, the core extends the logic of a Nash equilibrium (in which no one individual acting independently can obtain a better outcome by changing strategy) to apply to the cooperative behavior of the members of any possible subset of actors. The close relationship between the core and the well-known Nash equilibrium is best explained by Ordeshook (1986: 340): "If we interpret coalitions as players, then is it not reasonable to define a game's solution as those utility *n*-tuples from which no coalition has the means or the incentive for unilateral defection?" It's a stringent requirement, one that is not always found in all games. It's especially unlikely in majority voting games, given the ubiquity of instability in social choice processes (Riker 1982).

[7] For a population of size n, the number of unique subsets is 2^n.

[8] Technically, the evaluative criterion may be to reduce the variation among the magnitude of *S* for different sizes of groups as well as for groups that differ on any of the facilitating factors identified by previous researchers on collective action (see Ostrom 2005).

[9] Useful overviews of the U.S. healthcare system include Sultz and Young 2011; Shi and Singh 2008.

[10] For excellent overviews of the many forms of integrated healthcare organizations found in the U.S., see Lammers et al. 2003, Gleave 2009, and Shortell et al. 2010.

[11] My evaluation of the Grand Junction case has been especially influenced by the following sources: Nichols et al. 2009, Bodenheimer and West 2010, and Thorson et al. 2010.

References

Abelson, Reed, and Gardiner Harris. 2010. "Critics Question Study Cited in Health Debate," *New York Times,* June 2, 2010.

Aligica, Paul Dragos, and Peter Boettke. 2009. *Challenging Institutional Analysis and Development: The Bloomington School*. Routledge.

_____. 2011. "Notes on the Social Philosophy of the Bloomington School" *Policy Studies Journal* 39 (1) (March 2011),

Berman, Harold. 1983. *Law and Revolution: The Formation of the Western Legal Tradition*. Cambridge: Harvard University Press.

Boadway, Robin, and Anwar Shah. 2009. *Fiscal Federalism: Principles and Practice of Multiorder Governance*. Cambridge.

Bodenheimer, Thomas, and David West. 2009. "Low-Cost Lessons From Grand Junction, Colorado," *The New England Journal of Medicine* 363:1391-1393, October 7, 2010.

Coase, Ronald H. 1937. "The Nature of the Firm," *Economica*, 4:233-261.

_____. 1960. "The Problem of Social Cost," *Journal of Law and Economics* 3: 1-44.

Dewey, John. 1927. *The Public and Its Problems*.

Dezalay, Yves, and Bryant G. Garth. 1996. *Dealing in Virtue: International Commercial Arbitration and the Construction of a Transnational Legal Order*. University of Chicago Press.

Fisher, Elliott S., David E. Wennberg, Thérèse A. Stukel, Daniel J. Gottlieb, F. L. Lucas, and Étoile L. Pinder 2003. "The Implications of Regional Variations in Medicare Spending. Part 1: The Content, Quality, and Accessibility of Care." *Annals of Internal Medicine* 138(4):273-288

Fisher, Elliott S., David E. Wennberg, Thérèse A. Stukel, Daniel J. Gottlieb, F. L. Lucas, and Étoile L. Pinder 2003. "The Implications of Regional Variations in Medicare Spending. Part 2: Health Outcomes and Satisfaction with Care." *Annals of Internal Medicine* 138(4):288-299.

Frey, Bruno S., and Eichenberg Reiner. 1996. "FOCJ: Competitive Governments for Europe," *International Review of Law and Economics,* 16 (3), September, 315-327

_____. 2004. *The New Democratic Federalism for Europe: Functional, Overlapping and Competing Jurisdictions*, Edward Elgar.

Gleave, Richard. 2009. Across the Pond – Lessons from the US on Integrated Healthcare, Nuffield Trust Report, http://www.nuffieldtrust.org.uk/publications/detail.aspx?id=0&PRid=554

Goldsmith, Stephen, and William D. Eggers. 2004. *Governing by Network: The New Shape of the Public Sector*. Washington, DC: Brookings Institution Press.

