

OPTIONS FOR OWNERS AND OUTLAWS

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Property rights delegate control to owners and other possessors¹ within a compass that is specified spatially, temporally, and functionally.² Within these confines, owners have choices. They can decide where and how to engage in a particular use, and which of the permissible uses to pursue at a given time. Within legal limits, they may hold onto or dispose of the property interest, or a portion of it. Drawing on analogies from finance, scholars have characterized these choices (and many others) as “real options.”³ An option gives its holder the right, but not the obligation, to do a particular thing, such as to sell or buy an entitlement at a given price.⁴ Real options in land are not explicit—no financial instrument changes hands—but rather are embedded in the structure of the entitlement

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1. See Henry E. Smith, *Exclusion and Property Rules in the Law of Nuisance*, 90 VA. L. REV. 965, 974–85 (2004) (explaining how exclusion-based property rules delegate decisions about uses to owners). In this essay, I will use the term “owner” very broadly as a shorthand term for legally recognized possessory rights in real property, regardless of the labels they are given or the form that they take.

2. See *Tahoe-Sierra Pres. Council v. Tahoe Reg’l Planning Agency*, 216 F. 3d 764, 774 (9th Cir. 2000) (“the dimensions of a property interest may include a physical dimension (which describes the size and shape of the property in question), a functional dimension (which describes the extent to which an owner may use or dispose of the property in question), and a temporal dimension (which describes the duration of the property interest)”), *quoted in* *Tahoe-Sierra Pres. Council v. Tahoe Reg’l Planning Agency*, 535 U.S. 302, 318 (2002).

3. See, e.g., Laura Quigg, *Optimal Land Development*, in REAL OPTIONS IN CAPITAL INVESTMENT: MODELS, STRATEGIES, AND APPLICATIONS 265 (Lenos Trigeorgis ed., 1995); LENOS TRIGEORGIS, REAL OPTIONS: MANAGERIAL FLEXIBILITY AND STRATEGY IN RESOURCE ALLOCATION 9–14 (1996). Options embedded in real estate ownership represent only one application of real options analysis.

4. A call option gives its holder the right, but not the obligation, to purchase the entitlement at the strike price, while a put option gives its holder the right, but not the obligation, to sell the entitlement at the strike price. See, e.g., RICHARD A. BREALEY & STEWART C. MYERS, PRINCIPLES OF CORPORATE FINANCE 503–05 (10th ed. 2011).

itself.⁵ I will refer to them here as “embedded real property options” (“ERPOs”) to distinguish them from formal options to buy and sell interests in land, which parties may also transact over.

ERPOs have four notable characteristics. First, they do not typically feature fixed exercise prices or well-defined exercise periods. For example, an owner of a fee simple absolute may hold an option to develop the land for an indefinite period of time, but the price of exercising that option will fluctuate with the prices of inputs to development.

Second, and closely related, ERPOs held by landowners and other possessors are subject to a set of trumping options held by the government and by other parties. For example, zoning laws may change in ways that eliminate particular options, or a neighbor may move next door and engage in a use that falls short of an actionable nuisance but that nonetheless precludes certain sensitive land uses.

Third, the value of the option is tightly (if implicitly) tied to the underlying rules about who shall receive gains and losses associated with activity on the land. For example, a leaseholder may have the option to modify her premises by, say, installing built-in bookcases, but will not typically be entitled to any of the gains that come from those changes.

Finally, possessors are often in a position to exercise what I will here term “outlawed options”—the option to do something with the land that falls outside of the legally prescribed compass. To exercise an outlawed option, the actor pays the (implicit) strike price representing the expected repercussions from violating a prohibition or otherwise moving outside of the law’s protection.

ERPOs interact with law and policy and with the options held by other parties to dynamically construct the on-the-ground experience of property. In this essay, I explore these interactions in three steps. First, I lay out the basics of ERPOs and show how they operate in the shadow of trumping options held by the government and other parties. Second, I examine the special case of “outlawed options,” using “small title” residential holdings in urbanizing areas of China

5. Legal scholars have explored embedded options in a variety of doctrinal areas. See, e.g., IAN AYRES, *OPTIONAL LAW: THE STRUCTURE OF LEGAL ENTITLEMENTS* (2005); Robert E. Scott & George G. Triantis, *Embedded Options and the Case Against Compensation in Contract Law*, 104 COLUM. L. REV. 1428 (2004); George S. Geis, *An Embedded Options Theory of Indefinite Contracts*, 90 MINN. L. REV. 1664, 1686 n.114 (2006).

as a motivating example. Finally, I consider what an option-centered view means for property as an instrument of social policy. Because an option-based approach can translate diverse mixes of legal entitlements and extralegal moves into a common currency, it offers a useful vehicle for drawing connections and lessons across legal regimes.

I. LEGAL OPTIONS FOR OWNERS

Owners and other entitlement holders derive value from a variety of real options embedded in their property interests. The value of these embedded real property options (“ERPOs”) depends on the extent of the entitlement in time, space, and function, the operative rules about who shall bear gains and losses, and the interaction of these ERPOs with trumping governmental options and with the ERPOs of other entitlement holders. The sections below examine a non-exhaustive set of ERPOs often associated with ownership: the option to develop, to remain on, and to dispose of the property.⁶ The next Part will take up outlawed options.

A. *The Option to Develop*

The ownership of vacant land embeds an option to develop it, as the real options literature has recognized.⁷ To take a simple example, an owner of an empty parcel can decide whether to develop the parcel immediately, or to wait and develop it later. If developing now for use *A* destroys or makes prohibitively expensive any possibility of developing the property for use *B*, then there is an option value associated with leaving the land undeveloped: the owner retains the right to develop for either use *A* or use *B* at their respective prices. In this context, the development prices for the uses are not preset as they are in the case of financial options; instead, these development

6. Compare TRIGEORGIS, *supra* note 3, at 9–14 (detailing real options associated with an oil drilling lease).

7. A foundational work is Sheridan Titman, *Urban Land Prices Under Uncertainty*, 75 AM. ECON. REV. 505 (1985). See also Joseph T.L. Ooi, C.F. Sirmans, & Geoffrey K. Turnbull, *The Option Value of Vacant Land*, Georgia State University, Andrew Young School of Policy Studies, Urban and Regional Analysis Group, Working Paper No. 06-05 (March 2006), available at <http://ssrn.com/abstract=952556> (presenting an empirical analysis in the context of Singapore’s residential land market and discussing earlier work).

options are “floating options” whose exercise or strike price is set by the market conditions prevailing at the time the option is exercised.⁸

The option to develop is not unlimited. Property rights are creatures of a political process. As such, they embody already-enacted constraints and are subject to further change through governmental action. Thus, any real options an owner or possessor of land holds are themselves subject to a trumping set of governmental options.⁹ While these trumping options vary among jurisdictions, they generally include the right, but not the obligation, to take for public use upon the provision of compensation.¹⁰ In addition, the government retains the right, but not the obligation, to make many sorts of regulatory changes that diminish the value of property rights without providing compensation.¹¹ This latter set of options may extinguish some of the owner’s options, including options to develop the property at certain times, for certain uses, or along certain physical dimensions. To put it another way, the exercise period for the owner’s option to develop can end without much warning.

