

Competition and Innovation in Polycentric Systems of Governance: Bottom-up solutions to collective action problems and public goods

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Abstract

Collective action problems are complex situations that involve multiple variables and countless possible solutions. The solution to these kinds of problems, specifically public goods and services, cannot be determined a priori; top-down policies that aim to address such problems usually lack the information necessary to reach an efficient solution. This paper aims to explain a possible mechanism that addresses collective action problems by using emergent orders, local institutions, and a process of trial-and-error: Polycentric systems.

A polycentric theory generates principles that allow citizens and public officials to focus on local environments and knowledge to design useful institutions. These principles enable public and private agencies to compete to provide working solutions to collective problems. The paper concludes by arguing how a polycentric approach to collective action problems could benefit society by lowering transaction costs and incentivizing actors to develop novel solutions.

Understanding Collective-Action Problems

In his book *The Logic of Collective Action*, Mancur Olson¹ wrote that collective-action problems occur “when individuals, as part of a group, select strategies generating outcomes that are suboptimal for the perspective of the group.” To efficiently solve collective problems, in other words, there should be to be an optimal outcome that benefits the majority of the people involved, while people also look for their own personal benefit.²

¹ Olson, 1965: 9

² McGinnis, 1999: 427

A public good is a common-pool resource provided for everyone in a community.³ These goods include, for example, public safety, garbage collection, public health, natural resource systems, public parks, and national defense, among others. Public goods are a kind of collective-action problem. In communities where hundreds of people live, each one with their own preferences and needs, public goods must be able to please the majority of the community.

Over the last several centuries, the state has been the main—and sometimes only—provider of public goods and services; it has been seen as the only one that can efficiently solve collective-action problems. Following the thoughts of Garret Hardin, many thought that the only solution to avoid a tragedy of the commons problem was to have an external body impose management structures.⁴ This idea has unfortunately stuck, and now most believe that without an enforcer there would be no organization of public goods, and instead there would only be chaos.⁵

There are others who say that a state-led solution is not the best way to provide public goods, and instead look towards a total market solution and privatization of these services.

However, there is a third option that is found in the middle of the former two. Following the thoughts of Elinor and Vincent Ostrom and their coworkers from the Workshop in Political Theory and Policy Analysis, the solution could be provided by a wide array of institutions, both private and public, from which citizens would be able to choose from depending on their needs.⁶

Why Not a Monocentric Supply of Public Goods and Services?

Governments are your typical hierarchy. A metropolitan area, for example, is organized with federal and state agencies, followed by counties, cities, districts, and lastly, neighborhoods. Most of the time, the decisions for public goods provided in neighborhoods are decided from the top—from the federal and state levels. Some large-scale, citywide organization from the

3 Ostrom, 2009: 408

4 Ostrom, 2012

5 Ostrom, 2009

6 McGinnis, 1999: 428

top down is appropriate for certain public services. However, it is not the most appropriate method to provide all public services within a metropolis.⁷

For a lack of better words, I will use Vincent Ostrom, Charles M. Tiebout, and Robert Warren's⁸ description of the problems found with a government hierarchy, or "*Gargantua*," as they call it:

"Gargantua, with its single dominant center of decision making, is apt to become a victim of the complexity of its own hierarchical or bureaucratic structure. Its complex channels of communication may make its administration unresponsive to many of the more localized public interests in the community. The costs of maintaining control in gargantua's public service may be so great that its production of public goods becomes grossly inefficient... Gargantua, as a result, may become insensitive and clumsy in meeting the demands of local citizens for the public goods required in their daily life."

The three main problems found with top-down policies are the following: most of these decisions lack the information to make the appropriate decisions; these policies usually incur higher transaction costs; and lastly, the assumption that there is a one-size-fits-all solution.

Knowledge Problem

If we had a perfect government that possessed every bit of information and had perfect knowledge, then public resources would be managed correctly. But as we know, there is no such thing. There is no single person or institution that possesses all of the information needed to make the best decision. The problem, as explained by economist Friedrich Hayek⁹, is that "data from which the economic calculus starts are never found for the whole society given to a single mind which could work out the implications and can never be so given." Even if a government had complete knowledge of the past and complete awareness of current state of affairs, they would not be able to find the most profitable action.¹⁰

⁷ McGinnis, 1999: 42

⁸ McGinnis, 1999:41

⁹ Hayek, 1945

¹⁰ Alchian, 2006

Knowledge is dispersed among all of the people that live in a certain time and place. They know what their needs and their priorities are. The problems with top-down policies is that decisions are made centrally and far away from the problem, the individuals making the decisions do not have the local knowledge needed to most efficiently solve it. This usually results in higher transaction costs and services that citizens do not want in the first place. When the decision making process is left at local levels, “we can insure that the knowledge of the particular circumstances of time and place will be promptly used.”¹¹

