Property as an Economic Concept: Reconciling legal and Economic Conceptions of Property Rights in a Coasean Framework

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Reconciling legal and economic conceptions of property rights in a Coasean framework

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Abstract

Adopting a simplistic view of Coase (1960), most economic analyses of property rights disregard both the key advantage that legal property rights (that is, *in rem* rights) provide to rightholders in terms of enhanced enforcement, and the difficulties they pose to acquirers in terms of information asymmetry about legal title. Consequently, these analyses tend to overstate the role of "private ordering" and disregard the two key elements of property law: first, the essential conflict between property (that is, *in rem*) enforcement and transaction costs; and, second, the institutional solutions created to overcome it, mainly contractual registries capable of making truly impersonal (that is, asset-based) trade viable when previous relevant transactions on the same assets are not verifiable by judges. This paper fills this gap by reinterpreting both elements within the Coasean framework and thus redrawing the institutional foundations of both property and corporate contracting.

Keywords: property rights, enforcement, transaction costs, registries.

JEL: D23, K11, K12, L85, G38, H41, O17, P48.

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1. Introduction

We have known since Coase (1960) that the initial allocation of property rights generally affects their final allocation because of the pervasive presence of transaction costs. Only in an imaginary world of zero transaction costs does parties' trade end up achieving the same outcome whatever the initial allocation. This conception puts the focus on transaction costs, including those related to parties' information on the initial allocation of rights, whatever such allocation is. Therefore, efficient outcomes are not conditioned by allocation itself—i.e., who holds which right—but by information on it—i.e., knowledge about who holds which right. In this context, public intervention may reduce transaction costs by enacting default law, providing third-party enforcement, and clearly defining the initial allocation of rights—that is, by unambiguously establishing who holds each right.

This conception implicitly assumes that parties' transactions have no consequences for future transaction costs. This assumption is realistic when the transacted rights are rights on assets that are valid only against specific people, what in law are called *in personam* or "contract rights". However, it is unrealistic for rights on assets that are valid against everybody, what in law are called rights *in rem* or "property rights" (*rem* comes from the Latin word *res*, thing).

This work expands the Coasean framework by analyzing contractual problems and institutional solutions for *in rem* rights. These are important because, by granting priority for using rights among conflicting claimants, *in rem* rights provide added enforcement, which is mainly valuable when some claimants may be judgment proof. Therefore, only *in rem* rights enable truly impersonal trade to the point that parties can allow themselves the luxury of being totally ignorant of each others' personal attributes, greatly expanding their opportunities for trade and specialization.

The rest of the article proceeds as follows.

Section 2 develops the argument that, to be fully impersonal, contractual performance must be independent of parties' characteristics, including not only their reputation and wealth but also their legal authority to contract. Such fully impersonal trade therefore requires contractual enforcement to be based on enforcing rights against assets instead of against persons.

Section 3 identifies the meaning of *in rem* rights on assets by considering legal remedies. Property rights are the foundation of economic incentives and prosperity. It therefore makes sense to enforce them strictly, so that in case of conflict goods are always returned to their legal owners unless they had granted their consent—therefore treating them as rights *in rem*. But such *in rem* enforcement would increase transaction costs by worsening the information asymmetry suffered by acquirers of all sorts of rights, who would always have to gather the consent of the legal owners. Enforcing rights *in rem* might therefore endanger trade. It would also endanger specialization, because specialization is often based on having agents acting as owners' representatives, and acquirers would have reasons to doubt the legal authority of sellers. Economic development therefore requires this conflict between property enforcement and transaction costs to be overcome, so that both owners and acquirers are protected. Owners' rights need to be protected to encourage investment, and the transaction costs faced by acquirers need to be lowered to encourage them to trade and thus improve the allocation and specialization of resources.

This conflict between property enforcement and transaction costs may seem puzzling, as explained in section 4, because the economic literature on property rights has been interested in problems such as violence, externalities, and the tragedy of the commons, which can be successfully analyzed using a simplified view of property enforcement. In particular, these problems are independent of the legal remedies that are made available to the rightholder in case of a dispute or, in particular, the type of protection—real or personal—the law gives to different entitlements.

Section 5 generalizes the analysis by considering that most transactions are interrelated sequentially. In the most simple sequence, with only two transactions, one or several "principals"—such as owners, employers, shareholders, creditors, and the like—voluntarily contract first with one or several economic "agents"—possessors, employees, company directors, and managers—in an “originative” transaction. Second, the agent then contracts “subsequent” transactions with third parties.

These sequential exchanges offer the benefits of specialization in the tasks of principals and agents—between landowners and farmers, employers and employees, shareholders and managers, and so on. But they also give rise to substantial transaction costs, because, when third parties contract with the agent, they suffer information asymmetry regarding not only the material quality of the goods or services being transacted but also the legal effects of the previous originative contract. In particular, third parties are often unaware if they are dealing with a principal or an agent, or if the agent has sufficient title or legal power to commit the principal. This constitutes a grave impediment, especially for the impersonal transactions that are necessary to fully exploit the advantages of specialization.

Moreover, principals also face a serious commitment problem when trying to avoid this asymmetry because their incentives change after the third party has entered the subsequent contract. Before contracting, principals have an interest in third parties being convinced that agents have proper authority, but, if the business turns out badly, principals will be inclined to deny such authority. This is why the typical dispute triggered by sequential transactions is one in which the principal tries to elude obligations assumed by the agent in the principal’s name, whether the agent had legal authority or not.

Judges can adjudicate in such disputes in favor of the principal or the third party. I will refer to favoring the third party as enforcing “contract rules,” as opposed to the seemingly more natural “property rules” that favor the principal.[2]

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[2] These rules are similar but distinct from the “property” and “liability” rules defined in a classic work by Calabresi and Melamed (1972) because, instead of a taking that affects only two parties, here the rules are defined in the context of a three-party sequence of two transactions. Moreover, my analysis focuses on the role played by the parties in each transaction, disregarding that current third parties will often act as principals in a future sequence of transactions. Consequently, when good-faith third parties win a dispute over their acquisitive transaction (i.e., when they are given a property *in rem* right), they do not win as a consequence of applying a property rule, which—by definition—would have given the good to the original owner. In such a case, the third party does not pay any monetary damages to the original owner, as in Calabresi and Melamed’s liability rule. A final difference is that Calabresi and Melamed’s property rule is weaker, referring only to the ability to force a would-be taker to bargain for a consensual transfer similar to specific performance, which thus arguably has little to do with a right *in rem*.

The effects of these rules are clear. Take the simple case in which an agent exceeds his legal powers when selling a good to an innocent third party (i.e., a good-faith party who is uninformed about the matter in question). If judges apply the "property rule" that no one can transfer what he does not have, they rule to have the sold good returned to the "original owner," and the innocent third party wins a mere claim against the agent. Owners will feel secure with respect to this contingency, because this outcome maximizes property enforcement, but it worsens the information asymmetry suffered by all potential third parties with respect to legal title.