Because of these conditions on the owner’s option set, the real options held by owners might be regarded as “soft options” that exist only at the government’s pleasure. However, owners who undertake certain acts can vest their rights and thereby solidify the option to continue along a planned development path.¹² Moreover, once owners

8. See Eric Kades, *Avoiding Takings “Accidents”: A Tort Perspective on Takings Law*, 28 U. RICH. L. REV. 1235, 1255–56 (1994) (discussing “floating options”).

9. See Geoffrey K. Turnbull, *Land Development Under the Threat of Taking*, 69 S. ECON. J. 290 (2002) (analyzing the impact on development of the threat of a governmental prohibition or restriction on development).

10. The Fifth Amendment of the U.S. Constitution provides “nor shall private property be taken for public use, without just compensation.” The term “public use” has been equated with “public purpose.” See, e.g., *Kelo v. City of New London*, 545 U.S. 469, 480 (2005). Compare Article 13 of the 2004 Constitution of the People’s Republic of China, translation of The National People’s Congress of the People’s Republic of China, http://www.npc.gov.cn/englishnpc/Constitution/2007-11/15/content_1372963.htm (providing that “[t]he State may, in the public interest and in accordance with law,” take “private property for its use and make compensation”).

11. The line between compensable takings and non-compensable regulatory actions is notoriously unclear and governed by a mix of per se rules and balancing factors. I will not attempt to detail this complex area of law here, but these famous words of Justice Holmes suggest the difficulty of the line-drawing challenge: “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*, 260 U.S. 393, 415 (1922).

12. See Christopher Serkin, *Existing Uses and the Limits of Land Use Regulations*, 84 N.Y.U. L. REV. 1222, 1238–40 (2009) (discussing the vested rights doctrine).

actually develop property for a given use, the government is significantly constrained both as a matter of law and politics from making uncompensated inroads into the stream of benefits secured by that option exercise.¹³ In this respect, some of the government's options (those to engage in uncompensated changes in use rights) are themselves "soft options" that can be eliminated through the prior exercise of options by owners. But the government's right to engage in *compensated* takings remains a "hard option" that trumps all others, as long as doctrinal requirements as to compensation and the purpose of the taking are met.

To see the interaction of these options, consider the following example. Suppose an owner has a parcel of land that can be used for either of two economically viable uses: use *A*, the development of a single family home on a large lot; or use *B*, the development of a 30-family dwelling unit on that same lot. On any plausible projection, developing the property for a single-family use will require changes to the land and investments in durable structures significant enough to rule out redeveloping for the 30-family dwelling anytime within the next 10 years, and, likewise, developing for the 30-family dwelling will rule out for at least a decade redeveloping for single-family use. At Time 1, the owner is not sure which alternative will turn out to be more profitable. There is a 50% chance that use *A* (single-family) will be twice as profitable as use *B* (30-family), and a 50% chance that use *B* (30-family) will be four times as profitable as use *A* (single-family).

If the owner were forced to make a decision now, the expected value calculation is clear; use *B* dominates. But suppose the owner is not forced to make a decision now and can instead delay the decision by one year (to Time 2), when population trends will make clear which of the two uses would be more profitable. Waiting comes with an opportunity cost because it delays any stream of benefits from either of the two uses. This opportunity cost can be understood as part of the price of holding real options open on use *A* and use *B* for the upcoming year. It is only part of the option price, however; the expected losses from the governmental options outstanding on the property represent another cost of waiting. Under current U.S.

13. *But see id.* at 1242–61 (questioning the basis of this well-accepted legal principle and concluding that "current constitutional doctrine does not compel categorical protection for existing uses").

law, a governmental entity might be able to eliminate either the owner's option to develop for use *A* or her option to develop for use *B* without triggering a compensation requirement—although eliminating both would almost certainly amount to a taking if use *A* and use *B* together represent the entire universe of economically viable uses for the land.¹⁴

Finally, either before or after any development activity is undertaken, the government could engage in a compensated taking. After the land has been developed, however, the cost to the government of exercising this option will be higher than before, to the extent that compensation applies to the costs of the improvements on the land as well as the land itself.¹⁵ Thus, one effect of developing more quickly is to raise the government's exercise price for a compensated taking and hence render it less likely.¹⁶ Whether or not this will actually have a pro-development effect depends on many factors, such as whether compensation is inadequate, adequate, or excessive, and how sensitive the government's demand for property is to compensation requirements.¹⁷

B. The Option to Remain (or Not)

The fact that property interests extend forward in time—indeinitely, in the case of the fee simple—offers owners the option to stay on the land long enough to collect on investments they have

14. See *Lucas v. S. C. Coastal Council*, 505 U.S. 1003 (1992); *Penn Cent. Transp. Co. v. City of New York*, 438 U.S. 104 (1978).

15. The potential moral hazard associated with compensation for improvements has been noted. See, e.g., Lawrence Blume & Daniel L. Rubinfeld, *Compensation for Takings: An Economic Analysis*, 72 CAL. L. REV. 569, 619 (1984).

16. See THOMAS J. MICELI, THE ECONOMIC THEORY OF EMINENT DOMAIN: PRIVATE PROPERTY, PUBLIC USE 90–96 (2011) (noting that landowners may be able to influence the probability of a taking through their investment decisions, and examining the resulting incentives under different compensation rules and assumptions about government).

17. For example, undercompensation might be expected to reduce development, because a landowner would fear multiplying the base to which the undercompensation would apply. But enough development might ward off a price-sensitive but undercompensating condemning authority. See *id.*; see also Thomas J. Miceli, *Compensation for the Taking of Land Under Eminent Domain*, 147 J. INST. & THEORETICAL ECON. 354 (1991) (modeling the incentives for landowners to overinvest or underinvest where their investment decisions can influence the probability of a taking). The extent to which governmental entities respond to monetary incentives is unclear. See generally Daryl J. Levinson, *Making Government Pay: Markets, Politics, and the Allocation of Constitutional Costs*, 67 U. CHI. L. REV. 345 (2000).

made.¹⁸ An important subspecies of this option is the residential property occupant's right to remain in place.¹⁹ A residential ERPO holds special significance because of the often idiosyncratic value placed on possession, and the potential for periods of possession to add value in nonlinear ways.²⁰ Residents often make site-specific investments in the community and find themselves unable to replicate certain aspects of the residential experience, such as thick community ties, in a new location. Yet the option to remain holds value precisely because future payoffs are presently unknown; one is under no obligation to stay if the community disappoints, or if better opportunities become available elsewhere.

