IV. What are the Remedies for the Violation of Property Rights?

As noted in Chapter 4, common law approximates a legal system of *maximum liberty,* which allows owners to do anything with their property that does not interfere with other people's property. When applying this principle, the amount of liberty afforded to owners depends on disentangling one owner's use of property from another's. When uses are separate, the effect of one owner on another occurs through voluntary agreements, such as market exchange. When uses join, one owner affects another involuntarily, as when my smoke blows over your property. In this section we discuss the special legal and economic problems caused by entangled uses.

A. Externalities and Public Bads

When people agree to impose costs and benefits on each other, they often make a contract. In contrast, when the utility or production functions of different people are interdependent, they impose benefits or costs on each other, regardless of whether they have agreed. Such interdependence is called an *externality,* because the costs or benefits are conveyed outside of a market. To illustrate the difference, if I buy so many watermelons at my local fruit store that the seller raises the price, my action affects other buyers, but bidding up a price exemplifies the ordinary working of markets, not an externality. In contrast, if my rooster's crowing annoys my neighbors, my action affects them independent from market transactions; so, the noise is an externality.

Costs or benefits conveyed outside of the market are not priced. Whenever costs or benefits are not priced, the supplier lacks incentives to supply the efficient quantity. Overcoming this incentive problem requires pricing the externality. When an externality gets priced, its supply is channeled through a market, which is called *internalizing the externality*. Thus, the solution to interdependent uses of property is to channel them through the market, or to internalize the externality.

The efficient solution to the problem of internalization depends on the number of affected people. If interdependence affects a small number of people, the externality is "private." For example, the crowing of my rooster affects a few neighbors, so the noise is a private externality. If the interdependence affects a large number of people, the externality is "public." For example, the smoke from a factory affects many households, so it is a public externality. Similarly, when one additional car enters a congested freeway, all the other drivers slow down a little, so congestion is a public externality. The private-public distinction in economics rests on a continuum describing the number of people who are affected by someone's actions. As the number of people affected by someone's action increases, a vague boundary is crossed separating "private" from "public."

In Chapter 4 we explained that one person's consumption of a public good does not diminish the amount available to others, and that excluding some people from enjoying a public good is difficult. Public externalities typically have these characteristics of nonrivalry and nonexcludability. For example, when one person breathes dirty air, just as much dirty air remains for others to breathe, and preventing some people in a given air-quality region from breathing the air is difficult. Consequently, harmful public externalities are also called "public bads."

We summarize these points by using some notation. Imagine a small economy with two people, denoted a and b, and three private goods, denoted x_1, x_2, x_3. Consumption of the first two goods involves no externalities, but consumption of the third good imposes external costs. For example, the first two goods might be apples and pears, and the third good might be cigarettes. We attach a superscript on a good to indicate who consumes. Thus, the utility of person a can be written as a function of the three goods that she consumes: $u^a = u^a(x^a_1, x^a_2, x^a_3)$. Assume that person b consumes the first two goods, but not the third good; that is, person b does not smoke cigarettes. Furthermore, assume that person b dislikes breathing the smoke from person a's cigarettes. Thus, the utility of person b can be written $u^b = u^b(x^b_1, x^b_2, x^a_3)$. (Note that b's utility will typically increase if she consumes more of x_1 and x_2 but that her utility will *decrease* if a consumes more x_3.) The utility functions of a and b are interdependent because a's consumption of the third good is an argument in b's utility function.   In other words, the presence of a variable in b's utility function bearing the superscript a indicates an externality.

Let us add additional notation to indicate incomplete markets. Suppose that the three goods (x_1, x_2, x_3) are purchased in a store at prices (p_1, p_2, p_3). The price that person a must pay for x_3 presumably reflects the cost at which the store purchases the good. This price does not include the cost of the harm that a's consumption of x_3 imposes on b.

Consequently, there is no price associated with the variable x^a_3 in b's utility function. In order to attach such a price, persons a and b would have to bargain with each other.

Through such bargaining, the externality might be internalized. Our two-person example is a private externality. Alternatively, assume that there are $1, 2, 3, \ldots, n$ people just like person b. Choose any one of these n people and call this person j. Person j's utility function has the form $u^j = u^j(x_1^j, x_2^j, x_3^a)$, for $j = 1, 2, 3, \ldots, n$. Now the harmful externality from a's consumption of x_3 affects so many people that it is a public bad. The transaction cost of bargaining with n people is presumably prohibitive, so the externality cannot be internalized by a private bargain. Instead, an alternative means of pricing the externality must be found.

B. Remedies for Externalities

In property law, a harmful externality is called a *nuisance*. Remember that our discussion of remedies for nuisance in Chapter 4 distinguished between injunctions and damages, and that the relative efficiency of these remedies has a lot to do with the public-private distinction. If the nuisance is private, few parties are affected by it, and, as a result, the costs of bargaining together are low. When bargaining costs are low, the parties will ordinarily reach a cooperative agreement and do what is effi- cient. Consequently, in those circumstances the choice of remedies makes little dif- ference to the efficiency of the bargaining outcome. The traditional property law remedy—injunctive relief—is attractive under these circumstances, because the court need not undertake the difficult job of computing damages. If one views an injunc- tion as always and forever prohibiting the offensive activity, then its inflexibility is costly. However, if one views an injunction as an instruction to the parties to resolve their dispute through voluntary exchange, then it is an attractive remedy for private nuisances.

