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TAKINGS

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Abstract

This chapter provides an overview of the law and economics literature on government takings of private property under eminent domain. The first part of the chapter addresses questions pertaining to physical acquisitions of property, including the meaning of the public use and just compensation requirements, and the impact of takings for development decisions of landowners. The second part of the chapter turns to the question of whether or when a land use regulation ever becomes so burdensome to the landowner as to require compensation under the takings clause. Regulations that cross this threshold are referred to as regulatory takings. The chapter first discusses the economic justification for government (public) control of externalities, and then considers factors that affect the compensation question, including the intent of the regulation, the impact of the regulation on the landowner, incentives for efficient land use, fairness considerations, and whether capitalization nullifies the need for compensation.
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1. Introduction

This chapter provides an overview of the law and economics literature on government 'takings' through acquisition or regulation of private property. Unlike private individuals who must bargain with owners when they wish to acquire property, the government can acquire private property for public use without the owner's consent provided that it pays just compensation. In the United States, this authority is granted by the 'takings clause' of the Fifth Amendment of the Constitution, which states: 'nor shall private property be taken for public use, without just compensation'. In addition, nearly all state constitutions contain takings clauses (Fischel, 1995b, p. 180). The law and economics literature has addressed a number of issues relating to the government's taking power, including the economic justification for the government's power of eminent domain, the meaning of the public use and 'just' compensation requirements, and the implications of eminent domain for the land development decisions of property owners. In the first part of this chapter, we provide an overview of these issues and the related literature.

In contrast to physical acquisitions or intrusions for which compensation is nearly always paid, government regulation of private property generally does not require compensation. Instead, it is viewed as a legitimate exercise of the government's police power. There is a long-standing question, however, about whether or when a regulation ever becomes so burdensome to a property owner as to require compensation under the takings clause. Regulations that cross this threshold are referred to as 'regulatory takings'. In the second part of this chapter, we review the law and economics literature on regulatory takings. We begin by discussing economic justifications for government regulation, and then turn to factors that affect the compensation question, including the nature of the government action and the impact of the regulation on landowners. We argue that various 'rules' for determining whether or not compensation should be paid, which appear at first to be different, are in fact consistent under certain conditions. We conclude by proposing compensation rules that balance the incentives of regulators against the incentives of landowners.

A. The Economics of Eminent Domain

The Fifth Amendment to the US Constitution guarantees, in part, that the government shall not take private property for public use without paying 'just compensation'. This seemingly straightforward protection of private property from arbitrary government seizure has generated a large literature attempting to interpret and justify its various components.

2. The Justification for Eminent Domain

Eminent domain gives the government the power to acquire property from private individuals through non-consensual transfers. Thus, a private individual's property is protected by a liability rule, rather than a property rule, *vis-à-vis* the government (Calabresi and Melamed, 1972). A common justification for this power is that it prevents individuals from refusing to sell their property to the government at a 'reasonable' price. This argument is faulty, however, because the subjective value an individual attaches to his or her property is worthy of protection in economic exchange - indeed, an important reason for protecting property by a property rule is to allow individuals to refuse transactions that do not make them better off (Posner, 1992, Ch. 3; Munch, 1976).

Since subjective value is important, and property rules protect subjective value, there must be another justification for eminent domain. The answer is that, when the government is assembling a large amount of land to build a public project like a highway, individual owners whose land is necessary for the project acquire monopoly power in their dealing with the government. That is, they can hold out for prices in excess of their true (subjective) valuation of the land given that it would be costly, once the project is begun, for the government to seek alternative locations (Cohen, 1991). Although the government theoretically could solve this problem by acquiring all the necessary land prior to construction, it would be difficult to conceal the project as the pattern of acquisitions was revealed. Moreover, because the project is publicly funded, it usually is public knowledge well in advance due to the need to appropriate funds. Private developers assembling a large number of properties clearly face the same problem. One argument for why they do not have eminent domain power is that it would be easier for them to acquire the property while disguising their ultimate intent, for example, through the use of 'dummy' buyers.

The real justification for eminent domain, then, is the need to prevent hold-outs, which is a form of transactions cost. This justification is therefore a special case of the argument that property rules are desirable when transactions costs are low and liability rules are desirable when transaction costs are high (Calabresi and Melamed, 1972; Krier and Schwab, 1995; Kaplow and Shavell, 1996).

3. The Public Use Requirement

The government's eminent domain power is restricted by the public use requirement included in the Fifth Amendment (Merrill, 1986a; Paul 1987b; Rubenfeld, 1993; LaCroix and Rose, 1995). One interpretation of this requirement is that the government can only use its taking power to acquire property for the provision of public goods (Ulen, 1992). While this seems to be a natural interpretation of 'public use', the economic theory of public goods does not imply that acquiring the inputs for public goods creates a hold-out problem (Cornes and Sandler, 1986, Ch. 5; Cohen, 1991). While coerced contributions to the *funding* of public goods is necessitated by the free-rider problem, coerced *acquisition* of the resources used to produce them is not.

Another interpretation of the public use requirement is that it is synonymous with the hold-out problem. This view, however, implies that private individuals faced with the hold-out problem also ought to have eminent domain power. Fischel (1995b, pp. 71-73) in fact suggests that private interests (for example, railroads) have often been granted the taking power by legislatures, and courts have been deferential (though not universally so) to this practice. Bouckaert and

De Geest (1995) provide a transactions cost justification for private takings.

Epstein (1985, Ch. 12) argues that the presence of a hold-out problem should be a necessary, but not sufficient condition for the public use limitation to be satisfied. In addition, some provision should be made to prevent private interests from acquiring all of the surplus from a forced sale. The basis for this additional requirement is that forced acquisitions with compensation set at market value prevent the owner of the acquired property from realizing both his subjective value, and a share of the gains from the sale (the value of the property in its proposed use minus the owner's subjective value). To prevent this, Epstein proposes as the second prong of a two-pronged public use test something like the above public goods requirement in order to ensure that the gains from a forced sale accrue widely to the public rather than to a private interest endowed with taking power.

Epstein does not, however, use this second prong to argue that private interests should never have taking power. Private interests can legitimately have taking power under Epstein's public use test if, in addition to facing the hold-out problem, they make some effort to pay a share of the surplus from the taking to the victim of the taking. An example is the Mill Acts, which granted private individuals the right to erect dams for purposes of operating mills provided that they paid flooded upstream owners compensation equal to 150 percent of their market value. Note that this sharing of the surplus, while serving the interest of fairness, also helps to counteract the tendency to overtake under market value compensation (see the next section).