As with the option to develop, the occupant's option to remain is a "soft option" that may be trumped in any number of ways, including through condemnation, foreclosure, or, in the case of rental property, the landlord's decision to withdraw the unit from the market. The trumping options held by governmental entities, mortgagees, and landlords are not costless to exercise, however, and the law can do a variety of things to influence their strike prices.²¹

Exercising one's residential possessory option also generally requires making monetary payments at regular intervals—rent, mortgage, or property taxes. These amounts can fluctuate. In-kind expenditures may also be required, such as keeping the property up to code and monitoring for interlopers.²² The larger these expenditures

18. As such, we might think of owners as possessing a kind of rolling option, in which exercising the option to remain in any given period may (depending on the tenure form at issue) generate an option to remain in a subsequent period.

19. See, e.g., Margaret Jane Radin, *Residential Rent Control*, 15 PHIL. & PUB. AFF. 350, 359–63, 368–70 (1986); Florence Wagman Roisman, *The Right to Remain: Common Law Protections for Security of Tenure: An Essay in Honor of John Otis Calmore*, 86 N.C. L. REV. 817, 820–29 (2008).

20. But see Stephanie M. Stern, *Residential Protectionism and the Legal Mythology of Home*, 107 MICH. L. REV. 1093, 1109–19 (2009) (noting the relative lack of empirical evidence to support the common assumption that displacement from the home inflicts a particularly grievous loss on households).

21. For example, mortgagees must go through specified foreclosure procedures, while landlords must comply with applicable legal provisions when converting property from rental units to condominiums.

22. Where formal title is unavailable, squatters may devote significant resources to guarding the property. See Erica Field, *Property Rights, Community Public Goods, and Household Time Allocation in Urban Squatter Communities: Evidence from Peru*, 45 WM & MARY L. REV. 837, 858 (2004); see also *infra* note 75 and accompanying text. Even with secure property rights, land may be lost to adverse possession if interlopers are allowed to enjoy a lengthy

become relative to the stream of expected benefits generated by staying, the less likely it is that one's option will be "in the money" or worth exercising. Implicit limits on the applicable strike price for exercising the possessory option are embedded in many contractual and institutional arrangements, from fixed-rate 30-year mortgages to rent control to property tax caps. But long-lasting possessory options with low strike prices and limited trumping options do not come cheap. Mandating strong residential ERPOs may thus curtail households' access to housing in the first place.²³

The option to stay implies the option to leave, yet doing so is not always costless. Households with mortgages are often said to hold embedded put options that give them the right, but not the obligation, to force a sale of the property back to the mortgagee at the price of the outstanding loan balance, even when the property is currently worth far less.²⁴ In some states, this option is the explicit product of laws that forbid lenders to take recourse against a defaulting mortgagor's other assets, while in others it exists in de facto form whenever borrowers have too few other assets to be worth pursuing for the shortfall.²⁵ The exercise of such options has raised serious concerns in the present U.S. housing market, given the significant proportion of homes that are worth less than their outstanding loan balances.²⁶ In one sense, the defaulting borrowers are simply exercising a bargained-for option. But the potential for such exercises to generate externalities, especially if conducted on a broad scale,

period of uninterrupted occupancy—although either regular possession or monitoring by the owner can avoid this result. *See, e.g.,* Thomas W. Merrill, *Property Rules, Liability Rules and Adverse Possession*, 79 NW. U. L. REV. 1122, 1130 (1985).

23. This charge is frequently leveled at rent control and other regulations designed to protect tenants. Although the empirical picture is often complex, the core intuition is not: making landlording significantly less profitable could be expected to result in less of it, other things being equal.

24. *See, e.g.,* Todd J. Zywicki & Joseph D. Adamson, *The Law and Economics of Subprime Lending*, 80 U. COLO. L. REV. 1, 26–27 (2009).

25. *See id.* at 30.

26. Nationwide, between a fifth and a quarter of homes with mortgages are "underwater," or worth less than what is owed on the mortgage, with significant regional variation. *See* CoreLogic, *Corelogic Reports Negative Equity Increase in Q4 2011* (Mar. 1, 2012), available at http://www.corelogic.com/about-us/researchtrends/asset_upload_file360_14435.pdf (reporting a national figure of 22.8% for underwater residential mortgages at the end of the fourth quarter of 2011; in five states the combined average negative equity rate is 44.3%, while the remaining states' combined average is 15.3%).

complicates the picture considerably—the lender is not the only one who stands to lose.²⁷

C. *The Option to Dispose*

As the preceding discussion of strategic default already illustrated, landowners may hold ERPOs to end their involvement with the property and its improvements.²⁸ Most ways of legally getting rid of property require the cooperation of a buyer or other recipient and hence are not options in the usual sense. However, in a legal regime with free alienability, there is an option to *offer* the property for sale—an act which can be accomplished unilaterally, and which, like the option to develop, carries a calculable strike price and expected return under specified market conditions. Implicit in the right to alienate the property is the option to hold onto the property as long as desired before exercising that option, whether in expectation of price appreciation or in the hope of receiving returns on a site-specific investment. Of course, the option to sell at a time of one's own choosing may be trumped by involuntary transfers (as through eminent domain) or curtailed by governmental limits on alienability.

Alienability limits can take many forms and can be used to achieve a variety of ends.²⁹ Of particular relevance to the discussion above is the way in which alienability restrictions (including limits on the ability to alienate security interests) can be used to advance the option to remain. A paternalistic rationale for restricting alienability is to prevent ill-considered transfers that leave the transferor worse off. Some alienability limits take the form of an enforced delay or “cool off” period to keep individuals from making a rash judgment

27. See Luigi Zingales, *The Menace of Strategic Default*, CITY J. (Spring 2010), available at <http://city-journal.org/printable.php?id=6069>. But see Brent T. White, *Is Strategic Default a Menace?*, CITY J. FORUM, <http://www.city-journal.org/2010/forum0427.html> (April 27, 2010) (responding to Zingales's arguments).

28. Not all ways of cutting short one's involvement with property are legally permitted, even under conditions of free alienability. For a discussion of the common law's disallowance of abandonment of fee simple interests see Lior J. Strahilevitz, *The Right to Abandon*, 158 U. PENN. L. REV. 355, 399–402 (2010).

