Private and Public Ordering in the Law of Sequential Exchange

Benito Arruñada*

Draft version: April 2016


Abstract

This paper traces to Coase (1960) the theoretical roots of the difficulties faced by most economic analyses of property rights in their attempts to enlighten policymaking in the property area. In his pioneer analysis of externalities, Coase relied on a simplified conception of property that has been suitable for successfully analyzing many important issues. However, its implicit assumption that exchange in property rights does not affect future transaction costs provided an inadequate basis for understanding property institutions. From a market perspective, the central problem of property lies in the interaction among multiple transactions, which causes exchange-related and non-contractible externalities. To contain them, additional mandatory rules and a wider scope of impartiality are necessary. Their absence is felt in three attitudes closely linked to the application, out of context, of the original Coasean simplification of property: emphasizing the initial allocation of property rights, paying scant attention to legal rights, and overestimating the power of private ordering. These have been obscuring key policy choices in the areas of land titling, business formalization, administrative simplification and organized financial exchanges.

Keywords: property rights, externalities, enforcement, transaction costs, public ordering, private ordering, impersonal exchange, organized markets.

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

* Pompeu Fabra University and Barcelona GSE. E-mail: benito.arrunada@upf.edu. This work has greatly benefitted from exchanges with Yoram Barzel, Elodie A. Bertrand, Dean Lueck, Claude Ménard, Fernando Méndez, Marian W. Moszoro, Henry E. Smith, and Giorgio Zanarone, and from comments made in presentations at UPF, Xiamen University and the WINNIR Symposium on Property Rights. Usual disclaimers apply. It received support from the Spanish Ministry of the Economy and Competitiveness through grant ECO2014-57131-R.
1. Introduction

This paper aims to fill an alleged gap in most economic analyses of property rights. Such analyses extend the perspective fruitfully applied to the study of externalities by Coase (1960) but do not realize that their contractual emphasis hinders the study of property markets. They have thus contributed to a set of misconceptions that have ended up grounding some systematic policy blunders.

The Coasean analysis of externalities involves physical spillovers caused by the use of property that affects other properties. Assuming zero-transaction costs, such spillovers are internalized by contracts among the affected parties. Therefore, private contracting becomes the primary solution to externalities. And reducing transaction costs, by clearly defining property rights and effectively enforcing private contracts, also becomes the major goal of the law and the state.

However, there is also a separate realm of externalities caused not by physical spillovers in the use of property but by interactions between contracts. For example, suppose that landowner $O$ grants a secret lien to $L$ at time $t_1$, sells the parcel to $B$ at time $t_2$, and then $L$ seeks to seize the property to satisfy the lien at time $t_3$. As analyzed by Merrill and Smith (2000), Hansmann and Kraakman (2002) and Arruñada (2003), this sequence of exchange creates a negative externality in the form of the secret liens that might be held by potential lien holders of which potential acquirers such as $B$ are not aware when buying from $O$. If all private contracts are enforced, including secret liens, potential buyers in the position of $B$ will be reluctant to buy from any $O$ unless they can be assured that there are no $L$s lurking in the background ready to assert prior claims to the asset, thus reducing its value. Moreover, anyone in the position of $L$, fearing the possibility of prior liens, will also be reluctant to rely on the collateral value of the property when lending to $O$. Crucially, these possibilities will reduce the value of all properties, whether they have secret liens or not, causing the alleged exchange externality.

The basic Coasean framework helps us little with regard to such exchange externalities. It may even distract us, as it leads us to emphasize contractual solutions. However, a purely contractual solution to exchange externalities would require an enormous number of transactions, given that damaged parties are all rightholders in a given market. Worse still, the root cause of exchange externalities is the unconditional enforcement of private contracts: free private contracting with unconditional enforcement is not the solution but the cause of the problem.

Seen from an economic perspective, the core issue is that, in the Coasean vein, private contracting contains externalities of a certain type (related to asset uses) and takes place within a single transaction. Absent from this framework is the possibility of interactions between transactions and, in particular, the possibility of exchange-related externalities between such sequential transactions. Alternatively, a basic insight of this paper is that exchange externalities are not contained but worsened by free private contracting with unconditional contractual enforcement. Solving them requires more than private contracting and necessarily involves additional and more sophisticated state action.

Seen from a legal perspective, exchange externalities arise as a consequence of a key distinction in enforcement that has often been overlooked by economists (a major exception being Ayotte and Bolton 2011) but defines two very different types of legal and economic right. If a given claim on an asset is enforced against everybody, so that everybody has to respect it, the
claimant holds a right in rem (a “property” right stricto sensu). But if the claim is enforced only against specific persons, the claimant holds a mere right in personam (a “contract” right). In the previous example, in principle two resolutions are possible. Either B is given the property unencumbered by rival claims, with L relegated to action for damages against O; or L is given the right to enforce the lien, with B relegated to an action for damages against O. In both cases, one party is given a property right with the other being given a contract right.

This distinction is crucially important in economic terms. As a consequence of the limited liability of most economic agents, a claim on a durable asset enforceable against everybody (enforced in rem) is more valuable than the same claim enforced only against specific persons. In particular, “a property right in an asset, unlike a contract right, can be enforced against subsequent transferees of other rights in the asset” (Hansmann and Kraakman 2002:S374). However, most of the economic literature on so-called property rights (in fact, claims) ignores it. This makes sense for some purposes but not for understanding the institutions that make it possible to enjoy the advantages of in rem enforcement without causing externalities, raising transaction costs and therefore hindering exchange. In particular, a contract view of property understandably emphasizes private contracting solutions.

However, exchange externalities cannot be overcome only by private action. A different type of public ordering is needed, characterized by mandatory rules and a wider scope of impartiality for enforcers and, in particular, judges and their suppliers of evidence. This holds consequences for the lesser comparative advantage of private ordering compared to public ordering and for the parties’ freedom to choose sources of evidence and enforcers.

The paper will proceed as follows. Section 2 reexamines Coase’s assumptions on property and, in particular, his focus on single and independent transactions between two parties. Section 3 examines the role of public and private ordering in a context of property understood as sequential exchange with interactions between transactions, identifying additional mandatory rules and a wider scope of impartiality as necessary elements in property institutions.1 Section 4 tests the role of these two elements in setting the limits of private ordering by exploring a variety of cases that have rendered varying results, thus providing guidance for structuring hybrid organizations that aim to reap the benefits of both public and private ordering. With this hybrid perspective in mind, Section 5 examines a variety of policy failures in property titling and business formalization, rooted in three theoretical attitudes closely linked to the application, out of context, of the original Coasean focus on single exchange. These are: emphasizing the initial allocation of property rights, paying scant attention to legal rights, and overestimating the power of private ordering. Section 6 concludes with a short summary.

2. Coasean assumptions on property

In “The Problem of Social Cost,” Coase (1960) considers a sample of cases in which firms harm each other (farmers and ranchers, railroads and farmers, a noisy confectioner and a quiet doctor). In its first pages, he argues that, assuming zero transaction costs, allocating rights to, for

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1 Many of the ideas in sections 2 and 3 have already been introduced in Arruñada (2016a).
example, farmers or ranchers, would not affect the final use of resources, as both parties would negotiate and contract to arrive at the wealth-maximizing solution. The rest of the article then focuses on the real situation to show that, when there are significant transaction costs, the initial allocation of rights may determine the final outcome.

In addition to showing the reciprocal nature of the problem, Coase (1960) points out the essential function of legal institutions in implementing alternative public interventions by judges and governments, and in reducing transaction costs to facilitate private exchange. However, when considering “The Problem of Social Cost” from a property standpoint, two limitations become apparent.

