Chapter 1

The Economic Role of Property Rights

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A. Introduction

Ownership rights lie at the heart of the common law tradition. Most philosophers agree that people either inherently enjoy, or can, through some course of conduct, acquire proprietary interests in themselves and in other things. The ubiquity of such rights is no historical accident, but reflects a storied tradition that justifies property as a foundational element of liberty and an indispensable component of a just society.

Despite its central role, "property" remains an abstruse concept. To say that a person "owns" a resource – be it real estate, personal property, his own body, or even an idea – is to invite a great many questions concerning the nature of the right that such ownership imparts. One might think of such incidental features of ownership as alienability, devisability, and descendability but the substantive qualities of property go far beyond these attributes. The most important characteristic of ownership is the scope of exclusivity that a property interest bestows. This quality implicates the question where one's rights begin and end. This is no abstract problem, as conflicts between separate ownership rights routinely emerge when the sphere of control that one right purports to cast invades another.

A simple example might entail a person's smoking in front of another. The right to smoke is presumably subsumed within the property right of self-ownership. Yet, a corresponding negative right to prevent a third-party invasion of one's own body also exists, which may permit a person to be free of another's second-hand smoke. The two rights cannot coexist in absolute form, so one or more of them must have limits. The difficult question is how to identify the optimal boundaries of those privileges. To approach the same problem differently, we might ask whether the law permits a landowner to grow tall trees on her grounds if they cast the bordering lot into sustained shadow. Is the right to grow foliage on one's land an incident of ownership or does a neighbour instead enjoy the right to be free of shade as a component of her property right?

Partially due to these difficulties, academics rarely think of ownership in absolute terms. Instead, scholars view property as imparting a "bundle of rights". From a consequentialist perspective, the rights included within this bundle should depend on the circumstances in which the property exists. Articulating a coherent theory by which to define the optimal constitution of any given bundle, however, is challenging.

To resolve such disputes, one must discern the policy that property rights serve. There are, to be sure, differing views on this question. Some commentators believe that property rights do not exist to forward any consequential goal, but instead reflect principles of independent moral significance. John Locke, for instance, famously conceived of property as a natural right that attaches to the fruit of one's labour.[1] Arguing from the premise that one owns oneself,[2] Locke contended that, by mixing her own work with otherwise un-owned natural resources, a person can obtain private property rights over the ensuing improved asset.

The law and economics account is distinct. In contrast to a rights-based explication of property, the economic view defends ownership on consequentialist terms. The idea is that exclusive rights cause scarce resources to gravitate to their highest value uses and to benefit from optimal investment. Furthermore, the optimal rights and duties subsumed within an ownership right properly depend on context.

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1 John Locke, *The Second Treatise on Government* (1690).

2 Although the principle that a person should be the exclusive owner of himself is intuitively pleasing and no doubt resonates with many people, it is not axiomatic. John Rawls and many others have argued that the value of a person's attributes is "morally arbitrary" on account of its derivation from the genetic lottery, the social setting into which one is born, and so on.

This chapter explores the economic function of property rights. It begins by showing how ownership rights can spur private actors to coordinate the efficient use of resources, both statically and over time. The Coase Theorem finds its definitive expression in this setting, revealing the likely superiority of private arrangements over governmental decree in many, though not all, circumstances. The chapter also articulates an economic theory for defining the scope of property rights, which approach tackles the problem of incompatible uses.

B. Ownership Rights and the Efficient Utilisation of Resources

The property system's economic justification rests on a number of consequentialist rationales. In part, the absence of ownership rights would generate numerous inefficiencies, specifically short-term (static) costs in overconsumption and misallocation of scarce resources, and long-term (dynamic) losses in inadequate capital and human investment in resource development. Despite the overriding advantages of private ownership, however, circumstances do exist in which either public ownership or open use may be superior.

1. Static inefficiency

Collective action problems arise where conduct that may be in the aggregate interest of all is not in the private interest of any one person. If no one owns a lush resource, for instance, those who stand to benefit from its yield may purge the asset of its benefits in much the same way that locusts devour crops to the point of destruction. This is an instance of "static inefficiency".