In contrast, trying to correct a harmful externality of the public-bad type by bargaining would involve the cooperation of all the affected parties. Bargaining fails in these circumstances because it requires the cooperation of too many people. The law refers to a harmful externality of the public type as a *public nuisance*. Our analysis suggests that damages will be a more efficient remedy for a public nuisance than an injunction would be.

To apply this prescription for choosing between injunctions and damages, the court has to examine the number of people affected by the externality. However, the court does not have to perform a cost-benefit analysis comparing injunctions and damages.

Cost-benefit analysis requires more information than courts typically possess, so legal rules whose application requires a cost-benefit analysis should be avoided.

When compensatory damages are perfect, they restore the victim to the same utility curve as he or she would have enjoyed without the harm. Compensatory dam- ages can be *temporary* or *permanent*. With temporary damages, the plaintiff receives compensation for the harms the defendant has inflicted on him or her in the past. If harms continue in the future, the plaintiff must return to court in order to receive ad- ditional damages. Thus, temporary damages impose high transaction costs for dis- pute resolution. With temporary damages, reductions in future harms translate directly into reductions in liability. Consequently, temporary damages create incen- tives for injurers to continually adopt technical improvements that reduce external costs.

With permanent damages, the plaintiff receives compensation for past harms plus the present discounted value of all reasonably anticipated future harms.[59] One lump-sum payment extinguishes claims for past and future harms at the level speci-
fied in the judgment. Unfortunately, future changes in technology and prices are dif- ficult to predict, so the estimation of future harms suffers from error. Thus, permanent damages impose high error costs. Furthermore, by paying permanent damages the injurer "purchases" the right to external harm up to the amount stipu- lated in the judgment. Consequently, permanent damages create no incentive for in- jurers to adopt technical improvements that reduce external costs below the level stipulated in the judgment.[60]

As explained, temporary damages impose high transaction costs, whereas per- manent damages impose high error costs and undermine incentives for reducing fu- ture harms. Transaction costs of resolving disputes, whether by trial or settlement, are low when liability is certain and damages are easily measured. Error costs are high when innovation improves abatement technology and changes the understand- ing of the harms caused by externalities. Thus, temporary damages tend to be more efficient given easily measured damages and rapid innovation. Conversely, perma- nent damages tend to be more efficient given costly measurement of damages and slow innovation.

We commend damages as the remedy for a public nuisance. However, common law has not traditionally followed this prescription. When the public is harmed by a nuisance, courts traditionally allow the affected parties to enjoin it.

[59] See the section on asset-pricing in Chapter 2 for more on discounting.

[60] In his dissent in *Boomer v. Atlantic Cement Co.,* which we discuss next, Justice Jasen recognized this point in his criticism of the majority's award of permanent damages. He wrote, "Furthermore, once permanent damages are assessed and paid, the incentive to alleviate the wrong would be eliminated, thereby continu- ing air pollution in an area without abatement."

C. Graphing Externalities

Let us graph how the award of damages can internalize an externality and restore efficiency. We assume that a firm like Atlantic Cement is held liable for the external costs it inflicts on others. The situation facing the firm is shown in Figure 5.1. The company's marginal private-cost curve, *MPC,* indicates the private cost to the firm of producing different quantities of cement. Private costs include the capital, labor, land, and materials but not the external harm caused by pollution. The external costs of pollution are added to the private costs to yield the social costs of producing cement. Figure 5.1 depicts two marginal social-cost curves representing two different technologies. Under the old technology, the addition of external costs of pollution to the private costs of production yields the marginal social-cost curve *MSC*. This curve depicts the true cost to society of each level of production under the old technology. There is, however, a new technology that pollutes less. Its marginal social costs are shown along line *MSC'*. The superiority of the new technology lies in the fact that it causes half as much pollution at any given level of output as the old technology. For example, the old technology might use filters in the smoke stack, and the new technology might use scrubbers in the smoke stack.

