

Polycentrism and Prison Gangs

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1. Introduction

Contemporary research on diverse institutional arrangements for governing public goods on multiple scales builds on classical economic theory while developing new theory to explain social phenomena that do not fit the dichotomous world of “market” and “state,” “private” and “public” (E. Ostrom 2010: 641). Prior to this development, the prevailing view saw the market as the optimal institution for the production and exchange of private goods, and government as necessary to impose rules and force payment of taxes for contribution to public goods. This research argued that without a hierarchical government, self-seeking individuals fail to cooperate and generate efficient levels of public goods. A single city governmental unit, as one example, was recommended to lessen the “chaotic” organization of metropolitan governance, reduce governmental conflict, increase efficiency, and best serve the public. Goods could be defined as either purely private or public. From this dichotomy, humans were viewed primarily as consumers or voters incapable of devising complex systems of self-governance.

The development of a framework consistent with game theory and extensive empirical research slowly transformed this view. Theoretical, empirical, and experimental research on how “citizens, local public entrepreneurs, and public

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officials engage in diverse ways of providing, producing, and managing public service industries and common property regimes at multiple scales” generated substantial knowledge about interactions unexplained by the two earlier forms of optimal organization (*ibid.*: 643).

Central to this advancement, Vincent Ostrom, Charles Tiebout, and Robert Warren in their seminal work (1961) introduced the concept of polycentricity. Polycentric orders are those in which decision-making power is dispersed across multiple organizations. Government units exercise autonomy in their realm of authority, and individuals and organizations holding power are constrained by self-established rules. Their research attempted to understand if diverse public and private agencies that produce public goods in metropolitan areas were chaotic or productive. This important piece, along with the empirical research it fostered, defied conventional wisdom that viewed polycentric systems of governance as inefficient, and studies of polycentrism questioned if substantial economies of scale existed for centralized government in the provision of public goods.

With empirical case studies initially on water industry performance in Southern California and later in police services for urban neighborhoods throughout the United States, the Ostroms showed that “small to medium sized cities are more effective than large cities in monitoring performance of their citizens and relative costs; citizens who are dissatisfied with service can ‘vote with their feet’ and move to jurisdictions that come closer to their preferred mix and costs of public services; and local communities can contract with larger producers and change contracts if not satisfied with the services provided, while neighborhoods inside a large city have no voice” (E. Ostrom 2010: 643-644).¹ These empirical studies and others carried out across the globe rejected the theory underlying greater centralization, and showed that complex institutional arrangements are not necessarily chaotic, and can in fact lead to more effective governance.

The diversity of field settings enabled the Ostroms, along with colleagues and students at the Workshop in Political Theory and Policy Analysis at Indiana University, to develop an Institutional Analysis and Development (IAD) framework that builds on the foundations of polycentrism. This framework is a “systematic method for organizing analysis” (Polski and E. Ostrom 1998: 5) that uses a “general set of variables” for institutional investigation in diverse settings such as

¹ Aligica and Boettke (2009) provide an excellent overview of the intellectual history and advances in institutional analysis and development that the Ostroms promoted.

“human interactions within markets, private firms, families, community organizations, legislatures, and government agencies” (E. Ostrom 2010: 646). The IAD framework displaces formal government as the source of omnipotent knowledge and total authority, and has demonstrated individuals’ capacity to “organize and govern themselves to obtain continuing joint benefits when all face temptations to free ride, shirk, or otherwise act opportunistically” (E. Ostrom 1990: 29). Scholars have begun to unravel “the diversity of puzzles and problems facing humans” and the “complex motivational structures” that lead to the “diverse private-for-profit, governmental, and community institutional arrangements that operate at multiple scales to generate productive and innovative, as well as destructive and perverse outcomes” (E. Ostrom 2010: 641; North 1990, 2005). This research shows the individual’s “capacity to overcome dilemmas and create effective governance” (E. Ostrom 2010: 650).

Elinor Ostrom in her groundbreaking work *Governing the Commons: The Evolution of Institutions for Collective Action* (1990) identifies the core underlying lessons that characterize long sustained governance regimes. These design principles synthesize core factors that influence the probability of an institution’s survival (ibid.: 90):

1. *User boundaries*: Clear and locally understood boundaries between legitimate users and nonusers.
2. *Congruence with Local Conditions and between Appropriation and Provision Rules*: Rules restricting time, place, technology, and/or quantity of resource units are related to local conditions and provision rules.
3. *Collective Choice Arrangements*: Individuals affected by operational rules participate in modifying those rules.
4. *Monitoring Users*: Members monitor rule compliance of other members, not an external authority.
5. *Graduated Sanctions*: Sanctions and punishment for rule violations begin with minor sanctions but become harsher if a user commits a serious offense or repeatedly violates rules.
6. *Conflict Resolution Mechanisms*: Low cost local arenas exist for resolving conflicts.
7. *Minimal Recognition of Rights*: Rights of local users to make their own rules are recognized by formal government.
8. *Nested Enterprises*: Governance activities are organized in multiple layers.

These design principles have been used to analyze the success or failure of over 100 institutions in diverse settings (E. Ostrom 2010: 653; Cox et al. 2009). More than two-thirds confirmed that robust systems are characterized by many of the principles.²

Using the IAD framework, this paper examines the polycentric system of governance that has emerged among gangs in California to fill the void created by inoperative, centralized government. Formal government's inability or unwillingness to define and enforce property rights, resolve disputes, and limit negative externalities among drug dealers creates long-term demand for governance that is supplied by prison gangs. This context furthers our understanding of how robust self-governance institutions emerge without congruent institutions, minimal recognition of rights by government, and formal conflict resolution mechanisms. Below, we argue that innovative entrepreneurs can overcome institutional design failures, although the absence of key features can be the source of conflict with disastrous and somewhat surprising consequences.