Such inefficiency arises because people, in acting pursuant to their self-interest, fail to equate the well-being of others with their own. If non-altruistic, they will consume as much of a limited commodity as is necessary to render them fully satiated. If the resource in question is what economists refer to as a "private good", one person's consumption of the asset will deplete the quantity that remains available for others. This characteristic of "rivalry in consumption" is a trait common to all physical resources. As a negative externality afflicts each person's consumption decision, a systemic overuse of natural deposits ensures. The result is what economists refer to as "the tragedy of the commons".

This phenomenon is widespread, applying not only to overgrazing, but also to commercial overfishing in oceanic locations, deforestation in public areas, and traffic jams on public motorways. All such cases arise due to limited property rights.

How do ownership rights potentially solve static inefficiency problems? They do so because they align social and private costs by causing an owner to experience both. Consider a fertile piece of agricultural land. In the absence of exclusive rights, problems of the kind described above would arise. Suppose, however, that the government grants someone exclusive rights over the property. That owner may consume all of the land's resources himself or he may allow others to do so. In either event, he would have an incentive to coordinate efficient use of the property. As to third parties, he would charge an access fee no less than the loss in value of the extrication of minerals from the land associated with the licensed entry. He would do so because his interests are co-terminous with the aggregate value derived from the property. Of course, it is efficient to consume a resource where the marginal benefit of the unearthed deposit exceeds the marginal cost in reduced richness of the land. Ownership rights in valuable resources thus induce self-regulation in which owners act desirably because their incentives align with those of society. The ensuing pricing structure would foreclose inefficient gold rushes that lead to excessive depletion of the land.

Notwithstanding these benefits, it is worth highlighting an important qualification. Although property rights coordinate efficient uses of scarce resources, the introduction of such rights does

not, in itself, guarantee efficiency. In particular, monopolists have an incentive artificially to enhance the scarcity of their owned resources, selling the same at above-marginal cost prices, thus creating allocative and static inefficiency. Part 8 explores the important roles of competition and, where necessary, government regulation in spurring desirable behaviour on the part of those who hold private ownership rights over valuable resources.

2. Dynamic inefficiency

The absence of property rights does more than spur over-consumption in the short term – it generates inefficiencies over time. Think of an entrepreneur who perceives of a way in which dramatically to increase the value of a natural resource. She would wisely decline to invest, however, if third parties would simply usurp the benefits for themselves. Free riding can reduce the private worth of socially desirable investment to the point that net present value is negative, thus deterring efficient behaviour. Property can prevent this dynamic-efficiency loss.

It is hard to understate the importance of property in generating incentives to invest in resources. A lack of ownership rights, for example, impedes economic development in the Third World. Not only does this lack of ownership spur over-consumption, it creates dynamic inefficiencies as occupiers of potentially arable plots decline to improve the land, such as by introducing superior crops, irrigation, and minerals. The decision not to pursue hard-won improvements that others can appropriate is privately rational, but the larger social costs are calamitous.

A simple game-theory model captures the problem (see Figure 4.1). Suppose that an un-owned forested area is within easy reach of two companies that compete in the logging industry. Most of the trees that lie within this expanse, however, are not yet mature. The timber is worth $15 million if one were to cut it today, but would be worth $25 million in five years' time discounted to present value. The social welfare optimum is to leave the forested tract untouched for the time being. In that event, the two competitors could receive $12.5 million each in five years' time rather than only $7.5 million each in the present.

There is, however, a collective-action problem. Each company knows that, if the other refrains from cutting down the trees, it can take them all for itself. If the first company holds back, its rival can clear the entire area itself and thus realise the full $15 million. Each competitor's dominant strategy is, therefore, to cut now, even though they would be collectively better off were they instead to cut later.

Granting either of the companies, or any other entity, a property right over the forested land would solve this dilemma. If a third party owned the land, for instance, it would not grant either company a licence to cut the timber today. This refusal would occur because the present value to the owner of allowing the trees to grow is $25 million, while neither logging company would rationally bid more than $15 million for a licence to cut today. If one of the rival companies owned the land and decided to cut the timber itself, it would cut five years from now rather than today because the former course of action yields a greater return. This example explains how property rights coordinate efficient resource consumption over time.