Figure 5.1

The incentives to adopt a new, superior technology under a rule of temporary damages.
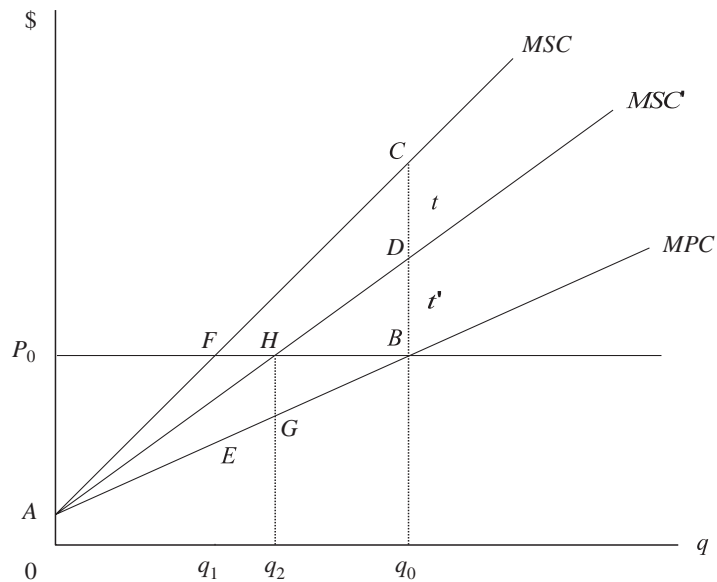
Under either technology and in the absence of any court or regulatory action, the company's profit-maximizing rate of output, q_0, is determined at the intersection of the private marginal-cost curve and the prevailing output price, P_0. Under the old technology, the total amount of external cost inflicted by the output rate q_0 is the area *ABC*. Under the new technology, the total amount of external cost inflicted by the output rate q_0 is the area *ABD*. The net social cost inflicted by the last unit of output is $t\lambda + t$ under the old technology and $t\lambda$ under the new technology. Note that it is easy to see here that, even if there is no legal compulsion for the firm to take external costs into account, society is better off if the firm is producing under the new technology rather than under the old technology. However, if the firm is not required to internalize these external costs, it has no incentive to adopt the new technology.

However, matters change if the firm can be made to internalize the social cost of its production of cement. Under the old technology and with the firm held responsible for its external costs, the profit-maximizing rate of output is determined by the intersection of P_0 and *MSC* at q_1. At this point the cost of pollution is area AEF. But under the new technology and with the firm held responsible for its external costs, the profit-maximizing rate of output is determined by the intersection of P_0 and *MSC¿* at q_2. Social efficiency requires the firm to adopt the new technology and produce at q_2. (Can you identify the cost of pollution at production level q_1 under the old tenchology, and at q_2 under the new technology?[62]

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[62] At q_1 under the old technology, the cost of pollution is AEF. At q_2 under the new technology, the cost of pollution is AGH.

But what about the firm? Is it indifferent between the two technologies? No. Assuming that the firm pays pollution costs, its maximum profits under the old technology are the area AP_0F, whereas maximum profits under the new technology are AP_0H. It is obvious that $AP_0H > AP_0F$.

How do these considerations relate to the question we asked above about the incentives for adopting superior technologies of production under the alternative damage measures? The intuitively plausible answer is that the cement company will adopt the cleaner technology more quickly under temporary damages than un- der permanent damages, and that intuition is borne out by our formal analysis. However, these economic advantages to temporary damages over permanent dam- ages must be balanced against the potentially higher administrative costs of tempo- rary awards.

D. Takings

The theory of property developed in Chapter 4 stresses that clear and certain property rights may facilitate bargaining, which creates a surplus from cooperation and exchange. Conversely, unclear and uncertain property rights may impede bargaining, which destroys the social surplus. The power of the state to take property (that is, to compel its sale to the state) and regulate its use reduces the clarity and certainty   of

Figure 5.2

The incentive effects on private investors of a difference between compensable takings and noncompensable regulations.
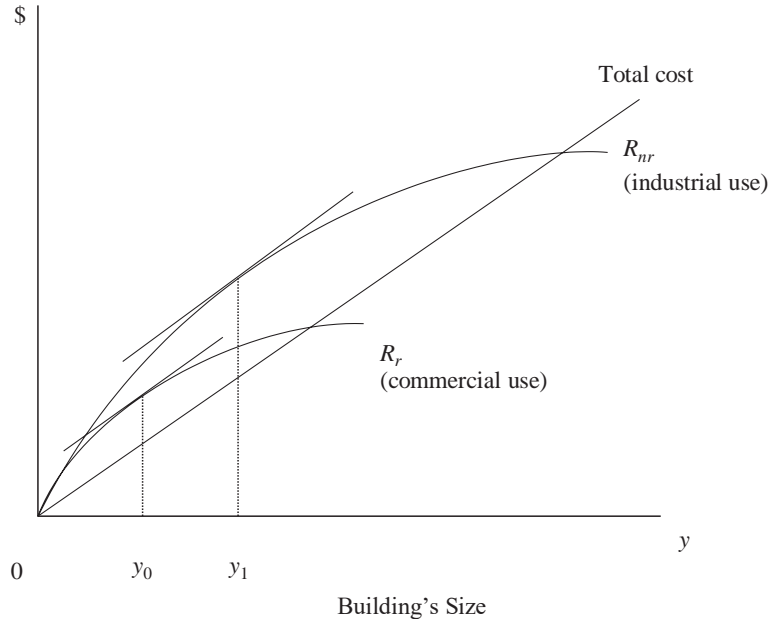
property rights. The resulting destruction in social surplus represents the economic cost of the state's power to take property and regulate its use. Offsetting the economic cost is the benefit of providing public goods at lower cost. In this section we develop these ideas into an economic theory of the taking and regulatory powers.