Transaction Costs

By not having the local information first hand, central governments spend time, money, and effort—transaction costs—trying to get those results. Throughout this process there is a constant loss of information and miscommunication between central decision makers and subordinates that leads to biased information, loss of control, and a disparity between expectations and performance.¹² This means that government agencies are operating with a severe handicap when it comes to the public goods they are providing. There are also “no routine transactions between producers and consumer that provide constant feedback of information to the producer about productivity or the demand for a product. Any transactions between public officials and citizen consumers are either unrecorded or no consistent ways for interpreting the meaning of these transactions.”¹³

One Solution

Another problem that arises is that some policy analysts “recommend a single prescription”¹⁴ without paying attention to the diverse institutional arrangements. No solution fits all. Every problem has its own circumstances, its own problems, its own environments. A solution that might work under some circumstances might not work under others.

¹¹ Hayek, 1945

¹² McGinnis, 1999: 59

¹³ McGinnis, 1999: 164

¹⁴ Ostrom, 1990

Possible Solution: Polycentric Systems

There is, however, a way to provide decentralized decision-making processes and provide individuals with the capacity and incentives to generate the solutions that best fit their environment and needs. Instead of having public goods and services handed down by authorities foreign to the problems and centrally make decision, the solution I propose is a self-governing process where participants create the institutions needed to find the most efficient and less-costly provision of public goods as possible through competition.

Elinor Ostrom proposed such an incentive structure, in which communities could develop methods and efficient rules to govern common-pool resources depending on their issues without external regulation.¹⁵ While there will always be a free-rider problem, she argues that this kind of approach is the best solution:

“There are certainly very important situations where people can self-organize to manage environmental resources, but we cannot simply say that the community is, or is not, the best; the government is, or is not, the best; or that the market is, or is not, the best. It all depends on the nature of the problem that we are trying to solve.”¹⁶

Ostrom argues that we need an analytical approach that encourages human development at multiple levels and that is able to solve public good problems at local, regional, national, and international levels. In other words, a polycentric system of governance.

What is a polycentric system?

Polycentricity, as described by Ostrom, Tiebout, and Warren¹⁷, is a system that has many centers of decision making formally independent of each other. They can either function independently or as part of a system of relations. The decision centers take each other into account through competitive relationships, in which they can “enter into various contractual

¹⁵ Ostrom, 2012: 70

¹⁶ Ostrom, 2012: 70

¹⁷ McGinnis, 1999: 32

and competitive undertakings to resolve conflicts or have to recourse to central mechanisms to resolve conflicts.¹⁸

The term, first explained by Michael Polanyi in *The Logic of Liberty*, came from his interest in explaining science as a decentralized organization. Polanyi believed that the success of science came not from the scientific method, but instead from many scientists having the freedom to individually choose their research and have it peer-reviewed without the final say of a central authority—in other words, a form of a social organization. He believed that discovery in science came through a trial-and-error process, similar to the one which entrepreneurs use in a market to find the best products and services. Standing against the Royal Academy of Science, Polanyi thought that “self-coordination of independent initiatives leads to a joint result which is unpremeditated by any of those who bring it about. Their coordination is guided as by an “invisible hand” toward the joint discovery of a hidden system of things.”¹⁹.

Polanyi describes two methods of organization for social tasks, two kinds of order: a deliberate order, which if coordinated by an ultimate authority; and a spontaneous or polycentric order, where relationships are mutually adjusted under a general system of rules where individuals act independently.

Polycentricity allows for a decentralization of powers as autonomous decision centers replace a hierarchy of organizations controlled by a central authority. Each of these decision centers have specified areas of authority with different objectives and values, but may sometimes overlap with other decision centers established at different levels. For example, a local autonomy that manages a public good is nested in a government agency that is responsible for providing large-scale resources for larger area. However, the interaction between the decision centers operates under a well-established, publicly formulated set of rules, as Polanyi described in his spontaneous order. These constraints act as constitutional “guarantees”.²⁰ In this kind of system, Ostrom says, “no one has an ultimate monopoly over the legitimate use of force and the rulers are constrained under a limited rule of law.”²¹

¹⁸ McGinnis, 1999: 834

¹⁹ Polanyi, 1951: 51

²⁰ McGinnis, 1999: 56

²¹ McGinnis, 1999: 55-56

In a polycentric theory of governance, the basic units of analysis are individuals and firms that are assumed to calculate the costs and benefits, and will select the strategies that will yield higher returns. The polycentric theory allows the local-level decision centers to use their knowledge as “an opportunity to innovate and to intervene as to correct mal distributions of authority and outcomes.”²² In a polycentric system, “individuals can consciously decide to adopt their own rules that either replace or complement the rules governing an initial collective situation.”²³

The Bloomington School of economics summarized the basic features of a polycentric system as the following:

- 1- the existence of many decision-making centers
- 2- follows a single system of rules
- 3- a spontaneous social order results from an evolutionary competition between different ideas and methods.