Conversely, judges can apply an indemnity or "contract rule" so that the sold good stays with the third party and the principal only wins a claim against the agent. This will minimize information asymmetry for potential third parties but will also weaken property enforcement, making owners feel insecure. Enforcing contract rules thus obviates the information asymmetry usually suffered by third parties and encourages them to trade. In so doing, contract rules transform the object of complex transactions into legal commodities that can be traded easily, thus extending the type of impersonal transaction that characterizes modern markets. However, contract rules weaken the principals' property rights, endangering investment and specialization in the tasks of principals and agents.

Section 6 explains that the law overcomes this conflict between *in rem* property enforcement and transaction costs by selectively applying property or contract rules depending on conditions that provide proper safeguards. In essence, for judges to apply property rules, which favor owners, owners must have publicized their claims or rights, which should protect acquirers. That is, principals can opt for a property rule to make their rights safer, but, thanks to publicity, third parties suffer little information asymmetry. Conversely, for judges to apply contract rules, which favor acquirers, owners must have granted their consent, which should protect them. That is, when principals choose a contract rule, third parties' rights are safe, whereas principals' rights are weaker. But this weakening of property is limited, since principals choose the agent whom they entrust with possession or appoint as their representative, this being the moment when they implicitly "choose" a contract rule.

Smooth operation of this conditional application of rules poses varying degrees of difficulty for different transactions. The difficulty is minor when the originative transaction inevitably produces verifiable facts, such as the physical possession of movable goods or the ordinary activity of an employee. For these cases, judges can base their decisions on this public information, which is produced informally. What judges or legislatures have to do is to clearly define efficient contract rules to be applied. The difficulty is greater when the originative transaction produces less verifiable facts, making informal solutions harder to apply. Such informal solutions may even be impossible if the contract remains hidden and its consequences are not verifiable. Consider, for example, the difficulties for clearly establishing by purely private contract the existence of a corporation, distinguishing the corporation's assets from the personal assets of its shareholders. In such contexts of harder verifiability, defining contract rules is not enough because applying them requires information on originative contracts, which, in principle, are not always verifiable. To make them verifiable, it is necessary to enter and preserve at least some information on them in a public registry, which is costly to start up and operate, and must enjoy independence and public access.

Section 7 concludes.

2. Impersonal exchange requires rights on assets, not merely on persons

People prosper when investors feel secure and are therefore willing to invest in productive activities. But they prosper even more if they can trade beyond their personal circles of known people, as producers invest and specialize more when they sell their production in a larger market.[3] Good institutions facilitate these two key factors for development, as they not only make investors feel secure in their investments but also enable everybody to trade impersonally,[4] thus creating wealth.

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[3] On the importance of impersonal exchange, see mainly North and Thomas (1973), Granovetter (1985), North (1990), Seabright (2004) and, for a more foundational treatment, Hayek (1982).

[4] The old hypothesis linking secure property rights and growth (e.g., Smith, 1776) was reformulated by North (1981, 1990) and tested by, among many others, Knack and Keefer (1995); Chong and Calderón (2000); Acemoglu, Johnson and Robinson (2001); and Rodrik, Subramanian and Trebbi (2002).

Reaching specialization advantages requires transferring all sorts of rights to the most productive user. It therefore requires exhausting the opportunities for exchange. Unfortunately, profitable exchange opportunities may be lost because potential parties do not trust each other.

To avoid distrust, parties display plenty of ingenuity to bond their own future behavior and to learn more about their prospective contractual partners. When parties know each other well, they suffer less information asymmetry about the value of each other's promises, so a conflict is less likely. They also know about the safeguarding mechanisms that will be activated if a conflict eventually arises and which may be based on public or on private "ordering"—that is, mainly with or without help from an independent judiciary. This facilitates economic exchange, but only of a personal nature, as parties need to know each other's characteristics, including their solvency and reputation. In brief, they need local knowledge.

This personal nature of exchange is a more or less continuous attribute, derived from the more or less personal nature of the safeguards used to enforce contractual performance. In turn, the nature of these safeguards affects the amount of personal information that parties need to gather before committing themselves to the exchange. Going from the most to the least personal (and omitting individual moral traits[5]), the starting points are expectations of future trade and market-observable reputation, then systems for indirect liability (including the use of assurance intermediaries and community responsibility) and, lastly, impartial judicial enforcement of contractual agreements.

First, most trade between parties who know each other is fully personal as it relies on their mutual knowledge and expectations of their future trade. This generally affects private ordering solutions.[6] Likewise, much of the trade with strangers also requires gathering information to know what performance assurances—for instance, their track record and reputation—they offer. So it, too, is mainly personal.

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[5] Moral systems are important in this regard. For instance, current survey data suggest that Protestant values are more supportive of impersonal exchange than Catholic values (Arruñada, 2010c). Most parties, however, can do little to modify them, and conversion, in addition to having dubious effects, is out of the question in many situations.

[6] On private ordering, see, mainly, the pioneer works by Macaulay (1963), Telser (1981), Klein and Leffler (1981), Barzel (1982) and Williamson (1985, pp. 163-205).

Second, trade also remains personal when performance assurances are not produced by the parties themselves but by assurance intermediaries, such as financial institutions, credit bureaus, credit and title insurers, rating agencies, auditors and so on. In such cases, trade remains personal to the extent that it is based on the reputation of the intermediaries and their knowledge of their clients. Similarly, trade is also personal under community responsibility systems, when all members of a group (for instance, all merchants of a particular city in late medieval times) are liable for the behavior and contractual obligations of each of its members.[7] Such a system allows strangers to trade with group members but they do so based on limited personal information, just enough for them to unambiguously know which individuals are members of which groups and which groups are dependable. Moreover, it also requires monitoring individuals' characteristics within each group. Both assurance intermediaries and community responsibility therefore make transactions more impersonal but still retain important personal attributes.

Lastly, trade is often considered to be impersonal when it relies on independent judges.[8] But this reliance only reduces the amount of personal information required for transacting, as parties still need to ascertain at least how solvent their obliged counterparties are. Even with perfect judges, creditors must worry about how likely it is for their debtors to become judgment proof—that is, even after a court order states their debts, their creditors still cannot collect any money. Insolvency carries little stigma today but even in old times, when insolvent debtors ended up in prison, jailing them must have provided little joy to their creditors. As before, therefore, judicial enforcement still depends on personal attributes, and judicially-supported trade still remains substantially personal in nature.

To the extent that personal attributes are present in all these cases, parties must spend resources on developing personal safeguards and producing knowledge about them. Also, to the extent that such safeguards remain weak, contractual enforcement is unreliable, prone to conflict and thus costly. Lastly, where there is a risk of contractual default, parties withdraw and waste trade opportunities. Therefore, relying on personal exchange precludes profitable exchanges between unknown parties and limits specialization opportunities and efficient reallocation of

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[7] See Greif (2002, 2004, 2006a, 2006b).

resources, reducing economic growth. (This constraint may be especially severe in developing countries, as they lack sophisticated assurance intermediaries and the institutions that make it possible for parties to trade even if they have little or no personal information on each other.)