In many countries, the constitution circumscribes the state's power to take private property. For example, the takings clause of the Fifth Amendment to the U.S. Constitution reads, "nor shall private property be taken for public use, without just compensation." Thus, the Fifth Amendment prohibits the state from taking private property except under two conditions: (1) the private property is taken for a public use, and (2) the owner is compensated. We will explain the economic rationale for these two conditions.

1. Compensation To understand the compensation requirement, we proceed in two stages. First, assume that there were no requirement to compensate (as was the case in England centuries ago) so that expropriating private property might be a means of financing the government. Second, assume that there is a requirement to compensate and examine its incentive effects for the government to use private property. (We will examine compensation's effect on the private property owner's use of the property in a subsequent section.)

First, contrast takings and taxes as means of financing government. Taxes are assessed on a broad base, such as income, property, sales, or bequests. Everyone subject to the tax faces the same schedule of rates. In contrast, a taking involves a particular piece of property owned by a particular person. Tyrannies sometimes finance government and enrich officials by taking property from individuals. To finance the state by takings, the private owner whose property is appropriated must not receive compensation. If the private property owner received compensation equal to the market value for his or her property, the state could not profit from taking it. So the requirement of compensation can be viewed as a device to channel government finance into taxes and away from takings.

Economics provides strong reasons for financing the state by taxes rather than takings. Any kind of expropriation distorts people's incentives and causes economic inefficiency, but taxes distort far less than uncompensated takings. To see why, consider the basic principle in public finance that focused taxes distort more than broad taxes. Applying this principle, a given amount of revenues can be raised with less distortion by a tax on food rather than vegetables, or a tax on vegetables rather than carrots. This principle follows from the fact that avoiding broad taxes is harder than avoiding narrow taxes. For example, avoiding a tax on food requires eating less, whereas avoiding a tax on carrots requires eating another vegetable, such as cucumbers. Broad taxes distort behavior less because many people cannot change their behavior to avoid broad taxes. Thus, efficiency requires the state to collect revenues from broad taxes such as income or consumption.[63] In contrast, takings have a very narrow base. Individual owners will go to

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[63] The precise proposition is that goods should be taxed at a rate inversely proportional to their elasticity of demand and supply. Broad taxes fall on aggregates that are inelastically demanded and supplied.

great expense to prevent the state from taking their property without compensation. Indeed, the possibility of uncompensated takings would divert effort and resources away from production and toward the politics of redistribution.

Now let us examine the effect of the compensation requirement on government's actions. Courts have held that the compensation requirement necessitates the government's paying roughly the fair market value to a property owner if her property is taken. For reasons that we will soon explain, that value may not be exactly what the owner would like or that would be reached in an arm's-length transaction between the owner and another buyer. Nonetheless, the government cannot make money by paying the market value for property that it takes. This fact discourages the government from excessive takings of private property.

2. Public Use
The requirement of compensation does not preclude another political abuse, in which the state takes one person's property and sells it to someone else. To appreciate the problem, consider the difference between a taking and a sale. Sales are motivated by mutual gain, which is created by moving property from lower-valued to higher-valued uses. To illustrate, Blair's purchase of Adam's 1957 Chevrolet creates a surplus because Blair values it more than Adam does. The fact that both parties must consent to the sale guarantees mutual gain. In contrast, a taking does not require the consent of the property owner, so unilateral gain can motivate a taking. A property owner may value his or her property more than whoever takes it.

For example, assume that Samson owns his family's estate, the market value of which equals $30,000, but Samson does not want to sell it because he values the estate at $100,000 for sentimental reasons. Delilah covets Samson's estate and would be willing to pay up to $40,000 for it. Assume that the state can compel Samson to sell his property at its "fair market value." So, Delilah contributes $5000 to the campaign fund of a prominent government official, who takes Samson's estate, pays him $30,000, and resells the estate to Delilah for $30,000. Thus, Delilah and the government official each gain $5000, although Samson loses $70,000.

By taking Samson's property and giving it to Delilah, the state transfers prop- erty from one private person to another, so that Delilah does not have to pay Samson's subjective price for the estate. The requirement of compensation at mar- ket prices does not prevent this abuse, which occurs because the owner's subjective value exceeds the market price paid as compensation. To eliminate the abuse, the state could compensate the owner's subjective price rather than the market price. However, no one but the owner knows the subjective price. In a voluntary sale, the owner receives at least the subjective price or does not sell. If the state wanted to compensate at least the owner's subjective price, the state would have to buy the property, not take it.

The "public-use" requirement avoids the abuse in this example. Delilah's use of Samson's estate is private, not public. Consequently, the taking in this example violates the public-use requirement. The public-use requirement forbids the use of takings to bypass markets and transfer private property from one private person to another. Instead, property must be taken for a public use. For example, Samson's estate could be taken for a park, school, or highway.

The public-use requirement does not solve the problem of inefficiency in involun- tary transfers. To illustrate, suppose that motorists would be willing to pay $40,000 to use a highway through Samson's estate, the market value of which is $30,000. By tak- ing the land, paying Samson $30,000, and building a highway, the government antici- pates a surplus of $10,000. In reality, Samson values his estate at $100,000, so the net social loss will equal $60,000, and Samson will lose $70,000.