Gottlieb, Daniel J., Weiping Zhou, Yunjie Song, Kathryn Gilman Andrews, Jonathan S. Skinner, and Jason M. Sutherland. 2010. "Prices Don't Drive Regional Medicare Spending Variations," *Health Affairs*, 29 (3): 537–543

Goyal, Sanjeev. 2007. *Connections: An Introduction to the Economics of Networks*. Princeton U. Press.

Hildenbrand, Werner. 1989. "Cores," In *The New Palgrave Game Theory,* edited by John Eatwell, Murray Milgate, and Peter Newman, Norton, pp. 108-116. Originally published 1987, *The New Palgrave: A Dictionary of Economics*.

Hines, Steve, and Maulik S. Joshi. 2008. Variation in Quality of Care Within Health Systems, The Joint Commission Journal on Quality and Patient Safety, June 2008 34 (6), 326-332.

Hobbes, Thomas 1962. [1651] *Leviathan or the Matter, Forme, and Power of a Commonwealth Ecclesiasticall and Civil*. Michael Oakeshott, ed. New York: Collier Books.

Hooghe, Liesbet and Gary Marks. 2001. *Multi-Level Governance and European Integration*, Lanham, Maryland: Rowman & Littlefield.

Hooghe, Liesbet, and Gary Marks. 2003. "Unraveling the Central State, but How? Types of Multi-Level Governance," *American Political Science Review* 97 (2) 233-243.

Iannaccone, Laurence R. 1992. “Sacrifice and Stigma: Reducing Free-Riding in Cults, Communes, and Other Collectivities,” *Journal of Political Economy*, 100: 271-291.

Jackson, Matthew O. 2008. *Social and Economic Networks*. Princeton University Press.

Jagger, P., Bauer, J., & Walker, J. M. (2009). *Artisans of Political Theory and Empirical Inquiry*. http://www.indiana.edu/~workshop/publications/materials/workshop_history.pdf.

Knight, Jack. 1992. *Institutions and Social Conflict*. Cambridge: Cambridge University Press.

Lammers, John C., Joshua Barbour, and Ashley Duggan. 2003. “Organizational Forms of the Provision of Health Care: An Institutional Perspective.” In Thompson, T., Dorsey, A., Miller, K., & Parrot, R. (eds.). (2003) *Handbook of Health Communication* (pp. 319-346). Hillsdale, NJ: Lawrence Erlbaum Associates.

Lichbach, Mark I. 1996. *The Cooperator’s Dilemma.* Ann Arbor: University of Michigan Press.

McGinnis, Michael D., ed. 1999a. *Polycentric Governance and Development,* U. of Michigan Press.

_____, ed. 1999b. *Polycentricity and Local Public Economies*, Univ. of Michigan Press.

_____. 1999c. "Rent-Seeking, Redistribution, and Reform in the Governance of Global Markets," in *Globalization and Governance*, edited by Jeffrey Hart and Aseem Prakash. London and New York: Routledge Press, 54-76.

_____, ed. 2000. *Polycentric Games and Institutions,* University of Michigan Press.

_____. 2002. "Enhancing Institutional Diversity in a Globalizing World," in *Gobernabilidad: Nuevos Actores, Neuvos Desafíos*, edición, coordinación y compilación: Alberto Ortega Venzor, Carlos Alberton martínez Castillo, Vanessa Zárate, Memorias 2002 IBERGOP-Mexico, Vol. II, Mexico: Editorial Porrúa, 2002, pp. 639-657.

_____. 2005. "Beyond Individualism and Spontaneity: Comments on Peter Boettke and Christopher Coyne," *Journal of Economic Behavior and Organization,* June 2005.

_____. 2008. “Legal Pluralism, Polycentricity, and Faith-Based Organizations in Global Governance,” in Mark Sproule-Jones, Barbara Allen, and Filippo Sabetti, eds. *The Struggle to Constitute and Sustain Productive Orders*. Lanham, MD: Lexington Books, 2008, pp. 45-64.