29. See, e.g., Lee Anne Fennell, *Adjusting Alienability*, 122 HARV. L. REV. 1403 (2009); Susan Rose-Ackerman, *Inalienability and the Theory of Property Rights*, 85 COLUM. L. REV. 931 (1985).

that they will later regret.³⁰ In some cases the limit may be a product of presumed information asymmetries. Paternalistic rationales may also fade into pure externality-based rationales when transactions would threaten a society's normative commitments. The characterization of rural land in China as a "social safety net" for peasant households³¹ seems to draw on at least some of these considerations.

An even more interesting rationale for alienability limits relates to self-selection.³² If one wishes to attract buyers who will use the property themselves, there is perhaps no more direct way to do so than to forbid resale. Even when resale is not forbidden outright, restrictions on how, when, and by whom interests can be sliced and reaggregated will have the effect of shaping the market in particular ways, attracting certain market participants and repelling others.

II. OUTLAWED OPTIONS

Legal restrictions on property may be disregarded where the net gain from doing so is great enough, given the expected sanctions. This Part examines options to move outside of legal parameters.

A. Pricing Unapproved Alternatives

Occupiers of land are often in an excellent position to use property in legally unapproved ways or to transact over it outside of legally recognized "transaction structures."³³ In the context of housing,

30. See, e.g., Bruce Twomley, *License Limitation in Alaska's Commercial Fisheries* 6 (2003), available at <http://dlc.dlib.indiana.edu/dlc/handle/10535/2203> (describing 60-day waiting period for sales of certain Alaskan fishing permits "[t]o avoid intemperate sales").

31. See, e.g., Feng Frederic Deng, *Housing of Limited Property Rights: A Paradox Inside and Outside Chinese Cities* 7 (Working Paper 2008), available at <http://ssrn.com/abstract=1151101> ("with rural land forced to stay in peasants' hands, it functions as a safety net or last resort for those peasants who work in the city in case of economic downturn or job loss"); Gregory M. Stein, *Private and Public Construction in Modern China*, 12 *SAN DIEGO INT'L L.J.* 5, 42 (2010) (noting concerns about dislocation associated with loss of agricultural land); see also Ruoying Chen, *Informal Sales of Rural Housing in China: Property, Privatization and Local Public Finance* 20, 36 (working paper 2010), available at [http://www.law.uchicago.edu/files/file/Chen New- Informal Sales of Rural Residential Land.pdf](http://www.law.uchicago.edu/files/file/Chen%20New-%20Informal%20Sales%20of%20Rural%20Residential%20Land.pdf).

32. See, e.g., Rose-Ackerman, *supra* note 29, at 960–61.

33. Cf. Alvin K. Kleverick, *On the Economic Theory of Crime*, in *NOMOS XXVII: CRIMINAL JUSTICE* 289, 301–03 (J. Roland Pennock & John W. Chapman eds., 1985) (using the notion of "transaction structures" to define criminal conduct).

the potential for informal, extralegal, or just plain illegal arrangements is relatively great. The ways in which people use residential spaces are heterogeneous and hard to monitor, and privacy interests may limit the extent to which intrusion into the specifics of living arrangements will be pursued. Thus, the fact that certain choices are not available through recognized legal channels does not necessarily make them completely unavailable; it may instead merely alter their prices.

The law and economics literature is replete with discussions of certain kinds of sanctions as “liability rules” that permit entitlements to change hands on the unilateral initiative of one party, upon the payment of a fee.³⁴ Liability rules are often explicitly described as call options because they give one party the right but not the obligation to do something upon paying what amounts to a strike price.³⁵ While there is controversy surrounding this way of thinking about legal violations,³⁶ the fact remains that often what appear on the surface to be prohibitions end up operating like prices. As informal work-arounds shade into non-recognized or even legally prohibited arrangements, the strike price of exercising a given option will incorporate the uncertainty and risk associated with moving outside the law’s formal protection.

Questions arise not only with respect to formal legal sanctions, but also as to whether particular interests will be protected against exploitation by other private parties or against uncompensated appropriation by the government. The government clearly has choices in this regard, and can adjust the level of legal protection afforded to informal or unapproved arrangements to suit its ends. For example, it might leave informal settlers exposed to governmental appropriation, but protect them from private expropriation.³⁷ Depending

34. See Guido Calabresi & A. Douglas Melamed, *Property Rules, Liability Rules, and Inalienability: One View of the Cathedral*, 85 HARV. L. REV. 1089 (1972).

35. See, e.g., Madeline Morris, *The Structure of Entitlements*, 78 CORNELL L. REV. 822, 852–54 (1993).

36. See, e.g., Jules L. Coleman & Jody Kraus, *Rethinking the Theory of Legal Rights*, 95 YALE L.J. 1335, 1370–71 (1986); Dale A. Nance, *Guidance Rules and Enforcement Rules: A Better View of the Cathedral*, 83 VA. L. REV. 837, 858–61 (1997).

37. An interesting example of this approach is provided by the British Colonial Office’s (“BCO’s”) licensing system for squatters on the Australian frontier during the nineteenth century. See Lee J. Alston, Edwyna Harris, & Bernardo Mueller, *Property Rights, Land Settlement and Land Conflict on Frontiers: Evidence from Australia, Brazil and the US*, in

on the stream of consumption benefits produced by the informal arrangement and the costs and risks of the outside options available to the residents, something less than full-blooded title may be enough to spur transactions and investments in residential property.³⁸ In the balance of this Part, I will use the “small title”³⁹ sales of rural land to urban buyers in China as a springboard for thinking about these issues.

B. The Case of Small Title

In China, all urban land is state owned; private parties occupy it under long-term leases.⁴⁰ The only legal method to transform collectively owned rural land into urban land is through eminent domain.⁴¹ Yet the expansion of urban areas and the demand for urban housing make the prospect of simply turning land designated as rural into urban residential developments very attractive. Doing

RESEARCH HANDBOOK ON THE ECONOMICS OF PROPERTY LAW 9, 15–16 (Kenneth Ayotte & Henry E. Smith eds., 2011). As the authors explain, “[u]nder the license system, squatters paid £10 annually to occupy as much land as they pleased. Licenses gave squatters occupancy rights and were enforceable against all parties except the Crown.” *Id.* at 16. These annual squatting licenses were established in An Act to Restrain the Unauthorized Occupation of Crown Land, 7 Wm. IV, No. 4, and the eviction rights retained by the Crown reflected the BCO’s concern about “ceding Crown rights and potential revenue from later sale.” *Id.* All the same, the squatters’ interests were protected by the license system against other private parties; enforcement, including resolution of boundary disputes, was provided by the Crown Lands Commissioners. *Id.*

38. See, e.g., *id.* at 16 (noting that despite the ability of the Crown to “evict squatters at any time without compensation” on the Australian frontier under the BCO’s licensing system, there remained “an active market for squatters’ runs”); see generally Michael Trebilcock & Paul-Erik Veel, *Property Rights and Development: The Contingent Case for Formalization*, 30 U. PA. J. INT’L L. 397 (2008).