2. Literature Review

Centralized government and polycentric orders can provide governance institutions that secure property rights, resolve disputes, and limit negative externalities (Hooghe and Marks 2003). Experiments reveal that self-governance is achievable (E. Ostrom et al. 1992), and private provision of governance existed historically (Grief 2006; Stringham 2007). Examining illicit organizations provides benefits for understanding governance institutions, since prison gangs and drug dealers cannot rely on the state to ensure contribution to public goods.

Organized crime has two primary forms. It either provides goods to voluntary consumers or seeks to gain benefits from coordinating coercion, thievery, and physical violence. Criminal groups frequently create and provide governance to enable exchange in the absence of formal government. Past works by Bandiera (2003) and Gambetta (1993) show Sicilian Mafiosi provided governance by protecting land and enforcing contracts. Similar institutions existed in Japan, (Hill 2006; Milhaupt and West 2000), post-Soviet Russia (Varese 2005), and northern Italy (Varese 2006). Membership in organized crime increases in response to vio-

² The authors of the studies "that found the design principles inadequate tended to interpret them very rigidly and felt that successful systems were characterized by more flexibility" (E. Ostrom 2010: 653).

lence rather than precipitating it, which suggests that people join gangs for safety when formal government neglects in providing it (Sobel and Osoba 2009).

Consistent with the Ostroms' research, this article suggests that private organizations can provide local public goods. We argue that in the absence of formal government that addresses the needs and wants of local communities, private polycentric systems of governance emerge to fill the void. These institutions provide governance by settling disputes, securing property rights, and limiting negative externalities. In spite of incongruence among rules at multiple levels, and the lack of minimal recognition of rights by government and formal community conflict resolution mechanisms, innovative entrepreneurs can overcome these deficiencies and generate private organizations to meet demands for governance.

3. Application of IAD Framework to Prison Gangs

Long-enduring, robust self-governance institutions typically fulfill the eight principles described above. Although these criteria were initially used in the context of common pool resource environments, the IAD framework can be utilized for understanding governance institutions more generally. Below, we adopt this framework within the context of prison gangs, with specific emphasis on how incongruent rules, lack of formal conflict resolution mechanisms, and minimal recognition of rights by the state is overcome by innovative entrepreneurs. Although long-term self-governance regimes are possible without meeting all principles, their absence creates an incomplete governance system and can cause conflict.

3.1 Clearly defined boundaries:

Contributors to a public good take the risk that the benefits they produce will be reaped by others who do not contribute. Thus, defining boundaries of local public goods, specifying those authorized to use them, and closing it to outsiders is the first step in organizing collective action (E. Ostrom 1990: 91). Since incarceration makes monitoring free riding difficult, prison gangs depend on defining boundaries in a number of ways. First, they recruit high quality members. In the Mexican Mafia, a current member must sponsor a recruit and is liable for the recruit's behavior. Recruits must also receive unanimous approval from other gang members, assault or kill gang enemies, and promise lifetime membership before gaining membership. These practices prove dedication and ensure improved membership quality, while also limiting free riding.

Boundaries that specify those authorized to use the public good are defined in a variety of ways. In Los Angeles, gangs use the number 13 to signal affiliation with the Mexican Mafia, because M is the thirteenth letter of the alphabet. Street gangs, like MS-13, actually add “13” to their names to identify membership with the Mexican Mafia—ensuring the organization’s access to the local public goods and governance system provided by the prison gang. Gang members also tattoo the number prominently on their bodies, necks, and faces. These tattoos reveal membership in the organization and allow for easy recognition of who can and cannot access the governance system (*United States v. Barajas et al 2008: 5*). To free ride on the local public goods generated by the prison gangs’ governance services requires taking action that members of the organizations easily observe. These practices ensure that members and associates of prison gangs have clearly defined boundaries that limit free riding by those unauthorized to use the public good.

3.2 Congruence between appropriation and provision rules and local social conditions:

Appropriation and provision rules, especially those dictated by formal government, are congruent with local social conditions (E. Ostrom 2010: 653). The rules governing a local self-governance institution align with the national, state, and city laws. Typically, “adding well-tailored appropriation and provision rules helps to account for the perseverance” of a governance institution (E. Ostrom 1990: 90). Given that organized crime administers a system of governance that facilitates *illicit* and *illegal* market exchanges, it seems obvious that criminal organizations lack congruence with national, state, and city laws. Differences in rules generate potential sources of conflict and violence. Although incongruent institutions could lead to institutional failure in other settings, embedded governance institutions that are inconsistent with the *de jure* legal system persist in illegal markets. This interaction of incongruent formal government and local self-governance institutions generates complex, and sometimes conflicting outcomes.

Incompatible rules with self-governing institutions at the local level, and formalized institutions at the city, state, and federal levels, can generate significant conflict between government officials and members of self-governance institutions. It is “one thing for governmental agencies to participate within polycentric societal processes on the same terms as other participants,” but another thing altogether when these agencies ignore local institutions and instead participate as an external authority dictating how individuals and groups of people must behave (Wagner 2005:179). Incongruence between various levels of institutions perpetu-

ates one of “the greatest evils inflicted upon humanity” when the “work of those who are so confident of their effort to do good that they do not hesitate to use the instruments of evil available to them on behalf of their righteous cause” (V. Ostrom 1980: 312).

3.3 Collective-choice arrangements:

In a well-functioning system of self-governance, most individuals affected by an institution’s operational rules can modify them (E. Ostrom 1990: 93). This criterion allows members of an institution to adjust their rules to local circumstances. Individuals, who interact directly, modify the rules to better fit specific characteristics of an institution’s setting (ibid.: 93). It is important to note that two types of governance rules can constrain and coordinate a group’s operations in these collective-choice arrangements. Explicit rules are written, detailed constraints. For example, the Mexican Mafia and Nuestra Familia prison gangs coordinate their organizations’ productive activity, limit external costs, and mitigate rent-seeking through explicit rules. Typically stated in the gang’s constitution, explicit rules create common knowledge about what members can expect of other members’ behavior and reduce conflict by coordinating enforcement of rules (Leeson and Skarbek 2010; Skarbek 2010). Explicit rules define the most important behaviors, whereas less important rules remain implicit. Since it is costly to codify all aspects of an organization’s expectations, all groups rely on implicit constraints to promote particular behaviors. Unwritten rules provide a broad behavioral standard that ensures gangs can adapt to unforeseen situations within local contexts. Implicit rules, especially among decentralized organizations like prison gangs, ensure some flexibility in behavior that allows local actors to make decisions and adjust to changing circumstances.

