ONE

Introduction

A Framework for Analysis

> When a social decision to redirect economic resources entails painfully obvious opportunity costs, how shall those costs ultimately be distributed among all members of society?
>
> Frank Michelman (1967, p. 1169)

> The problem to which the eminent domain clause is directed is that of political obligation and organization. What are the reasons for the formation of the state? What can the state demand of the individual citizens whom it governs and represents?
>
> Richard Epstein (1985, p. 3)

Property rights are fundamental to both law and economics. From the perspective of law, property rights define and protect those things that people can and cannot do with the assets under their control, including, but not limited to, land. From the perspective of economics, property rights provide incentives for people to use their assets in an efficient way. Some reflection, however, should reveal that these are two ways of saying the same thing. The incentive function of property rights ultimately resides in the legal protections that they afford to owners, particularly in terms of their right to exclude others (including the government) from infringing on their chosen use. In this way, property rights ensure that their holders will be able to enjoy the fruits of their efforts. Private property rights therefore represent an important pre-requisite for both efficient exchange and development of land, which are the fundamental sources of economic value. As Robert Ellickson (1993, p. 1327) has observed, private property provides incentives for "people to 'do the right thing' with the earth's surface."

There are cases, however, where one person's unrestricted use of his or her property imposes costs on others. For example, certain uses of property involve the production of smoke, noise, or other forms of pollution that may cause harm to nearby residents or to the environment. These cost

spillovers, or externalities (as economists call them), create potential inefficiencies in land use and therefore provide a possible justification for the government to impose limits on what owners can do with their property. And even though such restrictions may reduce the value of the specific properties on which they are imposed, their goal, if properly structured, is to increase overall efficiency.

Inefficiencies in land use can also arise when land that is currently privately owned becomes more valuable for public use. For example, as an economy develops, it becomes desirable for some amount of land to be devoted to the construction of highways, railroads, and airports, which are freely available to all. Or people may desire to set aside some amount of undeveloped land for recreational use or as an undisturbed sanctuary for wildlife. In these cases as well, unrestricted private property may impede the production of such "public goods" on a voluntary basis, so economists have long recognized that there may be a role for the government to step in and ensure that these goods are provided in the efficient quantity.

The government's response to both of the previously mentioned problems – namely, regulating externalities and providing public goods – generally involves its asking private property owners to give up some or all of their property rights in the collective interest. That is, owners are either required to limit those things that they can do with their property, or they are compelled to surrender some or all of it to the government for public use. Such acquisitions of rights by the government are justified on efficiency grounds for the reasons just described, but the specific terms under which the acquisition occurs are open to debate. For example, under what circumstances are landowners whose rights are acquired entitled to compensation for the resulting loss in value? And if they are so entitled, how should the amount or form of compensation be determined? Providing answers to these questions is where the issue of eminent domain arises, for this power describes the constitutional limits of the government's ability to take private property without the owner's consent. The problem is that the language of the Fifth Amendment's takings clause is sufficiently vague that courts are left with considerable discretion in applying those limits. Consequently, the government's exercise of its taking power has generated extensive case law and scholarship, both legal and economic, seeking to define its appropriate scope. The purpose of this book is to see what light economic theory can shed on this issue based on the goal of achieving an efficient use of land. (For readers unfamiliar with the idea of economic efficiency, the appendix to this chapter provides a brief overview of the key concepts.)

1.1. The Takings Clause

The concluding clause of the Fifth Amendment to the U.S. Constitution states "nor shall private property be taken for public use, without just compensation." This is referred to as the Eminent Domain, or Takings Clause. Notice that the clause is phrased as a limitation on a power that is inherent to the government, rather than the granting of a new power (Meltz et al., 1999, p. 14). The idea that the sovereign could seize private property for the state's use originated in English common law and was imported by the American colonies. Even after independence, though, uncompensated takings by legislatures were accepted based on the republican notion that individual property rights were secondary to the common good. Only later did the liberal belief in the primacy of private property, and the concomitant need to protect it from legislative infringement, begin to emerge as the predominant viewpoint among the founding fathers, led by James Madison. The Fifth Amendment's Takings Clause was the culmination of this ideological trend (Treanor, 1985).