This example suggests that the state should not take property with compensation merely to produce a public good. In reality, the state buys most of the resources that it uses to supply public goods. For example, the state buys cement, pencils, trucks, light bulbs, and labor. In fact, takings are circumscribed more than the requirements of com- pensation and public use suggest.

3. Holdouts The government must purchase large tracts of land from many own- ers in order to provide some public goods, such as military bases, airports, highways, and wilderness areas. These projects often demand "contiguity," which means that the parcels of land must touch each other. To illustrate, the segments of a highway do not connect unless they are on contiguous parcels of land. Contiguity disrupts bargaining by creating opportunities for owners to hold out.

To illustrate, assume that the state proposes to construct a road across three parcels of land owned by three different people. The state determines that motorists would pay $200,000 more than the construction costs for such a road. Consequently, efficiency re- quires undertaking the project provided that the land's value is less than $200,000. The three owners value the land at $30,000 per parcel, so construction of the road would create a social surplus of $110,000. Assume that the state acquires an option to buy one of the parcels for $30,000. The state could pay up to $170,000 for the other two parcels and still come out ahead. Knowing this, each of the owners demands $100,000 for her parcel of land. If the state must buy the land, not take it, the project fails.

The last owner frequently "holds out" when the state acquires contiguous parcels of land needed for a public project. In a real-life example, the developers of a new base- ball stadium in Denver purchased all the land except for the property of one "holdout," whom the newspaper called "the guy who owns first base." Even when owners do not hold out, the possibility of doing so can dramatically increase the transaction costs of purchasing contiguous property. The taking power eliminates this problem. The gov- ernment should resort to compulsory sale principally when there are many sellers, each of whom controls resources that are necessary to the project. Thus, takings should be guided by this principle: *in general, the government should only take private property with compensation to provide a public good when transaction costs preclude purchas- ing the necessary property*.

4. Insurance People typically purchase insurance on assets whose value consti- tutes a significant proportion of their wealth, such as a house. Most homeowners pur- chase fire insurance. Similarly, people want insurance against takings. Private companies provide fire insurance, whereas the state provides insurance against takings by compensating property owners. Why does the private sector provide insurance against fires, and the state sector provide insurance against takings?

This question challenges you to relate takings to the economics of insurance. Insurance spreads risk among policy holders. In general, spreading risk more broadly reduces the amount that anyone must bear. The state can spread the risk of takings through the base of all taxpayers, which is broader than the base of all policy holders in any insurance company. So, risk-spreading argues for public insurance.

Administrative efficiency argues for private insurance. The discipline of competi-

tion causes a higher level of administrative efficiency in private insurance funds than in state insurance funds. Many state insurance funds, such as depository insurance in American savings banks, have a dismal history.

Risk-spreading and administrative costs are not decisive. The decisive case for public insurance against takings rests on incentive effects for the state. Decisions about takings are made by the state. If the state did not have to pay compensation, it might take property to finance itself, or it might take property for redistribution to the friends of politicians, or it might purchase too many public goods.[64]

5. Regulations Earlier in this chapter we discussed how interdependent utility or production functions can cause the externalization of social costs. Nuisance suits provide

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[64] For more on takings as insurance, see Lawrence Blume & Dan Rubinfeld, *Compensation for Takings: An Economic Analysis,* 72 CAL. L. REV. 569 (1984).

a remedy. State regulations provide another remedy. Regulations restrict the use of the property without taking title from the owner. Enacting regulations involves a political fight between the beneficiaries and victims. Since the outcome depends on politics, not cost-benefit analysis, the total costs of regulations often exceed the total benefits. However, a chapter on property is not the place to develop a full critique of regulations. In this section, we focus on a narrower issue related to takings.

Regulations typically cause a fall in the value of some target property, which may prompt a suit for compensation. To illustrate, an industrialist who acquires land to build a factory may be blocked when the local government "downzones" and forbids industrial uses. The industrialist may sue, alleging that the state took a substantial portion of the value of the property but not the title. When courts find for the plaintiff in such cases, they say there was a "taking." When courts find for the defendant in such cases, they say there was a "regulation." The difference is that a taking requires compensation and a regulation requires no compensation.

We want to discuss the incentive effects of this classification into compensated restrictions (takings) and uncompensated restrictions (regulations). If the state need not compensate for restrictions, then it will impose too many of them. If there are too many restrictions, then resources will not be put to their highest-valued use. Thus, uncompensated restrictions result in inefficient uses. Conversely, if the state must compensate fully for restrictions, then property owners will be indifferent about whether the state restricts them. If property owners are indifferent about whether the state restricts them, they will improve their property as if there were no risk that restrictions will prevent the use of the improvements. If restrictions subsequently prevent the use of the improvements, the investment will be wasted. Thus, compensated restrictions result in wasteful improvements.