Prison gangs also have mechanisms to voice dissatisfaction and influence rule changes from within. The Mexican Mafia, for example, requires a unanimous vote to have another member killed and an implicit rule of appealing to influential members to replace ineffective leaders. Similarly, the Nuestra Familia has an explicit protocol for filing grievances and for investigating complaints against predatory superiors. These mechanisms allow members to modify operational rules directly. Members of prison gangs have multiple collective choice arrangements that enable them to modify and change rules at the institutional level, which allows members to adjust their rules to fit the specific characteristics of the institution’s setting and helps ensure compliance.

3.4 Monitoring:

For a system of self-governance to function well, individuals who use a local public good monitor its use (E. Ostrom 2010: 653). Members of self-governance institutions create their own internal enforcement to deter potential rule breakers and assure compliance (E. Ostrom 1990: 95). Street and prison gangs have an incentive to monitor who claims affiliation with their organization in order to internalize the benefits of membership, prevent low quality individuals from weakening the group's reputation, and to limit free-riding. Gangs also unintentionally monitor reputation by attacking people who claim an affiliation with a rival organization. Although not designed, this unintended monitoring system limits the strategies available to avoid paying prison gang taxes and to free ride on the governance system. Prison gangs also monitor internal rule breaking through constitutional systems with checks and balances. The Nuestra Familia prison gang uses a constitution that includes mechanisms for monitoring rule compliance within a hierarchical system of governance. This system enables the lowest ranking gang members, who have specific and local knowledge, to monitor and report the actions of higher-ranking officials. The monitoring structure prevents internal predation, since members have an incentive to communicate information about abuses from their superiors.

3.5 Graduated sanctions:

Within well-functioning self-governance institutions, individual members who violate operational rules are likely to be assessed graduated sanctions by other members of the organization (E. Ostrom 1990: 94). Among robust institutions, members of the organization undertake punishments and sanctions, not external authorities (ibid.: 94-95). Drug dealers and prison gangs cannot rely on external authorities like the police, courts, or private arbitrators to provide punishment for rule infractions, so sanctions must come from within the organization.

Prison gangs utilize graduated sanctions against rule breakers that include fines, assaults, stabbings, and death. Although these sanctions escalate sharply from financial penalties to death, members assess punishment rather than an external authority. Punishments increase in severity based on past offenses and the nature of the rule infraction. In instances where a fine may be insufficient to remind the rule-breaker of the importance of compliance, harsher punishment is imposed. Actions that inflict serious harm on other members or undermine the group's well being leads to more serious punishment. The use of extreme vio-

lence ensures compliance to rules that generate high external costs, such as rules forbidding informing law enforcement or acting cowardly. Although prison gang sanctions are at times violent, both the monitoring of rules and punishment of infractions fall under the authority of gang members.

3.6 Conflict resolution mechanisms:

Within a functioning system of self-governance, members of the institution have rapid access to low-cost local arenas to resolve conflict (ibid., 100). If individuals are going to follow rules over a long period of time, there must be mechanisms for discussing and resolving disputes (ibid.: 100). Although conflict resolution mechanisms do not guarantee that members will be able to maintain enduring institutions; it is “difficult to imagine how any complex system of rules could be maintained over time without such mechanisms” (ibid.: 101). Members have constitutional provisions that allow them to voice dissatisfaction. However, the inability to use third-party arbitration and other more formal conflict resolution mechanisms can generate intergroup-conflict.

In the absence of formal institutions like courts and contract law, drug dealers often resort to violence to resolve disputes. Violence reduces the demand for drugs since customers feel threatened by it. Violence increases operating costs, as it draws attention from law enforcement and as dealers employ additional members to purchase firearms to protect territory (Levitt and Venkatesh 2000). Since prison gang revenues decline during drug territory wars, gangs provide governance that ensures the relatively peaceful adjudication of disputes.

The Mexican Mafia, as one example, “actually strives to minimize inter-gang violence so each gang would be more efficient in its drug-selling activities” (*United States v Fernandez et al. 2004:9, in Skarbek 2011: 711*). Before the Mexican Mafia negotiated conflict resolution, Hispanic gangs engaged in greater amounts of violence. Although prison gangs provide an organization structure that helps ensure resolution of conflict among diverse groups, criminal organizations lack access to formal conflict resolution mechanisms like courts to help mitigate violence.

The illicit nature of the trade prevents gangs from using formal community conflict resolution mechanisms. Without the continuing jurisdiction of the court or access to contract law, individuals involved in illicit markets, like the drug trade, lack the formal conflict resolution mechanisms that are frequently essential to sustained self-governance institutions. Absence of formal conflict resolution mechanisms actually creates the demand for governance that prison gangs pro-

vide. Unable to settle business and territory disputes in court or through private arbitration, drug dealers are given the choice between extortion by prison gangs to enjoy the benefits of conflict resolution or violence for non-compliance. If formal government provided local arenas for conflict resolution or legally enabled private third-party arbitration to negotiate settlements between gangs, it seems unlikely that the levels of violence so commonly associated with these groups would exist, or that prisoners would have the power to extort criminals from behind bars. By failing to provide formal mechanisms for resolving disputes when demand clearly exists, the state perpetuates the prison gang's system of extortion and violence.