To expand the scope of transactions and fully exploit the benefits of comparative advantage, parties must be able to trade without any knowledge of personal characteristics. This requires making contractual performance independent of such characteristics, a feat that can only be achieved by granting acquirers rights directly against the acquired assets instead of against the sellers, that is, rights *in rem* instead of *in personam*. However, providing this *in rem* protection to acquirers would endanger the rights of owners, who might be left holding mere claims against persons, rights *in personam* (e.g. against a fraudulent seller). Take the example of a simple asset sale when the seller is not the owner. The acquirer is better off if she is granted a right *in rem* against the asset itself, so that, for instance, possible defects as to the relationship between owner and seller do not affect her purchase. In contrast, were she given a right *in personam*, such defects might require her to return the asset to its owner, leaving her with a mere claim against the seller. Obviously, the opposite is true for owners.

In sum, legal systems face a hard choice, as rights on assets are needed for both the security of owners and impersonal exchange.[9] But these two goals conflict because they entail protecting, respectively, current owners and acquirers, leaving the other party unprotected. And the choice is not made easier by the fact that today's owners are yesterday's acquirers: even though they share a common interest in abstract terms, their interests clash in any specific conflict. Protecting the interests of both owners and acquirers requires institutions and, in particular, contractual registries. For instance, if judges grant assets to those registered as owners in a public register, acquirers can avoid their information asymmetry by simply checking the register.

Before explaining in more detail the rationale behind such institutional solutions, I will examine in the next two sections what it means to define rights directly on assets instead of on persons, the comparative advantages of both enforcement strategies and how they are handled by

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[8] See, for instance, North (1990, pp. 34-35; 1991). Also, Wallis (2011), who emphasizes equal treatment of citizens by courts.

[9] Note that this is not a choice for the parties, as private ordering is unable to produce *in rem* enforcement.

the two disciplines called upon to support the analysis: the economics of property rights and property law.[10]

3. What do rights on assets mean? The difference between rights on assets and rights on persons

A right *in rem* is more valuable than a corresponding right *in personam* even when both allocate to the holder the same set of asset uses because rights *in rem* are easier to enforce.[11] It will be useful to examine several examples illustrating this enforcement advantage.

Imagine, first, a lease of real estate, which in many jurisdictions may be structured either *in personam* or *in rem*, as either a contract or a property right.[12] Imagine also that both of these define and allocate the same uses for the asset, including its possession.[13] However, if the lease is a property right, which is generally the default rule in the United States, the lessee keeps the right of occupation unless she consents to leave. It is then the land buyer who will have a claim for compensation against the seller if the sale was made free of leases. From the viewpoint of the lessee, the buyer simply replaces the seller without any change to the lease, which is said to "run with the land" from the seller to the buyer, surviving intact after the sale. Conversely, if the lease

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[10] I focus in this paper on the asset-versus-personal dichotomy but, given that assets are not physically homogenous, eliminating personal elements does not exhaust the possibilities of commoditization that make trade easier. Establishing standard physical measures of assets greatly facilitates exchange—as, for example, when developing production standards useful in subcontracting manufacturing tasks (Arruñada and Vázquez, 2006) or when demarcating land using a uniform grid (Libecap and Lueck, 2011a and 2011b). In contrast, removing personal elements and defining rights on assets comes close to commoditizing the key legal, instead of physical, attributes. This sort of legal commoditization effort can also be seen as part of a greater modularization process (see, in general, Simon, 1962; and, in law, Smith, 2006, 2007, 2008, 2009 and 2011).

[11] See Merrill and Smith (2001b, pp. 780-89) for an analysis of other attributes of *in rem* rights, such as the right to exclude others, apart from the survival-to-adverse-transactions that I emphasize in this paper.

[12] This is often a consequence not of narrowly defined property law but of specific regulations on, for instance, residential leases which aim to protect current tenants. The mixed property and contract nature of US landlord-tenant law is analyzed by Merrill and Smith (2001b, pp. 820-33).

is a contract right, as in Roman law, the lessee loses the right of occupation when the leased land is sold during the life of the lease, following the principle of *emptio tollit locatum* or "sale breaks hire". Instead, the lessee gains a right to be compensated by the lessor.

The same happens when using property to guarantee the owners' debts. For example, a land owner may use her land as collateral for a loan by granting a mortgage to the lender. Alternatively, she may contract an unsecured personal loan. In both cases, the creditor has a right to be paid from the land, conditional on the borrower's default. However, the mortgage lender keeps the same claim on the land even after the debtor sells it or contracts a second mortgage on it. By contrast, when a land owner borrows personally, the land is also safeguarding the transaction but much more weakly, as the lender is granted only conditional *in personam* rights on the borrower's assets. Therefore, when the debtor defaults on such a personal loan, the lender is allowed to trigger the seizure and sale of debtors' property in order to be paid, but only if such property has not been legally transferred to an innocent third party before the debtor's default. The personal creditors' claims do not run with the land.

Finally, perhaps the most important example is ownership itself, which, even if it can be held by the same person, is distinct from the right to use and enjoy the asset (what is called usufruct in civil law); and from control of the asset (broadly equivalent to legal possession). Therefore, were someone purporting to be the owner to sell the land in a fraudulent sale, the true legal owner would recover it, and the buyer would thus get only a personal claim against the fraudulent seller. In fact, ownership is so much the ultimate *in rem* right that talk of the *in personam* owner seems awkward. However, it is *in personam* ownership that a claimant holds when a judge finds (or would find if asked to decide) that an alternative claimant is really the legal owner and thus this alternative claimant is (or would be) given ownership of the land, the *in rem* right on it.

As shown in these examples, property *in rem* rights enjoy decisive enforcement advantages, as they define more direct relations with regard to things. They are thus claimable against the thing itself and therefore oblige all persons, *erga omnes*. This universal obligation means that, in the examples, the new owner who has purchased the land—whoever she is—must respect the *in*

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[13] Indicative of this potential equality in asset uses is the practice of naming rights *in personam* as rights *ad rem* (rights *to* things), as opposed to rights *in rem* (rights *in* things).

rem lease and the mortgage: in particular, the lessee's possession and the mortgagee's right to foreclose if the debtor defaults. And when she buys from a non-owner, she gets only a claim against the seller, without touching the owner's right on the land. This is why property rights run with the land—they survive unaltered through all kinds of transactions and transformations dealing with other rights on the same land or on a neighboring parcel. Enforcement of a property right *in rem* is independent of who holds this and all other rights on the same land, including ownership: "rights and duties *in rem* do not refer to persons… in the sense that nothing to do with *any particular individual's personality* is involved in the normative guidance they offer" (Penner, 1997, p. 26, emphases in the original).