4. Just Compensation

The Fifth Amendment allows the government to take private property for public use if it pays just compensation. Courts generally define just compensation to be 'fair market value'. However, this amount almost certainly undercompensates landowners, possibly by a large amount, since owners do not generally view land and wealth as perfect substitutes, whereas market value compensates them as if they did. Fair market value is not only unfair to landowners, it also potentially leads to an excessive transfer of private property to public use because the government does not have to pay the true opportunity cost of the resources it acquires. (We pursue this point in more detail in the discussion of fiscal illusion below.) Thus, while the hold-out problem precludes the efficient assembly of property through market exchange, eminent domain with market value compensation potentially leads to too much assembly (Munch, 1976; Fischel, 1995a).

Of course, the takings clause does not *define* just compensation to be fair market value, so it is not a necessary feature of eminent domain that it result in undercompensation. However, the problem with setting compensation equal to the owner's true valuation is that this amount is unobservable, and owners would clearly have an incentive to overstate it (Knetsch and Borcherding, 1979). Thus, taking measurement costs into account, fair market value may be the best proxy for just compensation.

A related issue, suggested by Epstein (1985, Ch. 18), is that money raised to finance compensation is a 'taking' from taxpayers for which they receive 'in-kind' compensation in the form of benefits from the public project. Based on this insight, Fischel (1995b, p. 211) suggested that market value compensation may be the best way to balance 'the undercompensation of the market-based rule against the greater loss incurred by higher taxes and [foregone] public works that full, consensual compensation would require'.

5. Eminent Domain and Land Use Incentives

The feature of eminent domain that has drawn the most attention from economists, especially recently, is its impact on land use incentives. In particular, how does the possible threat of condemnation affect a landowner's incentive to invest in developing his land? The first formal analysis of this question was by Blume, Rubinfeld and Shapiro (1984). The principal result that they derived (or at least the one that has received the most attention) was that full compensation for takings results in inefficient investment decisions by landowners while no compensation results in efficient incentives. Intuitively, compensation that is positively related to the value of the property, and hence the level of investment in that property, creates a moral hazard problem by providing the landowner insurance against the possibility of a taking. When a taking occurs, a social cost is incurred because an irreversible investment is lost. An efficient investment decision must therefore reflect the likelihood that this cost will be incurred (that is, the probability that a taking will occur). However, as is true of unlimited expectation damages for promisees in contract cases (Cooter, 1985), if the landowner is guaranteed full compensation, he will not incur any private loss if a taking occurs. Hence, he will ignore the possibility of a taking when making his investment decision and overinvest.

Blume, Rubinfeld and Shapiro (1984) show that this overinvestment incentive can be eliminated by making the compensation lump-sum, that is, independent of the amount of investment in the property. Since lump-sum compensation is the same regardless of how much the landowner invests, increases in the level of investment lead to increased losses if a taking occurs. Thus, under lump-sum compensation the landowner is not fully insured and hence considers the possibility of a taking when making his investment decision. He thus chooses an efficient level of investment. Note that a special case of lump sum compensation is no compensation. Thus, Blume, Rubinfeld and Shapiro (1984) conclude that a rule of never paying compensation will lead to efficient landowner investment decisions. Kaplow (1986, 1992) has also endorsed the no compensation result for government takings, and more broadly for many forms of legal change that have distributional and allocative implications.

Although no compensation is consistent with efficient land use incentives, several arguments have been made against it. The first and most common objection is that a rule of no compensation allows the government to acquire resources at no cost. This is not a problem if the government is unswervingly devoted to acquiring resources only when it is efficient to do so. Fischel and Shapiro (1988, 1989) refer to such a government as 'Pigouvian'. However, modern public choice theory suggests that this is unlikely to be the case (Mueller, 1989). A more realistic view treats the government like any other economic agent who responds to economic incentives. If compensation is zero in this case,

> The resources under the control of the central authority will be perceived to be costless. The opportunity costs will be ignored, and land use regulation without compensation will lead to overproduction of environmental amenities .... (Johnson, 1977, p. 65)

Such a government is said to have 'fiscal illusion' (Blume, Rubinfeld and Shapiro (1984). In the current setting, this implies that the government will make its taking decision by comparing the benefit of the public good to the amount of compensation it must pay to the owners of the land that it takes. If it is not required to pay any compensation, it will tend to take property too often since it will view the taking as having positive benefits but no costs. Thus, a rule of zero compensation creates a moral hazard problem for the government. Full compensation can solve this problem and at the same time protect the rights of politically under-represented groups (Paul, 1987a; Epstein, 1985, 1995, Ch. 7; Burrows, 1991; Farber, 1992; Fischel, 1995b; and Yandle, 1995).

As noted above, full compensation for takings results in inefficient investment because it allows landowners to ignore the social costs that result if a taking occurs. At the same time, full compensation is necessary to prevent overregulation by the government. In the presence of this trade-off, Fischel and Shapiro (1989) examined a compensation rule under which the level of compensation would be proportional to the value of the property, and they showed that the optimal (second-best) solution requires partial compensation. In contrast, Hermalin (1995) showed that the first-best outcome is attainable under a pair of compensation rules. Under the first, the government pays the landowner compensation equal to the social value of the taking. Note that this rule has the same effect as a property rule in that the owner receives compensation in excess of his value of the land (assuming that the taking is efficient), implying that the transfer is essentially consensual. The efficiency of this rule is thus consistent with the efficiency of property rules as discussed by Fischel and Shapiro (1988, p. 275).

Under Hermalin's second rule, the landowner has the option to buy back the land for a price equal to its social value. As noted above, actual compensation rules tie payment to the fair market value of the land to the owner rather than its value in public use, and owner's do not ordinarily have a buy-back option. Thus both of Hermalin's are purely normative in that they do not explain the actual practice of courts.

Breach of contract remedies suggest yet another solution to the trade-off between moral hazard and fiscal illusion, namely, limit compensation to the full value of the land to the owner, evaluated not at the actual level of investment but rather at the efficient level of investment (Cooter, 1985; Rose-Ackerman, 1992). Note first that this rule will induce efficient behavior by the government because it requires full compensation. In addition, in equilibrium it will induce all landowners to choose an efficient level of investment because compensation is still lump-sum.