We illustrate this argument by an example.[65]

> **FACTS:** Xavier is a government official whose wall contains a map with a thick blue line across it. Currently, the land-use planning laws allow the area to the south of the blue line to be used for any commercial, industrial, or residential purpose. The govern- ment proposes to change the law and forbid industrial uses, although commercial uses would still be allowed.
>
> Yvonne owns a building that is located on the blue line. She currently uses the building as a retail outlet, but she is contemplating expanding and improving the build- ing for use as a factory. Yvonne must decide how much to invest in improving her building. If she abandons the idea of using her building as a factory, she will make a smaller investment in improving it for use as retail space, and the government's land- use regulation decision will not affect her. But if she proceeds with the idea of using her building as a factory, she will make a large investment, and the government's deci- sion *will* affect her. Should the government carry out its proposed change, she will lose money on the large investment, and a court will then have to decide whether she is en- titled to compensation for the loss. The decision will turn on whether the court declares the change in the governmental land-use plan to be a regulation, in which case no com- pensation is due, or a taking, in which case compensation is due.

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[65] See Cooter, *Unity in Tort, Contract, and Property: The Model of Precaution,* 73 CAL. L. REV. 1 (1985).

Consider the incentive effects of the court's decision on Yvonne. If she is confident that downzoning is a taking and that she will receive compensation, she bears no risk from making a large investment; so, she will invest as if there were no risk of loss from governmental action. On the other hand, if she is confident that downzoning is a regulation and that she will not receive compensation, she bears the risk that the value of her investment would be destroyed by the governmental action, and she will restrain her investment.

Figure 5.2 on page 174 illustrates these facts. The vertical axis indicates dollars, and the horizontal axis measures the size of Yvonne's renovated building. The straight line labeled "Total Cost" indicates the amount that she spends on enlarging the building. Two curves, labeled and R_{nr} and R_r, indicate possible revenues yielded by the building as a function of its size. The higher revenue curve, labeled R_{nr}, indicates the revenues obtainable when there is no regulation, so that the building can be used as a factory. The lower revenue curve, labeled R_r, indicates the revenues obtainable when there is regulation, so that the building cannot be used as a factory.

Applying the usual economic logic, Yvonne will maximize profits by choosing the size of building for which the marginal cost equals the marginal revenues. Marginal values are given by the slopes of total value curves in the graph. y_0 is the point at which the slope of the lower revenue curve equals the slope of the total cost curve, so y_0 is the profit-maximizing investment level when industrial use is forbidden. If Yvonne were certain that the courts would hold that downzoning is a regulation, then she would maximize profits by investing at the low level y_0.

y_1 is the point at which the slope of the higher revenue curve equals the slope of the total cost curve; so, y_1 is the profit-maximizing investment level when industrial use is allowed. If Yvonne were certain that downzoning would be deemed a taking by the courts, then she would maximize profits (including compensation) by investing at the high level.

Now consider the efficient level of investment. Social efficiency requires Yvonne to take account of real risks, including the risk that the value of her contemplated investment will be destroyed by governmental action. If it were certain that government would *not* alter the land-use regulations in this area, then efficiency would require Yvonne to invest at the high level y_1. On the other hand, if it were certain that government would alter the rules, then efficiency would require Yvonne to invest at the low level y_0. In reality, it is uncertain whether government will make the alteration, so efficiency requires Yvonne to invest at a level in between y_1 and y_0.[66]

No compensation causes Yvonne to internalize the risk. When she internalizes the risk, she invests efficiently, at a level above y_0 and below y_1. We conclude that *no compensation for the loss of value in investments caused by uncertain governmental action provides incentives for efficient private investment.* However, compensation causes her to invest at y_1, as if the risk were zero. We conclude that *full compensation for the loss of value in investments caused by uncertain governmental action provides incentives for excessive private investment.*

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[66] To be precise, efficiency requires her to make additional improvements until the resulting increase in her profits when there is no government action, multiplied by the probability of no governmental action, equals the loss in profits when there is government action, multiplied by the probability of governmental action.

This argument concerns incentives for private persons, not the state. The effect of the two legal institutions—regulations and takings—is quite different when we turn from private persons to government officials. If the court decides that the alteration in the allowable uses of land in the relevant area is a mere regulation, so that compensation need not be paid, then the alteration costs the government nothing. On the other hand, if the court decides that this particular action is a taking so that compensation must be paid, then this type of action is very costly to the government. Obviously, *the noncompensability of regulations gives government officials an incentive to overregulate, whereas the compensability of takings makes government officials internalize the full cost of expropriating private property.* When government action is likely to be judged a taking, the government internalizes the cost of its actions and thus restrains its taking of private property. On the other hand, when government action is likely to be judged a mere regulation, the government lacks material incentives to conserve its use of valuable private property rights.

