Institutional Foundations of Impersonal Exchange

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Theory and Policy of Contractual Registries

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To Marisa

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Several fortunate circumstances prompted me to write this book. The first was the creation of the International Society for New Institutional Economics (ISNIE), an interdisciplinary forum that pointed to the demand for this kind of interdisciplinary effort. In fact, the first outline of the book was presented at my presidential lecture at ISNIE. This was an early attempt to organize my thoughts on the application of theoretical insights to policy discussions in the area of contractual registries. Such theories had repeatedly benefitted from interaction in the field with what I consider to have been flawed policies in institutional reform, promoted by international organizations that include the European Commission, the World Bank, and the Inter-American Development Bank. The project then started to crystallize when I received a generous offer from the Mercatus Center at George Mason University and, in particular, Claire Morgan and Brian Hooks, to organize a Mercatus conference around the first draft of the manuscript. The commitment this entailed spurred on my writing efforts. David Pervin and the anonymous reviewers at University of Chicago Press not only saw promise in the project at such an early stage but later on guided several rounds of extensive and fruitful revisions.

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INTRODUCTION

Misguided Property Titling and Business Formalization Policies

Discussions on economic development have lately focused on the role of institutions in protecting property rights and reducing transaction costs. In particular, the idea has taken root that development would benefit from facilitating access to legality. It is thought that, if those in possession of even small buildings and plots of land have good titles, they will enjoy better incentives to invest and can use these real assets as collateral for credit. Similarly, if business entrepreneurs are able to "formalize" (for our purposes, publicly register) their firms easily, they will benefit from operating them as legal entities. For instance, they will have access to the courts for enforcing contracts and settling disputes, and will also be able to obtain credit and invest more. Consequently, firms will grow faster and be more productive.

These simple ideas, inspired by the works of Ronald Coase, Douglass North, and Oliver Williamson, and reminiscent of widespread arguments in the most advanced economies of the nineteenth century, have motivated thousands of reform and aid programs in developing countries, where the state of legal institutions is often considered to be inadequate. Some authors have even held that providing better institutions would lead to greater development. Similar ideas have also influenced reform policy in developed countries, where some of the institutions for registering property and businesses have become outdated or captured by private interests. Simplifying administrative procedures was expected to have considerable impact on economic activity.

However, outcomes from these efforts in institutional building and reform have often been disappointing, failing to fulfill their promise of economic growth and even that of improving the institutional environment. Common mistakes have often been committed, such as seeing registries' controls as mere entry barriers to legality, forgetting that they must be reliable to be socially useful. This has often led to reforms that emphasize quantity and speed, thereby sacrificing quality and making registries speedy but useless. Of course, registries, like any other institution, can be used to capture rents and deter competition. This possibility must be considered and avoided, but it only imposes one more policy and organizational constraint—it does not define registries' function and should not therefore be treated as their only design factor.

In other cases, the error comes from mixing up cause and consequence when assuming that informality is causing poverty instead of the other way around. This has led, for instance, to the building of universal land titling systems that spend huge amounts to little effect, as they usually miss key objectives, such as the use of land as collateral for credit. In fact, given that formalization incurs fixed costs, informality may be appropriate for low-value assets and small, incipient firms. Registries are not silver bullets for development. Decision on the creation and coverage of registries must be guided by considerations of costs and benefits, which depend on the particular circumstances of each country.

How Public Registries Reduce the Transaction Costs of Impersonal Trade

I submit that these failures are rooted in a poor understanding of the role of registries and, consequently, of the demand for them and of their organizational requirements. I have written this book in the hope of correcting this shortcoming. First, I develop a theory of contractual registries that explains their rationale as an essential part of the institutions that make truly impersonal trade feasible, the trade in which contractual performance depends on assets instead of persons. Second, I use this theory as a basis for analyzing the main policy questions posed by the creation and organization of registries.

Opportunities for economic development are greater when trade is impersonal instead of limited to known people. 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 assets, which poses a conflict between those holding and those acquiring property rights, between owners and buyers. (More precisely, between owners seen retrospectively as buyers and owners seen prospectively as potential victims of future expropriation by, e.g., a fraudulent seller.) In short, making contractual performance hinge on assets reduces transaction costs but may endanger the security of property. Overcoming this conflict is the role of contractual registries, a crucial role, because both secure property and low transaction costs are necessary conditions for economic development and would collide in the absence of registries.

This conflict can be better identified 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—treating them as rights *in rem* (from the Latin word *res*, thing). But such strict 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. Strictly enforcing property rights 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' property 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.

Achieving both goals is straightforward when the consequences of private contracts are easy to verify: all it requires are clear adjudication rules between owners and acquirers. This is what usually happens in commercial trade of movable goods, for which Western law has been able to effectively overcome the conflict between property enforcement and transaction costs since the Middle Ages. Generally speaking, when one firm gives possession of movable goods to another, the legal system understands that it authorizes the receiving firm to sell the goods. Third parties acquiring from a firm are therefore secure and do not need to worry about the authority of the seller. Owners are protected because it is they who choose the seller. And they cannot renege from their decision because the transaction produces a verifiable consequence: the transfer of possession.