First, given that Coase is interested in “harmful effects”—i.e., negative use externalities—, it focuses on asset uses instead of assets. Consequently, it does not deal with the exchange of property but of minor—partial and, in a sense, derivative—“property rights” related to nuisances caused by some uses of assets between neighbors. These are transactions on what, following Merrill and Smith and to avoid confusion with property, I will hereafter refer to as “entitlements”: “little empty boxes filled with a miscellany of use rights that operate in the background of a world consisting of nothing but in personam obligations” (2001:385). Moreover, these transactions on use rights take place in the sidelines of property markets themselves, which mostly deal with assets instead of asset uses. For example, trade on the right to pollute is a minor part of all the property trades made by either the polluting firm or its neighbors: “[t]he types of transactions emphasized by Coase—agreements between two neighbors to modify entitlements more efficiently to manage spillover effects—are relatively rare. Much more common are outright purchases, leases, licenses, and lending of all stripes and varieties” (Merrill and Smith 2011:S91).

Second, Coase (1960) and most of his followers consider only single independent transactions: they focus on cases of bilateral exchange (which are intrinsically contractual in nature), and assume as a starting point not only that parties have perfect information on the allocation of rights but—crucially—that this availability of information is not affected by private contracts on either property or entitlements. Consider the case for Coasean exchanges in externalities: in Coase (1960), they are implicitly assumed not to be affected by other previous transactions, nor to affect the cost of subsequent transactions on the same asset or on other assets of the same type. In particular, which type of rights are held by whom remains undefined: when the transactor in one of Coase’s examples is assumed to hold a right to pollute, it is undefined if he also has a right to sell such a right or to sell the corresponding asset, and, if he does sell the asset, it is also unclear who would be committed by the previous transaction on the right to pollute—the seller or the whole world, including asset buyers. That is, it remains undefined if these are either real, in rem, property rights valid against all individuals or personal, in personam, contract rights valid only against specific persons. Furthermore, these possibilities are implicitly supposed not to affect the transaction costs incurred to remedy externalities and these externality-remedial transactions are also supposed not to affect the transaction cost of trading assets.

2 An exception to this lack of attention is Coase’s unified ownership solution (1960:16–17), which borrows from his previous work on “The Nature of the Firm” (1937) to propose trade in assets in order to avoid the difficulties of trading in entitlements, seemingly abandoning the bundle-of-rights perspective.
Let us examine, for example, the Coasean case of the noisy confectioner and the quiet doctor. When the transacted entitlement is enforced in personam and whatever the parties intend to transfer, the confectioner $C$ transfers to his neighbor Doctor $D$ the right to harm $D$ but in such a way that if the owner ($C$ or somebody else) then sells his land to $B$, $B$ will enjoy the right to harm $D$. The doctor acquiring the polluting entitlement is less protected, as he is subject to the additional risks of, for example, the owner selling the asset. This trading of in personam entitlements is therefore, on the one hand, a somehow less effective solution for contracting use externalities but, on the other hand, it does not affect the trade in assets.

Contrariwise, when the entitlement is enforced in rem and held by the confectioner $C$, $C$ may transfer to $D$ the right to harm neighbor $D$ in such a way that if the owner of the land sells it to $B$, $B$ will not enjoy the right to harm $D$. After purchasing the polluting entitlement from $C$, $D$’s land will therefore enjoy an additional in rem right. We then have the opposite effect of strengthening trade in entitlements, but trade in assets—in all land of that type—would suffer an added information asymmetry because asset buyers would have to respect the transferred entitlement even if the transaction on the entitlement had remained hidden. If they had bought the land free of such a burden, their only recourse would be a harder-to-enforce and therefore less valuable personal claim for indemnity against the seller. And the same problems arise, not only with these partial entitlements, but with major rights such as the asset ownership and mortgage lien examples discussed in the Introduction.

In sum, Coase (1960) does not consider if the entitlements under discussion are in rem or in personam. He assumes that both parties know who holds which rights but when he prescribes that “the rights of the various parties should be well-defined,” (Coase 1960:19), he does not consider whether those rights will be enforced in rem or in personam, so that either the whole world or only one person, respectively, is obliged to respect them. His world is a world of single exchange in which obligations only exist between the transacting parties and their transaction does not affect third-parties’ rights or transaction costs. Assuming a single exchange implies that all effects take place between contracting parties. As other claimants simply do not exist, the only possibility is that the rights are granted to the parties to the transaction. Therefore, in this two-party world, rights in rem can only commit the transacting parties: all rights are in personam. This makes it possible to rely on purely contractual solutions, where the state is less necessary to enable transactions. Moreover, given that they have only inter-party consequences, they can also be personally safeguarded using private-ordering arrangements based on reputational assets and the expectation of future trade.

The only problem is that such a two-party world is a fiction, and considering sequential exchange and in rem rights brings drastic changes. Above all, a contradiction emerges between the assumption of perfect information on property rights and the free private contracting solution for externalities. The conclusion that, when rights are initially well defined and transaction costs are zero, parties contracting will produce the socially optimal allocation of entitlements no longer
holds because such private contracting obscures the definition of rights—the allocation of entitlements—for all assets of the same type, a definition which was assumed to be clear. Therefore, freedom of contract may solve some misallocation of entitlements but will also cause negative externalities in terms of greater information asymmetry for future acquirers, not only in that specific asset—an effect that may be more easily internalized—but—essential for causing externalities—in all assets of the same type, given that all of them may be subject to similar burdens. That is, even if owners internalize the effect of their choices on their acquirers’ responses and, consequently, on the value of the transacted asset, they will not internalize the effect on the information asymmetry of potential acquirers of all other assets and, therefore, on their value.4

If uncontained, these exchange-related externalities will reduce the value of all similar assets for at least two reasons, related to lesser standardization of rights and greater information asymmetry. First, when customized property rights are enforced in rem, the value of all assets may be reduced if acquirers incur greater costs for understanding the idiosyncrasies of what they are buying (Merrill and Smith 2000:31–32, Smith 2011:158–60). Second, and probably more important, granting in rem enforcement to hidden rights (for example, a hidden mortgage or, in the Coase [1960] scenario, a hidden entitlement to impede certain uses) decreases the market value of all assets which potential buyers might think may be encumbered with such hidden burdens.5 In both cases, as in Akerlof (1970), the externality comes about because the possibility of fancy rights or burdened assets reduces not only the value of the assets subject to such rights or burdens but also the value of any assets of the same type potentially subject to them. This reduction in value results from the increase in acquirers’ information (Merrill and Smith 2000) and verification costs (Hansmann and Kraakman 2002); and, more generally, from the costs that owners and acquirers must incur to overcome the additional information asymmetry and to gather and formalize relevant consents (Arruñada 2003), as well as from the opportunity loss caused by the fall in the volume of transactions and the extent of specialization.

3. Public ordering in property

The role of the state emerging from the single-exchange analysis in Coase (1960) is given by the fact that, when transaction costs impede transactions, some sort of legal intervention might be

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4 The effect holds even if the specific effects hinge on the adjudication rule applied (either a “property” rule favoring original owners, or a “contract” or “liability” rule favoring buyers). See, among many, Baird and Jackson (1984), Arruñada (2012:34–41). Calabresi and Melamed (1972) pioneered a whole literature on contract and liability rules but in a single exchange framework.

5 Positive hidden information (for example, a parcel of land enjoying a right of way over an adjacent plot) is not a relevant issue because, contrary to burdens, the seller has all possible incentives to disclose it to the buyer in order to achieve a higher price. More precisely: the seller of the first plot has more incentives to disclose than the seller of the adjacent, burdened, plot.
needed to allocate asset uses to whichever party values them the most. However, this initial allocation is not mandatory and parties could abrogate it contractually. In principle, in the single-exchange, in personam enforcement world of Coase (1960), there is no justification for mandatory rules constraining parties’ freedom to structure their rights: the only externalities arising are use externalities, and the transaction costs incurred to contract them are internalized by the parties themselves. Under such an assumption of single exchange, it is understandable that property law is seen just as a starting point for contract law, a mere baseline for contract (Cheung 1970; Hermalin, Katz and Craswell 2007). Similarly, “economic” property rights tend to be seen as separable from “legal” rights (Alchian 1965, Barzel 1989).