3.7 Minimal recognition of rights to organize:

Within functioning systems of self-governance, the rights of individuals to devise their own institutions are undeterred by external authorities (E. Ostrom 1990: 101). If external government officials presume that only they have the authority to make rules, it is difficult to sustain self-governance (ibid.: 101). Given the illicit nature of criminal organizations, external authorities regularly challenge the right of individuals to devise their own institutions. Unexpectedly, it is this challenge, rather than because of it, that prison gangs administer their system of governance. Despite the absence of rights to organize, innovative entrepreneurs can adapt their behavior to formal institutions.

The Mexican Mafia, as one example, wields power in large part due to their ability to utilize formal institutions to the organization's advantage. The gang uses its geographic concentration in Men's Central Jail, proximity to the Central Arraignment Courthouse of Los Angeles, and racial segregation in California prisons to control influence over Hispanic gangs. The large concentration of gang members in Men's Central Jail gives the Mexican Mafia the power to extort street gangs. Since the Mexican Mafia's members and associates are frequently on trial, the jail's proximity to the Central Arraignment Courthouse of Los Angeles enables members to have their enemies or fellow gang members transferred to their location. The use of formal institutions provides greater extortion power, and enables the Mexican Mafia to generate greater control and influence on the narcotics trade in Los Angeles. Prison gangs also understand that correctional facilities segregate dormitories and that all newly arrested inmates of their ethnic group will be housed in the same place, which yet again helps provide a legitimate threat of violence for the gang's extortion. The Mexican Mafia's use of formal institutions like the Men's Central Jail, proximity to the Central Arraignment Courthouse of

Los Angeles, and formal segregation all point to the ability of innovative entrepreneurs to overcome formal institutions.

Without minimal recognition of the right to organize by formal government, criminal groups lack the legitimacy associated with legal enterprises. Whereas individuals operating legal businesses are able to protect property rights and enforce agreements through formal government and contract law, prison gangs must, at times, rely on violence to control contraband markets and to prevent entrance of new inmate groups who attempt to capture gains from the illicit market. Rather than preventing the long-term sustainability of the self-governance institution, however, a lack of minimal recognition of rights by formal government actually empowers the criminal group and increases the likelihood of violence.

3.8 Nested enterprises:

Within a polycentric system of self-governance, appropriation, provision, monitoring, enforcement, conflict resolution, and governance activities are organized in multiple layers of nested enterprises (ibid.: 101). Establishing rules at one level without rules at others will create an incomplete system that may not endure over the long run. Criminal organizations must provide much of the governance they demand themselves. In spite of this nesting, the incongruence of rules at the national, state, city, and community levels ensures an incomplete governance system.

4. Conclusion

Prior to the 1950's, inmates relied on decentralized norms for self-governance. Norms became ineffective at providing governance because of major demographic shifts in prison populations, which created demand for a governance system to address the needs of inmates and substantial profit opportunities for groups that had a credible threat of violence and could deter opportunistic behavior. Since formal government was either unable or unwilling to meet these demands, private organizations emerged to capture gains from illicit market exchange. Given the nature of this trade and the potential for profits, it should come as no surprise that private organizations fill the void created by inoperative, centralized government. What probably remains less clear, however, is that prison gangs operate within a larger polycentric governance system of organized crime.

Polycentric provision of local public goods consists of "many centers of decision-making, which are independent of each other" (V. Ostrom et al. 1961: 831).

By removing high ranking government officials as the final source of knowledge and authority, polycentric orders permit local actors to better utilize dispersed, localized knowledge of time and place that is essential to sound economic decision making. Although prison gangs enjoy some monopsony power, if situated within the larger context of criminal organizations, it becomes evident that these groups operate within multiple centers of decision-making that are relatively autonomous. In Los Angeles, for instance, there are at least 21,000 gang members who belong to over 400 Hispanic gangs (Los Angeles Police Department 2006). These street gangs operate autonomously within their neighborhood-based enterprises, competing for territory and revenue with rival gang organizations. Gangs are geographically dispersed to such an extent that it is impossible for one to control the entire drug market. The geographic dispersion and large number of groups creates competition among criminal organizations. Competition for governance ensures that the number of governmental decision making authorities increases and that the jurisdictional size of each governmental unit is smaller. Dispersion of power and competition is apparent beyond the municipal level as well. The *Nuestra Familia* in Northern California, for instance, was founded in the mid-1960's to counter the Mexican Mafia's abuse. The organization emerged as an alternative and a competitor to the Mexican Mafia (Skarbek 2011). Competition is limited to some degree by restrictions placed on membership like race, location, and region. However, these limitations have ensured the emergence of overlapping jurisdictions in the larger criminal underworld. Rather than one prison or street gang controlling large geographic areas, organizations are limited to decentralized systems of governance that contain multiple centers of power.

Minimal recognition of rights by formal government, formal community conflict resolution mechanisms, and congruent institutions at multiple levels are all elements identified in Elinor Ostrom's research as practices that lead to long-lasting institutions. Although these principles are apparent in most robust institutions, prison gangs have demonstrated their effectiveness in the face of both violent intergroup hostilities and active suppression by government to creatively overcome these design failures. The absence of these three principles, while likely unique to the illicit trade's context, show how robust self-governance institutions that fulfill most design principles can emerge. Innovative entrepreneurs can utilize their lack of minimal recognition of rights, formal conflict resolution mechanisms, and congruent systems, to their advantage, generating power and ensuring the survival of their organization.

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Property Taxes and Polycentricity

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There are no taxes capable of financing our current system of local governments that can be locally levied and administered, except the property tax.

—G. W. Fisher (1996: 210)

[The property tax] resembles a structure designed by a mad architect, erected on a shaky foundation by an incompetent builder, and made worse by the well-intentioned repair work of hordes of amateur tinkers.

—F. C. Stocker (1991: 1)

1. Introduction

Elinor and Vincent Ostrom have dedicated their professional careers to understanding polycentric forms of public administration. A polycentric public administration system is one that is highly decentralized, with many independent and overlapping jurisdictional boundaries. The purpose of this paper is to consider what form of public finance can allow for such a system to exist with the principles the Ostroms have laid out in what has become known as the “Bloomington School” of institutional analysis.