Protecting third parties without damaging owners is harder when contracts remain private. This is what happens in transactions such as mortgages or those involving companies, which lack verifiable consequences. History suggests that achieving both goals in these cases requires effective, independent, public registration of property rights or private contracts. Only such reliable registers can ensure that owners of resources have publicized their property rights (so that acquirers can find out about them before contracting) or have consented voluntarily to a weakening of their property rights with respect to innocent acquirers (so that owners cannot opportunistically renege from such consent). When purchasers of land and mortgage lenders rely for their contracts on the information filed with the registry, developed legal systems protect their acquisitions even against unregistered legal owners. A similar function is performed by company registries with respect to personal and corporate creditors, so that, for instance, if a company has remained unregistered this should not damage third parties. In both cases, these protections in fact eliminate the information disadvantage suffered by third parties and thus reduce transaction costs, making trade easier. Furthermore, well-functioning registries achieve these feats without damaging the property rights of landowners or shareholders.

The role of contractual registries can be more easily clarified by considering that most economic 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. 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.

The choice of rule therefore involves a tricky conflict between property enforcement and transaction costs.[1] This conflict puzzles some economists 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.

These remedies are of two types: either the rightholder gets a real right, a right *in rem*, or a personal right, a right *in personam*—in legal terms these are called, respectively, property and contract rights. The enforceability and thus the value of these two types of right are often markedly different, because, while rights *in personam* are only valid against specific persons, *inter partes*, rights *in rem* are valid against all individuals, *erga omnes*. The latter, therefore, provide the strongest possible enforcement: without the consent of the rightholder, the rights *in rem* remain unaffected. However, as already mentioned, this makes transactions more risky for acquirers, endangering impersonal exchange. Without the supporting institutions, which are the object of this book, enforcing rights *in rem* is incompatible with the multiplication of rights and frequent transactions needed for specializing and allocating resources. The function of registries is precisely to make rights *in rem* viable without increasing transaction costs.

To achieve this feat of overcoming the conflict between *in rem* property enforcement and transaction costs, expanding the set of viable contractual opportunities without damaging property rights, the law applies 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.

First, the costly nature of registries means that their existence is not always efficient. Therefore, as often happens with institutions, they are supportive of markets and may even be a necessary condition, at least of the most impersonal type of transaction. But they are not a sufficient condition.[2] Reformers have to be attentive to signals indicating whether demand really exists for new institutional development. Public intervention without such demand is wasteful and may even have negative consequences: if these attempted institutions fail, reforming them in the future will often be more difficult than starting from zero.

Second, to prevent interested manipulation, the registration process must be independent of all the parties involved, including parties to the originative contract. This requirement of independence makes registration wholly different from the documentary formalization performed by lawyers and conveyancers, which is mainly designed to safeguard the relation between parties to the same contract but lacks the public element required to have full *in rem* effects in the context of a sequence of contracts.

Third, the key features of the originative contract need to be made available to the public or at least to potential third parties, so that they know beforehand which rules are applicable to any subsequent contracts. In essence, registration thus becomes the means to make the voluntary choice of market-enabling contract rules verifiable by courts and therefore to commit principals to their choices.

These three attributes of efficiency, independence, and effective access summarize the organizational requirements of public registries. They are not automatic or easy to achieve—they must be consciously pursued. Furthermore, registries suffer from two structural weaknesses. First, because of their public nature, they are subject to all the limitations of public organizations. Second, because, by drastically reducing transaction costs, they also reduce the demand for providers of palliative services such as lawyers, notaries, and conveyancers, these professionals have an interest in impeding the development of effective, independent public registries.

Organization of the Book

The book follows a logical theory-policy order, developing a theory of registries in the first three chapters and applying it to policy oriented issues in the last four substantive chapters. Thus, the first chapter describes the analytical framework presenting a general theory of public contract formalization, which is then developed in the second and third chapters to explain, respectively, how the different types of property and company registries perform their functions.

The remaining chapters mostly apply this framework to the key strategic, policy, regulatory, and organizational questions posed by property titling and business formalization institutions. Thus, chapter 4 ponders essential strategic issues, such as the conflict between legal orders and the logical sequence to be followed in formalization reform. Chapter 5 considers the main design choices for registries, including how to consider the demand for formalization institutions, how to introduce them, and how to choose between different types of property and business registry. Chapter 6 analyzes the nature of conveyancing services and their interactions with registries and outlines a proposal for regulating conveyancing and other complementary services. Lastly, chapter 7 deals with five organizational issues with a more managerial content: the use of information and the design of information systems for sensible decision making in this area; the synergies and risks of integrating contractual and administrative formalization; the challenges posed by technical changes in information technology; the need to apply strong incentives in the organization of public registries, seeing them as an organizational hybrid between private enterprise and public administration; and the importance of considering the self-interests of all participants and managing these by means of counterbalancing incentives. A brief closing section recapitulates the main arguments and conclusions.

Methodology and Exposition: Approach, Assumptions, and Caveats

The book develops the theory with the aim of understanding problems and enlightening policy. Its interdisciplinary approach relies on concepts and analytical tools from law, economics, and organization. This blend of theoretical perspectives should be productive, but is bound to create some misunderstandings and to occasionally make some readers feel unhappy with different sections. To avoid these misunderstandings, especially regarding what this book is and is not about, readers will appreciate an explanation beforehand of the boundaries, assumptions, and methodology of the analysis, though most of these aspects will be revisited as and when necessary.