		Company Two	
		Cut Now	Cut Later
Company One	Cut Now	7.5M, 7.5M	15M, 0
	Cut Later	0, 15M	12.5M, 12.5M

Figure 4.1

As a general matter, whenever third parties can appropriate the value of a resource at will, individuals may have scant reason to devote their private time, effort, and other capital to improving it. Importantly, the value of most resources is variable, not fixed. By enabling private actors to capture at least some of the benefits of their enterprise for themselves, exclusive rights spur people to improve their property.

C. The Coase Theorem and Allocation of Scarce Resources

One of the central premises of economics is that some resource allocations are superior to others. Any consumable item invariably appeals to certain subsets of the population more than others – it is no secret that people possess a diverse array of idiosyncratic tastes. No resource commands an economic value that is independent of the uses to which one can put it. As different entities enjoy distinct opportunities to derive value from capital, efficiency requires an alienation mechanism by which resources can gravitate from lower- to higher-value uses. Society, therefore, needs an infrastructure that allows valuable assets in limited supply to end up in the hands of those who value them the most.

Such efficient allocations refer not only to resources that people seek for end consumption, but also to those principally valuable as inputs into larger manufacturing processes. Toil and technology, after all, can amplify and transform raw materials to yield superior resources for subsequent use. In this respect, individuals with superior skill, business acumen, technical knowledge, or access to necessary infrastructure can employ materials to create greater value than other people could achieve. In short, society must facilitate the transfer of rare resources to more productive ends. Ownership rights are the principal method by which to achieve such allocations, so they play an integral role in both maximising the intrinsic value of resources and in facilitating their efficient distribution.

How do property rights desirably allocate scarce resources? The answer lies in the most fundamental concept within the field of law and economics: the Coase Theorem. As Part I explained, this theorem provides that the initial assignment of a property right will have no effect on efficiency if transaction costs are zero. The reason is that private individuals will contract with one another to effect a superior assignment of rights when an initial resource allocation is inefficient. To the extent that stakeholders can bargain to desirable outcomes, the principal obligation of the government is to create and give legal force to ownership rights. Once in place, those property interests will give rise to market mechanisms that will allocate entitlements to their highest value uses.

To see how the Coase Theorem operates, envision the following simple scenario. Four companies, A, B, C, and D wish to excavate a mine in which all believe valuable mineral deposits reside (see Figure 4.2). Assume that the four companies, A to D, place values of £1 million, £1.2 million, £1.3 million, and £1.5 million, respectively, on procuring ownership rights over the mine. The differing values reflect each corporation's distinct ability to procure the deposited minerals at low cost. Imagine also that, due to the nature of the facility, a single company could extract the minerals at lower total cost than could several entities operating simultaneously. Granting someone an exclusive right over the mine, therefore, would create static efficiency benefits in foreclosing a gold rush in which multiple companies tried to excavate the deposits at the same time. Unfortunately, information concerning the value of acquiring prospect rights in the mine is private to all four companies, so no external body can reliably determine which company values the mine the most.

Upon which company should the government bestow the right? If the entities can bargain at no cost, it does not matter. Suppose that C acquires the right. That eventuality may appear to be inefficient, but in the absence of transaction costs, rights in the mine will end up in the hands

Firm	Private Value of Contract	Bargaining Surplus/Outcome Relative to Optimum
A	£1,000,000	£500,000/Suboptimal
B	£1,200,000	£300,000/Suboptimal
C	£1,300,000	£200,000/Suboptimal
D	£1,500,000	£0/Optimal

Figure 4.2

of D, who will pay an amount between £1.3 million and £1.5 million for the privilege. There is thus a bargaining surplus – that is, a potential value gain – of £200,000. Consistent with the Coase Theorem, the entitlement will end up in the same efficient place – in the possession of D – regardless of the initial allocation. Notice, though, that that allocation does affect the distribution of income between A, B, C, and D.

In the real world, of course, transaction costs are never zero, so the facile conclusion that government policy should limit itself to creating and enforcing property rights will not always or even generally hold true. This does not mean that the Coase Theorem, and by extension, the role of property rights in alienating scarce resources, have no application to public policy. First, the fact that transaction costs are positive does not mean that the Coase Theorem will fail. When the private benefits of reaching agreement exceed the negotiating costs, efficient bargaining should occur. It is, therefore, no surprise that contracts (both formal and informal) abound. Each one represents the Coase Theorem in action.