3.1. The difficulties of unassisted private ordering

Conversely, in sequential exchange, contract interaction causes exchange externalities which are hardly contractible because they affect strangers to the transaction, mainly the unknown owners of all assets of the same type. Without a mandatory rule requiring at least some type of publicity for in rem enforcement, producing or acquiring information is practically impossible for the parties and even for specialists. This is because it is not possible to produce information on contracts that parties themselves have an interest in keeping secret or in producing afterwards opportunistically.

Take, the case of a legal system in which mortgages could be enforced in rem even if they had remained hidden, as was common during the Ancient Regime. Not only was it practically impossible to produce information on existing secret mortgages but the risk remained that, if necessary, debtors could produce new mortgages with friendly partners, and conveniently backdate them to defeat their creditors. At the time, title was often evidenced only with a deed or contractual document signed by the parties and testified by solicitors or notaries. Consistent with my argument, formalizing the transaction in a written deed—as in the Statute of Frauds enacted in England in 1677—and witnessing by professionals are already public mandatory requirements, which places this solution in the public-ordering space. However, despite these mandatory rules, reliance on the chain of deeds was ineffective because it opened up possibilities for destruction, error and fraudulent conveyance. In medieval England, “the security of conveyances executed by feoffment accompanied by charter was a continuous source of worry to landowners, for both theft of charters and forgery of them were common” (Simpson 1986:121). Centuries later, the most egregious cases were those involving counter-deeds, well described for centuries in modern continental literature (for instance, Alemán 1604, Balzac 1830). Even without forgeries or fraud, the system often gave rise to multiple chains of title, which left prospective acquirers facing the risk that the title of the seller be defeated later by the title of an unknown claimant based on an alternative chain of deeds. To contract mortgages, they used to pledge the titles with the lender, a solution that poses similar difficulties and adds another risk for the mortgagor: the mortgagee could impede a future sale or even fraudulently sell. Moreover, owners could not commit to not cheat on creditors, so that they had to rely on granting ownership to them with the authority to sell if the debt was not paid, using contractual arrangements similar to the fiducia of classical Roman law.

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6 Compare, however, Priest (2014), who interprets that “the central theme of ‘The Problem of Social Cost’ is the radical view that governmental actions cannot importantly effect the allocation of resources in the society” (Priest 2014:144).
In such circumstances, even specialists in producing information suffer insurmountable difficulties. Their operations hinge on gaining access to all relevant contracts: those with in rem effects. Producing information therefore requires public intervention to condition in rem enforcement of mortgages and all other potentially secret contracts to make them effectively public. Such intervention is not only public but mandatory: a default rule from which parties would be free to opt out would be ineffective.  

3.2. Types and nature of public ordering

The most simple solution is to make certain (usually minor) entitlements unenforceable in rem by having a closed number or *numerus clausus* of rights in rem (Merrill and Smith 2000, Hansmann and Kraakman 2002, Arruñada 2003). This was often the case, for example, with leases under the Roman law rule “sale breaks hire”. This rule is mandatory and constrains private freedom of contract because it impedes parties from enforcing a lease in rem, granting the lessee an in rem right valid against the whole world. For instance, the lessee would have to relinquish the asset to the buyer when the lessor-owner violates their agreement and sells the asset. The lessee would only hold a personal claim against the seller, and—whatever parties contract—leases cannot be given in rem enforcement.

Alternatively, the law subjects in rem enforcement to certain conditions. For example, the “sale breaks hire” rule has been modified in many jurisdictions so that the law enforces leases in rem when the lease is made public. This second solution can also be implemented in two ways, relying on different degrees of centralization to define the conditions for in rem enforcement. First, as is often now the case with residential leases, by relying on exchange byproducts, such as the informational value of the exercise or delivery of possession (Arruñada 2015). Second, by developing dedicated organizations (that is, registries) which, for each transaction, either produce qualified and publicly available judicial evidence, as the recorders of deeds found in France, Italy or the USA do, or publicly reallocate in rem rights, as the registries of rights of Australia, England or Germany do (Arruñada 2003).

Whether implementation of this solution is centralized or decentralized through, respectively, registration or possession, it explicitly clarifies how property and contract law complement each other. Property law adds a public phase to private contracting by conditioning in rem enforcement to additional public requirements. Thus property, in rem, rights are only transacted in a two-step procedure which includes a first step corresponding to the conventional private contracting between the parties, with effects of an in personam nature; and a second, relatively

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7 The history of registries suggests that what is essential is to redefine the conditions for in rem enforcement. For example, mandatory registration was ineffective in different jurisdictions until the law switched—and judges effectively enforced—the priority rule for adjudication from the traditional “first in time, first in right” to the new “first to record, first in right”. See Rose (1988) and Konig (1974) for the experience in colonial USA, and Arruñada (2012:55) for other historical examples.

8 More generally, not enforcing all other entitlements in rem is the solution implicitly chosen when in rem enforcement is based on possession: in the absence of additional conditions, all other claims (including ownership, as in the Uniform Commercial Code’s entrusting of possession solution [UCC §2–403(2)]) are enforced in personam.
“public,” step which is capable of granting universal in rem effects because public authorities represent all interested parties (Arruñada 2003).

This second step is public not because it usually involves state representatives, or because it is based on public knowledge, or even because it contains mandatory elements, but because it necessarily involves strangers to the intended transaction. Relying on state representatives is just a means of providing impartiality. It is this presence of strangers to any of the single transactions that drives the need for additional impartiality and public ordering.

This need for a wider scope of impartiality is clear when we compare the situation in single and sequential exchange. In a common interpretation of Coase (1960), the role of the courts is seen as allocating uses to maximize value when contracting is not viable. More generally, in addition to ensuring contractual enforcement, the judge is also expected to fill the gaps in the contract, thus providing adaptation to unforeseen circumstances: “[a] dispute that brings parties to court implies that a contract did not delineate rights adequately, possibly because of changes in conditions after the contract was signed. The ensuing contract ruling then will explicitly delineate the parties’ rights” (Barzel 2002:169).

To perform this function, the judge must be impartial with respect to the parties. However, given that in this single-exchange setup the judge adjudicates between only two parties to a single contract, these two parties have not only the opportunity but also good incentives for choosing an impartial judge and, in general, designing an effective enforcement mechanism. This is why the judge could be replaced by private-ordering solutions based on the parties’ reputation and the expectation of future trade.

This is not the case, however, in sequential exchange, which involves at least three parties entering two non-simultaneous contracts, so that one of the parties would not be represented in the other two’s choice of enforcement mechanism. Understandably, this unrepresented party would fear losing enforceability in rem—that is, she would have to rely on in personam rights against the other parties.

In particular, free choice of enforcer would worsen the defining conflict in sequential exchange, which relates to the legal rights of at least one of the transacting parties (for example, the seller). Such legal rights depend on a previous transaction with another party (for example, whether or not the owner has properly authorized the seller) and determine judicial decisions adjudicating the in rem and in personam remedies between two of the at least three parties (in the example, deciding if either the owner or the buyer gets the asset while the other gets instead a personal claim on the seller). The enforcer’s decision must be based on evidence about the authorizing transaction and such evidence must be protected against opportunistic choice or

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9 Notice that, from this perspective, the complementarity between contract and property runs deeper than the limitations on their substitutability sustained by Lee and Smith (2012:151–54).

10 The role of the law is also limited to enforcing contractual agreements when “property” rights are seen as residual rights of control, as in the economic literature based on Grossman and Hart (1986) and Hart and Moore (1990).

11 Many historians argue, however, that pure private ordering has been insufficient to enable markets to function even in the contractual field, claiming instead that effective public ordering is needed (Ogilvie and Carus 2014).
manipulation by all parties, not only those involved in one of the transactions. (Imagine, for example, an owner claiming that she had not authorized the seller when the sale to a buying third party shows itself to be a bad deal.)

Consequently, by giving rise to in rem enforcement, sequential exchange poses an additional problem that requires a wider scope of impartiality than mere contractual enforcement of single exchange. The governance of in rem enforcers must ensure information and impartiality with respect to parties involved in all transactions: not only transacting parties in each single transaction but also all parties holding rights on the asset or potentially acquiring rights in assets of the same type. Such parties, being complete strangers to most of the intended single transactions, are not in a good position to choose or somehow incentivize the enforcer or those producing evidence that might be relevant for enforcement.