Focus on General Rules and Institutional Support

Given the pragmatic purpose of the book, I have strived to portray an accurate map of the institutional forest, often sacrificing attention to particular trees and hoping this does not distort the overall analysis and its conclusions. I thus plead the sympathy and understanding of specialists, who may often feel that particular species of trees have not been adequately treated. This is particularly so in regard to the book's focus on the cases and solutions that are prevalent in the population of routine transactions instead of those most represented in the litigated sample. Intentionally, most exceptions will be treated lightly to focus on the general rules that support modern impersonal markets.

This focus on the prevalent cases and general rules departs from both legal scholarship and law and economics to the extent that these two disciplines often pay more attention to disputed judicial decisions than to the real contractual process.[3] The same emphasis on judicial disputes sometimes leads analysts to base theories on pathologies instead of the prevalent solutions, framing general rules in terms of the exceptions or even taking the exceptional regimes as general rules. This selection bias might be behind the focus of the literature on, for instance, the theft of movable property and the presence of informed or bad faith third parties, or the marginal treatment given to standard commercial transactions when introducing the transfer of movables.[4]

Similarly, the literature also focuses on judicial decisions within oversimplified institutions that 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 book 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.

Assumptions on the Existence of Property, the State, and the Judiciary

The book also differs from much of the literature on the institutions of property rights in that for the most part it covers private property. It does not focus on the origins and foundations of property but on the institutions needed to make property compatible with modern impersonal markets. Most of the book thus assumes the existence of private individual property, which implies at least a nonpredatory state plus an allocation of property rights to individuals. Consequently, most of the analysis will be less useful for economies with dysfunctional or nonexistent states, for which the priority is to protect property from public expropriation and private violence. In this respect, the book's theme has more to do with private as opposed to public expropriation—it mainly deals with the risk that acquirers may lose their rights and therefore be reluctant to trade. Analysis of public expropriation plays a secondary role and focuses on how formalization institutions may be used by governments to damage private property. Most of the book also assumes that property is already allocated to individuals.

Focus on the Legal Concept of Property, Real or **In Rem**, *Rights*

My theory of contractual registries relies on basic concepts from property law and the economics of property rights. Both disciplines are complementary and indispensable to understand how property institutions work. But they hold different perspectives and emphasize different aspects. Furthermore, they use the same names to designate disparate concepts, mainly that of "property right" itself, which has a more precise meaning in law than in economics. This combined use of law and economics is therefore fruitful but poses conceptual and language difficulties, which I should clarify from the start.

The analysis in the book relies extensively on a key legal distinction: that between what the law understands as property (real, *in rem*) and contract (personal, *in personam*) rights and, consequently, what I call property and contract rules. This may discourage readers tempted to skip legal distinctions, especially economists accustomed to mixing up property and contract rights and calling both of them "property rights," which is fine for some analyses but would cause considerable ambiguity here. Patience is advised, as the analysis of formalization institutions in general and registries, in particular, needs to rely on this distinction to be useful. For a start, observe that the value of property and trade hinges on enforcement and that this distinction—being given a right *in rem* or *in personam*, a right on things or a right against some person—usually makes a total difference in enforcement and, therefore, value. When the thing is a parcel of land, the difference often ranges from full value for the party being adjudicated the land to zero value for the party being given a claim to be indemnified by an insolvent person; similar differences arise in business and corporate contexts, where a parallel distinction is often made, framed in more general terms, not in terms of rights but in terms of legal priority. This enforcement advantage is valuable so legal systems rely heavily on it. However, enforcing rights as rights *in rem*—in general, granting priority to current rightholders—endangers trade because their potential adverse enforcement places aspiring acquirers of rights at an informational disadvantage and subjects them to the risk of purchasing less than they paid for. Registries are costly but they allow the law to overcome this conflict. They exist to make *in rem* property rights possible without endangering trade, providing the basis for truly impersonal trade. The distinction between rights *in rem* and rights *in personam* therefore lies at the very core of the role of registries, which is essential to my inquiry.

Conventions of Terminology and Exposition

The subject of the book also makes it necessary to use a few polysemous words: mainly, the words "title," "registration," "formalization," and "conveyancing." I try to use these words univocally except for cases where the meaning can easily be inferred from the context. For instance, "title" may refer to a legal right or to the evidence of it, often a deed (a written and signed document). Similarly, "registration" is often used to refer to any lodgment of documents and to their subsequent filing in a public registry or to the filing in a specific type of register that first checks the legality of the intended transaction. Ambiguity may arise because of the different types of registry and their different legal effects. For instance, within property titling, the registry may simply establish the date of lodgment and store the documents (in what is then better called "recording" or "recordation" of documents or deeds). Alternatively, it may also check the transaction and file only those that do not collide with any other right in what will here be called a "register of rights." Occasionally, when the context resolves the ambiguity, just "recordation" and "registration" are used to refer to each of them.

Likewise, the term "formalization" often describes three types of distinctive process: (1) giving private contracts a certain form, which may include a written document and the presence of witnesses and lawyers; (2) filing them in a contractual registry with public access but with the function of facilitating private contracting; and, mainly in the business area, (3) performing certain administrative procedures, such as enrolling a firm in a tax registry, with a more public function (see figure I.1). The book focuses on the second process, that of contractual registration (or, simply, "registration"), for which use of a "public" qualifier would be ambiguous: even if registration relies on publicity as a means, its goals are essentially private. To avoid confusion, I will identify these three processes by adding objective qualifiers, referring respectively to "documentary formalization," "contractual registration," and "administrative formalization."