Private actors' ability to negotiate reallocations of resource assignments is indispensable to an efficient economy. To facilitate this process, the only absolute requirement is that government give legal force to property rights. The principal benefit of this phenomenon is that markets can ameliorate mistaken property allocations, which is apt to be a common occurrence given the government's inferior access to the information necessary to identify the highest-value allocations of entitlements. When private entities undo such mistakes, economists often refer to the ensuing arrangements as "private-ordering solutions".

Yet, impediments to voluntary exchange are ubiquitous. These transaction costs have a number of undesirable effects. In the first place, they foreclose some efficient reallocations of entitlements. This is apt to occur when the expense of negotiating an agreement exceeds the aggregate gain that the stakeholders would realise from reaching a bargain. Perhaps less obviously, transaction costs diminish the magnitude of the social value that even successful contracts generate.

Ultimately, where bargaining costs are so severe that no contracting can take place, initial property assignments are final. In these cases, unless the government allocates entitlements to their highest-value uses in the first instance, inefficiency will ensue.

Before considering how the law may reduce transaction costs to facilitate efficient exchange, however, contemplate the following question: is it possible for a market to develop that fosters inefficient, rather than mutually beneficial, exchange? Such a phenomenon may appear to be inconsistent with the Coase Theorem, as if large-scale contracting takes place, the cost of bargaining is, by definition, not preclusive, so ensuing market transactions ought to reallocate property rights from inferior to superior uses. The ensuing discussion addresses a famous piece of economic analysis, which explained how a "market for lemons" can emerge.

1. The "Market for Lemons"

In a 1970 article, George Akerlof explored the possibility that poor quality goods could predominate in markets in which sellers, but not consumers, are well informed as to the qualities of sold

products.[3] Akerlof considered the used car market, in which industry terminology referred to high-quality vehicles as "cherries" and their defective counterparts as "lemons". The question that the article addressed was whether a market could develop which produced lemons, but not cherries.

At first glance, the idea that consumer demand would develop for dud products in a free market seems odd. If all parties were informed as to the nature of the relevant cars, the Coase Theorem provides that all ensuing sales would confer mutual benefits on the contracting parties, as vehicles moved from people who valued them less to people who valued them more. Those transactions would create a market for used cars in which prices would emerge that reflect the relative quality of the sold vehicles. One would therefore expect to see products of superior quality commanding a relatively high price and second-rate merchandise selling at low price points only.

Consider what happens, however, when we introduce information asymmetry to the market, such that owners of used cars know the attributes of their vehicles, but prospective purchasers do not. Potential customers' encountering difficulty in this regard is at least somewhat realistic, as many aspects of a used car's quality are not obvious upon superficial inspection. Vehicles are but one example of larger "credence goods" – products the material qualities of which are not apparent upon examination. Assume that all second-hand vehicles, bearing the full spectrum of potential quality from best cherry to worst lemon, are available for sale. Consumers immediately encounter a problem, as they cannot discern one from another. As indicia of quality, owners' representations are non-credible because each seller has an incentive to inform prospective buyers that the relevant car is a cherry, regardless of whether this is true.

When a rational, risk-neutral purchaser cannot distinguish between a number of products that are of heterogeneous quality, he will assume that any given product bears average attributes. The mean quality, of course, represents the expected value to a consumer of buying an item from within the relevant group of products. Applied to the example of indistinguishable used cars, this means that risk-neutral consumers will pay a price that reflects the value of the average used vehicle from within the group of cars that are available for purchase. This price, however, carries two, related, problematic effects. First, owners of lemons will rush to sell, as the market price will bestow a windfall upon them. Second, owners of cherries will refuse to part with their vehicles because the market price would under-compensate them.

The result is that the pool of used cars will dwindle, as owners of superior, used cars decline to sell them. Yet, the calculus does not end there, for as cherries leave the market, consumers will realise that the average value of sold cars has diminished. The new price, reflecting this updated mean value, will lead owners of better than average lemons to refuse to sell, so both the average value of cars, and hence the market price will drop further, and so on. This ongoing effect creates a death spiral in which market processes force high-quality products out, and leave only the worst goods available for sale.