The specific protections of private property that the clause announced were, first, that the taken property must be put to *public use*, and second, that the owner must be paid *just compensation*. However, no further guidance was provided as to the specific meanings of the phrases "public use" or "just compensation." Thus, it has been left to the courts and legal scholars to define these terms, and much ink has been spilled in that effort. The question of interest here is what economic theory has to say about these limits.

Although the Takings Clause is phrased as a limitation on the government's use of its power to acquire land, a proper inquiry into the nature of those limits necessarily begins by asking why the government should have the power in the first place. This question is especially appropriate in the context of a democratic system where the power of the state emanates from the citizens themselves. Thus, we are prompted to ask why, in such a system, a group of citizens, acting through the government, should have a power that none of them individually has – namely, to force another citizen or group of citizens to surrender or limit the use of their property. This way of framing the question forces us to examine the underlying economic rationale for eminent domain, which, as previously suggested, is based on the goal of achieving an efficient allocation and use of land.

The proper starting point for such an inquiry is the fundamental result from welfare economics, known as the Invisible Hand Theorem, which states that in a competitive market setting, voluntary (or market) exchange

will result in an efficient allocation of resources.[1] In other words, when the conditions for perfect competition are in place, property rights will end up in the hands of those parties who value them most, or in those uses where they are most valuable, without the need for government intervention. This is a profound result because it establishes that when individual property owners pursue their own self-interests, the outcome will be socially optimal as regards the efficient use of economic resources. In such an environment, there is no apparent need for the government to intervene in the market for purposes of improving efficiency (though there may be a need or desire for it to intervene to achieve a more equitable distribution of wealth).

The requirement that exchange must take place within a competitive setting is critical, however, because it means that no parties can have market power (that is, neither buyers nor sellers can have an inordinate ability to affect the market price), and other sources of market failure, like externalities and public goods, must be absent. These qualifications are especially important for our purposes because, as suggested earlier, an economic theory of eminent domain (or, for that matter, any departure from voluntary exchange) must be based on its ability to overcome one or more of these market failures. The next section begins to lay the foundation for such a theory of eminent domain by examining the problem of externalities, and the various possible responses to them, in more detail. (I consider the problem of public good provision in Chapter 2.)

1.2. Theoretical Preliminaries: Externalities and the Coase Theorem

The economic theory of eminent domain to be advanced in this book is a component of the broader economic theory of *property rights* and *property law*. The distinction between these two is that property rights represent those things that one is entitled do with one's property (thus, they are sometimes referred to as "entitlements"), whereas property law represents the set of legal rules that enforce those rights or entitlements. As previously suggested, the economic theory of property law views these rules as being designed to maximize the value of property.[2] In most ordinary instances, this involves protecting an owner's right to *use* his property as he sees fit,

[1] The result is also called the First Fundamental Theorem of Welfare Economics (Feldman, 1980, chapter 3).

[2] For surveys of the economic theory of property law, see Lueck and Miceli (2007) and Miceli (2009a, chapter 6).

allowing him to *exclude* others from using it, and facilitating his ability to *transfer* the right to another user on mutually acceptable terms. As argued earlier, though, when externalities are present, an owner's intended use of his property imposes unintended costs (or benefits) on others. For example, a farmer's use of a certain chemical fertilizer to increase his crop yield may pollute his neighbor's water supply, or a rancher's allowing his cattle to graze freely may result in their straying onto a neighboring farmer's land, destroying his crops. The role of the law in the presence of these incompatible uses is to limit an owner's property rights so as to eliminate or minimize the resulting external cost.