39. Terminology varies, with the terms “small title,” “minor title,” and “petit title” appearing in the literature.

40. See Deng, *supra* note 31, at 2; see also Yun-chien Chang, *Property Law with Chinese Characteristics: An Economic and Comparative Analysis*, 1 BRIGHAM-KANNER PROPERTY RIGHTS CONF. J. 345 (2012).

41. See, e.g., Deng, *supra* note 31, at 1 (describing eminent domain as “the only legal way to convert rural land into urban land that is owned by the government”). In China, rural land that is owned by local collectives cannot be legally alienated for urban development outside of the eminent domain process. See *id.* at 2; see also Ruoying Chen, *Divided World: China’s Land Tenure System and Implication to Foreign Investment in China*, DONG-A J. INT’L BUS. TRANSACTION L. (Spring 2010), available at <http://ssrn.com/abstract=1665175>; Eva Pils, *Waste No Land*, 11 ASIAN-PAC. L. & POL’Y J. 2, 18 (2010) (detailing the strict alienability restrictions on rural land).

so allows the parties to the transaction to capture the surplus associated with moving land from a low-valued use to a high-valued use—surplus that would otherwise be captured by government actors or developers. Whether because monitoring and enforcement are imperfect, or because local collectives green-light the transactions and provide some protective cover from adverse governmental action, a significant amount of property is transferred in this way.⁴²

These small title sales occur at a large discount (in Beijing, reportedly at about 25–30% of the price of a legitimate housing unit).⁴³ The discount is presumably due to the greater risk or reduced marketability associated with the lack of a legally recognized title. Questions might arise as to the purchaser's rights against interloping private parties, as well as against the government in the case of dispossession. We would expect to see the price reduced by the expected costs of holding property that lacks legal approval, whether those costs come in the form of legal sanctions, non-compensable losses inflicted by public or private actors, or greater difficulty retransferring the property.⁴⁴

The magnitude and composition of the expected costs associated with small title are empirical questions that I must leave to others. The generalizable point, however, is that parties will evaluate outlawed options based on their expected costs and benefits, which must in turn be compared to the costs and benefits associated with the available legal options.⁴⁵ The following stylized example illustrates some dimensions of the choice to transact outside the law.⁴⁶

42. See Deng, *supra* note 31, at 1 (relating reports “that about 20% of all new housing sales in Beijing in 2007” were small title housing units).

43. *Id.*

44. As Ruoying Chen has suggested, and as discussed below, difficulty in transferring may actually be a strength from a policy perspective if it induces self-selection along normatively desirable lines. Chen, *supra* note 31, at 31–36; see also *infra* notes 62–63 and accompanying text.

45. An analogy can be found in discussions of the opportunity costs of crime, which focus on how much someone has to gain and lose from violating the law, relative to her current position. See, e.g., Richard H. McAdams, *Economic Costs of Inequality*, 2010 U. CHI. LEGAL F. 23, 27–28.

46. This example dovetails in some respects with Tom Ginsburg's “actuarial theory of property rights protection.” Tom Ginsburg, *The “China Problem” Reconsidered: Property Rights and Economic Development in Northeast Asia* 13–20 (2011) (unpublished manuscript, on file with author). Under that theory, a risk of undercompensated expropriation does not entirely negate the investment-inducing benefits of a property regime, if the risk is kept within acceptable bounds by outside constraints, political or otherwise. My point in the ensuing example and in the later discussion of property hydraulics is that both public and private expropriation risks nonetheless form the backdrop against which other embedded real

1. A Stylized Example

Suppose that there are 100 parcels in a particular rural community, each worth 500 in its present use. Ten of the parcels will be randomly selected to have its value to the owner diminished by one half (thus, to 250) without compensation (whether through outright appropriation with undercompensation or otherwise).⁴⁷ The background expected loss per parcel, then, is 25, and the value of each parcel given the risk of appropriation is 475.⁴⁸ At present, all 100 parcels are legally restricted to a low-intensity residential use (one small cottage per acre) but would be twice as valuable (that is, worth 1000 rather than 500) if developed for use at a higher density for multifamily urban housing.

The present occupants are legally precluded from removing the use restriction or transferring new use rights to someone else. But suppose both moves are accomplished anyway, outside of the law. Suppose further that the only negative consequence that will follow is a risk of a completely uncompensated appropriation that will destroy the value of the property to its owner. If the chance of appropriation remains at 10%, but compensation drops to zero (owing to the lack of formal title held by the in-movers), then the property now has an expected value, given the appropriation risk, of 900 (1000 minus 100). This is much better than 475. Of course, the risk of appropriation might rise, whether because the government seeks to deter future transfers of this sort or simply because the property has become a more attractive target to a price-sensitive government.

property options are exercised, and against which decisions about activities will be made. In my view, this analysis can also be applied to highly property-protective liberal democracies like the United States; Ginsburg, in contrast, limits his actuarial theory to “developmental states.” *See id.* at 16.

47. To keep the example simple, I assume a single-period interaction rather than a series of periods to which we might apply a hazard rate. Because the alternatives being compared all extend risks across time in a similar way, the simplification does not interfere with the main point of the example. I also assume that the appropriation simply drops the value to one half of what it presently is in its current use, setting aside the possibility that the appropriation of half the parcel would be coupled with other changes that would increase or reduce the value of the remaining portion.

48. Each owner runs a 10% chance of losing 250 (half of 500), for an expected loss of 25. When this expected loss is subtracted from the original value of 500, the resulting expected value is 475.

But even if the risk rises fivefold, the expected value of the transformed land would still be 500 (1000 minus 500), in excess of the starting value of 475.