Even when the government does not have fiscal illusion, there is an argument for paying compensation for takings if the likelihood of a taking depends on the value of the property (Miceli, 1991; Trefzger and Colwell, 1996). The model in Blume, Rubinfeld and Shapiro (1984) assumed that landowners view the probability of a taking as independent of their investment decision. However, in reality, the government may be less likely to take land that is more valuable in private use. For example, by taking undeveloped rather than developed land, it can reduce the social cost of the taking. If landowners anticipate that by increasing their investment in land they can reduce the chance that their land will be taken, they will adjust their investment decisions accordingly. To avoid this problem, Miceli (1991) shows that, even in the absence of fiscal illusion, compensation must be equal to the full value of the land at the optimal level of investment, net of any compensation tax. The intuition for this result is as follows. When the landowner expects zero compensation (or, generally, undercompensation), he will *overinvest* in order to reduce the probability of a taking. On the other hand, if he expects overcompensation he will *underinvest* in order to increase the probability of a taking. Only full compensation at the efficient level of investment eliminates these incentives to over- or underinvest.

The question is whether landowners in fact view the probability of a taking as being a function of their level of investment. This is unlikely in the context of physical acquisitions of land, which rarely occur. Indeed, the probability of a physical taking is probably near zero for most landowners. However, government regulations preventing certain land uses such as zoning and environmental restrictions are widespread and generally apply to all plots in a given area. In that case, the probability of a land use restriction that reduces their property values is not necessarily small, and it may be possible for landowners to affect its magnitude by their land use decisions (Miceli and Segerson, 1996, Chs 7 and 8). Thus, this issue is likely to arise in the context of regulatory takings discussed below.

The preceding discussion has shown that a compensation rule that pays landowners the full value of their land at the efficient level of investment results in both efficient investment in land and efficient takings decisions when the government has fiscal illusion. One problem with this rule is that it requires courts to be able to calculate the efficient level of investment, a task that may prove difficult in practice. However, this problem has not prevented courts from adopting rules in other areas of the law that require similar calculations. For example, negligence rules require calculation of due standards of care in accident settings (Landes and Posner, 1987, Ch. 4; Cooter and Ulen, 1988, Ch. 8; *U.S. v. Carroll Towing*, 159 F.2d 169 (1947)). Moreover, existing community standards for 'normal' land use can often provide a good proxy for efficient development levels (Fischel, 1985, Ch. 8).

Two additional arguments against the no compensation result have been made in the literature. The first was by Michelman (1967) in perhaps the most influential article on takings to date. Michelman used a utilitarian standard for deciding, first, when a government should enact a taking, and second, when it should pay compensation. The standard is based on three factors: efficiency gains, demoralization costs, and settlement costs. Efficiency gains simply represent the social benefits minus the costs of a public project. A *necessary* condition for enactment of the project under Michelman's standard is that the project generates efficiency gains.

In addition to efficiency gains, Michelman introduced two types of costs. The first is the demoralization costs associated with non-payment of compensation. Demoralization costs represent the total of (1) the dollar value necessary to offset disutilities which accrue to losers and their sympathizers specifically from the realization that no compensation is offered, and (2) the present capitalized dollar value of lost future production (reflecting either impaired incentives or social unrest) caused by demoralization of uncompensated losers, their sympathizers, and other observers disturbed by the thought that they themselves may be subjected to similar treatment on some other occasion (Michelman, 1967, p. 1214).

The second type of cost is the settlement (or transaction) costs associated with payment of compensation. Settlement costs represent 'the dollar value of time, effort, and resources which would be required to reach compensation settlements adequate to avoid demoralization costs' (Michelman, 1967, p. 1214). Michelman's standard for compensation is that it should be paid if settlement costs are less than demoralization costs, and not paid if the reverse is true. Further, the public project should be enacted if and only if the efficiency gain exceeds the lower of the settlement and demoralization costs. Note that this standard is intermediate between the Pareto and Kaldor-Hicks criteria for efficiency. It is more permissive than Pareto since a project should be enacted without compensation if the efficiency gains exceed the demoralization costs and the demoralization costs are less than the settlement costs. However, it is less permissive than Kaldor-Hicks since even if there are efficiency gains, the project should not be enacted if those gains are less than the lower of the settlement and demoralization costs (Fischel and Shapiro, 1988, p. 280).

The final argument against the no compensation result is based on the idea that compensation acts as a form of public insurance for risk-averse landowners against the possibility of government expropriation of their property (Blume and Rubinfeld, 1984, 1987; Rose-Ackerman, 1992). The need for public rather than private insurance is that moral hazard and adverse selection problems, and the infrequency of takings, prevent formation of a private insurance market for takings risk. Because of the administrative costs and incentive effects of compensation, however, it should only be paid when landowners are very risk-averse and losses are large.

B. Regulation and Takings

Thus far we have focused on physical acquisitions of private property, which have been universally accepted by courts as compensable government takings. There has been much more controversy, however, both in the courts and in the academic literature, over government regulations that reduce private property values and the extent to which these should be compensable (Knetsch, 1983; Epstein, 1985; Paul, 1987a; Fischel, 1995b; and Yandle, 1995). Courts have generally granted the government broad powers to regulate private property in the interest of protecting public welfare. However, some government regulations can become so restrictive as to cause a substantial reduction in the value of private property. When this happens, courts have occasionally found the regulation to be a taking and ordered payment of compensation. The problem is to determine where to set the threshold that separates non-compensable regulations (police power actions) from compensable ones (regulatory takings). We begin our discussion of this question by considering the rationale for the existence of the government's regulatory power. We then provide an overview of the issues that have arisen in trying to define a threshold for compensable regulatory actions.

6. Justifications for Government Regulation

One of the principal uses of the government's regulatory power is in the context of externalities, or incompatible uses of property (Cornes and Sandler, 1986, Chs 3 and 4). There are, however, private (common law) remedies available for dealing with such incompatibilities. Thus, prior to addressing the question of whether the government should pay compensation for a regulation, we first need to answer the question of why government (public) intervention is economically justified at all.