This wider scope of impartiality and the consequent extent of public intervention are determined by the target degree of in rem enforcement, whose efficiency level and timing are driven by many factors, such as the existing opportunities for impersonal trade and the cost of alternative institutions for property titling, which are not discussed here. However, for any given level of in rem enforcement, public intervention is not an option but a necessary condition to enable private property contracting. Furthermore, reaching a certain level of in rem enforcement requires the same degree of public intervention. For example, making land registries more or less active in their review of transactions (that is, having German or Torrens-type registration versus French or American recordation) alters the timing of the public interventions purging and allocating property rights. Recordation of deeds allows conveying parties more discretion on timing and heavier reliance on privately-produced information, so it seems to rely more on private decisions. However, this perception is deceptive, as recorded titles retain greater in personam content than registered titles. Consider the set of available remedies: those provided by registration are only available under recordation after a judicial decision. Given the survival of conflicting claims in rem, this additional intervention by the court (a purge or quiet title suit)

12 Note that in rem rights are meaningful (that is, distinct from personal rights) only in sequential transactions with a least three parties: having a right against the world is the same as having a personal right against your contractual counterparty when the world is inhabited only by you and your counterparty. Certainly, an element of contract and property rights is that of exclusion, protecting right holders against all sorts of depredations by strangers. However, these depredations can be seen as involuntary subsequent transactions within the sequential exchange framework. Moreover, the solution of such depredations are hardly affected by the nature of the right (real or personal) held by the property holder.

13 Note that the circumstances of sequential exchange depart from those of repeated exchange commonly assumed in contract theory. The conventional distinction between one-shot and repeated transactions refers to the same parties (either directly or related through reputation) transacting different assets or services. Here, however, the repetition of interest comes from the fact that the exchange deals with property rights on the same asset, and the parties to two of the transactions are also (at least partly) different.

14 See, for instance, Arruñada and Garoupa (2005) for the modern choice between titling systems; and Arruñada (2016b, forthcoming), for a historical analysis of the choice between privacy and public titling applied to classical Rome.
is required to transform such personal claims into real rights with an in rem quality equivalent to that provided by property registration for all registered transactions.

More generally, these rules are not mandatory in the conventional way in that they do not constrain the content of contracts, just the type of enforcement. The mandatory element enters when the law states which rights will be enforced in rem or, more often, which conditions (publicity, filing, recordation, registration, etc.) transactions must meet to enjoy in rem enforcement. Parties are thus not fully free to choose the type of enforcement but are totally free to decide on the material content of the exchange. Given that in rem enforcement is only relevant in a sequential exchange setup, this conception of mandatory rules plays no role in a single-exchange context.15

4. Private and hybrid ordering in property

Together with the additional mandatory rule establishing the requirements for in rem enforcement, this wider scope of impartiality defines the two minimum elements of public ordering that, whatever their costs, are necessary for enforcing in rem rights. In essence, these two elements of public ordering cannot even be replicated by pure private ordering.16 Hybrid ordering may play a role, however, in providing services for contractual verifiability. In particular, the need for these two elements does not mean that the government—narrowly defined—is the optimal provider of verifiability.17

Indeed, decentralized provision of verifiability by market participants is always the case when judges adjudicate by relying on the publicly observable byproducts of transactions (mainly, on the delivery or exercise of possession). And, when proper priority rules are clear, registry services can also be produced by a hybrid: a “private” entity in a position of impartiality with respect to all parties. A case in point is that of financial assets. Even if, to eliminate delays between settlement and registration, the best practice is for a single clearing agency and depository to act also as a register (BIS-IOSCO, 2001:13), as with the DTCC in the US, several

15 Moreover, public intervention is only of an enabling type: even if in Torrens-type registration, which can be considered the most interventionist solution, transactions are reviewed by registrars in a quasi-judicial capacity and acting as gatekeepers, with the ultimate decisions being made by rightholders when giving their consent. Therefore, public intervention does not interfere but enables private contracting of in rem rights on property.

16 Conversely, private ordering may have an intrinsic advantage when rights are unenforceable in rem, as with assets that are “easily portable, universally valuable and virtually untraceable”, such as diamonds, which explains why the diamond industry has been based on a “millennia-old distribution system that relied on multiple layers of personal exchange” (Richman 2009:32).

17 In fact, the record of governments in managing public registries is poor, from the Egyptian land registries of Roman times (Monson 2012:127–31) to administrative tracking of conservation easements in the USA today (Owley 2015). However, absolute performance is trivial here: what matters is the relative performance of public versus private ordering, and effectively combining them, as emphasized in Arruñada (2012:193–228).
registries are sometimes used in so-called indirect holding systems, with two-step registration: a central depository and multiple custodians. However, when these custodians also act as first level registers, they are chosen by the issuer of the securities, so transactors themselves have no choice. Furthermore, when the issuer switches register, he has to provide the consent of third parties (such as lien holders), in a process supervised by the central register. In addition, rights with more potential to cause conflict (for instance, second liens) are simply not enforced in rem. Lastly, the central register is the sole register with legal effects for all securities owned by entities with registration functions (Arruñada 2003:426). Therefore, this type of arrangement is “private” with respect to the running of the registry but, considering the above patterns, it is “public” with respect to its central features, this being a mandatory requirement usually defined in terms of priority rules and a lack of influence for any particular user.

The limitations of purely private (i.e., partial) ordering in property become clear when this hybrid type of financial registry is compared with the two prominent private registries built by the US property titling and mortgage industries: the title plants developed by title insurance companies, and the electronic registry of mortgage assignments created by mortgage lenders. Since the nineteenth century, title companies have kept title plants that replicate public land records. That is, they transfer and abstract documents lodged at the public recording offices and build tract indexes so that the relevant information for each land parcel can be located more easily. This allows title insurers to improve the efficiency of title searches, discover any preexisting defect in the title and exclude it from coverage. At the end of the twentieth century, participants in the secondary mortgage market created the Mortgage Electronic Registration Systems (MERS) as a way of avoiding the costs and delays of local recordation of mortgage loan assignments by decoupling the local and national sides of the market. At the local level, MERS was to be the lender’s representative, holding the rights in rem, enforced through the recording offices. At the national market level, MERS could also act as a registry of transactions for its members, keeping a record of de facto in personam rights held by lenders and investors in mortgage securities.

In the context of our discussion, the limitations of both of these solutions are clear: they produce at most in personam effects while it is the public recording offices that produce in rem effects. Understandably, both arrangements also use the information in the recording offices as the basis for their activities. Thus, although title plants are well organized and heavily regulated, they only serve companies’ internal administrative functions. The case of MERS is

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18 Another hybrid registry, for Internet domains, is analyzed along similar lines in Arruñada (2003:427).
19 Crucially, MERS is owned and controlled by lenders, protecting them against the risk that MERS might use its stronger in rem position to defraud them, as an independent rightholder might otherwise be tempted to do. Considering that UCC Article 3 provides a “mortgage title-and-transfer system” (Levitin 2013:653, emphasis in the original) would suggest that the transferred rights are rights in rem. However, effects on third parties are in fact limited, as shown by the foreclosure crisis, partly as a result of reliance on the revised 2001 version of UCC Articles 1 and 9 (Levitin 2013:688–97).
20 The industry is subject to pricing regulations, entry barriers, and comprehensive rules on products and processes (Arruñada 2002, Eaton and Eaton 2007, GAO 2007). In particular, since it is heavily concentrated (ALTA 2015) and title plants enjoy decreasing unit costs (Lipshutz
similar, especially after the foreclosure crisis showed that it faces difficulties for acting as a judicial representative of lenders (Levitin 2013). When title insurance and MERS are compared to the registries for financial securities, it becomes clear why they do not produce legal effects: entry in title plants and MERS is voluntary and both are run by one of the parties to the transactions. They therefore lack independence.