- Formalization
  - *Contractual*
    - Documentary
    - *Registration*
      - *- Property*
      - *- Business*
        - *- Companies*
        - *- Financial assets*
        - *- Internet domains*
        - *- Patents*
        - - Trademarks
        - - Other
  - Administrative
    - - Taxes
      - *- Cadastre*
      - - Sales or value-added tax
      - - Other taxes
    - - Securities
    - - Labor and social security
    - - Health and safety
    - - Other

Figure I.1. Types of formalization

I also rely on a broad concept of "agency," closer to the economic than the legal concept, to draw up a general theory of contractual registries that can encompass both property and company registries. This use of agency language for describing property cases may puzzle readers familiar with the legal concept of agency. However, it seems a low price to pay in order to reveal the commonality of the business and property transacting problems.

Naming concepts is further complicated because of the wide scope and interdisciplinary nature of the book. The book's coverage of business and property transactions poses semantic difficulties because each of these two areas tends to use its own words to refer to functionally similar concepts, starting with the use of "business formalization" and "property titling" to name the institutional solutions applied in each of these areas. Moreover, the different disciplines used in the analysis refer to similar concepts with different words. For instance, the term "business formalization" is commonly used in development circles to refer to what in law is often named "business" or "company registration," but often also includes administrative formalization.

Lastly, the word "conveyancing," which often refers to the whole process of transferring land, will be narrowly used in the book as the private services provided usually by legal professionals to help parties in the transfer and mortgage of real property. Most often, "conveyancers" will be used to refer to such professionals, including not only lawyers, solicitors, and notaries, but also licensed conveyancers and land brokers.

Some other conventions adopted in the book stem from its intention to reach a diverse audience. For instance, to avoid causing confusion and at the risk of redundancy, key specialized terms will be repeatedly clarified. In addition to explaining them in the text, footnotes explain any remaining ambiguities. Moreover, in cases where doubts might persist, two consecutive labels are often used, sacrificing grace to clarity (e.g., as in "property *in rem* rights"). Some other conventions are made for the sake of simplicity. Thus, whenever possible, more concrete terms such as "registration" or "registries" will be preferred to terms such as "formalization." A distinction is also made between "registry"—to refer to the registration office and institution—and "register"—the latter referring to the registered information. Also for simplicity, the text often talks about owners and ownership even though the analysis is more generally applicable and refers to all types of rightholders and property rights. Lastly, given the broad coverage of the book, its chapters aim to be relatively self-contained. This may occasionally annoy comprehensive readers, who are kindly requested to skip and forgive these repetitions.

Degree of Technical Detail

The book aims to clarify real problems, so some minor aspects, including elegance and uniformity of rigor and style, have occasionally been sacrificed. In particular, to be effective the analysis needs to go into technical details and rely on other disciplines in addition to economics. For example, chapters 2 and 3 analyze how the different institutional machineries work. They solve an economic problem, analyzed in chapter 1, but in both cases the analysis also relies on law and organization theory. In a sense, their perspective is closer to a sort of "institutional engineering," whereas chapter 4 and especially chapter 5 look more economic because they analyze the costs and benefits of the main design choices. Chapter 6 will again look too technical to economists. However, without a technical understanding of the functions played by registries and conveyancers, the discussion of alternative possibilities of design and regulation (e.g., how to deal with electronic technologies) would not advance.

Choice of Historical and Current Casuistic Evidence

In general, I focus on historical evidence about European instead of American institutions because the problems faced today by those creating institutions in many developing countries are similar to those faced when the liberal state was designed in Europe. For example, in the area of real property, the disentailment processes that occupied European elites for several centuries posed similar difficulties to those posed today by customary land rights in developing countries. American settlers, on the other hand, were lucky to find weak preexisting institutions or none at all. For this reason, lessons learned in the creation of institutions in the United States are hardly applicable to countries with old but strong institutions, comparable to those found in Europe at the end of the ancien régime.

ONE

The Role of Verifiable Contract Publicity in Impersonal Trade

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 can sell their production in a larger market.[1] 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,[2] thus creating wealth. Most of this book focuses on a subset of these institutions: those for contract registration, which makes it possible to ground contract enforcement directly on assets, in such a way that transacting parties need no personal information about each other and can therefore trade impersonally.

Impersonal Exchange Requires Rights on Assets, Not Merely on Persons

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 with a variety of safeguards 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; thus, conflicts are less likely. Moreover, they also know which safeguards will be activated if a conflict eventually arises. This knowledge facilitates economic exchange, but only of a personal nature, so parties need to develop safeguards, such as their reputation, and know each other's characteristics, including their solvency. 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[3]), 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. 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.

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 (e.g., all merchants of a particular city in late medieval times) are liable for the behavior and contractual obligations of each of the group's members.[4] 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, such a system 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.[5] 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 resources, reducing economic growth.

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* (from the Latin *res*, thing) 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. 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 contractual registries, 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 the two disciplines called on to support the analysis: the economics of property rights and property law.

