Questions of Property Rights

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Abstract: The study of property rights lies at the heart of institutional economics and has been the subject of much seminal research. But many old research questions demand new answers. Why and when do property rights emerge? What role does or should the state play in the creation and evolution of property rights? I argue there is no static answer to these questions. Novel technologies and production processes, combined with modern global demand shocks, have created pressures for new definitions of property rights and opened new research opportunities. For example, rising demand for sand has led to sand mafias in India, brutally defending their control rights, while the greater value being placed on pristine environments is challenging old "use it or lose it" rules. To understand and predict institutional responses moving forward, the field will need a new cadre of creative and dedicated scholars employing new theory, applications, and empirical tests.

1. Introduction

What determines the extent to which resource endowments are leveraged to improve human welfare? To a scholar of institutional economics, the broad-stroke answer is obvious. It is the laws, rules, and norms that govern resource use. These 'institutions' determine how property rights are defined and enforced, which in turn affect the size and distribution of returns from endowments.

Once we probe at a deeper level, however, more questions than answers arise. Why and when do property rights emerge? If they do not, does a "tragedy of the commons" necessarily occur? What kinds of enforcement mechanisms evolve locally, from the bottom-up, and how are these mechanisms affected by systems imposed from the top-down? How does the size and shape of property rights, as initially created, affect the long-run use and value of resources? What role

does the state play in the creation of property rights, and in the evolution from old to new conceptions of rights? What role should it play?

From the perspective of a young scholar, investing in this research is appealing for two reasons. First, while an analytic framework is provided by seminal articles in institutional economics, there is ample room for new applications, new theory, and new empirical tests. Novel technologies and changing demands are constantly applying unanticipated pressure on resources, and a continuing flow of research is needed to predict the kinds of governance that will emerge. Second, the questions are important to developed and developing countries. This is because property rights are evolving in every part of the world.

2. Emergence of Property Rights

Gordon (1954) provided a seminal model of the consequences of open access, but Demsetz (1967) was among the first to highlight the causes. In the context of 17th century North America fur trade, Demsetz showed that informal property rights to hunting grounds were better defined and enforced by Native Americans when the value of furs, especially beaver pelts, rose. More generally, he posited that property rights become better defined when the marginal benefits of more complete ownership exceed the marginal costs.

Economists following Demsetz have emphasized enforcement costs. Anderson and Hill (1975) examine the evolution of property rights to land, livestock, and water along the American frontier. The invention of barbed wire in the 1870s caused a dramatic decrease in the damages caused by roaming cattle and hence in the costs faced by farmers in enforcing their rights to land. Although in theory farmers had formal legal protection prior to the 1870s, in practice their legal rights were not enforceable without fencing. The sudden availability of barbed wire lowered the transaction costs related to enforcing land use contracts between farmers and ranchers, a case specifically described by Coase (1960). Rapid growth in population and agricultural productivity in the Great Plains ensued as a result (see Hornbeck 2010).

One research frontier is in understanding when and why property rights to scarce resources have *not* emerged. Consider the decimation of the American Bison from the Great Plains. Populations were driven from 10 to 15 million animals to less than 1,000 during the 1870s and 1880s as hides were exported to Europe (Lueck 2002, Taylor 2011). The puzzle is why rights did not form. One issue is that, unlike Demsetz' beaver pelts, prices for bison hides

did not rise with scarcity.[1] Without a price signal, there was insufficient incentive to undertake the high costs of domesticating and fencing bison. Does this mean that 19th-century Americans failed in preventing a "tragedy of the commons"? Hill (2014) argues it does not. According to him, cattle were more efficient at converting grass into meat and leather. Bison were decimated not because of the absence of property rights, but because of their low relative value. Hill's perspective raises a broader question. In his words: "are all commons tragedies"?

Questions about emerging property rights are not confined to economic history. Novel technologies and production processes, combined with modern global demand shocks, are constantly putting new pressures on unowned resources. Sand is one surprising example. Although it covers much of the earth's surface, for many commercial uses the right kind of sand is becoming scarce and inaccessible. What has been the institutional response? In India, markets for sand are controlled by so-called sand mafias. These are criminal groups that sell sand from rivers and other sources, and sometimes use brutal violence to protect their claimed endowments.[2]

Surging global demand for smart phones is also putting pressure on minerals found in central Africa, especially tin, tungsten, tantalum, and gold. These so-called "conflict minerals" are abundant in areas of the Democratic Republic of the Congo (DRC) where the central government is too weak to enforce property rights to mining sites. As a result, local militia groups have asserted control. They act as mafia groups. In exchange for tax payments, the militias offer miners a crude form of protection against violence - from other groups and themselves (see Parker and Vadheim 2017, Sanchez de la Sierra 2017).

How will property rights to resources such as sand in India and minerals in the DRC evolve over time? Will rights transition as they did in Australia and the United States, where informal mineral ownership became codified and enforced by the state thereby facilitating large, corporate operations (see Umbeck 1977, La Croix 1992, Libecap 2007)? Or, will mafia-like groups remain prominent in the long run, as was the case in Sicily where organized crime

[1] The price did not rise because cattle hides were close substitutes for bison hides in export markets (see Taylor 2011).