A consequence of particular importance for specialization and, therefore, for the functioning of the economy is that *in rem* owners do not suffer the possible moral hazard of their agents. For instance, when the owner cedes possession, she does not risk losing the asset if the agent poses as owner and sells it to a third party. *In rem* rights may certainly weaken enforcement in one dimension: all current owners have been acquirers and they can lose the asset against potential claimants with a better legal title. But this risk is delimited, being a risk from the past; and also diminishes with the lapse of time, due to the operation of rules that automatically purge titles, such as adverse possession and the statute of limitations.

In contrast, mere contract rights define obligations between the contracting parties and are thus enforceable only against these specific persons, *inter partes*. Moreover, persons last less and move more than durable assets, and their reliability suffers from all kinds of additional risks. In terms of the examples, if the lease were contractual, the lessee would have to attain an indemnity from the lessor, who might well have disappeared or be insolvent; and the same might easily happen with insolvent debtors and fraudulent sellers.

Consequently, contract, *in personam,* rights provide little security and their value depends on who the obliged persons are and how they will behave. Information on these specific persons is thus necessary to alleviate the information asymmetries potentially causing adverse selection and moral hazard. Furthermore, the performance of contract rights remains conditioned on all these personal elements even if it ends up being materialized in uses of the asset—e.g., an *in personam* land lease materializes in the same use of the land as an *in rem* lease, but with lower enforceability. This personal mediation in accessing assets compares badly in terms of enforceability with *in rem* rights, whose asset uses are enforced independently of any personal condition. So rights *in rem* are intrinsically different and more valuable than the mere addition of a corresponding set of rights *in personam* defining the same uses (Merrill and Smith, 2001b, pp. 786-87).

Rights *in rem* enjoy this enforcement advantage because they can be damaged only with the consent of their rightholder. This ensures enforcement but is costly when multiple, potentially conflicting rights are held in the same asset. In particular, potential acquirers of rights suffer additional uncertainty because, when they are sold more than the seller holds, adverse *in rem* rights will survive their acquisition. Such potential adverse rights are all those that conflict with the intended transaction. In our previous examples, they are the rights held by the lessee and the mortgagee when the land is sold purportedly free of *in rem* leases and mortgages. In the case of a fraudulent sale, the adverse right is the ownership held by the legal owner. In all these cases, if rightholders have not consented to the transaction, their rights survive intact, and the acquirer gets a claim against the grantor for the unfulfilled difference (which is all she gets in a fraudulent sale).

From this perspective, parties and institutions have to manage a tricky interaction between enforcement and transaction costs, between *in rem* property rights and the transaction costs they cause. Rights *in personam* offer less enforcement but are easier to contract over, given that they only affect the transactors. In contrast, rights *in rem* offer stronger enforcement but are harder to contract over, given that they affect and therefore require the consent of everybody.[14] Moreover, the difference is important because the value of a given use right enforced *in rem* is greater than the same use right enforced *in personam*. Individuals may even be judgment proof, which would make *in personam* rights unenforceable. Different legal systems provide parties with ways to contract *in rem* rights more or less easily, so that parties can benefit from their enhanced enforceability. Otherwise, they have to rely on mere personal rights. There are, therefore, two distinct tradeoffs at the social and individual levels. First, society must decide how much to

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[14] The tradeoff between the strength of one's rights and their transferability at low cost is more or less explicit in, among many others, Calabresi and Melamed (1972), Baird and Jackson (1984), Epstein (1987), Levmore (1987), Rose (1988), Medina (2003), Schwartz and Scott (2011), as well as in works

spend on institutions that ease *in rem* contracting, such as, for instance, contractual registries to make mortgages public. Second, given these institutions, parties must then decide how much to spend on transaction costs (e.g., examining the register) so that they transfer *in rem* rights or, in continuous terms, rights with a greater *in rem* content and, therefore, enhanced enforcement.

This interaction between *in rem* enforcement and transaction costs, which lies at the core of property law, fits poorly in the economic analysis of property rights, which, when considering property enforcement, tends to disregard what may well be its essential element: the legal remedies available to owners. For economists, enforcement is often a matter of precisely defining the scope and allocation of rights, two aspects that should generally reduce the costs of transacting—that is, greater precision should reduce transaction costs. My next step is to clarify this divide between economics and property law which, far from being merely semantic, reveals their widely different but complementary perspectives.

4. The differences between the economic and legal views on enforcement—or why economics chose to ignore legal property

Everybody agrees that security of property is essential for development. All owners want their rights to be universally respected. If they do not feel secure, if their rights are weak, they will be unwilling to invest, and this will hinder economic growth. However, property security has many dimensions, of two major types, public and private, attached to what can be seen, respectively, as political and market failures.[15]

Economics has mainly focused on the public aspects. First, as emphasized by North, a well-organized polity will preclude violence and confiscation, and subject owners' expropriation to

which have focused on the role of the *numerus clausus* of property rights, such as Heller (1999), Merrill and Smith (2000, 2001b), Hansmann and Kraakman (2002), and Dnes and Lueck (2009).

[15] This public-versus-private characterization overly simplifies matters. Registries are needed because of "market failure"—that is, a failure of the hypothetical market of price theory, short of adequate

strict conditions, including proper compensation.[16] Second, as analyzed by many works influenced by Coase (1960), the law and, therefore, to a large extent, government and politics set the initial allocation of rights which enables parties to freely transact in the market and so reach a more efficient allocation of resources. Many of these economic analyses focus on how political failures lead to bad institutions. Their central concern is that property may be endangered by political failure because most governments not only prove unable to allocate property rights clearly and to preclude violence and defend private rights against private encroachment but are also prone to confiscating their citizens' property.[17]

Property law, instead, focuses on private aspects.[18] In particular, it is mainly concerned with the fact that property can also be endangered by market failure, when individuals misuse transactions to grab the property of others. This may happen because owners acquire their property from someone else and will, at some point and especially in a modern economy, transfer it to others. But transfers pose risks to both owners and acquirers, so that owners will fear being dispossessed of their rights and acquirers will fear being cheated on their purchase. To prevent their mutual fears and encourage them to invest and trade, even impersonally, a market economy requires institutions providing more than an initial allocation of rights—they must also

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institutions. But governments also fail by often being unable to provide functional registries, a pillar of such institutional support.

[16] See mainly North and Thomas (1973); North (1981, 1990); and North, Wallis, and Weingast (2009).