The reason why I focus on the asset-versus-personal dichotomy is because it is key for contractual registries. But, of course, 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.[6]

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—that is, the same decision rights about what to do with the asset—because rights *in rem* are easier to enforce.[7] 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.[8] Imagine also that both define and allocate the same uses for the asset, including its possession.[9] 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 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 landowner 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 landowner 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, a last but no less important example is ownership itself, which, even if held by the same person, is distinct from the right to use and enjoy the asset (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; 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 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 nonowner, 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, because "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, 26, emphases in the original).

A consequence of particular importance for specialization and thus 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 thus are 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. 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—for example, 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, 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, if 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.[10] 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 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 thus 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.

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.[11]

Economics has mainly focused on the public aspects. First, as emphasized by North and coauthors, a well-organized polity will preclude violence and confiscation, and subject owners' expropriation to strict conditions, including proper compensation.[12] Second, as analyzed by many works influenced by Coase (1960), the law and, to a large extent, government and politics set the initial allocation of rights, which enables parties to freely transact in the market and thus 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.[13]

Property law, instead, focuses on private aspects.[14] 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 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 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, 187), by omitting the distinction between rights *in rem* and rights *in personam*, that is, between what the law calls, respectively, property rights and contract rights,[15] 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.[16] For these objectives, it makes sense, following 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 if 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. Although the question of 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 two 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, to be enforced *in rem*, rights be made public in a registry. 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 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. (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.)

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, 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.

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, and ownership) on the same asset. 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 of 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, as well as impeding even the most simple types of specialization.[17]

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.[18] 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).

Whatever the voluntary or involuntary origin of multiple rights, the information asymmetry suffered by acquirers is made worse by the very multiplicity of rights when they might be enforced *in rem*. For a start, the individuals using the asset are in possession of it and can therefore easily pose as owners. This means, for instance, that purchasers are never fully sure that they are dealing with an owner, as they cannot infer ownership from possession; therefore, even true legal owners face difficulties when trying to sell directly, and transaction costs are present in all transactions, both with and without selling agents: all transactions are de facto multilateral. Similarly, sellers can hide from prospective acquirers the existence of *in rem* rights that conflict with the rights they are purporting to sell. Also, in this case, as acquirers are uncertain, the shadow of possible burdens will hang even over unburdened assets. And, in general, the more *in rem* rights there are, the greater the possibility of cheating and conflict.[19]

The risk is especially acute and hard to overcome for parties alone because both the voluntary and involuntary multiplication of rights generate rights that are abstract in nature and may therefore remain hidden. Thus, voluntarily giving possession to nonowners makes ownership an abstraction, and financial specialization leads to abstract rights in the form of mortgages and security interests, as well as to corporate relationships. Similarly, disputed claims may remain hidden for a long time before coming to light.

In sum, multiple rights are indispensable for specialization and are pervasive in today's economies. Because 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.

Generalizing the Analysis

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.

Information Structure of Single and Sequential Exchanges

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 a good or a service 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 parties 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

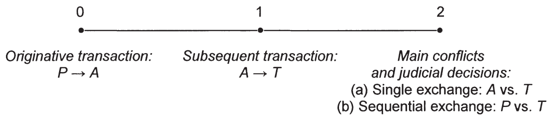

Figure 1.1. Timeline of generic sequential exchanges with two transactions and three parties

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 1.1, 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.

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. Therefore, parties must 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 example, writing contracts (here termed "documentary formalization"), verifying quality and investing in reputation. 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 return 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 example of single-exchange "lemons" 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" (i.e., 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 and thus 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 acquiring third party. 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.

Effects of Sequential Exchange on Trade and Specialization

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; but at time 0 owners will be less willing to invest and specialize if they think judges will rule for the buyer (see figures 1.1–1.3). 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 (i.e., possession by nonowners) 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. 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 economic activity. Moreover, sequential exchange is prevalent, affecting most economic activity, as I will conclude after exploring in the next section a representative survey of business and real property transactions. It is therefore crucial that judicial decisions on them be based on reliable contractual evidence.

This survey of typical transactions will also reveal how the degree of difficulty for solving this evidentiary problem varies across transactions, requiring different solutions. Verifiable evidence on originative contracts is easily available for some types of transaction but not for others.[20] In this context, the essential function of contractual registries is 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.

Prevalence and Varying Contractual Difficulty of Sequential Exchange

The scope of single exchange is severely limited because most specialization necessarily involves a sequence of interrelated transactions, both originative and subsequent, and a given transaction may have many originative transactions. For a start, transactions on durable assets are inevitably sequential, as, due to their durability, claims on them are potentially valuable. Therefore, claimants prefer to enforce their rights *in rem* rather than *in personam*. Even simple transfers of such assets implicitly involve originative transactions in the form of previous total or partial transfers, as well as "principals" in the form of alternative claimants—for example, potential "true" legal owners and, usually, any potential claimants of other rights on the asset. More generally, most exchanges also involve several parties in a sequence of transactions because of the desire of economic participants to reach specialization advantages. This is all the more evident when one of the parties to the contract explicitly acts as an economic agent for someone else.