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Early on in their careers, the Ostroms argued for polycentric forms of public administration, particularly in metropolitan areas where many of their intellectual rivals believed a single centralized authority should exist. Ostrom et al. (1961) lay out the considerations that should determine the optimal design of public administration:

1. The size of the governmental unit required to undertake the provision of a good or service;
2. The citizens directly affected by provision;
3. The political community for whom the nature and provision of the public good is being determined.

While these criteria did not outright exclude a single universal general purpose administrator of all public services in a metropolitan area, it was also clear that such a form seemed unlikely. It was far more likely that the implied optimal design would have polycentric nodes of administration, in which administrative districts would be defined by a narrower set of functions, and that these districts could have non-congruent borders with other service districts. For example, within a metropolitan area there may be multiple school districts, as well as multiple police districts, and there does not need to be any correlation between the administrative boundaries of the police districts with those of the schools. Furthermore, service provision levels need not be the same across these units, as the preferences of the communities may differ for each type of service. Given the nature of these criteria, it is not surprising that many people view the Bloomington School of Political Economy, albeit incorrectly, as one that explicitly advocates for small, decentralized, and overlapping governmental units.

“Who” should determine such a polycentric system? The general Bloomington view has been that it should result from the democratic involvement of the population, and this has been an important reoccurring theme in their analysis of institutions. In the context of public administration, the notion of democratic involvement is more than having elected representation or voters who make an appearance on election days. Their view of democracy is one of local participation and contribution, making it much closer in spirit to Alexis de Tocqueville’s observation of Americans finding ways to encourage voluntary collaboration and shared experience within communities.

From a public finance perspective, the Ostrom-polycentric system represents a number of challenges. Any governmental unit must have a procedure for extracting economic resources so that its operations are adequately financed. This

fact was not lost on America's founders, who devoted a considerable portion of the U.S. constitution to creating independent access to economic resources that would allow for a Federalist system of government. For overlapping governments to maintain a shared sovereignty, they must be able to independently and adequately access the same economic system. If autonomy of individual units within a system of multiple overlapping governmental units is desirable, then a means of permitting simultaneous financial independence of very similar areas in a relatively small community is necessary. These requirements are further complicated by the fact that mobility of citizens between government units serves as a constraint on such economic extraction.

America's answer to the financing of polycentric public administration has been the real property tax—a tax levied against land and its capital improvements, so as to distinguish it from taxes on “personal” (e.g., cars or boats) or “intangible” (e.g., stocks or bonds) property—which has characteristics that are unique among taxes. These unique characteristics are discussed with an eye toward explaining how the real property tax allows for multiple, decentralized, and overlapping polycentric nodes of public administration to have financial independence necessary for fiscal autonomy. Furthermore, we discuss the way the property tax incentivizes the kind of democratic action that the Ostroms have associated with polycentricity.

The next section briefly describes the administration of the property tax, which is often misunderstood but important to understanding the incentives of taxpayers and public officials.

2. Property Taxes and Polycentrism

Before proceeding to why the property tax has emerged as America's answer to the public financing of polycentricity, it is perhaps helpful to identify why most other taxes are not up to the task. From a legal perspective, the United States constitution has much to say regarding taxing powers, in part for the purpose of trying to maintain state and federal government sovereignty. Under Article 1, Section 2, Clause 3 of the Constitution, all federal direct taxes (including the property tax) must be apportioned among the states on the basis of population. The Federal government tended to rely upon import and export tariffs, and in 1913 was able to levy income taxes without apportionment with the passage of the 16th Amendment. States and their underlying “creatures” retained greater abilities to levy direct taxes.

The only non-property tax instruments whose revenue potential is adequate enough to allow for fiscal independence are those on sales and income. State governments have largely focused on these revenue sources, and increasingly delegated the property tax as the primary financing mechanism to the local levels. While local areas often can and do levy sales and income taxes, these sources are not good candidates because they represent taxes upon mobile bases.¹ The smaller the district wishing to raise its individual rate, the more easily transactions move outside its jurisdiction. Furthermore, governments would inevitably find the size of their tax base to be jointly determined by all of the overlapping governments, such that the increasing of the rate by a school district might shrink the base and lower the revenue available to all other administrative districts with a shared domain.

2.1 The Administration of Property Taxes: Expenditures, Levies, and Rates

The property tax overcomes these problems in part because of its unique administration. This section describes how the nature of administration directly links the property tax revenue to the level of expenditures, and does so in a manner that provides a remarkably stable source of revenues. The property tax is formally an ad-valorem tax, meaning the liability on an individual property is determined as a percentage of its value. This leads to the common mistake, even among public finance scholars, of assuming that the property tax has the same relationship between rates and revenues as is seen in other forms of taxation. For other taxes, public officials determine the rate, either as a dollar per unit or as a percentage, and then tax revenue is derived from the observed volume in the taxable base.

Administering taxes upon real property works quite differently, in that the process begins with the amount of revenue to be raised. More precisely, the government body determines its expenditure level (E) for the fiscal year using the local democratic norms, and then it subtracts revenue (R) from all other sources to result in the property tax levy (L):

$$L = E - R$$

The levy (L) is the aggregate amount of revenue to be raised from property taxation. The above identity begets an important relationship that will be touched upon throughout the remainder of this paper: *The community choice of property tax level is tantamount to a simultaneous choice of expenditure level on services.* If other taxes were the sole source of revenue, then annual expenditures would rise

¹ See Hall and Ross (2010) for a recent review of local government tax instrument choice.

and fall in accordance with the volatility of the base to maintain balanced budgets. The choice of service level is far less predictable when that community chooses a fixed rate, even if it does so frequently. Whatever democratic process is employed to choose service provision is simultaneously, and with equal frequency, applied to the choice of property tax burden.