[17] This perspective has illuminated a variety of issues, including, among many others: the forces behind the emergence and precision of private property rights, such as increases in the value of resources (Demsetz, 1967; Libecap, 1978; Smith, 2002), the costs of exclusion (Anderson and Hill, 1975) and the costs of measuring different resource attributes (Barzel, 1997); the political forces behind alternative outcomes from common pool problems (Libecap, 1989); informal regimes of common property (Ostrom, 1990); specific situations, such as homesteading (Anderson and Hill, 1990; Allen, 1991) and frontiers (Alston, Libecap and Mueller, 1999); particular contractual arrangements, such as sharecropping (Cheung, 1969; Allen and Lueck, 2003); and a variety of institutional solutions, from first possession (Lueck, 1995) to restrictions on alienability (Epstein, 1985; Rose-Ackerman, 1985; Barzel, 1997). Lueck and Miceli (2007) provide a comprehensive survey. Being interested in different issues, such as the boundaries of firms, the mostly unrelated literature pioneered by Grossman and Hart (1986), which is often also given a "property rights" label, focuses on how the allocation of residual claims on assets affects parties' incentives while possible asset transactions with third parties only define parties' bargaining power, a particular problem with no connection to those I am analyzing here.

[18] Some aspects of property law are clearly public (e.g., eminent domain) but it mostly deals with private transactions. A sample of property law handbooks reveals that the public element only dominates in at most a quarter of chapters (mainly those dealing with zoning, social policy, forbearance and takings) and often much less than that.

provide effective *in rem* enforcement and, as a consequence, what in the Coasean setup can be labeled as *recurrent allocations of rights*.

However, little attention has been paid by the economic analysis of property rights to *in rem* enforcement and the need for clarity in these reallocations in the context of frequent market transactions. The primary reason is that this economic literature, much of which “remains ignorant of property law” (Lueck and Miceli, 2007, p. 187), by omitting the distinction between rights *in rem* and rights *in personam*, that is, between what the law respectively calls property rights and contract rights,[19] is in fact dealing only with rights *in personam*.

This omission makes sense in these economic analyses because they focus on the emergence of property and the analysis of externalities. Their main issues have been the transition from regimes of open access and common property to private property and the requirements for bargaining around externalities, disregarding the more mundane but no less important problem of routine transactions on ordinary private property.[20] For these objectives, it makes sense, adopting a simplistic view of Coase (1960), to see property as a mere bundle of use rights and to consider that these are strong if well defined, if their content is precisely delineated and they are clearly allocated to individuals. This amounts to treating rights on assets as valid only against specific persons, *in personam*. In other words, no distinction is made between the strength of the right and the size of the set of parties it can be enforced against, disregarding that a crucial element of a right’s strength is that it can be enforced against all persons. Instead, enforcement tends to be equated to effective judicial decisions and police actions, ignoring that many individuals are judgment proof. Therefore, remedies remain undefined in a key dimension. While the question of

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[19] These failures may go a long way to explaining why “economic analysis of property law has not been as welcome among property law scholars as it has been among legal scholars of antitrust, contracts and torts” (Lueck and Miceli, 2007, p. 249). Merrill and Smith (2007, 2010) provide a path-breaking introduction to property law, solidly grounded on economic analysis.

[20] This is only a particular case of the proclivity of economic analysis to focus on exceptions and, in particular, of law and economics to often pay more attention to disputed judicial decisions than to the real contractual process. [See, e.g., Rubin (1995) and Williamson (1996, 2005)]. The literature also focuses on judicial decisions within oversimplified institutions which do not modify the informational structure, while my focus lies on the institutional support: the main issue is how to provide judges with verifiable information on rightholders’ consent. Consequently, the analysis here also departs from previous work by focusing on the role of institutions in modifying the problem’s information structure instead of on how parties’ incentives and costs drive the local optimality of alternative rules.

the proper level of indemnity in different situations is carefully analyzed, little attention is paid to the more basic problem of having the obliged person pay it.

In contrast, property law focuses on standard transactions on private property and emphasizes *remedies* as the key dimension of enforcement. Consequently, it tackles this basic problem head on, by obviating persons and establishing rights directly on assets, *in rem*. These are strong rights because the consent of the rightholder is required to affect them, establishing the strongest link possible between holders and assets.

This enforcement by consent provides a conceptual link with the Coasean contractarian framework because all relevant consents must be granted to acquire rights *in rem*, and this involves several consequences for the contractual process and its support institutions. First, as acquirers are interested in acquiring *in rem*, they try to gather all pertinent consents, and institutions are structured to make such gathering possible. Contracting then becomes a two-step process: a first, personal step, in which the parties to the contract agree on the intended transaction; and a second real step, in which holders of *in rem* claims conflicting with the intended transaction grant their consent. For instance, the buyer of a house does not only contract with the seller; if both parties want to transfer the house free of an existing *in rem* lease, they must first obtain the consent of the lessee.

Second, the acquirer might still be unsecure about the universality of the gathered consents. Reducing this remaining uncertainty requires institutional solutions that, in essence, publicly reallocate rights *in rem*. The acquirer will be especially worried about the possible existence of any adverse abstract rights, such as mortgages, that might remain hidden. Furthermore, ownership itself is also abstract and may cause the greatest loss. Therefore, the acquirer will be especially queasy about the identity and authority of the seller because, in the worst case, she would be getting nothing *in rem* but only a mere claim on the seller, and the value of such an *in personam* claim will often be zero. Understandably, this remaining uncertainty has driven the provision of institutional solutions. A common strategy, often used for mortgages, consists of requiring that rights be made public in a registry to be enforced *in rem*. This obviously facilitates more thorough gathering of consents. Alternatively, either registers with a quasi-judicial function or judges themselves are called on to explicitly establish this allocation of *in rem* rights. In any case, when *in rem* rights are involved, initial allocation of rights is not enough and there will be implicit or explicit recurrent public allocations. In short, given that *in rem* rights oblige everybody, acquisition of *in rem* rights cannot be achieved by purely private contracting between parties but must include a public intervention to reallocate rights.[21] (It is even less possible to achieve it under private ordering without judicial intervention.)

Lastly, it is worth mentioning that the focus of property law on assets, on *in rem* remedies, makes this branch of law the main institutional foundation for impersonal exchange, given that only such remedies make truly impersonal exchange possible. This link between impersonal exchange and rights *in rem* comes naturally to property law (e.g., in Penner, 1997). In contrast, conventional economic analysis of *(in personam)* "property rights" inspires a distorted view of the division of labor between property and contract law, in which property law is seen as serving merely to allocate resources and contract law to handle transactions. For example, a survey of the economic analysis of contract law asserted that

> while the law of property determines the configuration of entitlements that form the basis of production and exchange, and the law of torts protects those entitlements from involuntary encroachment and expropriation, it is contract law that sets the rules for exchanging individual claims to entitlements and, thus, determines the extent to which society is able to enjoy the gains from trade (Hermalin, Katz and Craswell, 2007, p. 7).

This view is valid only with respect to part of the economic analysis of property rights, that which focuses on the initial allocation of rights, paying little attention to transaction and enforcement difficulties. It holds no water with respect to the functions of both branches of law.

[21] Alternatively, it could be said that rights *in rem* can be acquired privately but commit *in rem* only the parties to the transaction. However, this makes little sense considering that the essence of *in rem* enforcement lies in the universal duties it creates.