With numbers like these, it is not hard to see both why such transactions might happen, and why they would happen at a substantial discount (as compared with a legally valid transfer). In this example, the background risk of governmental option exercise plays only a small role in the story; the sharp rise in value associated with urban use seems to be doing most of the work. But such background risk could well play a larger role than the expected value numbers alone suggest, leading to a preference for outlawed transfers even when the value increase from the land's transformation is more modest. This is particularly likely to the extent that risk-averse current residents are able to enter into or influence informal transfers.⁴⁹ For such households, the ability to replace the specter of an uncertain displacement with a certain departure would be very valuable.⁵⁰

2. Remaining Puzzles

The simple example above is not meant to (and does not) capture the empirically complex picture of small title in China. But it does help to illustrate the impetus behind small title transactions. If the gains from trade are large enough, they may swamp the disadvantages associated with a transfer that lacks legal approval—especially when considered against a backdrop in which undercompensated appropriation risks already loom relatively large. Two questions remain, however. First, why are in-movers, who may also be risk averse, willing to take their chances with small title? And second, why does the government seem to tolerate small title transfers?

49. Small title sales have reportedly included both transfers by individual peasant households and sales by local village collectives. See Pils, *supra* note 41, at 41. The fact that local collectives own the land complicates the decision-making picture even in the former case. Where collectives transact over large blocks of rural land, the preferences of particular rural households may or may not be taken into account by the village leadership. I thank Donald Clarke for comments on this point.

50. See, e.g., Pils, *supra* note 41, at 40–41 (noting the advantages alienability would hold for peasant households).

Why Do In-Movers Chance It? If the effect of the housing transaction is to shift risk to the in-movers, and perhaps amplify it in the process, shouldn't the in-movers' own risk aversion make such transactions unattractive?

An initial question is whether risk is actually amplified or reduced by the transfer. One hypothesized repercussion of engaging in unapproved transactions might be a heightened risk of government appropriation, if the lack of legal title eliminates the government's obligation to compensate. But it is far from clear that this has been the case. The government is likely to be sensitive not only to the legality of holdings but also the identity of the holders, and the political power that they have. Even if the in-movers are legally easier to dispossess, they may be *politically* harder to dispossess than the rural residents who were previously on the land.⁵¹ Moreover, the longer the new residents remain in place, the more entrenched their expectations may become, and the higher the political strike price will rise for the government to exercise its expropriation option. Another potential disadvantage of small title might be a reduced ability to enforce one's property claims against private encroachment. Here too, however, some indications point in the opposite direction.⁵²

It is also possible that the urban in-movers are a self-selected group that tend to have lower levels of risk aversion than other would-be urban home buyers. Urban in-movers may also have access to other advantages (relatively greater wealth, better access to urban employment, or stronger claims on the social insurance system) that make them systematically better able to bear risk than the rural out-movers.⁵³ Under these circumstances, the large discount in home

51. I thank Donald Clarke for discussions on this point.

52. Suggestive in this respect is the treatment of land disputes that have arisen between villagers who sold their property through small-title transactions to artists in what is now the Songzhuang art district in Beijing. LAIKWAN PANG, *CREATIVITY AND ITS DISCONTENTS: CHINA'S CREATIVE INDUSTRIES AND INTELLECTUAL PROPERTY RIGHTS OFFENSES* 155 (2012). Because land prices rose sharply after the sales, the villagers came to regret the bargains. In one decided case, the villager Ma Haitao sued the artist Li Yulan four years after a small title land transaction, seeking to have the deal struck for illegality. The court recognized that the deal was illegal and invalidated the sale—but also held that Ma had to compensate Li for the loss. *Id.*; see also Chen, *supra* note 31, at 5.

53. China's Household Registration System (*hukou*) historically drew sharp distinctions between rural and urban residents that kept rural migrants from securing the benefits of urban dwellers. Although these barriers have been lowered considerably in recent decades,

prices (compared with legally approved purchases) may prove sufficient to compensate in-movers for the risk they bear. Put another way, the gain from changing the use of the property is so great as to swamp both the increased expected value of appropriation and risk-averse reactions to it.⁵⁴

Why Does the Government Tolerate It? When small title transfers occur, the transacting parties glean surplus that could otherwise go to the government.⁵⁵ Why, then, are small title transactions tolerated,⁵⁶ given the ability of the government to adopt policies (with respect to eminent domain, for example) that would diminish their attractiveness?

Here, I can only speculate and ask for information from those who know the situation better. As a matter of theory, three possibilities are worth considering. An initial and relatively uninteresting one would turn on enforcement costs. While some commentators report that monitoring problems are considerable in some contexts,⁵⁷ these

some distinctions remain. See BARRY NAUGHTON, *THE CHINESE ECONOMY: TRANSITIONS AND GROWTH* (2007); Chen, *supra* note 41, at 2–7.

54. The fact that surplus exists sufficient to cover the heightened risk does not, of course, tell us whether the in-movers or the out-movers are the efficient risk-bearers. If the transaction costs are too high for leaving appropriation risk on the rural out-movers (as through some form of warranty or seller insurance program) the in-movers might end up with the risk even if they are not systematically better at bearing it.

55. The surplus from a rural to urban redesignation might flow to developers instead of to the government, but the government's role in directing that flow would presumably produce valuable political capital. It is also possible that some of the surplus could be captured by corrupt government officials.

56. The government's stance toward small title transactions appears to be in flux as of this writing, although the direction of movement is unclear. I have been advised of a recent Chinese news report indicating the government will allow collectively owned land to be leased (email communication from Donald Clarke, citing <http://china.caixin.com/2012-01-08/100346665.html>). I have also been advised of a pronouncement in November 2011 by China's Ministry of Land and Resources that rural land registrations will be accelerated but small title transactions will not be registered (email communication from Yun-chien Chang, citing http://www.mlr.gov.cn/zwgk/zytz/201111/t20111110_1024313.htm).

57. See Gregory M. Stein, *Acquiring Land Use Rights in Today's China: A Snapshot from on the Ground*, 24 UCLA PAC. BASIN L.J. 1, 29 (2006) (noting reports of difficult enforcement, including that of "[o]ne professional" in China who stated "that the central government has been taking satellite photos of agricultural areas on a regular basis and examining them to confirm that cultivable land is being used for agricultural purposes throughout the growing season and is not being used in other ways without the knowledge of the central government").

transformations of rural land to urban residential use seem to be relatively easy to spot.⁵⁸ Moreover, following Gary Becker's observations, more severe sanctions could compensate for a lower rate of detection to achieve a desired level of enforcement.⁵⁹ Yet, as Eva Pils observes, enforcement to date has mostly been "half-hearted and inefficient."⁶⁰

A more interesting possibility is a price discrimination story. The government might be viewed as providing land use transformation services when it acquires rural land through condemnation and conveys it anew as urban land. Urban developers and in-movers who desire the benefits of such land use transformation may be unwilling to pay the going rate. Small title transactions offer a cheaper mechanism of accomplishing the transformation. If the in-movers would not have paid full price, the government may not have lost a revenue stream.⁶¹ Governmental losses are controlled in any event by the appropriation option that it maintains over these properties, especially if compensation requirements are diluted by the lack of formal title.