_____. 2011. “An Introduction to IAD and the Language of the Ostrom Workshop: A Simple Guide to a Complex Framework,” *Policy Studies Journal* 39 (1) (March 2011), 163-177. (A longer version is available at http://php.indiana.edu/~mcginnis/iad_guide.pdf.)

McGinnis, Michael D. and James M. Walker. 2010. “Foundations of the Ostrom Workshop: Institutional Analysis, Polycentricity, and Self-Governance of the Commons,” *Public Choice*, 143, Numbers 3-4 (June), 293-301.

McKinnon, Ronald, and Thomas Nechyba. 1997. "Competition in Federal Systems: The Role of Political and Financial Constraints," in John Ferejohn and Barry R. Weingast, eds., *The New Federalism: Can the States be Trusted?,* Stanford: Hoover Institution Press, pp. 3-61

Miller, Gary J. 1992. *Managerial Dilemmas: The Political Economy of Hierarchy*, Cambridge Univ. Press.

Mitchell, William C. 1988. “Virginia, Rochester, and Bloomington: Twenty-Five Years of Public Choice and Political Science,” *Public Choice*, 56: 101-119.

Myerson, Roger B. 1991. *Game Theory: Analysis of Conflict*. Harvard Univ. Press.

Nichols, Len M., Micah Weinberg, Julie Barnes. 2009. *Grand Junction, Colorado: A Health Community That Works*. Washington, DC: New America Foundation, August 2009. http://newamerica.net/files/GrandJunctionCOHealthCommunityWorks.pdf

Nolan, Thomas. 2010. "US Health Care Reform by Region." Presented to the IHI (Institute for Healthcare Improvement) Board of Directors on February 17, 2010. http://www.ihi.org/NR/rdonlyres/07730B39-FCF0-43CC-AA40-2DCAC2B22491/0/IHINolanUSHealthCareReformbyRegionFeb10.pdf

Olson, Mancur. 1965. *The Logic of Collective Action.* Harvard University Press.

Ordeshook, Peter C. 1986. *Game Theory and Political Theory: An Introduction*. Cambridge Univ. Press.