Traditionally, economists viewed externalities as a problem that only the government could solve by coercive means, for example by imposing a tax or other form of regulation on the "cause" of the harm. This so-called Pigovian view of externalities is based on the idea, previously noted, that externalities necessarily lead to market failure and thus require the government to intervene to achieve an efficient outcome. For example, a polluting factory must be taxed; otherwise it will ignore the harm that its pollution causes to nearby residents and will therefore emit too much of it. Another way to say this is that, absent the tax, the factory will view pollution (and the resulting harm) as a free "input" into its production process and will therefore overuse that input. By imposing the tax, the government is in effect saying that pollution victims "own" the right to be free from the harm, and thus the factory has to "purchase" that right (via the tax) if it wants to continue polluting (even though the tax revenue is not necessarily paid to the victims). In this way, a "forced" transaction at a price set by the government replaces the hypothetical market transaction that ideally would have taken place between the factory and residents regarding the exchange of the right to pollute.

Ronald Coase made a fundamental contribution to the economic analysis of externalities when he re-examined this traditional Pigovian response to the problem of incompatible property rights (Coase, 1960). Coase's key insight was not that the Pigovian perspective as just described is wrong; rather, he suggested that it was incomplete. In particular, he argued that it is based on two implicit assumptions, neither of which is necessarily valid. The first assumption is that there is a well-defined "cause" of the external harm; that is, there is a clear injurer, the factory, and a clear victim, the residents. The second assumption is that government intervention is necessary to internalize the harm because the market will fail to do so. The role of these assumptions in the traditional Pigovian view of externalities, and Coase's re-interpretation of the problem, is best illustrated in terms of

Table 1.1. *Coase's farmer-rancher example*

Herd size	Total crop damage ($)	Marginal crop damage ($)
1	1	1
2	3	2
3	6	3
4	10	4

Coase's example of the conflict between a farmer and a rancher occupying adjacent parcels of land.

Consider a rancher whose cattle sometimes stray onto a neighboring farmer's land and damage his crops. Table 1.1 shows the resulting crop damage, both in total and at the margin, as a function of the rancher's herd size. (The marginal damage is simply the amount that the total damage increases with each additional steer.) Suppose that the marginal benefit to the rancher of adding additional cattle to his herd is a constant $3.50. That is, each new steer increases the rancher's profit by $3.50. Thus, the rancher's profit-maximizing herd size is four (its maximal size), which yields a total profit of $14.00 (4 × $3.50). Once the crop damage is accounted for, however, the socially optimal herd size – that is, the herd size that maximizes the joint value of ranching and farming – is three. This is true because, for each steer added to the herd up to three, the marginal benefit of $3.50 exceeds the marginal crop damage, but for the fourth steer, the marginal crop damage exceeds the marginal benefit. A joint owner of the ranch and farm would therefore choose a herd size of three because he would internalize both the benefit and cost of changes in the herd.[3]

When the activities are separately owned, however, we would expect the rancher to increase his herd to four because he would ignore the crop damage suffered by the farmer. This provides the rationale, according to the logic of the Pigovian view, for the government to intervene and impose a tax on ranching (or crop damage) so as to achieve the efficient herd size.

But let us consider more carefully the situation where the rancher is neither taxed nor otherwise held legally responsible for the crop damage. Is

[3] Another way to see that the optimal herd size is three is to compute the net benefit from ranching and farming as follows:

herd size	net benefit
1	$3.50 – $1 = $2.50
2	$7.00 – $3 = $4
3	$10.50 – $6 = $4.50 (the maximum)
4	$14 – $10 = $4

it necessarily true, as is implicit in the Pigovian view, that the rancher will increase the herd size to four in this case? Suppose that the rancher and farmer can bargain freely with one another. Specifically, suppose that when the herd size is four, the farmer offers to pay the rancher, say $3.75, to reduce his herd to three. Clearly, the rancher will accept this offer because it yields him more income than the $3.50 he could earn by retaining the fourth steer, and the farmer is also better off because he avoids the $4 in additional crop damage at a cost of $3.75. Thus, because both parties benefit from the transaction, it will occur. Additional bargains to reduce the herd size further are not possible, however, because the marginal benefit of steers exceeds the marginal crop damage for herd sizes of three or fewer. Thus, the herd size remains at three, which is efficient. What this example shows is that when bargaining is possible, the efficient outcome can always be achieved in an externality setting by a voluntary transaction, even when the literal source or cause of the harm (the rancher) is not held legally responsible for it. This conclusion, known as the Coase Theorem, is a fundamental element of the economic approach to property law, and indeed, of the economic approach to law in general.

