The Public Choice and Transaction Cost Traditions in Ostrom's Thinking about Governing the Commons

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Abstract

This paper shows how Elinor Ostrom's public choice roots and transaction economics inform her ideas of Governing the Commons. We define Ostrom's thinking as being based in three inter-related collective action problems of knowledge, boundaries, and consent, and examine early public choice and new institutionalist thought on her approach. The historic starting point of thinking about CPR is Pigou's concept of pollution externality. His solution is a tax, which, ignoring the exclusionary trait, curbs the rival characteristics of pollution though regulation and essentially transforms the CPR, clean air, into a public good. Later, Coase revisited the topic of externality and came to the opposite conclusion by addressing the aspect of exclusion rather than rivalry. Independently, there also was a discourse on the theory of public expenditure, starting with Samuelsson's claim that public goods could optimally only be provided by the state. Tiebout, however, contradicts Samuelson showing that there exists a market-type solution for the provision of "local" public goods. This argument is followed by Buchanan's theory of clubs. Hardin, then, introduces the concept of the CPR and says that the "tragedy of the commons" can be solved by either enclosure of the commons (in the Coase tradition of private property rights), or, alternatively, by state regulation (in the Samuelsson and Pigou tradition of public goods provision and regulation of externalities). Ostrom, however, being influenced by both Tiebout and Buchanan, saw a third way of solving the CPR problem. Her proposed solution was to redefine the CPR to what is essentially a local public or club good by partially addressing the characteristics of exclusion and rivalry simultaneously. Exclusion is addressed group enclosure rather than the creation of private property, and rival consumption is addressed by the governance institutions rather than state regulation.

Introduction

This paper examines how Elinor Ostrom's public choice roots inform her ideas in *Governing the Commons.* Both Elinor and Vincent Ostrom are foundational thinkers in the public choice movement, and our paper examines the network of early influences of both public choice and the related work of new institutionalism in Elinor Ostrom's thinking on common pool resources (CPRs). We see Ostrom's analysis of CPR collective action issues growing out of three inter-related problems of knowledge, boundaries, and consent. As public choice and transaction cost approaches most directly influenced Ostrom on issues of boundaries and consent, we focus on those issues.

Three Problems in Common Pool Resources

Ostrom's approach to common-pool resources can be seen as falling into three inter-related issues: the knowledge problem, the boundary problem, and the consent problem. The knowledge problem concerns how appropriators of common pool resources behave in conditions of fundamental uncertainty. The boundary problem consists of how are social and physical boundaries are placed around CPR access. And the consent problem is how people can or cannot self-govern common-pool-resources.

In this paper, we focus on the influence of the public choice and transaction cost economics traditions on the boundary and consent problems. Ostrom's approach to the knowledge problem has some influence from the public choice literature (see Ostrom and Ostrom 1971), but draws in a much wider scope of influences than we consider here.[12] In brief,

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[1] These influences include literature of uncertainty, knowledge, information signaling, bounded rationality, and organizational learning. See, for example, Knight (1921), Hayek (1945), Simon (1957), and Stigler (1961).

individuals faced with collective action choices around CPRs face many uncertainties from a lack of knowledge about the common resource and their impact on it and uncertainty based on strategic actions of others (Ostrom 1990: 33-35). Solving these uncertainties is way of creating credible commitments and facilitating trust in CPR collective action.

Public Goods and Common Pool Resources

An important starting point for the boundary and consent problems is the public choice challenge to the predominant theories of public goods in the 1960s and 1970s. Contemporary public goods theory really began with the mathematical formulation the concept by Samuelson (1954) and further developments by Musgrave (Musgrave 1959; Musgrave and Musgrave 1957). Public goods are defined as goods which by their nature are non-exclusive (i.e. it is hard or impossible to limit access to the good) and have non-rival consumption (one person's use of the good does not impact another's use, also known as joint consumption). Samuelson believed that since non-rival consumption would make the marginal cost of goods zero, public goods would not be produced in the market. Musgrave (1959), instead highlights the role of excludability in producing a market failure, since individuals cannot be excluded from the benefit, they are not forced to contribute or reveal their preferences. For both Musgrave and Samuelson, the prescription is similar: public goods will not be produced by the market, and therefor only government action will produce them. Samuleson (1954) metaphorically laid down a gauntlet when he stated that it was "impossible" for a "decentralized spontaneous solution" to produce public goods (389).