5. Generalizing the analysis

5.1. Specialization and transactions require multiple rights on each asset, hindering impersonal trade

As the previous examples show, difficulties arise from the presence of multiple rights (in the examples, leasehold, mortgage, ownership) on the same asset, especially because, being abstract in nature, some rights may easily remain hidden to potential acquirers. If only one right were held on each asset, *in rem* enforcement would be easy to provide without increasing transaction costs. Governments and judges would only have to guarantee the peaceful possession of assets, preventing individuals from being deprived from them against their will by violence or fraud. But in that case actual possession—direct, physical and intentional control—would be the only possible right on assets, precluding multiple and abstract rights, and impeding even the most simple types of specialization.

Understandably, multiple rights are instead pervasive, as the drive for specialization leads parties to voluntarily define multiple rights on the same assets. This process includes all arrangements separating ownership and control, which pursue specialization advantages by defining rights on particular uses or for limited periods of time. They span from the simplest landlord-tenant contract in real estate, in which owners usually cede all the uses of the land, to sophisticated structures of corporate governance, in which millions of shareholders jointly and indirectly own assets controlled by a team of professional managers. Moreover, multiple rights are also created as an often involuntary consequence of defective transactions: for instance, when a seller sells more than she owns, conflicting *in rem* claims will exist on the same asset. Before the conflict is resolved and to the extent that such claims may win in court, the asset is subject to multiple and colliding rights *in rem*, even of the same nature (as, for instance, in cases of disputed ownership).

In sum, multiple rights are indispensable for specialization and are pervasive in today's economies. Given that multiple rights increase the transaction costs caused by *in rem* rights, transactors need institutional solutions, such as registries, that allow them to achieve the advantages of both multiple rights and *in rem* enforcement. For example, if judges establish ownership based on a public register, mere possessors will have a harder time posing as owners to deceive innocent acquirers.

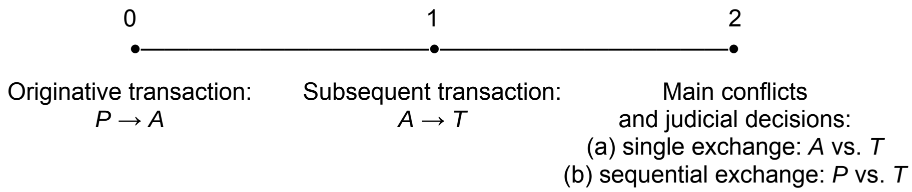
5.2. The information structure of single and sequential exchanges

To find out the nature of these solutions and make the analysis more general, I now consider the sequential structure of transactions, using a framework of economic agency. This allows me to clarify how rights are recurrently allocated and show that the interaction between enforcement benefits and transaction costs is widespread in all sorts of economic transactions.

Judges solve two main types of contractual conflict, which correspond to two different exchange structures: *single* and *sequential* exchanges. Single-exchange conflicts involve only one transaction—for instance, a client and a seller who provides goods or services to the client. Sequential-exchange conflicts involve at least two interrelated single exchanges. Consequently, in addition to the relation between the client and the seller, the judge will need to consider the relation between the seller and the owner of the good or between the seller and her employer.

Sequential exchange therefore involves at least three parties in two single transactions that I will call *originative* and *subsequent*. Labeling the characters according to their economic role, the originative transaction takes place between a *principal* (the owner or employer in the example) and an *agent* (the seller), while the corresponding subsequent transaction takes place between the agent and a third party (the client) external to the originative transaction. Consequently, the agent plays a contractual function and not only a productive function. As depicted in Figure 1, both single and sequential exchange give rise to conflict; but in each type of exchange the information asymmetry causing the conflicts is different, so dealing with it requires different types of institutional support.

Figure 1. Timeline of generic sequential exchanges with two transactions and three parties



Note: The arrows represent agency relationships, not transfers

Information asymmetry in single exchange is well represented by Akerlof's (1970) influential analysis of the market for "lemons", in which the owner of a used car is trying to sell it. Understandably, prospective buyers are reluctant to buy because, given that owners know the quality of their own car best, used cars on sale tend to be those of poorer quality. In such situations of adverse selection, which are much more common than the car example suggests, information asymmetry with respect to material quality poses a serious threat to trade. Parties must, therefore, devote plenty of resources to producing solutions, disclosing and obtaining information and providing all sorts of quality assurances.

Many of these solutions may be implemented by parties themselves by, for instance, writing contracts, verifying quality, investing in reputation and building other private ordering mechanisms. They can also rely on a judge to complete and enforce the contract. In particular, parties will define the promised performance of the car. Also, the seller can guarantee a minimum level of quality, promise to pay for future repairs or give back part of the price in case of a major breakdown. Specifying and verifying these relevant dimensions of performance is costly. For instance, parties have to agree on the terms, write them down and safely keep a copy of the contract for future use. But, if contract obligations are not fulfilled, the aggrieved party can call on the judge to enforce the contract, using it as a source of primary evidence for the judge's decision.

A variant of this single-exchange "lemons" example illustrates the information asymmetry problem posed by sequential exchange. How does the buyer know that the seller is really the owner or, in general, has legal power to sell the car? If she does not have such power, the buyer faces the loss of the full purchase price. Therefore, this information asymmetry about what I will be referring to as legal "title" (that is, the prior originative transaction between the previous owner and the current seller) may be even more serious than that about material quality, which most often only causes a partial loss.

A key point for my inquiry is that this type of information asymmetry is also harder for parties to solve by themselves because, however much title examiners strive to clarify and assure title, title evidence may remain hidden in the absence of public registries. And developing registries faces the standard collective-action problems. Creating them generally exceeds the power of individual parties, so requires a public initiative. Moreover, once in operation, individuals would benefit from having a reliable register but each individual would benefit even more if the register were selectively reliable, being, for instance, lenient with the individual but strict with her counterparties.

The task of the judge is also harder and more critical. Harder because the judge must decide based on the originative contract between the principal-owner and the agent-seller, which they can easily manipulate, especially if it has not been available to the third-party-acquirer. More critical because, instead of simply solving a conflict between the parties to the contract by comparing actual and promised performance, the judge now has to adjudicate the asset as belonging to one of the two allegedly innocent claimants, either to the previous owner, applying a "property rule", or to the buyer, applying a "contract rule". The judge will grant the losing party a mere claim for indemnity against the seller, who will often be judgment proof. And, in fact, most cases of title conflict start because such a claim is much less valuable than its alternative.

This gap in value explains that this type of judicial decision has substantial effects throughout the whole sequence of transactions. Expectations about similar cases define the incentives of all parties potentially involved with this type of asset when they invest, trade and specialize. Potential buyers will be more reluctant to purchase at time 1 if they think judges will rule at time 2 for the owner (that is, if judges, applying a property rule, assign the asset to the owner); but, at time 0, owners will be less willing to invest and specialize if they think judges will rule for the buyer (that is, if judges, applying a contract rule, assign the asset to the buyer).