The next stage of the budgeting process is to convert the levy to a millage rate (i.e. property tax rate) to determine the tax burden faced by an individual household. The millage rate (τ) is determined by dividing the aggregate levy by the aggregate level of total taxable property values (P):

$$\tau = \frac{L}{P}$$

For concreteness, consider an area with three parcels demanding a \$1K property tax levy for services, and assume that the three parcels have taxable property values of \$20K, \$30K, and \$50K. The millage rate in this case is:

$$\tau = \frac{1\text{K}}{20\text{K} + 30\text{K} + 50\text{K} = 100\text{K}} = 0.01$$

This millage rate results in the following distribution of tax burdens by parcel:

Property Owner	Millage Rate	Tax Bill
\$20,000	0.01	\$200
\$30,000	0.01	\$300
\$50,000	0.01	\$500

One of the consequences of this process is that the millage rate is a “residual” rather than a determinant of the revenue raising process, and the value of the underlying property is also not a formal determinant.² If the taxable value of property were to raise by a uniform 100% across all parcels, the millage rate would be cut in half and the distribution of the property tax burden would be unchanged:

$$\tau = \frac{1\text{K}}{40\text{K} + 60\text{K} + 100\text{K} = 200\text{K}} = 0.005$$

² For a more in-depth discussion of “the residual view” and its determinants, see Ross and Yan (Forthcoming).

This millage rate results in the following distribution of tax burdens by parcel:

Property Owner	Millage Rate	Tax Bill
\$40,000	0.005	\$200
\$60,000	0.005	\$300
\$100,000	0.005	\$500

Part of the reason for this form of administration is due to the fact that the tax is based upon a stock of an asset, rather than a flow of commercial exchanges. The physical quantity of land in the base will remain unchanged, and the capital investment will be a durable good composed of previous household investments. Furthermore, the frequency at which each of these parcels is traded can be quite low, with some not selling for decades. As such, the property tax requires an assessment process to determine the distribution of value across the base. During the property assessment process an agent of the government takes inventory of the structures and features of the property in its territory for the purpose of determining its taxable value.³ One could see where the potential for manipulation would arise if the property tax rate were fixed in the same manner as other taxes, as revenue could rise or fall at the whims of an administrative official.

By making the base independent of the revenue raised, however, it demotes the role of property assessment to only playing an equity role, in which each property pays in proportion to its share of the base. This is not to say that politics do not occur in property assessment, as there is evidence indicating that property assessors do respond to pressures from their constituents (see Ross, 2011, 2012a), but only that this process is only important to revenue extraction in terms of the political consequences of inequitable tax burdens. The necessity of the property assessment process is evident, but so is the subjectivity of the process.

³ Property assessments usually determine the taxable value of a property through some gauge of the “fair market value,” which is based upon a willingness-to-pay of hypothetical prospective buyers in normal circumstances. Basing the assessment on the “replacement cost” of the property unit was popular at one time, and that standard still exists in some areas of the United States. Interestingly, Adam Smith found property taxes based on a valuation to be “...an attention so unsuitable to the nature of government, that it is not likely to be of long continuance...” that would ultimately “... occasion much more trouble and vexation than it can possibly bring in relief to the contributors” (Smith 1776: 899).

Unlike most public officials, the assessor would literally visit taxpayers to determine their individual liability. This could create a considerable incentive to under-assess property, especially if the property assessor had been elected by that constituency. Passing a levy and then determining the millage rate by residual made the total property tax revenue collected independent from the property assessment process. No matter how error prone the assessor, or systematically biased towards lowering the assessed values of the constituency, the revenue raised would be the same. The assessment process would then only serve an equity role, so that changes in the distribution of the assessed values could be reflected in the distribution of individual liabilities. This process also makes municipal debt a relatively safe financial investment for lenders, who can be confident that the government is fully capable of repayment no matter what happens in the business cycle, and thereby lowering the cost of capital for investments in public services.

The levy setting process might be more problematic if voters could escape the jurisdiction without paying their property taxes. However, the property tax is levied *in rem*, or against the property rather than the person. As Mikesell (1998: 189) aptly observed, “[property tax] administration can proceed without much danger that the parcel will disappear or flee the jurisdiction.” Because the property itself is immobile, delinquent or non-compliant taxpayers are only capable of minimal revenue impact upon the taxing jurisdiction. Unpaid property taxes, as well as penalties, interest, and compliance costs can be accrued and attached as the first lien against a property. Any exchange of the property requires that the tax lien be paid, and the government retains the authority to seize and auction the property through a tax sale. It is no mystery then, that governments routinely collect 99-100 percent of the property tax revenues they levy, even if the taxpayer disappears or refuses to sell the property to a compliant taxpayer (Ross 2012b).

In summary, the administrative characteristics of the property tax create a number of important points of consideration for polycentric local government districts. First, property taxes are jointly determined with expenditures, so that there is no meaningful separation of the two figures during the budgeting process. Secondly, virtually all property tax revenue levied is collected, making it an adequate source of revenue for financing services. Third, it is levied against immovable property, which circumvents the mobility problem small districts experience when they raise taxes. Next we discuss how property taxes are conducive to overlapping governments, and why these features encourage a democratic process.

2.2 Property Taxes and Polycentric Nodes of Public Administration:

The property tax's unique administrative characteristics allow for independent access by multiple overlapping governments, and does so in a way that maintains fiscal autonomy in terms of both revenue adequacy and administration. Furthermore, the administrative process is one that allows for relatively flexible jurisdictional boundaries by permitting changes in association of parcels across different public service districts within an area.

A \$100	B \$50	C \$200
D \$150	E \$200	F \$100

Figure 1: Polyville by Property Parcel and their Taxable Value

To illustrate how property taxes work in a polycentric system, consider the fictional metropolitan area of Polyville in Figure 1. This hypothetical account is employed for illustrative simplicity of identifying property-service affiliations, but the simplicity of administration is not meaningfully exaggerated. Figure 1 demonstrates an area composed of six property parcels, identified by a letter (A-F) and a taxable value. Let's consider a case where Polyville is served by two school districts, three waste districts, two fire districts, and three library districts.⁴ Table 1 lists each of these districts and the property parcels which are within their jurisdiction, their public expenditures, property tax base, and the resulting implied millage rate. Once again, when each district determines its expenditure level, it is jointly determining the property tax rate because it must take the base as a given, creating an inseparable link between service level and tax burden.