[2] This information is drawn from three articles on "The World's Disappearing Sand", from the *New Yorker* and the *New York Times*. https://www.newyorker.com/magazine/2017/05/29/the-world-is-running-out-of-sand and https://www.nytimes.com/2016/06/23/opinion/the-worlds-disappearing-sand.html.

persisted long after it was no longer needed to protect sulphur mining in the 19th century (see Buonanno et al. 2015)?

In developed countries, the demands for new property rights come less from surging commodity demand and more from increased values that society places on pristine environments. For example, historically forests were valued solely for timber harvest, water was valued for consumption, agriculture, and mining, and landscapes were valued for commodity production. Today, benefits from standing timber are important, rivers and lakes are valued for their ecosystem services and fish habitat, and private land is valued for its open space scenery.

This raises questions about when, how, and if rights to non-use – e.g., rights to keep water instream and land undeveloped - will emerge as enforceable and transferable assets. Until they do, property rights are necessarily incomplete because some assets remain in what Barzel (1997) calls the "public domain." Assets in the public domain are governed by the rule-of-capture. For example, water will be overused for irrigation if property rights are enforceable only via consumptive use.

Research is needed to understand the causes of incomplete ownership, and to understand the institutional solutions being devised. In some cases, the origins of incomplete ownership may lie in first-possession rules of ownership that include "use it or lose it" constraints and also require the owner to put the resource to "beneficial use", as defined by the state. Although these constraints historically promoted commodity production from land, water, forests, and minerals, today they are a barrier to conservation (see Anderson and Parker 2013).

Solutions will likely require participation from the state, either by removing barriers to fuller property rights, or by creating new, enforceable rights. A case of the latter is the creation of conservation easements in the United States, which rely on statutory law for enforcement (see Parker 2004). Easements enable conservationists to buy and retire certain rights from landowners – e.g., the right to mine, log, and subdivide – through market transactions. They are an innovation that addresses a common-property (or public domain) problem of underinvestment in land preservation. State action to create new property rights such as easements requires the right political economy conditions; understanding these conditions is yet another area ripe for further analysis by institutional economists.

3. Size and Shape of Property Rights

Standard economic theory holds that users lacking clear property rights will underinvest in land improvements and exercise little prudence in their use of soil, trees, and other resources. Privatization programs such as homesteading and land titling have addressed this problem by subdividing communal landscapes and assigning rights to individual parcels. The motivation for doing so is articulated by Demsetz (1967, 354), who notes that a new owner will, "… by virtue of his power to exclude others, … [have] incentives to utilize resources more efficiently." [3]

Until recently, the literature has not focused on the sizes and shapes of private parcels as originally designated, but this may affect the long-run use and value of resources. Libecap and Lueck (2011) emphasize that parcel boundaries may adhere to topography, as in "metes and bounds," or they may be defined through a "rectangular survey" system. In either case, boundaries are often set to distribute ownership to the masses, rather than to one person, and to align it with the scale of dominate surface use at the time of privatization. Homesteading policies in the U.S. and Canada, for example, allocated parcels that were sized for family-scale agriculture of the 19th and early 20th century, rather than granting large estates to a few owners (see Allen 1991).

This history raises questions about path dependence. What will happen when parcel sizes, as originally demarcated, are too small to encompass new, productive uses of land in the future? Will future users easily reconfigure property rights or will the initial sizes and shapes forestall transition?

The problem of land fragmentation is pervasive in parts of Asia, Africa, Europe, and the Americas, yet there is a lack of detailed research on consolidation efforts. One exception is Bleakley and Ferrie (2014). They explain how 19th century land privatization in the U.S. state of Georgia created parcels that later became too small for profitable agriculture. This necessitated difficult contracting in order to combine the small parcels into larger, economically viable units. The transition was slow, suggesting that transaction costs in this context were a considerable drag on income generation.

This class of consolidation problems could be described as "anticommons." Anticommons can arise when multiple individuals hold exclusion rights to a resource that can be

[3] Empirical research shows that privatization and titling programs have generally stimulated parcel investments, as theory predicts (see Galiani and Schargrodsky 2012).

used only with consent of each owner (Heller 1998, Buchanan and Yoon 2000, Heller 2008). Fragmented exclusion rights cause under-investment in resources relative to sole ownership through two mechanisms. First, the need to contract with multiple owners raises transaction costs and this deters investment. Second, coordination failures among rights holders occur when individually-rational strategic behavior leads each excluder to charge a price for consent that is higher than the price that would maximize rents.

If Ronald Coase were to endorse this "anticommons" terminology, he would likely want researchers to learn when anticommons are economically important and when are they not. Heller (1998) argues that anticommons caused widespread underuse of Russian resources in the wake of post-Soviet privatization because the privatization scheme allocated exclusion rights to too many agents, creating contracting barriers to fuller resource use. Elsewhere Heller (2008) argues that anticommons have stymied pharmaceutical innovations that require consolidation of numerous small patents via voluntary contracts. This is a counter to the more traditional argument that strong, exclusive intellectual property rights are necessary to induce innovation. These alternative views are healthy because they direct attention to the important issue of how the design of property rights today can cause economically significant, transaction cost impediments to better resource uses in the future. The research question is: how can future transaction costs be anticipated and avoided?