Both will also take more precautions if they fear that judges might rule against them: buyers will investigate title more and will prefer to contract with people they know. Consequently, there will be less impersonal exchange.

In particular, owners' attempts to avoid putting themselves in a position where they may risk being dispossessed will hinder specialization. They will contract more directly instead of using intermediaries, given that it is separation of ownership and control (that is, possession by non-owners) that creates such a risk. And they will be more careful about choosing contractual agents, preferring those they know personally or who, more generally, offer good personal guarantees. Moreover, this reduced separation of ownership and control is only the most basic example of a much larger phenomenon: it will be privately profitable to define fewer rights on each asset, with a consequent loss of the specialization opportunities discussed in section 5.1. Furthermore, many of these effects impose costs in terms of lost trade opportunities and will therefore remain invisible, so that developing proper solutions will be harder.

All these effects mean that judicial decisions on sequential exchange cases exert a major impact on key economic decisions. Moreover, sequential exchange is prevalent, affecting most economic activity. It is therefore crucial that judicial decisions on them be based on reliable contractual evidence.

5.3. The information problem of sequential exchange from a Coasean perspective

The degree of difficulty for solving this evidentiary problem varies across transactions, requiring different solutions. Verifiable evidence is easily available for some types of transaction but not for others. The essential function of contractual registries is, therefore, to provide evidence for judicial decisions when it is not readily available as a byproduct of the contracting and productive processes. Using this evidence, judges can safely decide litigated cases by applying rules that favor innocent, uninformed parties, which should encourage them to trade impersonally, and, in turn, encourage all participants to specialize. Furthermore, reliable evidence allows judges to apply such rules efficiently, without damaging property rights, even when multiple and abstract *in rem* rights are defined and enforced on the same asset.

Business and property transactions therefore share a common structure: specialization and trading decisions by owners and their agents lead to originative transactions which multiply and reallocate rights, creating informational asymmetries that may hinder subsequent impersonal transactions, as third parties may doubt about the legal title of the agent to commit the principal. Fraudulent subsequent transactions are made possible because, as a consequence of the originative transaction, agents become in possession of assets or are placed in a position in which they seem to have power to contract on behalf of the principal. For example, an employee will tend to be seen as authorized to commit the firm. Similarly, a lease gives the lessee the possession of the land and puts her in a good position to pretend to be the owner when selling to an innocent third party. These situations create tension between protecting owners with property rules, thus enhancing investment and specialization, and protecting acquirers with contract rules, enhancing impersonal exchange.

This can be expressed in terms of Coasean bargaining by observing that, in a sequential exchange, the judge will at some point adjudicate *in rem* and *in personam* rights of widely different value. To the extent that this adjudication is based on originative contracts, it is these contracts that determine the information structure and the difficulties of subsequent transactions. Perspectives that emphasize the initial allocation of rights risk obscuring this process, as most contracting is made about rights which were at least privately reallocated in a previous originative transaction. And the fact that *in rem* rights are more valuable than *in personam* rights leads market participants to demand recurrent public allocations—that is, a judicial adjudication or, at the least, verifiable information on how such reallocation will be decided. Providing this verifiable information is the minimum and essential function of contractual registries, especially about originative transactions producing abstract rights, which may easily remain hidden.

Deep down, all conflicts triggered by sequential exchanges in both business and property transactions are of the same nature, as the judge has to adjudicate either *in rem* rights to an asset (the property), leaving the losing party with the much less valuable possibility of claiming an indemnity from the agent; or, in those business cases in which *in rem* rights are not involved, adjudicate to the third party an *in personam* right against the principal or merely against the agent. If judges always rule in favor of the uninformed acquirer, applying a contract rule, they will make the information asymmetry irrelevant for third parties, but owners will be in danger of dispossession. This would even be bad for acquirers: they would be secure against possible claims by past owners but insecure with respect to misbehavior by possible future agents. Similarly, if judges always rule in favor of the principal-owner, applying a property rule, the information asymmetry suffered by third parties will hinder impersonal trade. Even true legal owners would have difficulties in selling or using their assets as collateral for credit. In a way, reducing transaction costs requires the weakening of property rights, and strengthening property rights increases transaction costs.

6. The institutional solution: third party protection and verifiable consent

The essential choice, therefore, seems to be between protecting owners or protecting acquirers—that is, between granting *in rem* enforcement of property rights or lowering the cost of transacting. Applying property rules would favor earlier owners to the detriment of later owners and, vice versa, applying contract rules would favor later owners to the detriment of earlier owners. However, economic growth benefits from and may often require both secure property rights to encourage investment, and low transaction costs, to improve the allocation and specialization of resources. Therefore, it is often efficient to develop institutions that, at a cost, are capable of *overcoming* the tradeoff, maximizing value for acquirers without damaging owners.

_Such institutions achieve this by applying contract or property rules in a given context but with the appropriate conditions, which greatly reduce damaging side effects for, respectively, security of property or transaction costs. Broadly speaking: contract rules, which favor acquirers, are conditioned to verifiable owners' consent to protect owners; and property rules, which favor owners, are conditioned to verifiable contract publicity to protect acquirers.

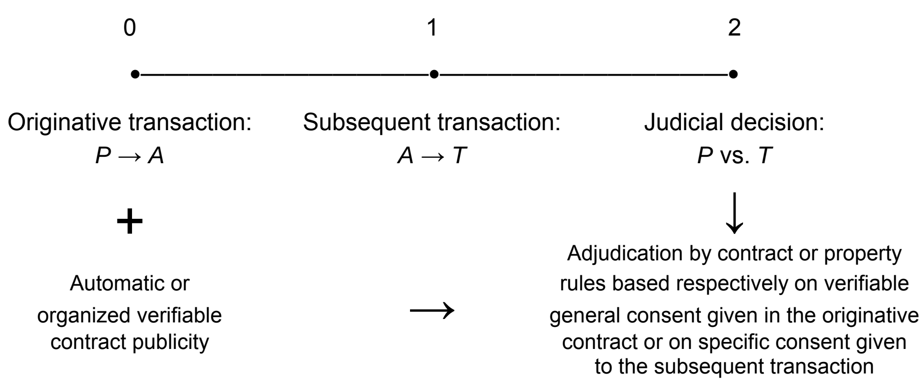
When the law applies a contract rule, it does so after the owner has consented, and granting or denying their consent allows owners to protect their property. This, for instance, was the solution invented in the Middle Ages under the Law Merchant: when merchants entrusted possession of their merchandise to other merchants, the judge would grant the goods to third party innocent acquirers in subsequent transactions. Similarly, when shareholders incorporate a company and appoint its representatives, they are consenting to their property rights being weakened in favor of any third parties who contract with the company. Since this potential weakening of property rights is decided on by their owners, it should not cause much damage.