If the state compensates property owners for governmental takings, property owners have an incentive toward excessive improvements, whereas if the state does not compensate, the government has an incentive to overregulate private property. This is the *paradox of compensation,* which we shall meet again in our study of contracts and torts. Officials should consider this paradox when they must decide whether a state action that reduces private property values is a taking or a regulation. If private owners will respond to compensation by making excessive improvements, then their behavior will improve by declaring the state action to be a regulation. Conversely, if the government will respond to non-compensation by excessive action that harms property owners, then its behavior will improve by declaring the state action to be a taking. In technical terms, *elasticity in the supply of private investment with respect to compensation favors regulation instead of takings, and elasticity in the supply of state action with respect to compensation favors takings instead of regulations.*

Web Note 5.9

There have been some fascinating recent U.S. cases regarding noncompensable regulations and compensable takings. We review some of those cases and some of the recent literature on these issues on our website.

E. Bargaining With the State

Now we turn to a famous case where a landowner successfully sued the state for taking a property right by the way it regulated development. North of Los Angeles, the magnificent coastline of California remains largely unspoiled by development, and the California Coastal Commission is responsible for keeping it that way. A property owner named Nollan sought a permit from the Commission to enlarge a small coastal dwelling into a house. The property was located between the beach and a public road, as depicted in Figure 5.3. The house would have diminished and degraded the view of the coast from the road. The Commission wanted to protect the view from the road. To protect the view, the Commission could have refused permission to build the house. The Commission,

Figure 5.3
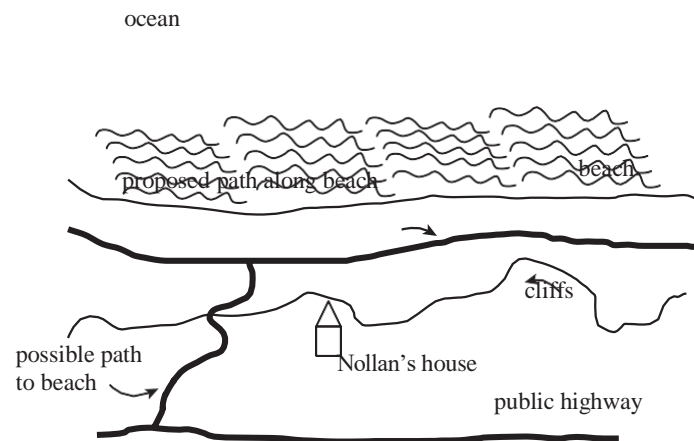
however, took another approach because it had another goal: to create a public walking path along the beach, as indicated in the figure. The Commission asked the owner to donate a public path along the beach in exchange for permission to build the house. Private developers often donate land in exchange for permits, as when a housing developer donates land for a school and a road in exchange for a permit to build houses on farmland. Instead of donating the path, however, the owner sued the Commission.

The law clearly allows the state to regulate property to protect the public against harm, and the law clearly forbids the state from expropriating selected property owners without compensation in order to finance public goods. Was the Coastal Commission protecting the public or forcing a private person to pay for a public easement? The U.S. Supreme Court reached the latter conclusion in a complex opinion written by Justice Scalia. The Court looked for a "nexus" between the harm caused by the owner (obstructing the public view from the road) and the remedy demanded by the Commission (donating a public path along the beach). The Court reasoned that without such a nexus, the regulation was an illegal taking. Because the Court could not find a nexus, the owner won the dispute.

A legal principle can be abstracted from these facts. In order for a regulation to count as protecting the public from harm, the regulation must *mitigate* the harm. The state may condition a permit on mitigating the harm caused by its exercise. A donation of land to mitigate harm is allowed. For example, the Commission might have asked Nollan to donate a path to get around the house and reach the beach. (See "possible path to beach" in the picture.) A donation of land for a purpose *un*related to the harm does not mitigate it. Instead, a donation for another purpose *offsets* the harm by supplying something else of value. *Nollan* can be interpreted as standing for the principle that the state may not condition a permit on offsetting the harm caused by the permit's exercise.

Some hypothetical numbers inspired by *Nollan* show a problem with this policy of forbidding permits conditional on offsets. According to Figure 5.4, the property owner values building the house at 1000, and the Commission values the public's loss of view at 300. Figure 5.4 shows the valuations for "build" and "don't build" in the two columns of the figure.

Figure 5.5 shows the valuations for "mitigate" and "offset." Mitigating requires redesigning the house to improve the view, which costs the owner 300 and benefits the public by 250 as estimated by the Commission. Alternatively, donating a path along the beach costs the owner 250 and benefits the public by 400.

Figure 5.4

Value of building and not building.

	Act (build house)	Don't act (don't build house)
Property owner	+1000	0
Public commission	− 300	0

Figure 5.5

Value of mitigation and offset.

	Redesign house (mitigate)	Path along beach (offset)
Property owner	−300	−250
Public commission	+250	+400

Figure 5.6

Net values.

	Don't act	Act and mitigate	Act and offset
Property owner	0	700	750
Public commission	0	−50	100
Total	0	650	850

Figure 5.6 combines the numbers from the two previous figures to give the net benefits of alternative acts. "Don't act" yields 0 to both parties. "Act and mitigate" yields 700 to the property owner (1000 − 300 = 700) and −50 to the public (−300 + 250 = −50), for a net benefit of 650. These two choices ("Don't act" and "Act and mitigate") are apparently the only ones allowed by the Court in *Nollan*. Given these two choices, the Commission will presumably refuse to issue a permit, and the result will be 0 benefits to both parties.