Trespass and nuisance are the principal common law remedies available to property owners faced with violations of their property rights. Trespass ordinarily allows owners to exclude, or enjoin, future intrusions regardless of the benefits to the intruder, whereas under nuisance law the court generally enjoins the intrusion or awards damages only after determining that the victim's harm is substantial and the nuisance-creating activity is unreasonable (Keeton, et al., 1984, pp. 622-623). According to Merrill (1985), this distinction can be explained in terms of transactions costs. Specifically, when transactions costs between the intruder and the victim are low, trespass is the efficient remedy because it forces the parties to resolve the incompatibility through a voluntary transaction - a solution that guarantees a mutually beneficial outcome. When transactions costs are high, however, nuisance law is the appropriate remedy because the parties may be unable to resolve the dispute through bargaining. In that case, the court conducts a sort of cost-benefit analysis before determining if the victim is entitled to relief. In a sense, the court coerces an efficient exchange (a 'private taking') or prohibits an inefficient one when bargaining is expected to fail. The case of *Boomer v. Atlantic Cement* (309 N.Y.S.2d 312 (1970)) illustrates this common law (private) approach to externalities.

The preceding theory implies that private remedies initiated by the victim of an externality are available for both low and high transaction costs cases. The question then is where direct government regulation of externalities fits into this scheme. One answer is that if the external cost is dispersed across a large number of victims, then no one victim may have an incentive to seek a private remedy, even when the aggregate cost outweighs the benefit of the injurer's activity. In that case, the government acts as an 'agent' of the victims by regulating the injurer's activity directly. The government thereby overcomes a collective action problem among victims (Landes and Posner, 1987, Ch. 2).

While many regulations are designed to address externality problems, government intervention can be justified on other grounds as well, such as protection of individual rights. For example, laws designed to protect the rights of disabled people, to guarantee free speech, or to ensure equal access or opportunity, can result in requirements that impose costs on property owners and reduce the value of private property. Alternatively, government regulation (such as public utility regulation) can arise in response to other market failures, including imperfect competition and imperfect information. Regulatory takings issues have arisen in these contexts as well.

The preceding discussion identifies situations in which government regulation of private property may be justified, but it does not address the question of whether the landowner should be compensated for the resulting private loss. Although from an economic perspective the distinction between physical invasions and value-reducing regulations is not a meaningful one (Rose-Ackerman, 1992, p. 29), courts have routinely denied compensation for the latter (with some notable exceptions). In the following sections, we review the key issues relating to the question of when compensation should be paid for regulations that reduce the value of private property without physically acquiring it.

7. The Nature of the Government Action

As noted, courts have historically granted governments wide powers to regulate without paying compensation, provided that the regulation somehow protects the public interest. This justification for non-payment of compensation thus focuses on the nature of the government action.

7.1 Regulation of 'Harmful' or 'Noxious' Uses

An early case that established the nature of the government action as relevant for the compensation question is *Mugler v. Kansas* (123 U.S. 623 (1887)). The case concerned a law passed by the State of Kansas prohibiting the operation of breweries because they were public nuisances. The plaintiff argued that operation of his brewery predated the law, and further, that it did not constitute a nuisance. The Court nevertheless upheld the law based on the state's right to regulate, without compensation, land uses that are injurious to public welfare. Specifically, the Court held that there is no taking if a regulation is aimed at preventing uses that are 'injurious to the health, morals, or safety of the community' (*Mugler v. Kansas*, 1887, 668-669). This argument has become known as the 'noxious use' doctrine and remains an important basis for government regulations under the police power.

Concern with the nature of the government's action was re-affirmed in *Penn Central Transportation Co. v. City of New York* (438 U.S. 104 (1978)). Echoing the noxious use doctrine from *Mugler*, the court noted that 'in instances in which a state tribunal reasonably concluded that "the health, safety, morals, or general welfare" would be promoted by prohibiting particular contemplated uses of land, this court has upheld land-use regulations that destroyed or adversely affected recognized real property interests' (*Penn Central v. City of New York*, 1978, p. 125). Thus, according to the Court, if the public benefit of the regulation is sufficiently large, it may not constitute a taking even when the landowner suffers a significant loss.

Finally, in *Lucas v. South Carolina Coastal Council* (112 S. Ct. 2886 (1992)), the Court introduced a provision that would allow the government to avoid paying compensation if it could show that the activity a landowner planned to pursue would be prohibited under the state's common law of nuisance. Thus, the Court recognized that government actions consistent with nuisance law are non-compensable. This provision of the *Lucas* decision is known as the 'nuisance exception'.

The academic literature has also looked to the nature of the government action to determine if a regulation should be compensable. Much of the literature is based on property rights principles. Property rights approaches to the takings question typically begin by implicitly defining a distribution of property rights that the law protects. If a government action deprives a property owner of a right protected by this distribution, compensation is due, whereas if it deprives him of an unprotected right, no compensation is due.

The 'harm-benefit' rule exemplifies this approach (Fischel, 1985, pp. 154-155). According to this rule, compensation is not due for regulations that prevent a landowner from imposing an external cost on society (for example, pollution), but compensation is due for regulations that compel the landowner to provide an external benefit (for example, open space). The underlying basis for this distinction is that landowners do not have the right to impose costs, but they do have the right to withhold conferral of benefits.

Joseph Sax has offered two theories of takings that fall within this property rights approach. His first theory (Sax, 1964) argues that the government owes compensation when it acquires property rights for use as an enterprise - for example, when it provides a public good; but it does not owe compensation when it merely arbitrates private disputes - for example, when it regulates an externality. (Rose, 1983, advances a similar argument.) According to this view, regulatory takings for the most part fall within the category of non-compensable actions since, as noted above, they generally are aimed at preventing an external cost or correcting a market failure or inequity.

Sax's second theory (Sax, 1971) suggests that the government does not owe compensation for any action that involves the internalization of spillover effects (negative externalities). Bromley adopts a similar view, arguing that compensation for regulations that prevent externalities would represent 'indemnification for an inability to continue to impose unwanted costs on others' (Bromley, 1993, p. 677). Like the harm-benefit rule, this view is based on the idea that the law does not protect an individual's property right when that right infringes on other individuals' rights. Note that a similar delineation of property rights underlies the noxious use doctrine (Mercuro, 1992a, p. 3) and the *Lucas* nuisance exception. The nuisance exception is also a fundamental feature of Richard Epstein's view of takings law (Epstein, 1985, Ch. 9, 1992; Epstein, et. al., 1992), which holds that landowners should generally receive compensation for regulations except when the offending land use would have been prohibited by the state's common law of nuisance.