In all these cases, exchanges thus involve at least three parties in a sequence of at least two transactions (figure 1.1).[21] This sequential exchange is necessary to specialize the tasks performed by principal *P* and agent *A*, including all types of delegation and separation of ownership and control—for example, between shareholders and managers, owners and possessors, and mortgagors and mortgagees. But specialization creates new transaction costs, driven mainly by the risks that the agent may lack or exceed the powers to commit the principal or that either the owners or the acquiring third party, *T*, may be dispossessed or deceived. These acquiring third parties now suffer much greater information asymmetry than if there was only uncertainty about the material quality of the good or service being delivered by the agent. And this information asymmetry about the agent's legal title or power to contract needs to be overcome for impersonal markets to function properly.

Sequential Exchange in Business Transactions

Perhaps the simplest sequential exchange is one in which a producer relies on a distributor to sell its products to the distributor's customers (figure 1.2, row *a*). First, an originative transaction takes place between the producer, *P*, and the distributor, *D*, and then there is a subsequent transaction between the distributor and the customer, *C*. This arrangement achieves specialization advantages because using distributors allows producers to focus on production and to reach a larger market. In turn, distributors can focus on distribution, sell a wider set of products, and be closer to their customers.

But it also causes transaction costs. In principle, customers are unaware of the quality of the seller's legal title. Ideally, in case of a dispute (arising, for instance, from default of payment by the distributor to the producer), they would like the judge to decide that the goods remain with the customer, with the producer getting only a claim for indemnity against the distributor. This is probably a sensible solution if the producer has chosen the distributor voluntarily, especially if both the producer and the distributor are professionals repeatedly making similar choices. Producers then will

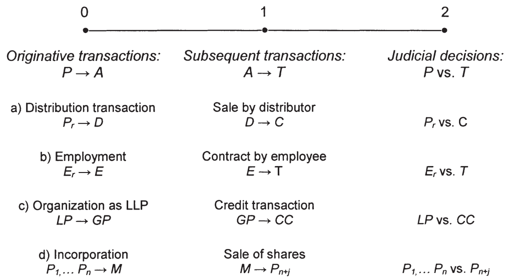

Figure 1.2. Timeline of a sample of typical business sequential exchanges in business

have good incentives to choose reliable distributors, and distributors will have good incentives to develop proper safeguards.

The second business case is equally simple: employment relations consist of an originative transaction by which employer E_r hires employee E, leading to subsequent transactions in which the employee interacts with a third party, T (figure 1.2, row *b*). (Note that there is no need for the subsequent transaction to be contractual. For example, E may commit E_r because his actions damage T, generating tort liability to E_r due to the fact that E is an employee of E_r.) In any case, the third party should worry about the power of the employee to commit the employer, as well as how the judge will decide when the employee exceeds such power. As in the producer-distributor case, it will be sensible for the judge to protect the third party. The rationale, as before, is that employers are the ones freely choosing and controlling employees.

In these two cases, the judge has little difficulty verifying that both the producer and the employer had consented to be committed by, respectively, the distributor and the employee. Such consents are made verifiable by the visible fact that the goods had been entrusted to the distributor and the employee had been publicly acting as such.

In contrast, company contracts often lack such public, verifiable consequences. Imagine, for instance, a third case in which two partners create a limited liability partnership, *LLP*, with a general partner, *GP*, under unlimited liability and a limited partner, *LP*, under limited liability (figure 1.2, row *c*). Consider the possibility that, in a subsequent transaction, the general partner borrows from company creditors, *CC*, falsely claiming that the limited partner is subject to *unlimited* liability. In a case like this, the judge will face serious difficulties if the originative contract remains private and, as a consequence, does not produce unequivocal consequences. In the two previous cases, possessing a good and acting as an employee were publicly observable facts. But in this third case, a partner's liability regime is an abstract feature of the originative organization contract, which might remain private and therefore be manipulated in an opportunistic manner. Such a regime would, at least, need to be explicitly included in all subsequent contracts for them to be implemented with a modicum of guarantees, and such an inclusion would be costly.

Many other corporate transactions pose similar difficulties, as it is often unclear who has legal power to commit a company. Typically, partners or shareholders delegate to a corporate board or manager M, who then enter into all sorts of contracts with third parties: they may, for instance, sell unauthorized shares to new shareholders P_{n+j} or exceed the limits of the company's legal purpose or "objects clause" (figure 1.2, row *d*). For some companies and transactions, the authority of the company agents may be easy to verify; for many others, however, it will remain hidden and nonverifiable. And additional attributes of companies may also be hard to verify. In particular, both companies' and partners' creditors will be most interested in knowing which assets are owned by the company and which by its partners. Furthermore, participants are often motivated to behave opportunistically. Besides incentives to exaggerate the assets at the time of contracting credit, shareholders also have incentives to move assets in or out of the company depending on company and personal circumstances.

In principle, as with partners' and shareholders' limited liability, clauses on all these aspects could be explicitly included in subsequent company and personal contracts. But this inclusion would be costly and unreliable. As analyzed below, filing originative corporate contracts and legal acts in a public registry usually provides a more efficient solution. Even if costly, registering these contracts implicitly includes them in all subsequent contracts in an easy-to-verify (i.e., hard-to-manipulate) manner.

Sequential Exchange in Real Property Transactions

Time now to come back to real property in order to reformulate the initial analysis of property rights in terms of the general framework.