The Court apparently will not allow the parties to act and offset, which would benefit both of them. "Act and offset" yields 750 to the property owner (1000 − 250 = 750) and 100 to the public commission (−300 + 400 = 100) for a total benefit of 850.

With these hypothetical numbers, the holding in *Nollan* results in a payoff of 0 to both parties (the Commission denies the building permit), whereas allowing the Commission to demand an offset results in a payoff of 850 (Commission gives permit, and owner donates the path). These hypothetical numbers show that the principle in *Nollan* can easily cause inefficient blocking of building permits. The Supreme Court apparently arrived at this principle because it feared that the state will abuse offsets. The state might demand offsets from politically vulnerable property owners instead of collecting taxes. For example, a mayor elected by tenants might demand offsets whenever landlords need building permits. The mayor could use the offsets to finance public goods instead of imposing taxes that fall partly on tenants.

The potential scope for such abusive offsets is large for two reasons. First, the state has extensive powers of regulation, many of which go unused. The state might start to introduce unnecessary restriction on those seeking building (and other) permits just to obtain offsets. Second, the state can demand an offset whose value exceeds the harm caused by exercising the permit. In Figure 5.4, building benefits the owner by 1000. Thus, the state can demand up to 1000 in offsets as a condition for allowing the owner to build, and the owner gains from accepting the offer, even though building harms the public by only 300.

Fear of abuse is reasonable, but the Court should have solved the problem in a different way that avoids inefficiency. A better solution prohibits offsets unless the state

also gives the property owner the opportunity to mitigate. This approach implies that the Commission should give the property owner the permit to build the house conditional on the owner *either* mitigating *or* offsetting. The relationship "either . . . or . . ." is disjunctive. We are proposing a disjunctive conditional permit.

The additional choice can benefit both parties. In Figure 5.6, the disjunctive conditional permit allows the owner to redesign the house at a cost of 300 (mitigate) or donate a path along the beach at a cost of 250 (offset). The owner will choose the latter, which will benefit the public much more than the former. In general, allowing the state an additional choice—to issue a permit conditional on mitigating or offsetting—cannot make the state worse off. By issuing a disjunctive conditional permit, the state gives the property owner an additional choice. The property owner in Figure 5.6 will choose to offset. In general, allowing the property owner an additional choice—to mitigate or offset—cannot make the property owner worse off. So, allowing the state to choose or reject issuing a disjunctive conditional permit is more (Pareto) efficient than not allowing it to do so.

F. Zoning and the Regulation of Development

Some goods, called *complements,* are better consumed together, such as hot dogs and sauerkraut, and other goods, called *substitutes,* are better consumed separately, such as ice cream and sauerkraut. A similar categorization may be made regarding the spatial separation of economic activities: it is best to locate restaurants near offices, and it is best to separate smokestack industries from residences. There is, however, an important difference between culinary and spatial separation: no law prohibits eating ice cream with sauerkraut, but zoning ordinances in most localities *do* prohibit locating industry in residential neighborhoods.

It is the element of compulsion in the segregation of economic activities by zoning laws that we here seek to explain. It is possible to make a case for zoning as a response to an important kind of market failure. When demand for a good increases, the price rises, and producers respond by supplying more of it. The rise in price is a signal for producers to devote more resources to producing the good. This signal is usually appropriate in the sense that society is better off when resources are shifted to producing goods whose price is rising. There are, however, special circumstances in which the signals get crossed. In these special circumstances, it would be better for society if producers of a certain good responded to a rise in the price of that good by supplying *less* of it; but in a free market, they will respond to the rise in price by supplying more of it.

To illustrate by a historical example, suppose that in 1900 industry locates on the shore of an undeveloped bay in California. Locating industry on the shore gave easy access to boats. By 1960, however, the manufacturers were supplied by truck rather than by boat. Moreover, the harbor now has great aesthetic and recreational appeal. Given the change in circumstances, efficiency requires gradually relocating industry into the interior and constructing residences or recreational parks on the harbor.

To cause factories to move out and residences to move in, residential developers should bid up the price of harbor land relative to land in the interior. There is, however, an obstacle to the unregulated market's accomplishing this end. The problem is that no one wants to live next door to a factory, so that residential developers are unwilling to pay much for harbor land as long as industry is present. Instead of factories' moving away from the harbor, the opposite may happen: as industry expands, residences may be driven farther away from the water. If the relative price of land near the water falls as residents flee to the interior to escape industry, the unregulated market in this situation gives the wrong signals.[67]

Conclusion

In Chapters 4 and 5 we developed an economic theory of property and applied it to a wide-ranging set of legal problems. Our theory views property as the institution that gives people freedom over resources; property law can encourage the efficient use of resources by creating rules that facilitate bargaining and exchange and that minimize the losses when bargaining fails. We organized our theoretical discussion of property rules around four questions that a system of property law must answer. In answering these questions, we revealed the economic logic underlying much of property law.