Just two years after the Samuelson's decree, Tiebout (1956) demonstrated that there is at least one group of public goods, local public goods, which can be provided based on the

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[2] Frank Knight and the concept of Knightian Uncertainty was an important influence on Ostrom as well as Buchanan and Coase who are discussed in more detail below. Buchanan was Knight's student at the University of Chicago.

exclusion principle of municipal membership. The idea of local public goods was further developed in Ostrom, Tiebout and Warren (1961) as was foundational to the Metropolitan governance debate of the 1960s and 1970s. A similar challenge to Samuelson was Buchanan's 1965) theory of clubs. Both Tiebout and Buchanan showed that under certain conditions, public goods could be delivered by market-like arrangements. For Tiebout it was through a system of metropolitan mobility where people "vote with their feet" for collective goods by moving and for Buchanan it was through the possibility of providing for non-rival goods through clubs. In both cases, the non-rival good could be delivered outside of the tax-financed state through a mechanism of exclusion. The most important finding by Buchanan (1965) is that, while the "public" good is produced at decreasing cost, it never reaches a marginal cost of zero. Therefore, it optimally can be equated at marginal benefit, which depends, just like marginal cost, on size of membership. Optimality can thus be reached through optimal membership size. This is what Tiebout (1956) had already hinted at with his finding of optimal size of community. The size of membership is related to the ability to effective exclude.

The public goods debate of this time led to the articulation of the typology of collective goods based on variance in rival consumption and exclusion. Musgrave and Musgrave (1973) presented the first typographic matrix of collective goods using these variables, but the version of the collective goods matrix that common appear today with category names and examples comes from Ostrom and Ostrom (1977). The Ostrom's use jointness of consumption rather than rivalry, though it is clear that they are near identical concepts. They define jointness in the negative, "no jointness of consumption exists when consumption by one person precludes use or consumption by another person."(77). Important here is the role of subtractability, which both distinguishes their account from Musgrave and distinguishes common pool resources from public goods. Exclusion “occurs when potential users can be denied goods or services unless they meet the terms and condition of the vendor (76). The presentation of the matrix in Ostrom and Ostrom has a different theoretical purpose than earlier representations. Musgrave sought to illustrate goods that were subject to market failure, while the Ostroms seek to explore different institutional arrangements for the delivery of collective goods (Desmarais-Tremblay 2017).

Consumption	Exclusion	
	Feasible	Not Feasible
Rival	1	2
Nonrival	3	4

Figure 1 Musgrave's collective good matrix. Source: Musgrave and Musgrave 1973: 54

		Jointness of Use or Consumption	
		Alternative Use	Joint Use
EXCLUSION	Feasible	Private Goods: bread, shoes, automobiles, haircuts, books, etc.	Toll Goods: theaters, night clubs, telephone service, toll roads, cable TV, electric power, library, etc.
	Infeasible	Common Pool Resources: water pumped from a ground-water basin, fish taken from an ocean, crude oil extracted from an oil pool.	Public Goods: peace and security of a community, national defense, mosquito abatement, air pollution control, fire protection, streets, weather forecasts, public TV, etc.

Figure 2The Ostrom's collective good matrix. Source: Ostrom and Ostrom 1977: 19.

This formulation is important for our account, because it puts the concept of common pool resources in a continuum with public goods and with the debate on the provision of public goods. Much of the early public choice literature focused on examining the dynamics of public good production and provision, either to examine the political and collective action dynamics of their production (Tiebout 1956; Downs 1957; Olson 1965) or to critique the assumption of government benevolence, often with an explicit or implicit normative preference for non-government action (Buchanan and Tullock 1962; Riker 1962). This literature, along with a heavy dose of new institutionalism, influenced how Elinor Ostrom formulated the boundary and consent problems in CPRs.

The Boundary Problem – The Price of Exclusion

The boundary problem is about locating and creating identifiable institutional borders for the governing of a common-resource. Ostrom's conception of the boundary has its roots in early workshop work on polycentricity and local public economies and on Coase's theory of the firm. The boundary problem is defined by who can be excluded from access to a CPR and through what institutional mechanism.

Ostrom's initial interest in common pool resources came through her graduate work and dissertation on ground water management in Southern California (Ostrom 1965). In 1968, she encountered Garret Hardin's (1968) Tragedy of Commons. Hardin poses CPRs as a tragedy because they will inevitably be degraded by self-interested appropriators. The only solution, in Hardin's account, was either total privatization of common resources or coercive action by government to end free-riding. In this way, Hardin was similar to public goods scholars who saw either private market provision or state action as the two resolutions for public goods. The early natural resource economists who elaborate the concept of common pool resources offered a similar resolution in advocating sole ownership (Gordon 1954; Scott 1955). Ostrom had been working in the realm of common pool resources and recounted in an interview that when she encountered Hardin, her response was that she had seen firsthand the self-governing resolution of the exact type of problem that Hardin stated was doomed to failure (Levi 2010). Ostrom believed in the potential of a variety of solutions to common pool resource problems, saying in a response to Hardin, "fixing our attention to one type of social arrangement may inhibit our ability to discover solutions to diverse types of common pool problems" (Ostrom 1968: 180). Ostrom's work on metropolitan governance, polycentricity, and public choice generally would inform her return to directly examining common pool resources in the 1980s (Ostrom 1971, Ostrom and Ostrom 1977).