Nevertheless, it is easy to exaggerate the prevalence of the "lemon effect" in the real world. Although serious information asymmetries can lead to transactions in which resources move to less-efficient uses in contravention of the Coase Theorem, the preceding account relies on consumers' being unusually passive. In fact, market processes are themselves likely to ameliorate, even if they do not eliminate, the lemon effect. Consumers will not be oblivious to the fact that cherries exist, and owners of such cars have an incentive to seek ways to sell them at a mutually attractive price. Both sets of potential parties have reason to search each other out and to solve their common problem. A prevalent solution has, indeed, emerged in conjunction with contract law: to make representations of quality credible, owners of high-quality goods can and regularly do issue binding warranties. Furthermore, markets may develop around the problems that create the lemon

3 George Akerlof, 'The market for lemons: Quality uncertainty and health insurance' (1970) 84 QJ Econ 488.

effect. A suitable example involves Carfax, which offers a private service detailing the full history of any vehicle of interest. Finally, and as we shall see, the law can play an important information-dispersing role in the marketplace.

This discussion illustrates an important principle in economics, which is that access to information is a prerequisite of efficient market processes. As information asymmetry is but a particular form of transaction cost, which collectively hinders a desirable bargain, the question is how the law should seek to ameliorate it. Section C below addresses this issue, explaining how law and economics offers insights into how society ought to formulate the legal characteristics of ownership. Foremost amongst these are policies that enrich the quantity and quality of information that pervade the marketplace and that bring clarity to individual property rights.

2. The market for mortgage-backed securities

It would be a major oversight in addressing the tendency of markets to increase social value by efficiently reallocating resources without addressing the economic calamity that was the 2008–2009 credit crisis. Believers in free markets were caught unawares, with Alan Greenspan famously testifying that "[t]hose of us who have looked to the self-interest of lending institutions to protect shareholders' equity, myself included, are in a state of shocked disbelief".[4]

D. Problems in the Creation of Property Rights

Ownership rights facilitate the transfer of entitlements and, hence, give rise to market transactions. They also coordinate desirable investment in, and consumption of, scarce resources. The preceding discussion, however, did not explain how the state should create and define property interests in the first instance. Law and economics offers much guidance on this subject.

The principal economic insight is that the design of ownership rights can itself affect transaction costs. As impediments to free exchange frustrate mutually advantageous bargain under the Coase Theorem, the government should craft proprietary interests to minimise the likelihood that a mistaken, initial allocation of an entitlement will be final. There are three major ways in which to mould property rights to minimise the transaction costs associated with their creation.

1. Clarifying property rights

First, society should design the property system so that one can both identify the relevant owner and demarcate the boundaries of ownership rights with ease and precision. Why does clarity affect transaction costs? The answer lies in the effect of uncertainty on the bargaining process. When the contours of a person's proprietary interest are obscure, stakeholders negotiating with respect to the pertinent resource must devote precious time and effort to determining the scope of the owner's entitlement and, sometimes, the identity of the owner himself. Competing claims to a resource of unclear breadth do not make for a smooth bargaining process. By contrast, it is relatively straightforward to hammer out a deal regarding an asset the ownership rights of which are clear.

The law knows the value of lucid property rights, and thus goes to some length to augment the clarity of ownership interests. Many jurisdictions require sellers to disclose latent defects of which they are aware, where "latent" refers to those defects that a purchaser cannot discern upon reasonable pre-sale inspection. The courts also protect consumers against misinformation by rendering

4 Greenspan Concedes 'Error on Regulation', *New York Times*, 24 October 2008, at B1.

those who make intentional misrepresentations liable in tort and in contract. Thus, the law improves market processes by facilitating greater levels of symmetric information.

The government undertakes other measures to clarify the boundaries of property rights. Land registries allow purchasers both to inspect the chain of title to property, thus verifying the seller's good title, and to verify the metes and bounds of relevant plots. Recording systems encourage those acquiring interests in land to record them promptly, by otherwise granting priority to subsequent good-faith purchasers for value. The law also encourages owners to make plain and to police the boundaries of their land by providing that those who fail to do so may lose their ownership rights. For instance, a person who encroaches upon the periphery of a neighbour's land will obtain ownership rights after the prescriptive period has run. In this way, the contours of ownership rights in land slowly move in tandem with appearances on the ground, thus enhancing clarity.