The market-thinning work that legal restrictions perform has other implications as well. Ruoying Chen builds on the idea of self-selection prompted by legal restrictions to argue for delinking formal title in rural property from free alienability.⁶² The lack of legal approval for informal small title transfers currently thins the market by ruling out the risk averse and those bent on speculation. Formalizing title would carry clear advantages, but unless it is accompanied by alienability restrictions that perform a similar function in

58. Pils, *supra* note 41, at 41 ("While the phenomenon of 'minor property rights' share important features with black—or gray—markets, it is a market in a commodity that is startlingly difficult to hide away, and that can only be thought to exist because it is to some degree tolerated by officials.").

59. Gary S. Becker, *Crime and Punishment: An Economic Approach*, 76 J. POL. ECON. 169, 184 (1968).

60. Pils, *supra* note 41, at 42; *see also* Chen, *supra* note 31, at 5 (noting the absence of public reports of eviction of small title urban buyers, aside from two resettlement cases in which urban buyers were relocated and received back the full original purchase price).

61. The price discrimination story works better if the central government gains some revenue (or saves costs) as a result of these transfers. The local collectives play an important role in informally ratifying the sales, and the repeat-play interactions between these local governing bodies and the central government might afford opportunities for some of the surplus from small title sales to flow to the latter.

62. Chen, *supra* note 31, at 31–36.

restricting market participation, the character and pace of transfers would be very different from what is observed now.⁶³

A third possible explanation flows from the real options literature. When parties exercise options in ways that are visible to others, those exercises provide information.⁶⁴ For example, if one owner drills an oil well or develops a shopping area, nearby owners learn something as a result.⁶⁵ Thus, there may be instances in which a party would not want to be the first mover in exercising a particular option. If the government wants to observe and gather information from the option exercises of others, it cannot simultaneously maintain a complete monopoly on exercising options of that sort. A compromise position would be a formal monopoly with some degree of tolerance for informal option exercises on the ground. Seeing where development is taken up and where it succeeds in attracting buyers (even within the somewhat constrained setting of small property rights) yields useful information.

III. LESSONS FOR SOCIAL POLICY

The discussion to this point has focused primarily on describing and analyzing how ERPOs work—both inside and outside legal parameters. In this last Part, I want to offer some brief thoughts on the lessons that an appreciation of ERPOs can hold for social policy.

A. Get Beyond Ownership

The first and clearest takeaway point is for social planners to recognize the ERPOs that already exist, and to understand the ways in which they interact with legal rules and governmental policies. Because these options are embedded rather than explicit, it can be easy to miss their significance and to fall back on legal categories like “ownership” that are ultimately less helpful.⁶⁶ Whether or not

63. *Id.* at 35–36.

64. Steven R. Grenadier, *Information Revelation Through Option Exercise*, in *GAME CHOICES: THE INTERSECTION OF REAL OPTIONS AND GAME THEORY* 125 (Steven Grenadier ed., 2000).

65. *Id.* at 126–27.

66. See Donald Clarke, *China's Stealth Urban Land Revolution 1* (June 2011) (unpublished manuscript, on file with author) (arguing that “[t]he concept of ownership . . . ultimately proves useless as an analytical tool”).

the law deems an occupier to be an “owner” may tell us little or nothing about what set of options the person holds—she may be designated as a non-owner but yet have a robust set of valuable options, or be considered an owner but have a tightly curtailed set of options. Moreover, informal arrangements and de facto rights, along with tolerated forms of illegality, can make property rights look quite different on the ground than they might appear in formal legal descriptions.

Translating de jure and de facto entitlements into the common currency of ERPOs is particularly important when cross-country comparisons are involved. For example, inordinate emphasis is often placed on the fact that entitlement-holders in China do not actually own the land they occupy but rather only own rights in the land.⁶⁷ But rights in land are all that anyone can really own, whatever labels we may apply to the legal relationship.⁶⁸ Indeed, in the U.S., the lofty title of “owner” often corresponds to highly restricted sets of options.⁶⁹

This is not to deny the power of labels. Surely it is significant as a matter of ideology and politics that one society calls holders of entitlements landowners and another does not. Moreover, the cultural meaning associated with particular ways of describing property entitlements can shape the social and political reality in very important ways.⁷⁰ Yet unless policymakers can get behind the labels to see what a system of entitlements actually lets a given party do (both inside and outside the prescribed legal parameters), they cannot fine-tune the contents of the package or even assess the implications of one label or another.

B. Heed Hydraulics

A second takeaway lesson suggested by a focus on ERPOs relates to what we might call the hydraulic nature of property rights: pressures along one margin can produce responses along other dimensions.⁷¹ Suppose that, through some combination of legal restrictions

67. *See generally id.*

68. *See id.* at 2.

69. *See, e.g., id.* at 4.

70. *See* Jonathan Remy Nash & Stephanie M. Stern, *Property Frames*, 87 WASH. U. L. REV. 449 (2010).

71. The hydraulic metaphor has been used in many legal contexts. *See, e.g.,* Peter K. Yu, *Intellectual Property and the Information Ecosystem*, 2005 MICH. ST. L. REV. 1, 16 (2005)

and market interactions, people end up with entitlements that are not well suited to their needs. These kinds of mistakes fall under the general head of misassigned entitlements. If transaction costs are zero, the mistake does not matter, but where transaction costs (or other barriers) are significant, the mistake can stick.⁷² In between the frictionless plane of zero transaction costs and the deep mire of locked-in suboptimality lies a range of possibilities that can be collectively understood as hydraulic in nature.

Adaptations can reduce the costs associated with suboptimal property interests, but at a price. Like any hydraulic system, property can be expected to adapt in the way that offers the least resistance (that is, where the largest marginal gains can be achieved per unit of cost). Sometimes transactions outside of the law's approved structure will be the cheapest path, while at other times a limitation or removal of one embedded option will prompt the exercise of a different option.⁷³ Significantly, adaptation does not always involve changes in property uses alone; people's behavior may change as well, if this represents the cheaper path. Thus, property rights (or the lack thereof) can change the way that people live and work.

Consider, for example, settings where formal property rights are not available and squatters maintain their claims by continually physically possessing the land.⁷⁴ A thicker form of property rights might be better suited to the set of activities that the household would prefer, such as pursuing employment and social opportunities away from the home. Without a ready way to thicken those rights unilaterally, however, the response may be to adapt behaviors by moving employment and socialization to the home, or by

("To some extent, the intellectual property system functions like a hydraulic system; a change in the system may be offset by an identical change in the opposite direction."); Geoffrey A. Manne, *The Hydraulic Theory of Disclosure Regulation and Other Costs of Disclosure*, 58 ALA. L. REV. 473 (2007); Samuel Issacharoff & Pamela S. Karlan, *The Hydraulics of Campaign Finance Reform*, 77 TEX. L. REV. 1705 (1999); Jennifer E. Laurin, *Trawling for Herring: Lessons in Doctrinal Borrowing and Convergence*, 111 COLUM. L. REV. 670, 721–24 (2011) (discussing "the hydraulics of [doctrinal] borrowing and convergence").