One of the initial issues in managing CPRs for Ostrom is the establishment of boundaries. Ostrom (1990) explicitly links efforts to resolve exclusion in public goods to her analysis in *Governing the* Commons (32). Tiebout (1956) introduced the possibility of boundaries in public goods in an approach that was further developed by Ostrom, Tiebout, and Warren (1961). In this approach, public goods can be provided by administrative units smaller than the whole state, allowing for heterogeneity in public goods across communities, creating the idea of local public goods. This introduces a dynamic of choice as people can move to communities which produce goods that match their preferences, resulting in a greater overall utility. For local public goods, the boundaries of the good should match the service area, either the political community or physical area of efficient provision (Ostrom, Tiebout, and Warren 1961). For Tiebout the boundaries are exogenous, given by pre-existing communities. We can see the influence of local public goods in Ostrom (1990) through two mechanisms. First, is her priority of establishing the physical (exogenous) boundaries of a CPR that forms a basis for governing institutions (91). Second, Ostrom advocates that governance approaches should be scaled appropriately to local conditions and can be approached from scales of governance (92).

Another important influence on Ostrom's boundary problem is Coase (1937, 1960, 1974). Coase's (1937) theory of the firm explains the boundaries of firms by reference to the differential transaction costs in market organization. His essential question is why do firms exist if market can efficiently coordinate resources? Firms emerge to lessen transaction costs, mitigate uncertainty, and to provide for long-term contract stability. In essence, firms solve the collective action problem of Olson (1965) by allowing an entrepreneur to be rewarded for overcoming problems in market coordination. The boundary of the firm is endogenous to the structure of the market, meaning the firm boundary will be defined by the specific situational transaction costs faced in the market and therefor will vary based on specific situations. Ostrom (1990) creates the explicit link between theory of the firm and the public choice idea of the logic of collective action. She uses this vison of the firm as an example of how an institutional boundary can create a different context and logic of action from the logic of individual choice and thus overcome barriers to collective action. The inspiration is that a boundary can create an institutional arena where the rules are different (Ostrom 1990: 40).

Coase was also influential on the boundary problem through his analysis of externalities (Coase 1960). The non-exclusion property of public goods and common-pool resources leading to spill-overs are exactly the characteristics which cause externalities. In the traditional welfare economics, it was generally accepted that a Pigouvian tax (1920) levied by the state will optimally correct for externalities. Coase's innovation was that with low transaction costs, actors can solve the collective action problem of resolving social costs if there is an established property right. The property right effectively creates an institutional boundary that can serve to facilitate a non-Pigouvian solution. This fits Ostrom's general approach of rejecting "panaceas" of solutions (Ostrom et. al. 2007), as well as the role of institutions in creating the conditions for the successful coordination.

The Consent Problem – The Price of Allocation

Ostrom's analysis in *Governing the Commons* is rooted in a normative commitment to "self-organizing and self-governing forms of collective action" (1990: 25) and this commitment is central to her analysis of the consent problem in governing CPRs. The central question is how do you avoid the political coercion of a state imposed solution and facilitate self-governance in the face of collective action problems of CPRs. Two prominent public choice influences on Ostrom in the area of consent are Macur Olson and James Buchanan.

Olson's (1965) *Logic of Collective Action*, shows how spontaneous solutions to common issues, such as public goods or CPRs, fail to arise due to free-riding behavior. The self-interested behavior of people in large groups leads to a failure to coordinate. Olson argues that smaller groups are able to overcome the collective action problem through the promise of a selective benefits or through the actions of political entrepreneurs. Ostrom (1998) argued that collective action is the central subject of political science and that social dilemmas of the type introduced by Olson are at the heart of her work. The lesson for Ostrom in *Governing the Commons* was not the difficulty in collective action problems, but that they could be solved in a variety of ways.

James Buchanan was another major influence on Ostrom's formulation of the consent problem (Levi 2010). Perhaps the most influential work was Buchanan and Tullock's (1962) *The*

Calculus of Consent. Buchanan and Tullock jettisoned the idea that government action was necessarily benevolent. Government was just as much subject to individual pursuit of self-interest as the market. Also, they conceived of every policy or government decision having two costs- the procedural cost of the decision, what today we would call the transaction cost, and the cost to individuals of adhering to the decision, the consent cost. Building off of Arrow's impossibility theorem, they criticize majoritarian government as a means for aggregating preference and have a strong normative commitment to consensus and agreement. Consent costs are minimized when decisions are unanimous, but consent is unlikely to be achieved in any particular allocation decision. Therefor approximate consent can be achieved through agreement on the rules. And agreement on the rules, importantly, is endogenous to the functioning of a political system.