As can be seen in Table 1, no two districts have exactly the same set of parcels in their domain. A household selecting a parcel is, in fact, simultaneously choos-

⁴ A monocentric alternative would have a single general purpose government covering all parcels and providing all services.

ing their most preferred bundle of public services and taxes within Polyville. To the extent that any particular district deviates from their preferences, they must hope to convince the administrative district to change its allocation by whatever means is consistent with the local democratic process.

Table 1: Polyville's Arrangement of Public Services

Public Service	Parcels	Expenditure (\$)	Tax Base (\$)	Millage†
School District 1	A+B+C	20	(100+50+200)=350	0.0571
School District 2	D+E+F	10	(150+200+100)=450	0.0222
Waste District 1	A+D	5	(100+150)=250	0.0200
Waste District 2	B+E	5	(200+50)=250	0.0200
Waste District 3	C+F	5	(200+100)=300	0.0167
Fire District 1	A+B+D+E	40	(100+50+150+200)=500	0.0800
Fire District 2	C+F	20	(200+100)=300	0.0667
Library 1	B+D+E+F	60	(50+150+200+100)=500	0.1200
Library 2	A	10	100	0.1000
Library 3	C	10	200	0.0500

† Expenditure divided by Tax Base

Table 2 cross-tabulates the information from Table 1 as it would be recorded in a government database, abridged only by ignoring information specific to the parcel (e.g. address, owner's name, and so on.). For each parcel, a public service provider is identified for each type of service, and in doing so it reveals that no two parcels have exactly the same set of providers. Since each property represents a unique bundle of public services, the effective millage rate to the parcel owner is calculated by summing the millage rates for each service provided in Table 1. The individual tax bill is calculated by applying the owner's effective millage rate against their individual property value. The tax collector then remits this tax payment back to the service provider in proportion to the service millage rate's share of the total effective millage rate. For example, parcel A has school district 1, waste district 1, fire district 1, and library district 2, and from Table 1 this implies an effective millage rate of $(0.0571 + 0.0200 + 0.0800 + 0.1000 =) 0.2571$. The resulting $(100 \times 0.2571 =) \$25.71$ tax bill is then split into four separate payments of $(\$25.71 \times \frac{0.0571}{0.2571} =) \5.71 to school district 1, $(\$25.71 \times \frac{0.0200}{0.2571} =) \2.00 to waste district 1, $(\$25.71 \times \frac{0.0800}{0.2571} =) \8.00 to fire district 1, and $(\$25.71 \times \frac{0.1000}{0.2571} =) \10.00 to library district 2.

This allows the political community for each service to differ for both logistical considerations in adequate service delivery, and for differences in preferences for the level of provision, all the while allowing for fiscal sovereignty. Since the base is independent and irrelevant to the amount of revenue, and the parcel cannot leave the tax jurisdiction, changes in chosen property tax revenue demands by one district do not directly influence the revenue raised in any other overlapping jurisdiction. If the parcel owners of Library District 2, for example, determined to double the expenditure level, it would raise their own property tax rate by an additional 0.10 mills with the entire burden falling on parcel A, and there would be no accompanying revenue effect on any of the overlapping jurisdiction. By contrast, if a library sales tax rate was added to transactions over parcel A, much like local and state income taxes are currently employed, there would be an accompanying shift as some transactions moved off of parcel A altogether, reducing the taxable revenue for all public service districts that administer to parcel A.

Now consider a more dynamic setting where parcels are capable of changing their affiliations. In principle, the ability of individual units to change public service affiliations is perhaps the most important mechanism in polycentric public administration, arguably more important than actually having multiple nodes. A system in which each parcel voluntarily opts into a universal provider of all services may be a better representative of a polycentric system than one that engages in mandatory (and static) decentralization. Suppose the owner of Parcel B conceives that Library District 3 would be a better fit for his preferences than District 1.

Table 2: Polyville's Service and Tax Bill by Parcel

Parcel	Value (\$)	School	Waste	Fire	Library	Millage†	Tax Bill (\$)††
A	100	1	1	1	2	0.2571	25.71
B	50	1	2	1	1	0.2771	13.86
C	200	1	3	2	3	0.1905	38.10
D	150	2	1	1	1	0.2422	36.33
E	200	2	2	1	1	0.2422	48.44
F	100	2	3	2	1	0.2256	22.56

† - Sum of millage rates by public service found in Table 1. †† - Millage rate times Parcel Value.

Divorcing his affiliation would reduce the tax base in Library District 3 to \$450 and increase it to \$250 in library District 1, which *ceteris paribus* reduces the millage rate and tax burden for District 1 while increasing it in District 3. These effects may be mitigated somewhat by competing effects in the administration of services. In considering the acceptance of parcel B into the current library district, the current owner of parcel C would weigh the reduced tax burden against any perceived needed increases in expenditures to accommodate the higher demand, as well as any quality erosion such as greater congestion at the library. Likewise, the higher tax burdens to parcel owners D-E-F may be offset by lower expenditure demands and congestion. Further, the ability of parcel B (or any other contiguous parcel) to change affiliations can incentivize more aggressive competition for tax base that somewhat resembles a marketplace, in which library districts compete via product copying and/or differentiation.

This narrative should illustrate that, although the tax base cannot escape a jurisdiction, there remains mobility of association for at least the properties along the boundaries of its administrative zone. Association choice is not the only form of mobility that is important, as the next section will demonstrate that mobility effects remain an important component of the overall democratic nature of the tax.