Ostrom, Elinor. 1990. *Governing the Commons: The Evolution of Institutions for Collective Action*. Cambridge: Cambridge University Press.
_____. 1998. "Coping with Tragedies of the Commons." *Annual Review of Political Science* 2, pp.
_____. 2005. *Understanding Institutional Diversity*, Princeton University Press.
_____. 2007. "Collective Action Theory." In *The Oxford Handbook of Comparative Politics,* eds. Carles Boix and Susan Stokes. Oxford: Oxford University Press, 186–208.
_____. 2010. "Beyond Markets and States: Polycentric Governance of Complex Economic Systems." *American Economic Review* 100 (3) 641–72. (Published version of Nobel Prize lecture)
Ostrom, Vincent. 1997. *The Meaning of Democracy and the Vulnerability of Democracies: A Response to Tocqueville's Challenge*. Ann Arbor: University of Michigan Press.
_____. 2002, "What is Federalism? A Search for Meaning," in *Gobernabilidad: Nuevos Actores, Neuvos Desafíos*, edición, coordinación y compilación: Alberto Ortega Venzor, Carlos Alberton martínez Castillo, Vanessa Zárate, Memorias 2002 IBERGOP-Mexico, Vol. II, Mexico: Editorial Porrúa, 2002, pp. 439-449.
Ostrom, Vincent, and Elinor Ostrom. 1977. "Public Goods and Public Choices." In *Alternatives for Delivering Public Services. Toward Improved Performance,* ed. E. S. Savas, 7-49. Boulder, CO: Westview Press. Reprinted in McGinnis 1999b.
Ostrom, Vincent, Charles M. Tiebout, and Robert Warren. 1961. "The Organization of Government in Metropolitan Areas: A Theoretical Inquiry." *American Political Science Review* 55:831-42; reprinted in Michael D. McGinnis, ed. 1999b.
Poteete, Amy, Marco Janssen, and Elinor Ostrom. 2010. *Working Together: Collective Action, the Commons, and Multiple Methods in Practice.* Princeton, NJ: Princeton University Press.
Riker, William H. 1982. *Liberalism Against Populism: A Confrontation Between the Theory of Democracy and the Theory of Social Choice.* San Francisco: W. H. Freeman.
Shi, Leiyu, and Dounglas Singh. 2008. *Delivering Health Care in America: A Systems Approach*, 4th edition, Jones and Bartlett.
Skinner, Jonathan, and Elliot Fisher. 2010. Reflections on Geographic Variations in U.S. Health Care, http://delong.typepad.com/skinner-fisher-da-05_12_10.pdf
Shortell, Stephen M., Robin Gillies, and Frances Wu. 2010. "United States Innovations in Healthcare Delivery," *Public Health Reviews,* Vol. 32, No 1, 190-212.
Sultz, Harry and Kristina Young. 2011. *Health Care USA: Understanding its Organization and Delivery*, 7th edition, Jones and Bartlett.
Thorson, Marsha, Jane Brock, Jason Mitchell, and Joanne Lynn. 2010. "Grand Junction, Colorado: How a Community Drew On Its Values to Shape A Superior Health System," *Health Affairs* 29 (9), 1678-1686.
Tocqueville, Alexis de. 1969 [1835]. *Democracy in America*. Edited by J.P. Mayer, translated by George
Wennberg, John E., Shannon Brownlee, Elliott S. Fisher, Jonathan S. Skinner and James N. Weinstein. 2008. *Agenda for Change: Improving Quality and Curbing Health Care Spending: Opportunities for the Congress and the Obama Administration*, A Dartmouth Atlas White Paper, December 2008. http://www.dartmouthatlas.org/downloads/reports/agenda_for_change.pdf
White, Joseph. "Markets and Medical Care: The United States, 1993-2005," *The Milbank Quarterly* 85, 3, Sep., 2007, 395-448.
Williamson, Oliver E. 1975. *Markets and Hierarchies*. New York: Free Press.
_____. 1985. *The Economic Institutions of Capitalism*. New York: Free Press.
_____. 1996. *The Mechanisms of Governance*. New York: Oxford University Press.
_____. 2010. "Transaction Cost Economics: The Natural Progression." *American Economic Review*, 100(3): 673–90. (Published version of Nobel Prize lecture)

Table 1. Key Stakeholder Interests and Scope of Control

Stake-holders	Primary Interests	Facility Construction	Number of Procedures	Cost of Procedures	Quality of Procedures	Access and Coverage	Information Exchange	Overall Health
Patients	• Effective care • Choice • Low co-pay		• Critical role: demand • Consent	• Passive co-pay	• Compliance	• Select coverage from options	• Allow use of electronic records	• Critical role
Physicians	• Material incentives • Quality care	• Indepen-dent clinics	• Critical role • CYA logic	• Negotiate payment levels	• Critical role	• Volunteer work at clinics	• Critical role: Use new technology	• Primary care
Facility Admin.	• Profits • Growth in business	• Critical role	• Set capacity • Encourage high usage	• Negotiate payment levels	• Critical role: medical errors	• Extent of charity care	• Share information	• Outreach programs
Insurers	• Profits • Cost containment		• Pre-approval	• Critical role: Negotiate payments	• Monitor and reward quality	• Critical role: Products on market	• Share information	
Employers	• Cost containment • Healthy workers					• Critical role: job benefits		• Worksite programs
Gov. Program Admin.	• Cost containment • Implementation			• Critical role: sets payment levels		• Eligibility for safety net	• Share information	
Regulators	• Adherence to rules • Econ. health	• Critical role: approval or tax breaks	• Set standards • Medical legal system		• Critical role: set standards	• Require emergency care for all		
Public Health	• Prepare for emergencies		• Set standards					• Critical role: built envir. • Information
HIEs	• Wide adoption			• Reduce duplication			• Critical coordination	• Coordinated care
Community Orgs	• Equity, access • Social capital	• Reactive or lobbying			• Disseminate data	• Critical role: run clinics • Advocacy		• Built environment

Source: Compiled by author.