The deep structure of real property exchanges is identical to that of the previous business cases: (1) a principal and what in the economic sense of the word is still an "agent" enter into an originative contract selling, mortgaging, leasing, or somehow transferring or dividing rights on a piece of real estate; (2) the agent contracts with a third party in a subsequent contract—for instance, the owner sells or mortgages the land again; and (3) a judge may be called to decide who gets the land. In real property cases, the

0	1	2
Originative transactions: $P \to A$	*Subsequent transactions:* $A \to T$	*Judicial decisions:* P vs. T
a) First sale $B_1 \to O$	Second sale $O \to B_2$	B_1 vs. B_2
b) First mortgage $M_1 \to O$	Second mortgage $O \to M_2$	M_1 vs. M_2
c) Sale of land on credit $O \to B_1$	Buyer sells before paying $B_1 \to B_2$	O vs. B_2
d) Leasing $L \to O$	Owner sells $O \to B$	L vs. B
e) Leasing $O \to L$	Lessee sells $L \to B$	O vs. B

Figure 1.3. Timeline of a sample of typical sequential exchanges in real property

agent often cheats by hiding or distorting the previous relevant transaction and pretending to transfer a given right that is apparently unaffected by the hidden transaction; pretending, for example, to convey full title or to grant a first mortgage, or to sell the land free of encumbrances. As in the previous business exchanges, the judicial decision will, in essence, allocate a right on the property, between the principal and the third party, awarding the losing party a mere claim against the agent.

However, in real estate exchanges, as compared to those in business, the roles of principal and agent are more implicit and alternating. For example, in a double sale of land, the owner who sells the same land twice can fruitfully be seen as cheating on his duties as an agent of the first buyer, to whom he has a duty to not sell again (figure 1.3, row *a*). The judge will give the land either to the principal (the first buyer) or to the third party (the second buyer), while leaving the losing party with the right to claim an indemnity from the former owner (the agent). Something similar happens with second mortgages: the first mortgagee acts as principal, the owner as agent, and the second mortgagee as the third party (figure 1.3, row *b*).

Understandably, when applied to property, this "agency" language, based on the broad economic concepts of principals and agents,[22] may puzzle readers more familiar with the legal concept of agency. Both concepts are closer and the agency structure is clearer in business than in property transactions because, for many business transactions, there is a more explicit agency or employment relationship. In contrast, for property, which party plays the role of agent or of principal even depends on the type of deception considered in each transaction. But the agency structure is also present in all property transactions. Observe, for instance, that in a second sale the seller is acting as an economic agent for the first buyer, even if this use of the agency concept is unconventional in legal terms, since the first buyer does not intend the seller to act in this capacity and the seller does not portray herself as an agent of the buyer.

Moreover, in addition to being implicit and atypical, for many originative transactions in real property, both buyers and sellers alternate sellers alternate in the roles of principal and agent in different circumstances, with respect to different subsequent transactions. In fact, each of the previous cases presents a typical conflict in each transaction and not the transaction itself. For example, in a double sale, the owner, *O*, is an agent with respect to his obligation not to sell the land to another buyer, B_2, after selling it to the first buyer, B_1, who acts as a principal (figure 1.3, row *a*). However, a buyer of land may also act as an agent with respect to the obligation to pay a deferred purchase price to the owner. Imagine, for instance, that the buyer, B_1, resells the land to an innocent third party, B_2, before paying the agreed price to the owner-seller, *O* (figure 1.3, row *c*). Similarly, a lease may pose risks in both directions, to both the lessor and the lessee. The owning lessor, *O*, may sell the land to a third party, *B*, who might then try to evict the lessee, *L*, or get only a claim against the seller if the judge so decides (figure 1.3, row *d*). In the opposite direction, a lessee might abuse possession, posing as an owner and selling the land to someone else (figure 1.3, row *e*). Furthermore, these alternating roles are common because the survival of property makes long chains of transactions possible so that, in most property cases, a current subsequent transaction will be the originative transaction of future subsequent transactions on the same asset. Similarly, what is now an originative transaction was in the past the subsequent transaction of a previous originative one.

Information Problem of Sequential Exchange and Solving It by Selective Application of Property and Contract Rules

The Problem: Information Asymmetry in Subsequent Transactions

All these business and property transactions therefore share a common structure: specialization and trading decisions by owners and their agents lead to originative transactions that multiply and reallocate rights, creating information asymmetries that may hinder subsequent impersonal transactions, as third parties may doubt 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, thereby 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 relates to rights that 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.

Note that my focus has been different in business and real property cases, but the problems they pose are not really different. For business transactions, I have assumed that the agent did have a legal right to contract, whereas, for land, I have focused on cases in which the agent did not have such a right. But I could equally have compared the case of a merchant who contracts for another merchant to take custody of some merchandise with an explicit agreement not to sell it, a case which would resemble more closely that of a buyer of land who allows the seller to remain in possession of it. Even if in most legal systems possession produces different legal effects for movables and immovables, this does not affect the structure of the problem. Nor is there a difference in the potential for collusion between parties to the originative contract: it is just as possible in a company as in a second sale or a second mortgage. In these latter cases, the parties simply hide the previous contract until the money changes hands in the subsequent contract, cheating the innocent acquirer. They can even choose opportunistically according to the evolution of the market price, especially if the indemnity is not defined by the market price but by the selling price.