The spontaneity that Michael Polanyi saw in the polycentric systems of order comes from the order that results from an alignment between rules and incentives, a public involvement in rule design, and market-like competition among different decision making centers, and a process of trial-and-error to find the most effective provision of public goods and services. Overall, a polycentric system eliminates the problems that come with a top-down approach to the provision of public goods.

How does it work?

When it comes to the provision of public goods and services in a polycentric, citizens, local, entrepreneurs, and public officials—private and public agencies—engage at multiple levels to provide different public services to a metropolitan area.²⁴ Instead of being directed by a single unit of government, the various public goods are handled by different levels of the organization—special districts, cities, counties, state agencies or federal agencies—which are

²² Ostrom, 1999

²³ McGinnis, 1999: 434

²⁴ Ostrom, 2009

seen as a subsidiary sets of interests within the larger system.²⁵ The provision of the public goods would depend on the good itself and on where it is more efficiently administered. For example, local constituencies know local preferences that the central government cannot come by easily;²⁶ therefore leaving specifically area related public goods would be more efficient if left to local constituencies. The general principle behind polycentricity in a metropolitan area follows Wallace Oates' decentralization theorem:

*"The decentralization theorem: for a public good—the consumption of which is defined over a geographical subset of the total population, and for which the costs of providing each level of output of the good in each jurisdiction are the same for the central or for the respective local government—it will always be more efficient for local government to provide the Pareto-efficient levels of output for their respective jurisdictions than for the central government to provide any specified and uniform level of output across all jurisdictions."*²⁷

The different constituencies would be linked together in patterns of cooperation and competition.²⁸ Thus the polycentric system can create quasi-market conditions, where trial and error and competition the consumers (local residents) could select the services that best need their needs and the most efficient cost.²⁹

To ensure the most efficient performance, Vincent Ostrom³⁰ laid out three conditions for a polycentric system:

1. The correspondence of different units of governments to the scales of effects for diverse public goods.
2. The development of cooperative arrangements among governmental units to undertake joint activities of mutual benefit.
3. The availability of other decision-making arrangements for processing and resolving conflicts among units of government.

²⁵ McGinnis, 1999: 31

²⁶ Oates, 2006

²⁷ Oates, 1972: 35

²⁸ McGinnis, 1999: 42

²⁹ McGinnis, 1999: 135

³⁰ McGinnis, 1999: 45

A metropolitan area can create the conditions to outsource the provision of its public goods and services to private firms, to the local community, or to other agencies, depending on their function and level. The opportunity to “vote with your feet” allows citizens more choice by providing multiple jurisdictions with different organization methods. As a market competition evolves, and more producers of goods and services enter the competition, there will be more selection and producers will compete for contracts. This competition will in turn lead to more innovative technologies and encourage citizen production. Larger regimes, such as the federal level or a state level of a metropolitan polycentric system can facilitate local self-organization.³¹ They can provide the mechanisms for monitoring and sanctioning, help smaller units interact, facilitate dispute recognition and ensure recognition of property rights.

“Patterns of competition among producers of public services in a metropolitan area, just as among firms in the market, may produce substantial benefits by inducing self-regulating tendencies with pressure for the most efficient solution in the operation of the whole system.”³²

Real World Example

Vista Hermosa II: small-scale polycentricity in Guatemala City

A current example of spontaneous order in the provision of public goods is found in different neighborhoods of Guatemala City, Guatemala. Like other places in Latin America, Guatemala deals with a great degree of insecurity; mostly due to a corrupt and inefficient government that does not effectively provide public goods and steals most of the tax money. Robberies, car thefts, and burglaries are all too common a scene of Guatemala.

Because of the city’s inadequate response rate to crime and inefficient public services, neighborhoods have taken matters into their own hands. To increase security, for example, some neighborhoods have completely cut themselves off by installing security check points to enter the neighborhood and denying access to anyone that does not live there—turning a

³¹ Ostrom, 2012

³² McGinnis, 1999: 42-43

public area into a gated community. Others however, have taken a more polycentric approach for the provision of public goods. The latter has not only provided a more substantial and safe urban life, but has also had a spillover effect in neighboring communities.

One such neighborhood is Vista Hermosa II (VH II). Located in one of Guatemala's middle-class neighborhoods in zone 15, the neighborhood has established a multi-level decentralized structure to provide certain public goods, particularly security.