Other examples were prevalent in the law. For instance, common law courts favoured joint tenancies with a right of survivorship over tenancies in common. The former tenancy results in the surviving joint tenant's obtaining 100 per cent ownership of the property, while the latter tenancy provides that each owner's interest is fully descendible and devisable. By promoting the former, the law discouraged the complementarity problems that divided ownership can create. In particular, the common law's preference for joint tenancies promoted easy alienability. In contrast, one can imagine how numerous parties holding title to land as tenants in common may hinder the sale and transfer of the relevant property. For instance, if four people own land as tenants in common, and each dies leaving four heirs, 16 people may end up having ownership rights in the property. Should a third party later be able to achieve a higher-value use from the land, the sheer number of owners increases transaction costs and could potentially scupper the proposed, efficient deal.

Long a favourite of students of the common law, the rule against perpetuities ("RAP") prohibits future interests to property that are excessively speculative at the time of their creation. Specifically, the RAP renders void any future interest that may vest, if at all, outside the existence of a measuring life plus 21 years. The rule serves an economic function in ameliorating transaction costs. By reducing the possibility of shifting or springing executory interests vesting long after the initial disposition of property giving rise to the future interest, the RAP reduces the risk of unexpected conflicting claims to a resource. This rule simplifies the bargaining process by making it easier to establish the identity of the relevant owner.

Finally, the law has long been hostile to restraints on alienation, which represent the ultimate transaction cost. This feature of the law obviously comports with the Coase Theorem. By limiting restrictions on alienation to reasonable, time-limited purposes only, the law ensures that entitlements are free to move from lower- to higher-value uses.

2. Allocating entitlements to minimise *ex post* transactions

The law's first role in reducing transaction costs is to clarify ownership rights. The second is to minimise the need for *ex post* transactions. Specifically, in crafting property rights, the government should strive to anticipate the outcome of a free bargain in a zero-transaction cost environment.

This principle may appear to be straightforward, but in application it can run counter to intuition. Consider a case in which a factory emits pollutants that sully nearby occupants' houses, cars, and other outdoor property. In defining the parties' respective ownership rights, it is tempting to identify the "harmed" individuals, and conclude that their property rights have been infringed. This approach reflects the idea of requiring injurers to pay a Pigouvian tax equal to the magnitude of the externality.

Economic analysis, however, reveals that this line of inquiry can yield erroneous results. Delineation of the boundaries of a property right should focus not on who "invades" or "inflicts harm" on another's resource, but on who would acquire and exercise the entitlement in a

zero-transaction cost setting. This inquiry, of course, results from the Coase Theorem. In the above example, it may appear that the polluting factory is the lowest cost avoider, but this need not always be true. It is possible, for instance, that the residents could move more cheaply than the factory or could take steps at lower cost to eliminate or to reduce the harm that they experience from the emissions. In the absence of transaction costs, and if it were cheaper for the residents to avoid the harm, the parties would agree that the residents, rather than the factory, take the requisite steps. Yet, if the law holds that the residents' property right protects against the factory's emissions even when residents are the lowest cost avoiders, the law risks perpetuating inefficiency if the cost of bargaining is high.

Note, however, that this discussion does not mean that the government would necessarily or even likely be wrong in granting the residents protection from pollutants as an incident of their ownership rights. The point is that the law would be correct in construing their property interests in this way only if that construction is consistent with what a hypothetical bargain between the affected parties in a setting of no transaction costs.

The relevant policy prescription, then, is that the government should attempt to identify the highest value uses of property, and allot ownership rights accordingly. Often, it will not be feasible to identify these uses at the individual level, and so the law must rely on heuristics. To the extent that one identifiable group of people is likely to value a resource more than other people, society should bestow proprietary interests over the same on the former group. This allocation reduces the number of *ex post* transactions required to reallocate resources to their efficient uses, and thus enhances social welfare.