Property rights approaches to the compensation question are not necessarily consistent with economic theory, especially those based on the harm-benefit approach. For example, it is well known that there does not exist a meaningful economic distinction between a harm imposed and a benefit conferred, given that a harm is equivalent to a foregone benefit, and a benefit is equivalent to an avoided harm (Coase, 1960; Fischel, 1985, p. 158). What is lacking is a 'benchmark of neutral conduct' for defining the threshold between harms and benefits (Michelman, 1967, p. 1197). The basis for harm-benefit rules can be made consistent with economic logic, however, by appealing to administrative, or transaction, costs as a way of identifying such a neutral point.

7.2 Standards of 'Normal' Behavior

Fischel employs a transaction costs approach in proposing a rule based on a 'normal behavior' (Fischel, 1985, Ch. 8, 1995b; Ellickson, 1973, 1977). This rule resembles the harm-benefit rule in that it says that no compensation is due for regulations that prevent 'subnormal' land uses, but compensation is due for regulations that compel 'super-normal' land uses. The rule differs from the harm-benefit rule in that 'normal' behavior is defined according to local community standards based on what a landowner could reasonably expect to do with his land without government restriction. A reasonableness standard for land use thus replaces the arbitrary distinction between a harm and a benefit.

The importance of transactions costs to this rule is that, by using normal behavior as the 'zero compensation' point, the transactions costs of compelling normal behavior are minimized. In particular, since most people will engage in normal behavior without state intervention, only a few transactions will be needed to fine those who engage in subnormal behavior and to compensate those who undertake supernormal behavior. Wittman (1984) uses a similar transactions cost approach to distinguish compensable from non-compensable regulations. He argues that administrative costs are minimized if compensation is paid only when the government acts inefficiently since 'we would expect the government to act efficiently more often than not' (Wittman, 1984, p. 74).

In addition to minimizing transaction costs associated with paying compensation, Fischel's normal behavior standard avoids what he views as a major problem with a rule that conditions compensation solely on the loss in value to the owner (the diminution of value rule) - namely, the possibility of paying compensation for regulations that restrict truly inappropriate land uses while imposing substantial losses on the landowner, for example, prohibiting pulp mills in residential neighborhoods. Fischel recognizes, however, the need to balance the costs of regulations against their benefits. He therefore argues that forcing 'super-normal' behavior on landowners need not require compensation if the benefits of the regulation exceed the cost to the private landowner and the transaction costs are excessive (Fischel, 1985, p. 165). Since the presumption is that requiring landowners to conform with social norms would generate benefits in excess of its costs, Fischel's rule is essentially one of paying compensation for inefficient regulations and not paying compensation for efficient ones.

To the extent that noxious uses and nuisances represent subnormal (inefficient) uses, non-compensation for regulation of these types of activities is consistent with Fischel's and Wittman's rules for minimizing transactions costs. Moreover, all of these rules are essentially versions of the harm-benefit approach to defining compensable regulations in that they rely on a distinction between 'good' and 'bad' behavior by the landowner, which in turn defines a threshold for determining compensation. Thus, while these various theories appear at first to be quite different, they are in fact consistent with each other when the thresholds are defined on the basis of economic principles. In addition, they are consistent with the threshold-based rules proposed by Miceli and Segerson (1994, 1996) (see Section 9 below).

7.3 The 'Essential Nexus' Requirement

While the foregoing suggests that the nature of the government action can justify uncompensated regulations, courts have required that those actions must bear at least some relationship to the regulated land use. In particular, the doctrine of 'unconstitutional conditions' holds that 'the government may not require a person to give up a constitutional right ... in exchange for a discretionary benefit conferred by the government where the property right sought has little or no reasonable relationship to the benefit' (*Dolan v. City of Tigard*, 114 S.Ct. 2309, 2317 (1994)). This condition arises in takings cases when the government requires a landowner to dedicate some property to public use without just compensation in exchange for a permit to develop.

In *Nollan v. California Coastal Comm'n* (438 U.S. 825 (1987)), the Court held that in order for a permit condition to be valid, there must exist an 'essential nexus' between the condition (that is, the required dedication of property) and the proposed development for which the permit is sought. The case concerned a state requirement that the Nollans allow public access to their beach in return for a permit to replace an existing beachfront bungalow with a three bedroom house. The State's interest in imposing the condition of beach access was purportedly to counteract the fact that the larger house proposed by the Nollans would diminish the view of the ocean from the roadway. However, the Court held that the essential nexus requirement was *not* met in this case because access to the beach did not serve to enhance the view of the ocean from the road; that is, it did not counteract the impact of the proposed development.

The Court re-examined this issue in *Dolan v. City of Tigard* (1994). While the Court reaffirmed the essential nexus requirement, it also found that mere *existence* of a nexus was not enough to validate the permit condition. In addition, 'the degree of the exactions demanded [must] bear the required relationship to the impact of the petitioner's proposed development' (*Dolan v. City of Tigard*, 1994, p. 2318). The Court adopted a 'rough proportionality' test to assess this relationship. When the court applied this test to the facts of *Dolan*, it concluded that the government's conditions did not bear the required 'reasonable relationship' to the impact of the proposed development.

Miceli and Segerson (1996, Chapter 4) argue that the essential nexus requirement represents a generalized condition for determining whether or not a government regulation is efficient in cases where landowners have the ability to mitigate the external costs of their proposed development. The regulatory decision is assumed to have two separate components: first, the government decides whether or not to attach conditions to the permit if it is granted, and second, it decides whether or not to grant the permit given those conditions. In this context, the efficiency of the regulatory decision includes efficiency of both the decision of whether or not to grant the permit, and the efficiency of any conditions attached to the permit. The essential nexus and rough proportionality tests in combination can be viewed as an attempt to ensure the efficiency of the permit conditions.

In contrast to Miceli and Segerson (1996), Innes (1995, 1997) argues that the essential nexus and proportionality requirements should not be applied in takings cases. He argues instead that the focus should be on providing equal protection to owners of similarly situated land (the equal protection requirement). This argument, however, is based on consideration of the incentives of landowners rather than the efficiency of the regulatory decision (see Section 8.3 below).