72. Ronald H. Coase, *The Problem of Social Cost*, 3 J.L. & ECON. 1 (1960).

73. In this respect, regulation can operate like a tax that alters the relative attractiveness of the available options. The taxation analogy has been made explicit in the literature on inclusionary zoning. See, e.g., Robert C. Ellickson, *The Irony of 'Inclusionary' Zoning*, 54 S. CAL. L. REV. 1167, 1170 (1981) (describing most inclusionary zoning programs as "essentially taxes on the production of new housing").

74. Put into an options framework, the lack of formal title raises the exercise price of the option to remain by requiring that it be perpetually paid in kind through actual possession.

otherwise pursuing activities that are complements to staying at home.⁷⁵ In other words, a form of functional bundling—using the home for more purposes than just residential—operates as a response to thinness in formal rights.

The fact that behavior changes in response to a property system does not necessarily carry negative normative implications. Like a Pigouvian tax that is designed to internalize externalities, a property system can quite consciously and rationally put pressure on certain behavioral choices and ease the path for others. Indeed, property systems as a whole can be understood as mechanisms for channeling behavior along certain lines, such as investment and trade, rather than others, such as shirking and fighting.⁷⁶ The difficulty is in identifying when a property system's design is inducing needless behavioral distortions, and when the design is actually correcting a distortion of some kind.

To return to the example above, it is possible that very thin possessory rights that induce functional bundling of residency, work, and socialization could produce important positive spillovers within a given social context. On the other hand, we can easily imagine instances where this same bundling would produce large deadweight losses. Tracing the likely adaptive responses offers policymakers opportunities to avoid unintended consequences and channel behavior in desired directions. It also underscores a fact that may go underappreciated—that property as experienced on the ground is the result of an iterative process involving not only law and markets but also the choices of owners and other possessors.

75. See Timothy Besley & Maitreesh Ghatak, *Property Rights and Economic Development*, in 5 HANDBOOK OF DEVELOPMENT ECONOMICS 4525, 4531–32 (Dani Rodrik & Mark Rosenzweig, eds., 2010) (noting the possibility of such complementarity, as where constant presence on agricultural property by a farmer can simultaneously serve purposes of guarding the property and maximizing its productivity). A more skeptical view is suggested in SPENCER HEATH MACCALLUM, *THE ART OF COMMUNITY* 77 (1970) (noting the losses in productivity for one who “must rest one hand always on the sword, leaving but one for the tiller or the plow”); see also Field, *supra* note 22 (finding differences between titled and untitled squatter communities in Peru with respect to household members remaining at home during the day).

76. See, e.g., Carol M. Rose, *The Several Futures of Property: Of Cyberspace and Folk Tales, Emission Trades and Ecosystems*, 83 MINN. L. REV. 129, 131 (1998) (explaining that “property allows owners to trade with one another, rather than getting into unproductive and wasteful fights over resources”); Besley & Ghatak, *supra* note 75 (reviewing empirical and theoretical literature and developing an analytic framework for assessing how property rights affect economic development).

C. Learn from Option Exercises

Responses to legal constraints, including the use of outlawed options, can create challenges for legal policy. But, along with other observed option exercises, they can also offer opportunities for learning. An anecdote from Jane Jacobs about sidewalk placement provides a useful analogy:

Back in the 1950s when plans started to appear for one-story, spread-out high schools instead of three or four storied traditional buildings, architects for one of these first new schools—in Connecticut if I remember correctly—weren't sure where to locate walks for students and staff criss-crossing outdoor grounds between classrooms and other facilities like gyms, auditoriums, and cafeterias. Should they rely on guesswork? Or depend on neat geometric schemes? Should perhaps everything be paved? The architects let the problem stand unsolved until the school had been in use throughout its first winter, during which they mapped the paths which users had made in the snow. The architects let users inform them where paths should go.⁷⁷

The idea that social planners can learn something from those who blaze new paths or deviate from the ones that society has laid down is an intriguing one. Eduardo Peñalver and Sonia Katyal have explored the potentially valuable role of “outlaws” who break property rules.⁷⁸ Although, as the authors acknowledge, lawbreakers can inflict high social costs, there may be some silver linings associated with their behavior. Perhaps the most important of these is the informational signal produced by a violation or pattern of violations—which is all the stronger for *being* a violation, and hence something the violator is willing to risk punishment for.⁷⁹ Interpreting and

77. Jane Jacobs, *Random Comments*, 28 B.C. ENVTL. AFF. L. REV. 537, 539 (2001); *see also* CHRISTOPHER ALEXANDER ET AL., A PATTERN LANGUAGE 586 (1977) (“The layout of paths will seem right and comfortable only when it is compatible with the process of walking. And the process of walking is far more subtle than one might imagine.”).

78. *See* EDUARDO MOISÉS PEÑALVER & SONIA K. KATYAL, PROPERTY OUTLAWS: HOW SQUATTERS, PIRATES, AND PROTESTERS IMPROVE THE LAW OF OWNERSHIP (2009); Eduardo Moisés Peñalver & Sonia K. Katyal, *Property Outlaws*, 155 U. PA. L. REV. 1095 (2007).

79. *See* PEÑALVER & KATYAL, *supra* note 78, at 169–82; Peñalver & Katyal, *supra* note 78, at 1137–38, 1181; Lee Anne Fennell, *Order with Outlaws?*, 156 U. PA. L. REV. PENNUMBRA 269 (2007), <http://www.pennumbra.com/responses/12-2007/Fennell.pdf> (response to Eduardo

responding to these signals requires a clear understanding of the outlawed options embedded in the possession and use of property and their relationship to other legally approved ERPOs.

CONCLUSION

In this brief essay, I have only introduced in a general way the considerations that follow from understanding property entitlements as packages of embedded real property options. An option-based understanding of property can offer useful guidance to those who are charged with pursuing workable adjustments in legal rules and social policy. Such an approach can also facilitate comparative work, by providing an analytic framework that emphasizes functional commonalities and resists labels and rigid categories. While others are better equipped than I to speak to the on-the-ground situation of small title transactions in China, I hope to have shown how options analysis offers a useful tool for examining this property puzzle and many others.