The requirement of additional public ordering in terms of mandatory rules and impartiality does not therefore preclude individual market participants from joining forces to develop self-governing, market-wide and independent third-party registries and enforcers. The key element is that, when they do so, they are not acting as parties to any particular transaction. On the contrary: they are assuming that the third-party hybrid enforcer will be ruling on transactions in which they have not yet entered and for which they therefore have incentives to prefer efficiency-minded, independent enforcers. What they are doing would therefore, if anything, be better described as creating the rudiments of an independent market-enabling proto-state, in a similar fashion to Nozick’s minarchist libertarianism (1974:200–24), a description that is applicable to many accounts of allegedly private-ordering solutions, including those relating to the Californian gold rush (Umbeck 1977), medieval Jewish Maghribi traders (Greif 1989, 1993), the medieval law merchant (Benson 1989), medieval fairs (Milgrom, North and Weingast 1990), self-governing property arrangements (Ostrom 1990), the cotton industry (Bernstein 2001), the US West (Anderson and Hill 2004), or even explicitly anarchist solutions for land titling (Murtazashvili and Murtazashvili 2015, 2016). Interestingly, Coase himself seems to point in 1994:28), suppliers are good candidates for becoming natural monopolies so, understandably, their behavior has been repeatedly scrutinized by competition authorities. (See, for example, FTC 1999).

21 In fact, the presence of MERS provided a ready excuse for borrowers to delay and often block foreclosure procedures by questioning MERS’s standing: because MERS was not the mortgage holder, borrowers claimed that it had no right to foreclose and that, by acting as a representative for lenders, it made it difficult for borrowers to get in touch with lenders when seeking to renegotiate their loans individually, as well as to structure wide-scale modification programs. The abundance of cases in which judicial rulings against MERS were later overturned on appeal suggests that many local courts likely took a narrow legalistic position against MERS in order to protect local borrowers (for instance, Korngold 2009:743). It illustrates, however, how damaging a lack of independence in fact or in appearance is for those aiming to provide judicial evidence in this area (Arruñada 2012:74–75).

22 This interpretation of existing private-ordering arrangements as elements of a proto-state refutes Rothbard’s contention that no state has in fact been founded or evolved in a Nozickian way (1977:45). Interestingly, Rothbard’s view seems to be grounded on a narrow single-exchange view, as he claims that “since every dispute involves only two parties, there need be only one third party appeals judge or arbitrator” (Rothbard 1977:47). Arbitration would suffer serious limitations in sequential exchange because the arbitrators, being chosen by two of the parties, would tend to relegate the interests of third parties.

23 Presenting these solutions as private ordering likely underestimates their reliance on the state and, more generally, the interaction between local and wider institutions in parallel with the scope of the relevant market. The discussion therefore resonates in the debate in history about the power of private property to enable a functional market economy. See, in general, Ogilvie and
this direction when suggesting that, when traders are distant, private ordering is not enough for enabling markets (Coase 1988:10).

5. Policy implications

Maintaining the assumption of single exchange has helped inspire and sustain repeated failures in specific public policies that deal with problems of sequential exchange. These failures are more directly linked to three consequences of the single exchange assumption: the focus on the initial allocation of property rights, the lack of attention to legal rights, and the tendency to overestimate the power of private ordering. This section analyzes these alleged failures and proposes some corrections based on the minimum elements of public ordering identified in the preceding section.

A caution is in order. Taking these elements into account should allow more exhaustive consideration of the tradeoffs involved when deciding on the degree of in rem enforcement and how to implement it. This would avoid policy mistakes that unduly expand public intervention, reduce it to the point at which in rem enforcement is endangered, or organize dysfunctional verification solutions. However, the analysis does not aim to prescribe either a high degree of in rem enforcement or specific solutions (based, for instance, on possession, public registries or hybrid forms) for implementing it, which will generally hinge on the particular features of the specific markets and other institutions.

Carus (2014) and, for a sample of cases, Edwards and Ogilvie (2012a) and Sgard (2015), who reinterpret the case of the Champagne fairs with a much greater role for public order; Edwards and Ogilvie (2012b), who claim that the Maghribi traders combined private and public enforcement; Kadens (2012), who argues that the customary origin of the medieval law merchant is a myth; Arruñada (2012:111), who stresses the role of the state in some of the cases described by Anderson and Hill (2004); and Masten and Prüfer (2014), who explain the emergence of the law merchant and its later supersession by state courts as adaptation to different circumstances. Most of these analyses focus on contractual institutions, but those developed in primitive or allegedly stateless societies to transact property rights also rely, instead of on private ordering, on public procedures which are functionally similar to those used by modern states (Arruñada 2003:406–11).

24 In his opinion, “it is evident that, for their operation, markets such as those that exist today require more than the provision of physical facilities in which buying and selling can take place. They also require the establishment of legal rules governing the rights and duties of those carrying out these transactions in these facilities. Such legal rules may be made by those who organize the markets, as is the case with most commodities exchanges.... When the physical facilities are scattered and owned by a vast number of people with very different interests, as it is the case with retailing and wholesaling, the establishment and administration of a private legal system would be very difficult. Those operating in these markets have to depend, therefore, on the legal system of the State” (Coase 1988:10, emphasis added).
5.1.  Emphasis on initial allocation of rights

First, the analysis in Coase (1960) emphasizes the initial allocation of rights because recurrent allocation is not even conceivable in a single exchange setup. Inadvertently, this focus on the initial allocation with a corresponding disregard of the need for recurrent allocation lends support to unbalanced efforts in both land titling and business formalization projects. Indeed, most of these projects concentrate expenditures in the first steps of the process without paying attention to the demand for formalization, its value and sustainability. Such projects either exaggerate the demand for subsequent transactions—thus justifying their own existence—, or forget about subsequent transactions altogether—thus supporting dubious administrative simplification of initial formalities. Consequently, despite spending considerable amounts of resources in both areas of land titling and business formalization, their results have often been disappointing.

Moreover, many land titling projects seem to consider sequential exchange when they claim to “mobilize dead capital” (de Soto et al. 1986, de Soto 2000), that is, placing land on the market and using it as collateral for credit. In so doing, they assume that substantial demand for subsequent transactions exists and is blocked by unclear titles. However, such demand hinges on economic opportunities for trade and on enforceability, and neither should be taken for granted. In fact, the importance of unclear titles often pales compared to other sources of transaction costs, mainly taxes. And enforceability is often lacking. For instance, real property registries are necessary for using land as collateral for credit but, whatever the quality of registries, the demand for collateralized credit does not materialize if mortgages are not enforceable, as is the case in many closely-knit local communities.25

A similar disregard for subsequent transactions explains why initiatives to formalize informal business firms and to simplify business formalities often pay attention only to initial formalization procedures, without considering the future costs of remaining formal (mainly taxes but also registries’ renewal fees) or, less obvious but equally important, the value of formalization services for reducing future transaction costs,26 which is determined by the reliability of registries’ information and, in particular, by what judges think about the quality of such information.27 Instead, most of these initiatives, which have proliferated in parallel in several international organizations,28 consider only the costs incurred by entrepreneurs for the

25 Typically in many of these projects, as exemplified by the Peruvian case (Arruñada 2012:148–50), second transactions remain unregistered (Bruce et al. 2007:42) and there is little or no secured lending (Deininger and Feder 2009:233), often because of the difficulties of enforcing repossessions by outsiders.

26 Many experimental studies observe that reducing the costs of initial formalization of business firms causes only a small and temporary effect, if any, on formalization: for example, De Mel, McKenzie and Woodruff (2008 and 2013), Kaplan, Piedra and Seira (2011), and Galiani, Meléndez and Navajas (2015). As one of these studies concludes, “firms remain informal, not because burdensome entry costs deter them from operating formally, but because they perceive the benefits of formality to be modest at best” (Galiani, Meléndez and Navajas 2015:5).