Conversely, when the law applies a property rule, it does so only after the owner has complied with publicity requirements that ensure judges' ability to verify originative contracts and reduce transaction costs for all potential third parties in the market. For example, in a double sale of land, the judge will give the land not to the first buyer but to the first buyer to make the purchase public. In other words, by not making the purchase public, the first buyer is implicitly consenting to his property right being weakened, so that a contract rule will be applied to adjudicate a possible second sale that is made public first. Similar solutions are applicable to all previous examples.

The key issue is that the judge does not apply these rules automatically: they are subject to conditions, which are needed to overcome the tradeoff between property enforcement and transaction costs. In particular, given the sequential nature of the exchange, all systems must make sure that principals remain committed to their choices. To illustrate this point, imagine a merchant who, after placing his merchandise in the hands of a distributor who does not pay him, claims that the distributor was not authorized to sell it; or take a shareholder who grants full powers to a manager but, when she makes a huge mistake, reneges from her and claims that she lacked legal powers. If their point is upheld by the judge, the third party would get only a claim for indemnity against the distributor or the manager. Commitment is the key in these examples, as it is also in land transactions. For example, in a double sale of land, the owner and the first buyer could easily collude and emerge with the first sale only when land value moves above the expected indemnity cost. Moreover, when a property rule is to be applied, commitment must also reach all potential third parties.

The common condition is that the judge has to be able to verify some element of the consent given or the publicity produced in the originative transaction. This can be done informally, when the originative transaction itself or the activities it triggers inevitably publicize the relevant information as a byproduct. An informative transaction in this regard is, for example, that leading to a commercial seller gaining possession of merchandise. Similarly, the scope of employees' powers can often be easily ascertained by observing them perform the usual tasks of their jobs. Otherwise, explicit and costlier organizations and procedures need to be implemented to, in essence, make public the consensual elements affecting third parties. Such elements include, at least, the date and the information necessary to apply the corresponding rule. For example, the incorporation of a company requires the date, name, founders, capital, decision rules and so on; and purchases and mortgages of land require, at least, the identification of the parcel and the transactors.

Figure 2. The role of verifiable contract publicity in sequential exchange



Note: The arrows between parties represent agency relationships, not transfers

Therefore, the solution is to rely on public knowledge of originative contracts and, when such knowledge is not available, to publicly register the contracts to make their content verifiable (Figure 2). Broadly speaking, when the law applies a contract rule, which directly eliminates risk for acquirers in subsequent transactions, it protects owners by having them choose the agent and triggering the contract rule only as a consequence of the agent's appointment. Conversely, when the law enforces a property rule, which guarantees *in rem* enforcement of owners' rights, it does so with the condition that the originative transaction has been made public, which reduces risks for acquirers and transaction costs for subsequent transactions. Of course, many situations are not all-or-nothing and, instead, there is a continuum. For instance, some degree of automatic publicity may be sufficient for low-value transactions and, in other cases, a mixture of publicity mechanisms is applied for different dimensions. For example, possession of real property may play a publicity-and-verifiability role for some *in rem* rights which produce notice (e.g., most leases), but not for others which are abstract in nature (e.g., ownership, mortgage). In any case, having some elements of the originative contract public and verifiable ensures, either, that parties to that originative contract are committed to the contract rule—that is, rightholders cannot deny they have given consent to weakening of their rights, or that enforcing the property rule will not harm innocent third parties. In essence, it makes sure that judges and third parties base their decisions on the same information.

A key characteristic of these judicial decisions is that they are based on information about the consent given by rightholders, not about the possible values of the disputed resources in their competing uses.[22] The law, and registries in particular, therefore make possible the functioning of the market without any judicial valuation of alternative uses, which avoids the danger that judges and governments may in fact be determining the allocation of resources according to their own preferences and subject to their limited ability to ascertain value. Allocation is driven, instead, by rightholders' consents, given either in the originative transaction, when they appoint an agent and therefore trigger the eventual enforcement of contract rules in subsequent transactions; or, in cases in which the law enforces property rules, at the time of the subsequent transaction, when they agree to transfer their rights to acquirers. The essential element of private contracting—voluntary consent—is therefore not only preserved but enhanced. This ensures that owners will be better off than under an alternative legal system that, by always ruling in favor of true legal owners, would hinder specialization and trade.

[22] As analyzed, for instance, by Kaplow and Shavell (1996, pp. 757-63) in a situation of single exchange in which a disputed resource must be allocated between its owner and a second party taker (instead of an innocent third party) and the liability (instead of contract) rule has this second-party compensating the owner.

7. Summary and conclusion

In fully impersonal exchange, parties do not need information on personal characteristics such as solvency or reputation. Instead, they rely on the exchanged assets themselves. For this reliance to be effective, innocent acquirers must be granted strong property rights on the acquired assets, what the law considers *in rem* rights, valid against everybody, including other potential claimants, even true legal owners.

This concept of strong property rights comes from the legal distinction between property (real, *in rem*) and contract (personal, *in personam*) rights, which has been overlooked in Coasean economic analyses of "property rights" but lies at the core of the basic conflict between property enforcement and transaction costs that contractual registries are designed to solve. Rights *in rem*, on things, enjoy an enforcement advantage and are therefore more valuable than rights *in personam*. For land, the difference ranges from full value for the party being adjudicated the land, to zero for the one being given a claim against an insolvent person; and similar differences arise in business and corporate contexts in terms of legal priorities.

Given this enforcement advantage, individuals and legal systems rely heavily on rights *in rem*. However, enforcing rights as rights *in rem* endangers either trade or property. If owners are protected *in rem,* aspiring acquirers of rights suffer an informational disadvantage and are subject to the risk of acquiring less than they pay for: they may pay the seller for an asset but eventually obtain only a claim against the seller while the asset is kept by the owner. On the contrary, if acquirers are protected *in rem*—if, e.g., they are given the asset even when the seller was not the owner and lacked authority to sell—, it is owners who suffer the risk of being dispossessed.

In principle, this conflict between protecting owners and acquirers, between the *in rem* strength of property and the costs of transacting, is inescapable. Given a certain set of information, if the law were to decide in favor of owners, it would endanger trade, as buyers would be reluctant to buy. Conversely, if it decided in favor of acquirers, it would endanger property security, and owners would be reluctant to invest and specialize (e.g., to hire agents). At a cost, contractual registries avoid such conflict by producing verifiable information, so that the law can attain both strong enforcement and low transaction costs, benefitting both owners and acquirers. The law thus overcomes the tradeoff of property enforcement and transaction costs by protecting acquirers while preserving the crucial element of owners' (in general, rightholders') consent. This consent is exercised by rightholders either at the time of contracting, by choosing if they want the law to protect property or trade, or by following a course of action that implies one of these two types of protection. Preserving this element of consent is essential to protect property rights and to allow them to be diluted only when owners judge that protecting trade is more valuable than protecting property. But the granting of consent needs to be verifiable by judges, to prevent rightholders from opportunistically denying their previous choices. When these choices are not publicly known as an automatic byproduct of economic activity, independent contract registration is essential to make them verifiable by judges, ensuring that rightholders remain irrefutably committed to their choices.

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