8. The Impact of the Regulation on the Landowner

In addition to the nature of the government action, the other major factor used to evaluate regulatory takings cases is the impact of the regulation on the landowner. This criterion is best exemplified by Holmes's diminution of value test.

8.1 The Diminution of Value Test

The impact of the regulation on the landowner was first advanced as a test for compensation in *Pennsylvania Coal Co. v. Mahon* (260 U.S. 393 (1922)), which is one of the most influential takings cases in US history. This case challenged a Pennsylvania statute, the Kohler Act, which prohibited coal companies from any mining that threatened the safety of surface owners due to cave-ins. The majority opinion, written by Justice Oliver Wendell Holmes, found the regulation to be a taking requiring compensation because it went 'too far' in reducing the landowner's rights. Specifically, Holmes's ruling provided that the government can regulate private property without compensation unless the regulation goes too far in diminishing the value of the property to the owner. This rule is thus referred to as the 'diminution of value' test. Holmes did not articulate a general test for establishing when a regulation had gone too far, however, leaving it instead to be determined on a case by case basis.

Holmes's ruling in *Pennsylvania Coal* marked a watershed in takings law because, prior to this case, takings were usually limited to physical acquisitions of property by the government; most efforts to obtain compensation for 'mere regulations' failed, due in large part to the noxious use doctrine (Friedman, 1986). The diminution of value test broke with this tradition by introducing the loss in value to the owner into the equation. It thus 'put the police power on a continuum with the power of eminent domain' (Mercuro, 1992a, p. 4).

Holmes did not argue for a general rule of compensation because he recognized that the government 'could hardly go on if to some extent values incident to property could not be diminished without paying for every such change in the law' (*Pennsylvania Coal v. Mahon*, 1922, p. 413). At the same time, however, he acknowledged that a rule of no compensation for regulations would, given 'the natural tendency of human nature', result in overregulation until 'at last private property disappear[ed]'. Thus, Holmes recognized the fundamental trade-off between the costs of compensation (a stifled government) and the benefits of compensation (protection of private property and a limitation of government excess): 'The general rule at least is that while property may be regulated to a certain extent, if regulation goes too far it will be recognized as a taking' (*Pennsylvania Coal v. Mahon*, 1922, p. 415).

Most takings cases since *Pennsylvania Coal* have generally applied some form of Holmes's diminution of value test. An example is the previously cited case of *Lucas v. South Carolina Coastal Council* (1992), which concerned a developer (Lucas) who had purchased two beachfront lots in South Carolina with the intent of developing them for residential use. Although development was permitted at the time Lucas purchased the lots, the State subsequently passed a law, the Beachfront Management Act, that prohibited development. Lucas acknowledged the state's right to impose such a law, but he argued that it reduced the value of his property so much that it constituted a taking for which compensation was due. The South Carolina Supreme Court ruled in favor of the State, based on the broad regulatory powers that have been granted to state and local governments. However, the US Supreme Court reversed the decision and found that compensation was due.

Environmental groups had feared such a decision in the belief that the need to pay compensation would greatly reduce the ability of governments to protect the environment against the unrestrained actions of private property owners. However, the decision in *Lucas* awarded compensation on narrow grounds. In particular, the Court found that compensation was due because 'when the owner of real property has been called upon to sacrifice *all* economically beneficial uses in the name of the common good, that is to leave his property economically idle, he has suffered a taking' (*Lucas v. S. Carolina Coastal Council*, 1992, p. 2895).

Thus, the Court found that the regulation had clearly crossed the threshold set by the diminution of value test and that a taking had therefore occurred. However, the opinion offered no guidance as to the exact location of the threshold.

While the diminution of value test has been widely applied, it has been criticized on efficiency grounds. As noted above, for example, if only the loss in property value is considered when deciding whether to compensate, then the resulting outcome may be inefficient since the benefit of the regulation will not be balanced against the cost (the loss in private property value) (Fischel, 1985, pp. 156-157). Similarly, if compensation is not required when the reduction in property value is small, then a government that considers only actual cost outlays rather than social costs, that is, a government with fiscal illusion, will view such regulations as costless and thus overregulate. If some balancing between these two effects is to take place, as proposed in the original Holmes ruling, then a standard for deciding when a regulation has gone 'too far' must be available. We will propose such a standard below.

8.2 Investment-Backed Expectations

In *Penn Central Transportation Co. v. City of New York* (1978), the US Supreme Court faced the question of whether the City of New York could prevent the owners of Grand Central Terminal from erecting an office tower over the terminal by declaring it an historical landmark. The Court held that it could without being obliged to pay compensation. In reaching its decision, the Court identified several factors to be weighed in determining whether a regulation constitutes a taking, including the nature of the government action and the economic impact of the regulation on the claimant. The former reflects the noxious use doctrine from *Mugler* and the latter the diminution of value rule from *Pennsylvania Coal*. While Holmes did not offer any criterion for determining when a regulation goes too far under the diminution of value rule, the *Penn Central* court did. Specifically, the Court said that a regulation 'may so frustrate distinct investment-backed expectations as to amount to a taking' (*Penn Central v. City of New York*, 1978, p. 127), whereas it is not a taking if it does 'not interfere with interests that [are] sufficiently bound up with reasonable expectations of the claimant to constitute "property" for 5th amendment purposes' (*Penn Central v. City of New York*, 1978, pp. 124-125). Thus, a relevant factor for determining whether a regulation requires compensation is whether the regulation interferes with distinct investment-backed expectations by the claimant.

Justice Brennan's majority opinion in the *Penn Central* case relied heavily on Michelman's (1967) view that, in order for a landowner to put his land to productive use, he must have a reasonable expectation of being allowed to retain the fruits of his investment (Mandelker, 1987, pp. 10-13). Nevertheless, Michelman asserts that compensation is *not* due in every case of investment-backed expectations (Michelman, 1967, p. 1213). For example, compensation would not be due if demoralization costs are low and settlement costs are high (see the discussion of Michelman above).

Miceli and Segerson (1996, Ch. 7) also argue that a rule of paying compensation if and only if the landowner's expectations are investment-backed will be inefficient. In particular, they show that it can lead to overinvestment. However, they also show that efficient land use decisions will be made under a 'good faith' rule based on 'reasonable' (efficient) land use decisions. In particular, in the event of a regulation, such a rule would require compensation for landowners who acted in good faith, either by investing when it was efficient to do so or not investing when investment was inefficient, and it would not require compensation for those who did not act in good faith (Mandelker, 1987).