28 Such as the OECD (2003, 2006); the European Commission, with its “Charter for Small Enterprises” (CEE 2004); and the World Bank, with its Doing Business indicators (2004–15).
incorporation of companies (even in countries with few companies), disregarding all other costs and benefits. Consequently, they lead reformers to reduce the average time and cost of incorporation when the priorities, especially in developing countries, should often be to allow individual entrepreneurs to operate formally without being legally registered as such and, for companies, to achieve registries that are sufficiently reliable for their services to inform judges and therefore reduce parties’ transaction costs. The fact that not all company founders are entrepreneurs but may be using the company for extractive purposes—for instance, tax evasion—opens still another avenue for discussion: facilitation of initial allocation of rights may increase social transaction costs in the future.)

The most extreme version of this over-emphasizing of the initial allocation of rights are cross-country quantitative indicators of land and business registries’ performance, epitomized by the Doing Business indicators on registering property and starting business. By considering only the initial formalization costs, they blind policymakers to the tradeoffs between initial and future transaction costs. Overall, the information they provide on initial costs might be useful if it were reliable (which it is not: see Arruñada 2007, IEG 2008), but should be used with care, bearing in mind its partial nature. Failure to do so explains why the use of these indicators has been falling into the old “management by numbers” trap into which many large firms fell in the 1950s and 1960s (Hayes and Abernathy 1980).

Conversely, considering sequential exchange advises different criteria for selecting, designing and evaluating titling and business formalization projects. First, when launching a new project, more attention should be paid to current contracting practices. Especially, if economic agents are already relying on vicarious solutions, such as implementing secured credit through sales with repurchase agreements, this confirms that true demand for titling exists and therefore advises that resources should be spent on titling institutions. If such vicarious solutions are not common, such demand likely does not exist, even if survey respondents say otherwise. Second, the priority when organizing or reforming registries should be for them to provide reliable judicial inputs. Ensuring this evidentiary quality is often more important than minimizing formalization costs, a common objective of reforms. Even if institutional efficiency depends on

29 This is not to deny that entry barriers may be a major deterrent for economic development; and serious entry barriers do remain in many markets, probably more so in developing economies. But the binding ones are not located now in the legal formalization process, which is generally open to all at a low cost, too low in fact to qualify as a significant barrier to entry. Mixing serious entry barriers with trivial ones entails the risk of setting mistaken priorities and implementing distinctive policies. In particular, misuse of the “entry” label for initial formalization costs, which is common in the business start-up literature, causes confusion and exaggerates their importance. Compare, for example, how the empirical results of Alesina (2005) on business entry are presented by Djankov (2009) as referred to “start-up reforms”.

30 Mistaken priorities in this area are also common in developed countries, as illustrated by the US foreclosure crisis, discussed above, which resulted from efforts to reduce transaction costs ex ante without considering how this was increasing future enforcement costs. “To facilitate securitization, deal architects developed alternative ‘contracting’ regimes for mortgage title: UCC Article 9 and MERS, a private mortgage registry. These new regimes reduced the cost of securitization by dispensing with demonstrative formalities, but at the expense of reduced clarity of title, which raised the costs of mortgage enforcement” (Levitin 2013:637).
achieving the right tradeoffs between costs and benefits, including legal quality, the fact that only reliable, independent registries are able to produce in rem rights should be borne in mind when considering such tradeoffs. Third, when evaluating reforms, the focus should be not only on how many land parcels or business firms have been titled or formalized but also on how many subsequent transactions (second sales, mortgages, new businesses) have taken place and what proportion of them has been formalized. Lastly, although full consideration of the tradeoffs between initial allocation (or formalization) and ex post transaction costs would be impossible, reform efforts should at least estimate some major later costs and benefits by measuring, for example, the incidence of litigation and the contractual and judicial processes whose effectiveness can be attributed to registries’ performance.31

5.2. Disregard of legal rights

Considering sequential exchange also clarifies the link between legal and economic property rights, with economic rights becoming inseparable from legal rights. When, however, the focus is on single exchange, economic and legal rights are separable entities, and rights enforced by private ordering are not even considered legal.32 It is true that in personam rights which are the object of single exchange can be enforced privately, as they are valid only between the transacting parties. But this is not the case for the in rem, property, rights of any sequential exchange, which are necessarily enforced by public third parties, as they are valid not only

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31 This is not what the revised Doing Business indicators are doing. After the changes introduced in 2014, Doing Business maintains its old biases but aims to calculate numbers more precisely by, for instance, adding more cities or including vague promises of comprehensiveness (IFC-WB 2014). It also claims to consider the value of formalization services but its concrete steps to measure it are disappointing, as they focus on easy-to-measure but minor elements. For example, the revised “Registering property” index, first published in the 2016 version of the indicators (World Bank 2015), “will complement the current ones measuring the efficiency of the land title transfer process. It will look at, for example, the reliability of the information recorded by the land administration system (such as whether there is an electronic database for checking maps and cadastral information) and the transparency of that information (such as whether there are official statistics on the number of transactions at the land registry). Other aspects measured will include the extent to which the land registry and cadastral provide for complete geographic coverage of land parcels and the accessibility of mechanisms for resolving land disputes” (IFC-WB 2014:2, emphasis added). In addition to focusing on such minor elements, the inordinate attention paid to geographic information is also revealing in the light of the argument developed in the next section.

32 For example, “[t]he rights delineated by a third party not using force are not legal rights” (Barzel 2002:180). Note that, even in a context of single exchange, this non-legal nature of privately-enforced rights is uncertain on positive grounds, to the extent that private ordering in fact hinges on judicial forbearance and comparative efficacy (Williamson 1991, Masten and Prüfer 2014).
against parties to a single transaction but against the world—i.e., against parties to previous and future transactions.33

Unfortunately, disregarding the foundational role of legal rights lends support to institutional reforms with mistaken priorities: mainly, land titling projects that confound and even privilege geographical over legal demarcation of land; and simplification reforms that in their pursuit of synergies integrate administrative and contractual registries, losing sight of the fact that, since they serve different functions, they require different organizations.

On the one hand, land demarcation has both a physical and a legal component. Physical demarcation involves measuring and defining the boundaries of a land tract. It is often performed by land surveyors hired by one party, most commonly the owners or the government. Legal demarcation is the end result of a process based on a “purging” procedure in which owners of neighboring tracts consent on some definition of a tract’s boundaries or, otherwise, oppose it in order to assert their claims. Eventually an agreement will be reached by all relevant parties or a judicial decision will be passed on the matter. It is only after the land is thus legally demarcated that boundaries have legal force in rem. For example, whatever the physical demarcation accompanying a deed and whatever the promises given by the seller with respect to boundaries, neighbors can still enforce in rem their boundary claims against the buyer who, were they right, will have only a claim against the seller—and possibly the surveyor—for the deficiency with respect to the promised demarcation. Therefore, land demarcation is also the product of both purely private contractual exchange and the functionally “public” gathering of consents characteristic of property transactions, a public stage that can be performed by different means for different dimensions relating to the definition of property rights. For instance, for land registration, it is usually enough if parcels are identified even if their boundaries are not perfectly demarcated.34

Conversely, disregarding the legal dimension of property leads physical demarcation to be considered more effective than it really is. A prominent example of this emphasis on the physical component of land demarcation is the interpretation by Libecap and Lueck (2011) that the findings of their seminal work on land demarcation,35 are caused by rectangular surveying. In

33 Compare Hodgson (2015) who also criticizes the distinction often made by the economic literature on property rights between economic and legal rights, but asserting the relevance of legal factors “involving recognition of authority and perceived justice or morality” (2015:683).

34 In any case, whatever the titling system, when boundaries are less precisely defined, they are not abandoned in the public domain, as suggested by Barzel (1982) for costly-to-measure property rights, but are defined by the informal mechanisms of adverse possession and acquisitive prescription, which allow for an implicit purge of rights to take place ex post, instead of by a formal and costlier purge taking place ex ante.