Now recall the two implicit assumptions underlying the Pigovian view of externalities – first, that there is an identifiable cause of the harm (in this case, the rancher), and second, that government intervention is necessary to internalize it – and note that, in light of the Coase Theorem, neither is necessarily correct. This is true, first, because both the farmer and rancher are "causes" of the crop damage in the sense that both must be present for the damage to occur. In this sense, the harm is said to be "reciprocal."[4] The importance of this insight is that the assignment of responsibility for an external harm is not absolute, but in fact involves a value judgment regarding who is more deserving of legal protection. In other words, it involves a decision about who should pay for the damages. It follows that, although the legal rule for assigning liability will not affect the herd size when bargaining is possible (that is, it will not affect the allocation of resources), it will affect the distribution of wealth between ranchers and farmers because it determines who possesses the underlying property right, which is valuable. Clearly, farmers would be better off if the law always required ranchers to pay for crop damage, whereas ranchers would be better off if the law never required them to pay. The assignment of property rights will therefore always have distributional implications, even when the Coase Theorem holds.

[4] One test for causation in tort law, called the "but-for test," says that an action by A is the cause of a harm suffered by B if the harm would not have occurred but for A's action. Both farming and ranching obviously satisfy this test given that the removal of either activity would eliminate the harm.

Second, the Coase Theorem establishes that government intervention is not necessarily required to internalize externalities as long as bargaining is possible. The significance of this insight is not that the government has no role to play in dealing with external costs. Rather, as will be emphasized in the next section, it reveals the importance of transaction costs, or other impediments to bargaining, in formulating the best response to an externality. In particular, it allows us to ascertain the conditions under which government intervention in the market is in fact justified. Having recognized the importance of transaction costs, we now turn to a more detailed examination of their role in externality problems.

1.3. The Role of Transaction Costs

The reader may justifiably observe that the Coase Theorem has little practical relevance because in most actual externality settings, the conditions required for it to hold are unlikely to be satisfied. In particular, because externalities often involve a large number of individuals, transactions costs between injurers and victims will generally prevent the sort of bargaining that may be needed to ensure an efficient allocation of resources. In that case, the assignment of legal responsibility for the harm will matter for efficiency as well as for income distribution. In other words, if the parties to an externality cannot bargain with one another, for whatever reason, the prevailing legal rule will determine the final assignment of rights. Thus, the rule needs to be chosen with the goal of efficiency in mind.

To illustrate, suppose in the farmer-rancher case that the crop damage can be entirely eliminated if the farmer "fences in" his crops (or, equivalently, "fences out" the straying cattle) at a cost of $9. Note that when this option is available, the socially optimal herd size is four. This is true because, once the fence is built, the marginal crop damage drops to zero regardless of the herd size. Thus, the total profit from the four steers less the cost of the fence, equal to $5.00 ($14.00 – $9.00), exceeds the net profit from the socially optimal herd of three without the fence: $10.50 – $6.00 = $4.50.

Initially, suppose that the prevailing law holds ranchers strictly liable for crop damage, and that bargaining between the parties is not possible. In this case, the farmer will clearly have no incentive to build the fence because he knows he will be compensated for any crop damage he suffers. The rancher, in reaction to the threat of liability, will therefore reduce his herd to three (as in the earlier example without the fence), which in the current example is inefficient. (The assumption that bargaining is not possible precludes the rancher from simply buying the fence for the farmer's land.)

Now suppose the law is changed so that ranchers are not held liable for crop damage. In this case, the rancher will increase his herd to four so as to maximize his private profit, whereas the farmer, who is no longer compensated for his losses, will find it profitable to build the fence because the $9 cost is less than the $10 in total crop damage. Thus, the outcome is now efficient (though clearly less desirable from the perspective of the farmer).[5]

This example illustrates the important point that, when transaction costs preclude bargaining between the parties, the law matters for efficiency and therefore must be chosen with this goal in mind (Demsetz, 1972). This is a crucial insight because it defines those situations in which government intervention is needed to correct the failure of the market to internalize the externality. The next section expands on this point by introducing the role of enforcement rules.