8.3 Singling Out and Equal Protection

An additional factor identified in the *Penn Central* case for determining when a taking occurs was proposed by Justice Rehnquist in a dissenting opinion. This factor concerns whether the government action applies to a broad class of landowners or whether it 'singles out' individuals. Rehnquist noted that 'Even where the government prohibits a noninjurious use, the court has ruled that a taking does not take place if the prohibition applies over a broad cross section of land and thereby "secure[s] an average reciprocity of advantage"' (*Penn Central v. City of New York* (1978, p. 147), Rehnquist dissent, quoting from *Pennsylvania Coal v. Mahon* (1922, p. 415)). In contrast, regulations that single-out landowners are more likely to be judged a taking according to this criterion. In *Agins v. Tiburon* (447 U.S. 255 (1980)), the Court similarly held that a landowner subject to a zoning ordinance 'will share with other owners the benefits and burdens of the city's exercise of its police power. In assessing the fairness of the zoning ordinances, these benefits must be considered along with any diminution in market value that the appellants might suffer' (*Agins v. Tiburon*, 1980, p. 262). Even Epstein (1995, pp. 134-137), who argues generally in favor of compensation, recognizes that regulations that spread benefits and costs over the same population offer in-kind compensation.

The singling out criterion also forms the basis for Michelman's (1967) proposed fairness standard for compensation:

> A decision not to compensate is not unfair as long as the disappointed claimant ought to be able to appreciate how such decisions might fit into a consistent practice which holds forth a lesser long run risk to people like him than would any consistent practice which is naturally suggested by the opposite decision. (p. 1223)

Such a rule can be defended by a 'veil of ignorance' argument that legitimizes rules that people would have approved prior to learning of their actual position in society (Rawls, 1971, pp. 136-142; Posner, 1980). This rule prevents landowners from being singled out to bear costs for society as a whole, as when a single landowner is compelled to give up his property without compensation to provide a public good (Rose-Ackerman, 1992). At the same time, it allows uncompensated regulations that potentially apply equally to all landowners, such as broadly-based zoning laws. Such a rule therefore depends on the extent to which a regulation applies to few versus many landowners.

Singling out can also occur when compensation is not paid for restrictions that are placed on undeveloped land if comparable developed land is exempted from the restriction, that is, when there is not 'equal protection' for developed and undeveloped land. In addition to the fairness implications of an equal protection requirement, it can also have efficiency effects. Specifically, because it is often efficient for the government to take undeveloped land before developed land, uncompensated takings can provide an incentive for landowners to develop 'too early' in an effort to reduce the likelihood that their land will be taken (Innes, 1995, 1997). For example, a developer might begin construction in an effort to beat an anticipated downzoning (Dana, 1995). This is consistent with the result discussed above that zero compensation will not be efficient if landowners can influence the probability of a taking (Miceli, 1991; Miceli and Segerson, 1996, Chs 7 and 8).

Compensating owners of undeveloped land that is taken, or affording equal protection to both developed and undeveloped land, can offset the incentive for premature development (Innes, 1995; Miceli and Segerson, 1996, Ch. 8). Thus, such a rule can achieve both equity and efficiency objectives. However, Miceli and Segerson (1996, Ch. 8) show that, while equal protection is sufficient for efficient incentives, it is not necessary. Other rules are capable of simultaneously satisfying efficiency and equity goals as well.

In some cases, a developer will begin investing in a project only to find that a change in the zoning regulations prevents its completion. While recognizing that local governments need to have some freedom to revise their zoning laws in response to changing circumstances, landowners also need some protection of their sunk investments when a zoning change occurs (Mandelker, 1993, pp. 234-244; Kaplow, 1986). The courts have provided a basis for such protection in the form of ‘vested rights’. A vested right allows the landowner to proceed with the project despite the zoning change under certain conditions.

In order for a landowner to acquire a vested right, he generally must have made a ‘substantial’ investment in the property in reliance on a valid building permit. In this sense, his expectations must be ‘investment-backed’ (see the related discussion above). How much investment is necessary to be deemed substantial is not clear. Generally courts engage in a balancing test that weighs the costs and benefits of the zoning change. For example, in addition to making substantial investments, the landowner must have acted in ‘good faith’ by not rushing the development process in an effort to beat an impending zoning change. More generally, the good faith test asks ‘whether a landowner’s conduct was consistent with how a reasonable property owner would have acted in the same circumstances’ (Mandelker, 1993, p. 239). Miceli and Segerson (1996, Chs 7 and 8) show that, if good faith or ‘reasonableness’ are judged on efficiency grounds, then a good faith rule can induce efficient land use decisions by awarding a vested right if development was efficient but not awarding one if development was not efficient.

Note, however, that the threat to withhold a vested right if the landowner developed prematurely is only effective if the development is *reversible* - that is, only if the development process can be halted and the resulting external cost avoided or eliminated if the landowner developed inefficiently. This will not always be possible, as when a landowner harvests timber prematurely, or destroys wildlife in order to avoid the imposition of regulations aimed at preserving the habitat of an endangered species (a practice known as ‘shoot, shovel, and shut up’) (Epstein, 1995, p. 294). In such cases, it may be necessary to promise compensation for the threatened regulation in order to offset the incentive for preemptive development or destruction of wildlife and habitat. The magnitude of compensation cannot be too large, however, for then landowners may have an incentive to *delay* development inefficiently. One way to ensure efficient incentives is to condition the payment of compensation on efficiency of the landowner’s decision - that is, on whether his decision either to develop or to postpone development was efficient (Miceli and Segerson, 1996, Ch. 8)

8.4 The Role of Capitalization

As noted above, an important factor in evaluating the fairness of a regulation is the extent to which it interferes with the landowner’s reasonable expectations. One issue that arises in this context is whether the threat of a regulation was known to the landowner when he first purchased the land. A frequent argument made against paying compensation for regulations is that when landowners purchased land subject to the threat of a regulation, they paid a price that discounted (or 'capitalized') the possibility of that regulation. Consequently, they have already received 'implicit' compensation (Posner, 1980). Although this argument owes much to Michelman (1967), courts understood it as far back as 1823 when, in the case of *Callender v. Marsh* (1 Pick. 417, 430 (1823)), the court said: 'Those who purchase house lots ... are supposed to calculate the chance of [regulations]..., and as their purchase is always voluntary, they may indemnify themselves in the price of the lot which they buy.'