3. Devising rights of appropriate scope

Third, the government must craft property rights so that they possess a sphere of exclusivity that is of appropriate scope for the circumstances. The manner in which one divvies up ownership rights can have profound consequences for the transaction costs involved in allocating the underlying resources to their highest value uses. This issue concerns the sphere of exclusivity. On the broad end of the spectrum, the government could acquire proprietary interest over all land within its borders. On the other end, society could create separate ownership rights in every square metre of land. Neither such allocation would be desirable.

Consider the problems of an all-encompassing property interest, which subsumes myriad distinct resources that would themselves be suitable for discrete uses. Although the owner would have an incentive to prevent over consumption of its property – such excessive use would degrade the value of her ownership interest – the benefit of property rights in allocating scarce assets efficiently would be either lost or greatly diminished. Such rights, as we have seen, play a fundamental role in assigning resources efficiently because they harness private information. A sweeping ownership right that relies on one entity to make value-adding decisions concerning assets about which it lacks intimate knowledge is unlikely to be efficient.

Yet, narrow ownership rights also create problems. These occur whenever a single property interest is insufficiently broad to effect the use or transfer of a relevant resource. In such instances, aggregating property rights is a prerequisite of consumption or alienation. Imagine, for instance, that a local authority wished to build a viaduct from a nearby spring to its town. Suppose, however, that a different person owns each metre of the five-kilometre stretch between the spring and the town. If each owner has the legal right to exclude third parties from trespassing on her property, the town would need to obtain permission from every one of the 5,000 owners to effect its plan. Even if the viaduct arrangement were independently efficient, the transaction costs implicated in achieving the same may be preclusive.

This phenomenon is known as the Cournot-complements problem, and is a direct result of divided ownership. If one must combine several property interests to achieve a larger goal, the owner of each interest possesses a veto, and hence a monopoly. This monopoly arises because each person's permission is indispensable. As a result, every owner has an incentive to "hold out" (i.e. to wait for other owners to grant permission before offering to license at a price only incrementally smaller than the social surplus that his granting a licence would generate). The successive waves of monopoly pricing and ensuing hold-out create the phenomenon of what economists deem "double marginalisation". People bargaining for an entitlement that is subject to multiple, discrete ownership rights must pay not one monopoly price, but several. This effect results in significant welfare losses, and may cause potentially efficient arrangements not to occur.

One solution lies in vertical integration, by which one entity assumes control over a series of complementary assets. In effect, this arrangement undoes the inefficiency that the government created in creating excessively narrow property rights. It does so by creating a single, larger property interest.

As the preceding explanations make clear, excessively broad and overly narrow property rights both create serious problems. How, then, should the government create ownership rights? As the reader may suspect, the answer displays a Goldilocks quality: property rights should be neither too expansive nor too narrow. Instead, one should bestow rights with the breadth of scope that is appropriate given the circumstances attendant upon the creation of the ownership interest. The relevant inquiry, then, is necessarily context specific. Part 8 explores these issues in more depth, while addressing the economics of the patent system.

An important concern is the use to which the owner will put the relevant resource. If the item around which the government creates an ownership right is primarily suitable for an independent purpose, complementarity issues are unlikely to ensue. So, for example, if the government believes that an off-shore location within coastal waters contains oil, creating a drilling permit allowing for a property interest in a single entity is likely to be efficient. The site at issue, and the oil it contained, have but a single, major use, so granting a single company a broad property right will not trigger complementarity problems. Conversely, if the resource on which society bestows a property right can only be consumed in conjunction with other resources, problems can emerge when there are a large number of narrow ownership interests held by different entities.

4. Allocations in the presence of preclusive transaction costs

The preceding discussion considered three significant ways in which the government can design property rights to ameliorate transaction costs. By moulding the contours of ownership to lubricate post-allotment contract, the government can facilitate the desirable qualities of exchange that the Coase Theorem envisions.

Yet, there are obvious limits to what the law can achieve in imparting property rights with characteristics designed to diminish bargaining costs. Conflicting claims to resources often emerge in circumstances where negotiations are not feasible, regardless of how one might construct the relevant ownership rights. In such settings, where transaction costs exceed the private benefit to the parties of reaching agreement, initial assignments are likely to be final. As Coasian trade is not possible, what should the law do? The first answer is that it should do its utmost to identify the highest-value use of the entitlement in question and allot the property right accordingly.