35 Libecap and Lueck (2011) compare two types of land that were allocated to US settlers at the end of the 18th century: in the Virginia Military District (VMD), settlers were given a right to appropriate a certain area, which was freely chosen by each settler, privately surveyed and recorded, without any purging procedure to avoid overlaps or clear the title; conversely, in the neighboring areas of Ohio, settlers were granted specific parcels, with a guarantee that there were no overlaps or conflicting claims and based on a rectangular survey for physical demarcation. They find substantial and persistent differences between these two types of land, not only in
fact, it is unclear to what extent the differences they observe in land value, investment, transactions and litigation should be attributed to physical or, more likely, legal land demarcation, given that their two samples of parcels differ not only in the physical demarcation technique used but also in the way the land was allocated to settlers, and, consequently, the legal quality of their ownership titles. Where land was demarcated by rectangular survey (RS), settlers were granted specific parcels, guaranteeing no overlaps or conflicting claims. But, where land was demarcated by “metes and bounds” (MB), settlers were given a right to appropriate a certain area, which then was freely chosen by each settler, privately surveyed and recorded, without, in principle, undergoing any purging procedure to avoid overlaps and clear the title. Consequently, whether the differences observed by Libecap and Lueck capture the effects of the different demarcation systems or those of alternative allocation and titling procedures is unknown, and their results probably overestimate the relative importance of physical demarcation by including those of the different allocation procedures used in that case for RS and MB lands. In particular, their results might reflect the fact that the boundaries of plots under MB have not been purged and are therefore likely to overlap those of neighboring plots. In this case, both contracted and reported acreage under MB would systematically overestimate the legal acreage really sold, as parties would try to keep their boundary claims alive. Therefore, the acre prices that they observe under MB would underestimate real prices.36

The legal nature of physical demarcation is missing in policy, as land titling projects still spend most of their resources on mapping and surveying,37 two activities that, by themselves, are of little value and often end up being unsustainable (Arruñada 2012:141–43). These projects would gain instead from copying older registries and aiming for sustainability, focusing on parcel identification but relying on possession for establishing the verifiability of physical boundaries. Proper consideration of legal rights advises a more nuanced treatment of physical and geographic information in titling efforts. Parcel identification is necessary but establishing boundaries should not be considered a requirement for land titling. Investments to demarcate land by mapping the area and identifying parcel boundaries can therefore be transformed into a variable cost by allowing voluntary parcel identifications of different quality, so that greater precision is applied when most valuable. This would also tie in with the fact that the value of physical demarcation depends on the nature of the land: for example, surveying is only customary for commercial transactions in the USA (Madison, Zinman, and Bender 1999, 14).
On the other hand, disregard for the legal nature of private property rights also leads to “contractual” (i.e., property and company) and necessarily impartial registries being seen as mere depositories of information and therefore good candidates for integration with “administrative” (mainly, tax) and inevitably partial registries. The appeal of such integration has been enhanced by the advent of information technologies, as their costly introduction made the possibility of integrating part of their functions more appealing, from entering data to controlling registration or even merging records. The benefits of this greater integration, which may affect the user interface, the back office, or both, stem from the two types of registries relying on the same information and performing similar activities. Separate registries duplicate both entry and control procedures, as well as some of the information on record. For instance, owners and entrepreneurs may have to file documents in two or more offices, and some of the information in these documents may be the same. For example, part of the data in company incorporation documents is the same as that given when registering a firm with the tax authority or the social security agency. Moreover, duplication may occur in both single and repeated filings.

However, integration also involves substantial risks because, given their different purposes, contractual and administrative registries have different demands and often rely on different resources and organizations. In particular, they use different types of specialized knowledge and implement different incentive structures. For a start, the data on file often serve different functions. For example, real property registries work effectively with less precise geographical identification than cadastres, which are often used for planning purposes, such as building roads. Therefore, the type of knowledge necessary for exercising their functions is substantially different. And their different purposes also entail different demands. First, contractual and administrative registries, respectively, support bilateral contracting and unilateral enforcement. Hence, delays in contractual registries preclude further transactions, whereas in administrative registries they merely postpone enforcement. Second, entry in contractual registries can usually be kept on a voluntary basis, whereas entry in administrative registries must often be mandatory, as they are designed to avoid negative externalities.

Consequently, organizational constraints and incentive structures for different types of registries are also different. Registration procedures need to be stricter in contractual registries to ensure independence, because they bestow rights, not only obligations, on the filing users or their future contractual parties. Conversely, cadastres, the paradigm of administrative registries, are declarative: if someone claims to be in possession of land, most cadastres will have no trouble believing that person because their entries only create obligations for declarers. In contrast, property registries have to implement rigorous registration procedures to check the quality of title or attest the date of filing because they bestow rights on filers or, more commonly, concede economic benefits to filers by bestowing rights on subsequent third-party innocent acquirers. In addition, the incentives necessary to operate their processes are also different: contractual registries need to be impartial with regard to the transacting parties, on the one hand, and third

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38 In real property, these policies often aim to integrate the land register with the tax cadastre. The recurrent failure to achieve a functional land register in Greece provides a prominent example of the costs involved (Taylor and Papadimas 2015). In the business area, these integration policies often lead to the creation of public “single windows” and “one-stop shops” that reduce explicit costs to users but increase their hidden tax burdens (Arruñada 2010).
parties, on the other; whereas administrative registries serve and are run by one of the parties, the
government.

Considering sequential exchange advises an alternative strategy: improving the interaction
between public agencies and private facilitators, while preserving the independence of the
agencies and exploiting the strengths and specialization advantages of public and private
operators. This would enable private operators providing unified access to multiple public
registries (a private “single window,” to take the term used in the world of public administrative
simplification) to be competitively designed by market forces, such as the business facilitating
and information services that have been developing for decades to provide unified access to the
outputs of different public registries. A sensible policy would therefore focus on creating
flexible public-private interfaces with the bureaucracies in charge of the public core of
formalization services while allowing the free market to organize a multifaceted intermediate
sector, comprising all sorts of intermediaries offering final users a variety of more or less
integrated services (a variety of private single windows). Public agencies could then focus their
efforts on building such virtual interfaces that private providers of support services could then
integrate in a modular fashion. This alternative strategy also holds a lesson for indicators of
institutional performance: instead of precluding any consideration of private facilitators, their
prices should be taken as a market proxy of performance: for example, for company
incorporation, the price of “shelf” companies is a much more comprehensive proxy of the ex ante
costs of incorporation than the biased partial numbers produced by Doing Business (Arruñada

5.3. Overestimation of private ordering

Lastly, disregarding contract interaction and sequential exchange leads to overestimation of
the effectiveness of private ordering. Policy consequences are visible in an array of institutional
and regulatory reforms that naively liberalize outdated palliative services such as those of
conveyancers and notaries public, without realizing that success hinges on reforming registries
instead. Meanwhile, underdeveloped or ineffective registries remain untouched.

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39 Observe that these facilitate interaction with public registries in both the filing of documents
and the exploitation of registries’ information. Benefits should arise in both processes. Potential
benefits from having redundant repositories of information (Stephenson 2011:1462–75) are
limited to exceptional cases in which impartiality is not in doubt because the information has
been produced in the past. This was the case with the private abstracts of title that were used for
reconstructing the public records of Chicago burned in the 1871 Fire.

40 Given that each agency has its own “regulatory space”, coordination problems tend to be
prevalent (Freeman and Rossi 2012), but they remain when their different bureaucracies are
integrated under a single roof. What is proposed here is for the market to play a greater role in
providing coordination services.

41 These effects are most visible with respect to services that substitute for those of property and
company registries, as there is some evidence that these services are less costly and extensive in
jurisdictions that have more effective registries, both in real property (Arruñada 2012:156–60)
and companies (Arruñada and Manzanares 2016).
This confusion of priorities is inevitable when, in line with a single exchange perspective, the conveyancing industry is seen as independent of property registries. A striking example was provided by the ZERP report on the reform of legal services in real estate transactions in the European Union (ZERP 2007), which was instrumental in inspiring European policy in this sector, putting pressure on national governments to liberalize conveyancing. In fact, the reforms of notaries initiated in 2014 in France and Italy follow this line by liberalizing some aspects of notaries’ activity without strengthening the functioning of registries, which in both countries are mere recordings of deeds. This policy is misguided on two counts. First, by forgetting to reinforce registries, it blocks substantial reform. Second, with registries as they stand today, liberalizing conveyancers may be counterproductive because it makes it harder for them to perform their palliative function of protecting third party interests.