If the purchase price discounted (or capitalized) the threat of regulation, then the case for compensation is weakened because the landowner 'got exactly what [he] meant to buy'. Michelman concludes that compensation in this case would be analogous to refunding the price of a losing lottery ticket (Michelman, 1967, p. 1238; Rose-Ackerman, 1992). This is a persuasive argument that has found its way into fairly recent judicial decisions defending rulings against compensation (*HFH Ltd. v. Superior Court*, 542 P.2d 237 (1975)).

Several authors have suggested, however, that the capitalization argument against compensation is flawed (Epstein, 1985, pp. 151-158; Fischel, 1985, pp. 184-186; Fischel and Shapiro, 1988; Miceli and Segerson, 1996, Ch. 6). The reason is that, even if the purchaser had full knowledge of the threat of a regulation when he bought the land (and therefore paid a discounted price), the threat had to arise at some previous point in time, and the owner at that point suffered a capital loss. The only way that the original landowner is fully protected against this capital loss is if any subsequent owner who is regulated expects to receive full compensation, that is, compensation equal to the difference between the value of the property with and without the regulation. Compensation based on other measures, such as the purchase price of the land or reliance expenditures, will not eliminate landowner losses (or gains) even when capitalization occurs (Miceli and Segerson, 1996, Ch. 6).

9. Government Incentives versus Land Use Incentives

The above discussion of land use incentives in the presence of a takings threat identified a moral hazard problem associated with compensation. Specifically, paying compensation for the full value of the confiscated land will generally lead to overinvestment by landowners. While this result was first demonstrated in the case of physical takings (Blume, Rubinfeld and Shapiro 1984), the basic logic applies to regulatory takings as well (Miceli and Segerson, 1996, Ch. 3). Specifically, with full compensation landowners will act as if they are fully insured against the risk of a regulation and hence will overinvest. To remedy this problem, compensation must be lump sum, or independent of the amount that was invested in the land. Since a special case of lump sum compensation is zero compensation, an implication of the Blume, Rubinfeld and Shapiro (1984) model is that zero compensation will lead to efficient land use decisions in the case of regulatory takings as well.

If regulatory agencies have fiscal illusion, however, then a rule of no compensation potentially leads to excessive regulation (Epstein, 1985, Ch. 17; Johnson, 1977). This threat is especially severe for groups who are underrepresented in the political process or owners of immobile assets who cannot escape uncompensated regulations (Farber, 1992; Fischel, 1995a;Yandle, 1995). Hence, there is a potential trade-off between two effects: the moral hazard problem - which argues against compensation - and regulatory fiscal illusion - which argues for compensation.

Miceli and Segerson (1994) explicitly examine the trade-off between moral hazard and fiscal illusion in the context of regulatory takings by considering a compensation rule that conditions the amount of compensation on whether or not the regulator acted in an efficient manner. They show that a rule under which compensation must be paid if and only if the government made an inefficient regulatory decision (the '*ex post*' rule) will lead to efficient incentives not only for the regulator but also for the landowner. Under this rule, compensation is full when it is inefficient to impose the regulation ex post, but zero when it is efficient to impose the regulation *ex post*. This definition of the threshold for compensation induces the regulator to act efficiently because by doing so he can 'avoid' paying compensation. Moreover, since compensation is zero for efficient regulations, landowners will make the correct land use decisions as well.

In light of this conclusion, Miceli and Segerson (1996, Ch. 5) argue that, under appropriate definitions of 'noxious use' and 'nuisance', the *ex post* rule is consistent with both the noxious use doctrine and the nuisance exception. In addition, it is consistent with Fischel's (1985, Ch. 8) rule of paying compensation for inefficient regulations and not paying compensation for efficient ones (see the discussion above). Finally, it defines a threshold for determining when a regulation goes too far under the diminution of value test.

While compensation under the *ex post* rule hinges on the nature of the government action, Miceli and Segerson (1994, 1996, Ch. 4) show that efficient incentives for both regulators and landowners can also be achieved under an alternative rule that determines compensation on the basis of the efficiency of the landowner's decision (the '*ex ante*' rule). Under this rule, compensation is paid if and only if the landowner made an efficient land use decision at the time the that the original investment was made. Note that both the *ex post* and *ex ante* rules induce efficiency by both parties for the same reason that negligence rules work in bilateral care accident cases (Landes and Posner, 1987, Ch. 4;

Cooter and Ulen, 1988, Ch. 8). Specifically, they specify a threshold for one of the parties such that, by acting efficiently, that party can 'avoid liability'. As a result, the other party bears 'full liability' in equilibrium and therefore also acts efficiently. Since Miceli and Segerson (1994, 1996, Ch. 4) identify two alternative rules that are efficient, factors other than efficiency can be used to choose between them. Two such factors are fairness and transactions costs. Fairness generally argues for payment of compensation in equilibrium (the *ex ante* rule), whereas transactions cost considerations argue against compensation (the *ex post* rule). Note that these options mirror Michelman's (1967) comparison of demoralization and settlement costs for determining compensation.

As noted above, Hermalin (1995) also proposed rules that solve the moral hazard and fiscal illusion problems in the context of full takings. However, in contrast to Hermalin's proposals, the rules proposed by Miceli and Segerson permit attainment of the first-best outcome even when compensation is tied to the value of the land to the landowner, and the landowner does not have a buy-back option. Thus, while both the Miceli-Segerson rules and those of Hermalin induce efficient behavior by both landowners and regulators, the former are more closely linked to actual takings law and hence have greater positive significance.

Fischel and Shapiro (1989) also proposed a resolution to the trade-off between moral hazard and fiscal illusion in the context of a constitutional choice (veil of ignorance) model. They concluded that partial compensation for regulations optimally balances the costs of these two problems. However, a partial compensation rule only achieves a second-best solution. In addition, it fails to explain actual decisions of courts, which typically award either zero or full compensation. Note, however, that to the extent that compensation is based on fair market value, which is often less than the subjective value of the property (see Section 4 above), courts might in fact be awarding partial compensation for takings that are found to be compensable. Under this form of partial compensation, the rules proposed by Miceli and Segerson (1994, 1996) would yield second-best outcomes as well.

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