To the extent that efficient *ex ante* allocations are not feasible, however, the law can still play an important role. This concerns the nature of the protection that the courts give ownership rights. As the next chapter discusses, the judiciary may be able to undo the harm of inefficient *ex ante* allocations in high-transaction cost settings by protecting ownership rights through damage awards, rather than injunctions.

E. Conclusion

This Part has addressed a broad swathe of the economic issues surrounding property rights. An issue of momentous importance, however, remains to be addressed. How should the law protect property rights? Should an owner's rights be absolute or restricted? If the latter, how great should the limits on ownership be? Is property sacrosanct or simply an interest like any other that is subject to balancing and qualification?

William Blackstone made clear where he stood on these questions, famously characterising the right of property as "that sole and despotic dominion which one man claims and exercises over the external things of the world, in total exclusion of the right of any other individual in the universe".[5] This eloquent depiction likely comports with what many owners consider to be their rights vis-à-vis third parties. After all, if the hallmark trait of property is the power to exclude, it might seem that an owner's rights are indeed sacrosanct. Blackstone's account, however, is inconsistent with the modern law of property, which makes clear that absolute, inviolable ownership rights do not exist.

Today, property interests bestow qualified rather than absolute exclusivity. Ownership is not synonymous with freedom of action. As but one example, a person may not excavate on his property if the result of his doing so is to cause part of his neighbour's land to collapse in its natural state. Nor does ownership cast a pall of such inviolate exclusivity around a resource as to expel laws of general application: a person charged with growing illicit drugs on his land would not get far arguing that public rules cannot permeate the zone of exclusivity inherent in his property. Furthermore, the law routinely denies an individual power to prevent low-level, private invasions of her property. A person cannot enjoin, or obtain damages for, third-party conversations or music of mild volume during daylight hours that take place next door. Nor can a land owner generally enjoin commercial aircraft from flying overhead.

More generally, the law does not forbid all third-party appropriation of private property, especially where the use does not harm an owner. A person may own her house and the land upon which it rests, but the law does not entitle her either to restitutionary or other relief for the value that onlookers enjoy from appreciating the house's aesthetic qualities. Finally, and as the next chapter discusses in detail, the courts do not always grant owners the literal right to exclude, which would entail an automatic right to injunctive relief. In many cases, the law limits recovery to pecuniary damages, which contradicts the Blackstonian conception of property.

Key Points

- Economics justifies ownership rights on consequentialist terms. The Coase Theorem depends on alienable property interests that allow stakeholders to coordinate economic activity. Property is thus of great importance to law and economics.
- Property rights produce static-efficiency benefits by causing owners to internalise the costs and benefits of using their owned resources. As ownership allows one to reap the benefits of improving property, and to suffer losses from degradation of the resource, it encourages owners efficiently to regulate the use of their property. The "Tragedy of the Commons" illustrates problems that result from a lack of ownership. In particular, self-interested parties will act in their individual self-interest, but against their collective welfare, by excessively consuming a resource.

5 William Blackstone, *Commentaries on the Laws of England*.

- Property interests also induce dynamic efficiency gains by encouraging owners to invest capital in improving their land or other owned resources. Without exclusive rights, third parties could appropriate the hard-earned value flowing from prior capital investment.
- Governments can design property rights in the first instance to minimise the transaction costs needed to achieve efficient resource allocations.
    - First, they should assign rights to the entities that they consider most likely to value them the most. That process entails predicting the outcome of post-allocation Coasean bargain without transaction costs.
    - Second, they ought to fashion clearly demarcated property rights. Indeterminate ownership interests invite conflicting claims of right, which accentuate bargaining costs and stymie efficient resource allocations.
    - Third, they should devise property rights of appropriate scope. Narrow rights must be combined to achieve a particular use, such that high bargaining costs can frustrate efficient outcomes. This is the "Tragedy of the Anti-Commons". Conversely, broad property rights can also be problematic because the relevant owner may lack sufficient information to coordinate efficient use of the many assets underlying a single property grant.



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