1.4. Enforcement Rules: The Choice between Property Rules and Liability Rules

The preceding section showed that in the presence of high transaction costs, the assignment of legal responsibility for external costs is important for achieving an efficient allocation of resources. Equally important is the legal rule for enforcing or protecting that assignment. In their seminal analysis of the choice among enforcement rules, Calabresi and Melamed (1972) distinguished between *property rules* and *liability rules*.[6] The difference turns on the conditions under which the protected entitlement can be transferred, and is again best illustrated by means of an example. Suppose that party A wishes to plant a row of trees on his beachfront property, but his neighbor, party B, objects because the trees will block her view of the ocean. Assuming that planting trees is a legal activity, the question is under what conditions B can stop A from exercising that right. If A's right to plant trees is protected by a property rule, B can only stop him by offering to pay an amount of money that A is willing to accept. In other words, B must purchase A's right to plant trees in a consensual transaction. B will therefore only be willing to do so if she values the ocean view more than A values the

[5] Under English common law, owners of livestock were traditionally held liable for any damage that they caused. In the American West, however, many states rejected this rule in favor of a so-called open range law, which only entitled victims of animal trespass to collect damages if they had fenced in their land. See Ellickson (1991, pp. 42–48) and Sanchez and Nugent (2000).

[6] For more detailed analyses of property and liability rules, see Polinsky (1980), Kaplow and Shavell (1996), and Ayres and Balkin (1997).

trees. In contrast, if A's right to plant trees is protected by a liability rule, B can go to court to block A from planting the trees without first seeking A's permission, but B must be willing to pay damages, as assessed by the court, for the loss in value suffered by A. In other words, B is able to force a transfer of A's right to plant the trees, without first obtaining A's permission, at a price set by the court.

Property rules, because they necessitate consensual transfers, therefore form the basis for *market* exchanges, whereas liability rules, because they allow non-consensual (court-ordered) transfers, form the basis for *legal* exchanges.[7] The virtue of property rules is that they allow right-holders to refuse any offer deemed unacceptable, thereby ensuring that only value-enhancing (efficient) transactions occur. The drawback of property rules is that, if transaction costs are high, as they often are in externality settings, they will prevent some efficient transfers from going forward, given the need for consent. Thus, property rules will tend to result in too few efficient exchanges. This provides the rationale for liability rules because, by removing the need for a would-be purchaser to obtain the right-holder's consent, they avoid bargaining costs. And as long as the court sets the amount of compensation at the right-holder's true valuation of the right in question, then the transaction is efficient, even though it is forced. The problem, of course, is that if the amount of compensation is *not* correctly set, then the transaction will not generally be efficient. If the amount of compensation is set too high, there will be too few transactions, and if it is set too low (as will more often be the case), there will be too many.

To illustrate, suppose in the previous example that the value of the ocean view to B is $1,000. Then it is only efficient for her to prevent A from planting the trees if A values the trees at less than $1,000. Under a property rule, B will never be able to block the trees if A values them at more than $1,000 because she would never be willing to offer more than $1,000 to do so. Thus, property rule protection of A's right to plant the trees will never result in its being inefficiently transferred. However, B may be unable to block A even if A values the trees at less than $1,000 if the costs of bargaining are high. Thus, as noted, a property rule risks too few transactions. In contrast, a liability rule will only guarantee an efficient outcome if the court sets the damages exactly equal to A's valuation of the trees. If it sets damages below

[7] Calabresi and Melamed also discuss a third enforcement rule, called an *inalienability rule*, which prevents the transfer of a right under any circumstances. Examples of rights protected by an inalienability rule (called inalienable rights) include the right to vote and the right to free speech. For an economic perspective on inalienable rights, see Lueck and Miceli (2007, pp. 245–249).