The experience of previous reforms in the Netherlands, where most notaries’ prices were freed after 1999 and some freedom of entry was allowed into each other’s reserved markets, supports these doubts. In addition to an initial increase in some dimensions of competition, no change was detected in perceived quality by notary clients (the parties choosing the notary), but the quality attributes controlled by the property registry did decline (Nahuis and Noailly 2005), confirming that greater competition leads to weaker control of externalities. Moreover, Dutch

42 The report classified conveyancing systems according to the intervention of different kinds of conveyancers, with such kinds defined according to their name and historical origin (notaries, lawyers, or real estate agents) but without paying attention to their function, which, from a sequential exchange view, is driven not by their name or history but by the type of registry existing in each country. Indeed the type of registry defines by default the functions actually performed by conveyancers, whether these are lawyers in common law countries, notaries in civil law countries, or real estate agents in Scandinavia. Consequently, the report could not explain why highly regulated conveyancers, such as those of Germany and Spain, exhibited lower legal costs. But this finding was surprising only within the report’s misleading framework: conveyancing costs depend mainly on the nature of the property registry in place. For the same reason, the report was widely off the mark when considering that the Netherlands has a unique titling system whereas it is simply a recordation system with mandatory intervention by notaries public (Nogueroles 2007:124).

43 In France, the Loi Macron (2015) liberalized the entry and hiring of professionals, but subject to detailed rules and constraints. Italy also liberalized advertising and entry, and reduced the number of documents subject to mandatory notarization (Guidi 2015).

44 In these broad reforms, there are elements that clearly go in the right direction, especially when reducing the mandatory use of notaries in areas in which they are not necessary because there are no substantial externalities. For example, since 2006 it is not necessary to retain a notary to sell a used car in Italy. The problem is that services with these characteristics are few in number and scope because registries remains underdeveloped and making them more effective is not a priority of these reforms.

45 Cross subsidies were reduced, resulting in higher fees for family services and lower fees for high-price transactions (Kuijpers, Noailly, and Vollaard 2005). Yet there were hardly any entries, with most new notaries joining established offices (CMN 2003), an observation consistent with the empirical assessment by Noailly and Nahuis (2010) that the reforms did not affect entry decisions.
notaries have also been involved in mortgage and real estate fraud (Lankhorst and Nelen 2004:176–79, Preesman 2008, and Macintyre 2008). Rather than merely liberalizing the price of conveyancing services, what is required for reducing not only the costs but also the demand for palliative conveyancing services is to make public titling more effective. This may require a movement toward registration of rights or, at least, adding to mere recordation of deeds tract indexes and a check by the registry that grantors are on record, two features that are still absent not only in most of the United States but also in Italy (Nogueroles Peiró 2007).

Moreover, even if reforms of notaries public come up against strong vested interests, which is often presented as a merit, this is shortsighted and even pyrrhic: the rents of each individual professional are likely to be reduced but the social cost will not be substantially reduced because outdated registries based on recordation of deeds, which are the main source of inefficiency, remain unchanged. Reforms that do not improve registries end up merely dissipating professionals’ rents while maintaining demand for the profession and, by ensuring its survival, make it possible for it to recapture the lost rents in the future, when regulation is reintroduced. This is precisely what happened in The Netherlands: after the abovementioned changes and frauds, supervision of the profession was tightened, to the point that, instead of deregulation, “the amount of regulation . . . increased dramatically” (Verstappen 2008, 21).

Furthermore, registry reform should bring cost reductions in conveyancing but of a different order of magnitude. Legal transaction costs (that is, the sum of conveyancing plus registration fees) in land sales and mortgages differ drastically depending on the type of registry involved. In a sample of European countries, when measured as a percentage of the average home sale, they are 86.47% higher under recordation than under registration (Arruñada 2012:159). And almost all of these cost savings (close to 96%) take place in conveyancing: for the average residential sale, average registry fees are practically the same (0.30% of home value under recordation and 0.26% under registration), but solicitors’ and notaries’ fees twice as big (being, respectively, 1.48 and 0.69%).

This analysis is applicable to other areas which, on the surface, seem to have little in common with the conveyancing of real property. A case in point is the trading of financial derivatives, which can proceed Over the Counter (OTC), being arranged by investment banks that then play a role partly similar to that played by property conveyancers in a purely private context without land registries (banks design the contract but not the underlying financial asset); or, alternatively, rely on clearinghouses and organized exchanges for trading more standardized contracts. The tradeoff of costs and benefits is also similar, with two of the main elements replicating more general discussions in property: for example, the value of derivative

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47 A prominent example is the reform adopted by the US Congress in July 2010, which required routine transactions to be traded on exchanges and routed through clearinghouses, as well as customized swaps to be reported to central repositories (mainly, Title VII of the Dodd-Frank Wall Street Reform and Consumer Protection Act). In particular, the Act required that most swaps be guaranteed by clearinghouses and executed on electronic and regulated platforms, known as swap-execution facilities, instead of over the phone.
customization poses an issue similar to that of the numeros clausus of rights in rem, while negative externalities of OTC trading in derivatives also pose similar issues to those arising when such rights are created privately.\textsuperscript{48} The cost savings involved are also substantial.\textsuperscript{49}

6. Summary

In order to better understand property institutions, we need to focus on the transaction costs involved in sequential exchange with interaction between contracts, a type of exchange that is essential for specialization in contractual functions. In sequential exchange, not only use externalities but also exchange externalities are prevalent, and two additional elements of public ordering are needed to contain them: mandatory rules must establish the conditions for in rem enforcement, and enforcers must enjoy a wider scope of impartiality. Private-ordering arrangements can play an effective role in providing verifiability services but only under such conditions.

Moreover, the interaction between contract and property law also changes, with contract law governing the inter-party manifestation of the consents needed in what is necessarily a double-stage (private and public) property transaction. Property law institutions—broadly defined, to include those dealing with all types of sequential exchange—also become the key mechanism for making truly impersonal exchange possible, this being understood as exchange in property, in rem, rights, the only rights whose value is independent of parties’ personal attributes.

I contend that this sequential-exchange perspective is necessary for economic analysis to throw light on some important problems. To date, most microeconomic models contemplate contractual problems and solutions. Such solutions are suitable for personal exchange so they force market participants to rely on personal safeguards and the potential benefits of in rem enforcement and impersonal exchange are squandered. Moreover, this purely contractual view is behind a variety of specific policy failures, such as focusing reforms too narrowly on the liberalization of private contractual specialists (such as conveyancers, title insurers, patent lawyers, investment bankers) without proper development of market-enabling central units, such as registries and organized markets for financial derivatives, which are implicitly considered to be bureaucratic hurdles. More generally, such reform policies tend to disregard the conditions of public ordering necessary for such public outfits to perform their functions and for private or hybrid ordering to play an effective, if complementary, role in providing verification services.

\textsuperscript{48} The Act has been controversial, with different views on its costs, benefits and effectiveness. Compare, for example, Caballero and Simsek (2013), who model a “complexity externality” that supports moving OTC transactions to exchanges as a preemptive measure to simplify and increase market transparency; and Roe (2013), who argues that clearinghouses are fragile with respect to systemic risks.

\textsuperscript{49} A report by McKinsey & Co. estimated that the shift of trading towards organized platforms triggered in the USA by the Dodd-Frank Act would cause losses of 4.5 billion dollars, 35% of the revenue of the investment banks that had previously operated this OTC market (Rudisuli and Schifter 2014).
7. References


Alemán, Mateo. 1604. Segunda parte de la vida de Guzmán de Alfarache, atalaya de la vida humana. Lisbon: Pedro Craasbeck.