2.3 Taxation In Rem Does Not Reduce the Importance of Mobility: Capitalization in the Housing Market:

The previous section described the administration of the property tax, and paid particular attention to the dynamics of public service affiliation. At the same time, the public services and the property values were held constant, and the incentives for competition in tax base came strictly from mobility of parcel owners to change their affiliated services. This section adds another layer to this set of incentives by considering the relationship between property values, public services, and taxes. An equilibrium outcome of a neoclassical model of consumer choice would be characterized by each property yielding the same level of utility across all consumers with the same endowment and preferences. Consider a case in which the stock of services are fixed across all parcels in a neighborhood, but the property tax payments differ. The present value of household expenditures for residence at the property will be the sum of the payment for the property (v) and the expected future property tax payments ($(t \cdot v)/i$), where i is the interest rate. The only reason for households to prefer one property over another in this case is due to differences in the tax payments and the quality of the public services (g) as

they enter into a dollarized household utility function, $U(g)$. A simple expression of this would be to consider the purchase price of the property as representing the benefits of the service less the tax payments that accompany it:

$$v = U(g) - \frac{tv}{i}$$

If the quality of the service rises in excess of its tax payments, the property appreciates in price v so that household utility remains equal across all properties. If quality remains constant while the tax payments increase, then property values likewise decline. Hedonic estimation of this form is well understood and so commonly accepted in economics that it is frequently employed to estimate the inferred benefits of locational attributes that are not directly traded in a marketplace setting (see for example, see Brasington and Hite 2005; Chay and Greenstone 2005; Bayer et al. 2009; Nahman 2011; Leguizamon and Ross 2012).

From an ex-post perspective, capitalization would seem to undermine many concerns for inequalities arising from poorly administered public services because owners are compensated with less expensive property. For the notion of polycentricity, however, this capitalization of net benefits creates an additional set of political economy incentives because it incentivizes property owners to view public services as assets that contribute to their property wealth. Suppose a new curriculum is adopted in school district 1, but not in school district 2. If this curriculum revision turns out to be a desirable one, then property values in school district 1 will rise while those in school district 2 will depreciate until the difference between them is equal to the benefit of the curriculum revision. Even if parcel owners in school district 2 do not directly value the service (e.g. if they had no school age children), they nevertheless would suffer some loss of wealth by living in a district which has neglected a similarly favorable revision.

In section 2.2, the significance of mobility was limited to the prospect of a parcel switching public service associations, which of course is limited to the borders of each district. Capitalization returns mobility to an important consideration of the policy process because it only requires that there be demand for property in Polyville, which can come from current or potential new residents moving into the area. Competition for these migrants by creating an appealing community mix of services contributes to increasingly valuable property for the entrenched owners. Therefore, even if locals find no innate motivation to contrib-

ute to the democratic process and monitoring their local public administration, capitalization gives them a significant financial interest.

The role of housing values in encouraging local participatory democracy has been extensively reviewed in Fischel (2001), and it has long served as the motivation for the view among economists that there may be positive externalities from homeownership (see for example, Hoff and Sen 2005). The capitalization of property taxes should also make it an especially appealing revenue instrument to those who subscribe to the view that voters have a tendency to indulge in “irrational” policies that they would not prefer if they shared in the cost. For example, Caplan (2007) points to the minimum wage as an example of such a policy, which he argues would be less likely to receive widespread support if an individual vote were costly, by which it is meant that the vote is decisive and that the law would be binding to the voter’s employment prospects. By contrast, rent control seems to enjoy similarly high levels of voter sympathy, but seems to only persist in large cities with high rentership rates, possibly due to homeowners who recognize the negative effects the price control has on the housing stock (Fischel 2001).

The capitalization of public services and property taxes should also be an appealing characteristic to those in public administration who favor the bottom-up, inductive, public administration process. This vision of public administration values increasing citizen participation. Advocates of this view theorize that the result of this form of governance is an increase in competent and neutral administration, which is in line with the utility function of a government’s citizens (Weimer 2005). The problem with increasing citizen participation is determining how to effectively ascertain and utilize it in a manner that allows for a feedback mechanism, and there have been many proposals along these lines (see for example Fung 2003, 2006; Ebdon and Franklin 2006). We suggest that the solicitation of this information is tantamount to estimating what the impact of a project will be on housing prices, about which most property owners will care a great deal.

3. Conclusion

In this essay, we argue that property taxation has historically been the only revenue instrument for the public financing of a polycentric system of metropolitan government. In fact, we know of no other revenue instrument that mimics its characteristics sufficiently well enough to provide for an autonomous and sovereign local system. Over the last few decades, many states have undertaken significant reforms for the purposes of restraining local government access to the

property tax, and the cost of these services will likely be accompanied by diminished local sovereignty.⁵ For instance, in 2009 Indiana imposed property tax caps to limit the possible tax burden, and in exchange moved the operating budgets of all school districts into the general fund of the state. Likewise, in North Dakota there is a proposed constitutional amendment (Measure 2), which would eliminate property taxes as a source of local government revenue and replace it with state tax revenue. How plausible is it that Indiana school districts or North Dakota local governments will retain local autonomy over public service provision when the financing is provided by the state? Our expectation is that, over time, there will be an increasing emphasis on consolidation towards single general purpose governments that provide favorable economies of scale. Proponents of polycentricity should probably be opponents of reforms that detract from the property tax, and we echo the sentiments expressed by Mikesell (1997: 106):

[The property tax] is a tax which, because its base is visible, easily attached, and taxable at a leisurely pace, can be effectively administered at the local level. Hence, the idea of local governmental independence and the property tax are intimately linked. Other broad and productive options are beyond the possibility of local operation, save as supplements to a tax levied and administered by a higher (state) government. Thus if it is desired to have governmental services provided by a government that is close to the people, then the property tax is the only meaningful option. Those who value local government ought, by the same token, to love the property tax and to work to make it productive.

⁵ This has been largely driven by school finance reform (see Fischel 2001). States have public education as a constitutional responsibility, and some have interpreted the local financing and provision of education as an unconstitutional source of financial inequity.

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