Ostrom's (1990) commitment to self-governance is similar to Buchanan and Tullock's (1962) commitment to consent, though Ostrom has a more fine grained approach for what self-governance means in her analysis. Ostrom, like Buchanan, has a confidence that collective action problems can be solved through direct participation and self-organization. Buchanan and Tullock are also influential in how they see the rules of the system as part of the ongoing bargaining process of collective goods and governance. Ostrom (1990) directly borrows the language of Buchanan and Tullock through her use of transition costs (cost of changing the rules) and aggregation rules (costs associated with the size of the interacting group) (198-201).

References

Buchanan, J. M. 1965. An Economic Theory of Clubs. *Economica*, *32*(125): 1-14.

Buchanan, J.M. and Tullock, G., 1962. *The Calculus of Consent*. Ann Arbor: University of Michigan Press.

Coase, R.H., 1937. The Nature of the Firm. *Economica*, 16(4): 386-405.

Coase, R. H. 1960. The Problem of Social Cost. *The Journal of Law and Economics 3*(Oct 1960): 1-44.

Coase, R. H. 1974. The lighthouse in economics. *The journal of law and economics*, *17*(2): 357-376.

Desmarais-Tremblay, M. 2017. Musgrave, Samuelson, and the Crystallization of the Standard Rationale for Public Goods. *History of Political Economy*, *49*(1): 59-92.

Gordon, H.S. 1954 The Economic Theory of a Common Property Resource: The Fishery, *Journal of Political Economy 62:* 124-42

Hardin, G. 1968. The Tragedy of the Commons. *Science*, *162*(3859): 1243-1248.

Hayek, F.A., 1945. The Use of Knowledge in Society. *The American Economic Review*, *35*(4): 519-530.

Knight, F.H., 1921 (2006). *Risk Uncertainty and Profit*. Minola, NY: Dover Publications.

Levi, M. 2010. *An Interview with Elinor Ostrom.* Annual Reviews Conversations.

Musgrave, Richard A. 1937. The Theory of Public Finance and the Concept of “Burden of Taxation.” Ph.D. Thesis. Harvard University.

Musgrave, Richard A. 1959. *The Theory of Public Finance: A Study in Public Economy*. New York: McGraw Hill.

Musgrave, Richard A., and Peggy B. Musgrave. 1973. *Public Finance in Theory and Practice*. New York: McGraw Hill.

Olson, M. 1965. *The Logic of Collective Action*. Cambridge, MA: Harvard University Press.

Ostrom, E. 1965. *Public Entrepreneurship: A Case Study in Ground Water Basin Management.* Doctoral dissertation, University of California, Los Angeles.

Ostrom, E. 1968 [1977]. Collective Action and the Tragedy of the Commons. In ed. G. Hardin and J. Baden, *Managing the Commons.* New York: W.H. Freeman.

Ostrom, E., 1990. *Governing the Commons*. Cambridge University Press.

Ostrom, E. 1998. A Behavioral Approach to the Rational-Choice Theory of Collective Action. *American Political Science Review* 92(1):1-22

Ostrom, E., Janssen, M. A., & Anderies, J. M. 2007. Going beyond panaceas. *Proceedings of the National Academy of Sciences*, *104*(39): 15176-15178.

Ostrom, V. and Ostrom, E. 1971. Public Choice: A Different Approach to the Study of Public Administration. *Public Administration Review* 31(2): 203-216

Ostrom, V. and Ostrom, E. 1977. Public Goods and Public Choices: The Emergence of Public Economies and Industry Structures. In ed. E. S. Savas, *Alternatives for Delivering Public Services: Toward Improved Performance,* 7–49. Boulder, Colo.: Westview.

Ostrom, V., C.M. Tiebout, and R. Warren. 1961. The Organization of Government in Metropolitan Areas: A Theoretical Inquiry. *American Political Science Review 55*(4): 831-842.

Pigou, A., 1920. *The Economics of Welfare*. London: Routledge.

Riker, W.H. 1962. *The Theory of Political Coalitions*. New Haven: Yale University Press.

Samuelson, Paul A. 1954. "The Pure Theory of Public Expenditure." *Review of Economics and Statistics* 36 (4): 387–89.

Scott, A.D . 1955. The Fishery: The Objectives of Sole Ownership. *Journal of Political Economy 63*: 116-24.

Simon, H.A. 1957. *Administrative Behavior: A Study of Decision-Making Processes in Administrative Organization.* New York: Macmillan.

Stigler, G.J., 1961. The Economics of Information. *Journal of Political Economy*, *69*(3), pp.213-225.

Tiebout, C. M. 1956. A Pure Theory of Local Expenditures. *Journal of Political Economy*, *64*(5): 416-424.