The state and the municipality of Guatemala City provide the majority of big scale public services, such as water, electricity, street maintenance, and the police. The Local Neighborhood Committee³³ acts as the intermediary between the neighbors of Vista Hermosa II and the municipality. Through it, requests made by the neighbors regarding public goods, such as street repairs and speed bumps are carried out. The last and most important layer in this system is the Association of Neighbors of Vista Hermosa II (*Asociación de Vecinos de Vista Hermosa II*³⁴).

Established 10 years ago, the main task of the association is to represent the neighborhood residents, much like neighborhood covenants in the United States. Made up by a board of neighborhood residents, the association provides security throughout the neighborhood, street signaling, street lighting, public trashcans, sidewalk maintenance, and control posts. Furthermore, it outsources an ambulance service and panic buttons to private companies for the entire neighborhood to use³⁵.

This system benefits both the neighbors and the city's public institutions in several ways, the main one being that there is a clear communication of the needs of residents. The association's board and members are made up by neighborhood residents that have a vested interest in the area. Out of the 2,000 to 3,000 residents in VH II more than 700 make voluntary donations of 10 to 100 dollars a month to be represented by the association, and buildings in the neighborhood donate up to 500 dollars. The board then carries out the wishes of the neighborhood by taking requests to the Local Neighborhood Committee and the municipality

³³ Valladares, 2009

³⁴ Asociación de Vecinos Vista Hermosa 2, <http://www.vecinosvh2.com/>

³⁵ MuniGuate, Orden y Seguridad en Vista Hermosa 2, <http://portal.muniguate.com/index.php/component/content/article/67-viapublica/8587-orden>

to carry out public services that it cannot provide itself, such as the paving of roads. This system solves the knowledge problem: it gets local knowledge to the municipality, which in turn is able to make changes and improvements that are actually needed in the neighborhood. The example that best illustrates how the polycentric system in VH II works is the provision of security. The first level of security is provided for by the state in the form of the Civil National Police. The police station number 13³⁶ is in charge of 11 sub-stations, one of which provide services to Vista Hermosa I, Vista Hermosa II, and Colonia El Maestro. The Civil National police is called for when serious crimes are committed or when someone needs to be apprehended. The next level is the *Alcaldía Auxiliar de la zona 15*—the Auxiliary City Hall of zone 15. A dependency of the municipality, this entity is in charge of Vista Hermosa and provides municipal police. Although these police do not carry guns, they help out by guiding traffic, looking out for any illegal activity, and occasionally providing neighborhood patrols.

The Association of Neighbors of VH II provides three extra security levels on its own, all of which were first tested in certain streets and then implemented throughout the entire neighborhood. First, the association installed cameras in most of the streets of Vista Hermosa, providing 24/7 footage that allows them to turn in any suspicious activity to the police. Second, it provides security guards on motorcycles that do rounds around the neighborhood all day long checking for any suspicious activity and are ready to call the national police if anything arises. Finally, the association installed security posts at the entrance of the neighborhood that read the license plates of cars entering the area. The polycentric system's final level is made up by private buildings that provide their own security guards to watch the streets around the building.

The results of this polycentric structure are astounding, and have made Vista Hermosa II one of the most sought-out urban neighborhoods in Guatemala City. Unlike other neighborhoods in Guatemala City, car theft was reduced from 10 stolen cars a month in 2010 to less than one in 2016³⁷. In 2015, the streets with security cameras and the streets with building security guards saw zero thefts. Most incidents that happened in the neighborhood were reported

³⁶ Gobierno de la República de Guatemala, Comisarías Policía Nacional Civil, http://www.pnc.gob.gt/index.php?option=com_k2&view=item&layout=item&id=112&Itemid=211.

³⁷ José González, phone interview. January 14, 2017.

within minutes of them happening and the response rate of the police increased. In general, the whole area became more secure, more walkable, and more urban than most places in Guatemala City.

Vista Hermosa II shows how Guatemala City is like a multi-layered natural laboratory. While Vista Hermosa II is not the only neighborhood taking this approach to solve the provision of public goods, others have implemented their own solutions to the problem—some more efficient than others. Following the ideas of Eric Beinhocker, Guatemalan neighborhoods taking on the provision of public goods are constantly changing and testing out new solution, allowing those that fail to learn from those that succeed. The only hope is that the rest of Guatemala can follow the example of Vista Hermosa, providing public services without closing off the neighborhoods entirely in the case of security.

Conclusion

In a polycentric system of governance, local governments can adapt public services to their preferences, people can seek out the jurisdictions that match their tastes, governments face competition from their neighbors, and the decentralization encourages experimentation and innovation to provide new approaches to policy.³⁸ A decentralized provision of public goods will lead to more effective and sustainable outcomes at multiple scales,³⁹ and can even be imitated in other areas such as judiciary and schooling systems.

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³⁸ Oates, 2006

³⁹ Ostrom, 2009

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