4. Role of the State

What role does the state play in the creation of property rights, and in the evolution from old to new conceptions of rights? What role should it play? Should the state aggressively consolidate property rights in cases where private transaction costs are high? Should the state be the default owner to undiscovered or presently inaccessible resources? These are important, policy-relevant questions for institutional economists.

The inquiry begins with analysis of the conditions under which state ownership and regulation can improve on resource use. The conditions are summarized by Ronald Coase, who notes the following.

> *[T]here is no reason why, on occasion, such governmental administrative regulation should not lead to an improvement in economic efficiency. This would seem particularly*

likely when, as is normally the case with the smoke nuisance, a large number of people is involved and when therefore the costs of handling the problem through the market or the firm may be high (Coase 1960, 18).

In other words, whatever deficiencies exist with state ownership, the relative advantages of state intervention grow with the number of parties that would have to contract in private markets. Consider the case of oil development on the Fort Berthold Native American Reservation during the recent drilling boom of 2010 to 2014. ,. Due to historical land privatization policies, subsurface ownership on parts of the reservation is highly fragmented, making it difficult for oil companies to gather all the necessary approvals. On other parts of the reservation, tribal ownership is still fully intact so that oil companies can negotiate with a single entity. Leonard and Parker (2017) find that greater oil income was earned in areas under tribal ownership, demonstrating Coase's point that relative performance of governance regimes depends on transaction costs.

Consider also the comparative development of wildlife ownership in the U.S. versus that of Great Britain. Britain grants more control to private landowners who often hire private wardens and set their own private hunting regulations. By contrast, U.S. doctrine requires landowners to comply with state-established wildlife regulations and to purchase state-issued hunting licenses, sometimes even when hunting on their own land.

Lueck (1989) offers an explanation based on transaction costs. In Britain, the territorial requirements of wildlife were (and are) often contained in a single landholding. This is in contrast with 19th century America where private property rights over migrant wildlife were costly to establish and enforce because U.S. land ownership consisted of small privately held parcels with weak rights against trespass, interspersed with holdings of public land. The territorial requirements of many species were simply larger than most single landholdings could accommodate. In such an environment, creating and enforcing contracts was prohibitively costly. The state-run system in the U.S. plausibly emerged because it economizes on the transaction costs of using and managing the mobile asset.

When the state does claim initial ownership, under what conditions will it relinquish control and privatize assets? In many cases, the state has proved reluctant. Land titling and privatization programs, for example, often allocate property rights with restrictions on alienation

and leasing. Why does the state grant incomplete rights despite evidence that complete rights generate better land use? de Janvry et al. (2014) develop a political economy explanation. Focusing on the Mexican experience, they argue that constraints on property rights benefit politicians who retain leverage to allocate benefits to politically influential constituents when certain land use decisions remain under state control. There is a need for more research, in other settings, on the political economy of privatization.

Finally, when the state does relinquish ownership to private parties, how should it enforce those rights? Should local courts do the enforcing? Or should disputes be adjudicated instead by non-local courts? On one hand, local courts can create adjudicatory rules that match local customs, culture and norms. On the other hand, local courts are more susceptible to biased enforcement. Non-local courts can also benefit from scale economies, which exist in law-and-order provision because of the large fixed costs associated with organizing police forces, operating courts, writing legal codes, and compiling legal precedent.

Three recent studies examine the potential for bias and the resulting negative effects of local enforcement. Kuran and Lustig (2012) describe how Islamic courts of the Ottoman Empire exhibited biases in adjudicating contracts between Muslims and non-Muslims. Anderson and Parker (2008) find evidence of slower income growth on Native American Reservations under the jurisdiction of tribal, rather than state courts, and suggest this is because non-Natives are reluctant to engage in contracts under tribal courts. Third, Voight et. al. (2007) find that the former colonies still bound to British Privy Council appellate courts have achieved higher levels of investment and faster economic growth when compared to former British colonies that have established purely independent local court systems.

The research just described quantifies drawbacks of local enforcement but the prevalence of local courts suggests that they do in fact generate real and significant benefits. What is the source of these benefits and how are they distributed? How does this depend on the political oversight and the independence of courts? Related issues are addressed in a literature on judicial decision making (e.g., Hanssen 2004), but more research on this important topic is in continual demand from scholars of institutional economics.

5. Conclusion

If we are to understand the extent to which resources are leveraged to improve human welfare, then we must understand the causes and consequences of property rights. This was true in the time of Aristotle and it remains true today. Our advantage over Aristotle is that we can stand on the shoulders of the great institutional economists who dedicated their careers to the study of property rights. But many more questions than answers remain. This is because property rights - and the economic conditions in which they evolve - are dynamic and constantly changing. To understand and predict the institutional responses, the field of institutional economics will need a new cadre of creative and dedicated scholars.

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