Moreover, characterization in terms of *in rem* rights is apparently inexact for some business transactions, as no assets are directly involved. Many business transactions do directly involve rights on assets, for instance, on all sorts of goods, negotiable instruments, or company shares; but others do not, when the transactions only redefine the priority of personal obligations (e.g., tort liability), making the principal liable. However, even for the latter, the informational structure of the problem and the institutional solutions are the same. Strictly speaking, the law does not achieve fully impersonal exchange, but it does achieve much safer personal exchange, given that the exchange remains impersonal with respect to the agent: acquirers know who is liable for the agents' actions, so parties can have reliable individuals and firms (especially firms, because they often are more durable and reliable than individuals) acting as principals. It also makes it easier to safeguard trade by means of reputation and with help from assurance specialists.

Observe also an implicit assumption in the analysis: subsequent transactions are assumed to be more impersonal than originative transactions. This is consistent with reality in that, for example, the set of originative transactions that makes up the firm (including incorporation, employment, and links with suppliers) can be assumed to be relatively of a more personal nature—being mostly based on repeated interactions—than subsequent transactions with third parties. In other cases, such as land, all transactions are equally impersonal when taken individually. However, even in this case, principals and agents have better information than third parties about previous transactions, which causes information asymmetry, putting third parties at a disadvantage and making the subsequent transaction different. In other words, impersonal transactions de facto become personal when they are originative of future subsequent transactions.

Lastly, for real property, instead of an originative "transaction" there will sometimes be a simpler allocation of rights, which can either be explicit, by some political power (as in, e.g., Crown grants), or implicit (e.g., by first possession). In fact, going back through the historic chain of title, there will always be at least one initial allocation of this type; and often many more, not only when there are breaks in the contractual chain of title, but also when parties call on the state to clarify title—that is, to clearly allocate rights *in rem* (remember the demand for public recurrent allocations analyzed above).

Despite these nuances, all conflicts triggered by these sequences of 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 weakens property rights, and strengthening property rights increases transaction costs.

Therefore, I will use these concepts of "property rule" and "contract rule" to identify the two solutions in which the judge grants the legal owner a claim, respectively, superior or inferior to the conflicting claim of a good faith acquirer for value. It seems sensible to consider as a property rule the solution in which priority is granted according to legal property, and as a contract rule the alternative in which it is granted according to the transfer contract. This may cause confusion but some confusion is in any case inescapable, given that both property and contract rights are allocated in all cases. For instance, by enforcing a contract rule, judges grant owners a contract right and acquirers a property right. Therefore, any way of labeling the rules suits a certain perspective better and risks being perceived as confusing when seen from the alternative perspective of the other specific party in the transaction. In particular, the labeling I will be using in this book is more intuitively coherent with the perspective of former owners, because property rules confirm their property *in rem* rights. It might seem less coherent for acquirers, as it is the contract rule that leads them to acquire property instead of contract rights. But I apply the labels to the allocation rules and not to the allocated rights, which are always *in rem* for the winner and *in personam* for the loser. And my usage, by implying that the true legal owner is given a contract right, emphasizes the *voluntary dilution of property rights* that I consider an essential feature of impersonal markets.

In addition, 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 Solution: Third-Party Protection and Verifiable Consent

Returning to the main discussion, remember that the essential choice seemed to be between protecting owners and protecting acquirers—that is, between granting *in rem* enforcement of property rights and 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.

These institutions do so 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 contract publicity and verifiability 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 innocent third parties acquiring 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 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, 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 the manager makes a huge mistake, reneges from her and claims that she lacked legal powers. If their points were 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, one that leads 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 involved in 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.

Therefore, the solution is to rely on public knowledge of originative contracts and, when such knowledge is not available, to publicly register such contracts to make their content verifiable (figure 1.4). Broadly speak-

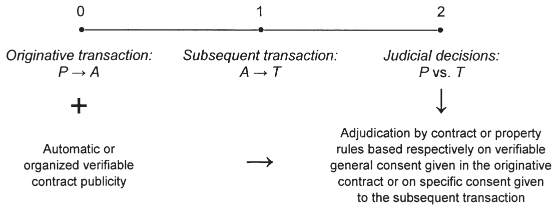

Figure 1.4. Role of verifiable contract publicity in sequential exchange

ing, 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 that produce notice (e.g., most leases), but not for others that 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 (i.e., 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.[23] 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.

Conclusion and Next Steps

In conclusion, the law follows two strategies to handle the tradeoff between the enforcement benefits and transaction costs inherent in rights *in rem*: (1) to enforce property rules—that is, to rule disputes in favor of owners—conditioned on publicity and verifiability of such rights or (2) to enforce contract rules—that is, to rule disputes in favor of third parties—conditioned on owners' verifiable consent. In broad terms, these are the main strategies applied, respectively, in land and in business, which I analyze separately in the next two chapters. This separation suggests that the reason for the strategies has to do with the business versus civil nature of transactors and, in particular, principals, an aspect that I analyze in chapter 3.

These different strategies involve a series of consequences for the treatment of most land and business transactions. First, owners grant their consent in widely different manners. For business and, in particular, corporate transactions, consent is granted in the originative transactions so it applies to many possible subsequent transactions. For land transactions, owners, by making evidence of their rights public, preserve their power to exercise their consent in the future, granting or denying *in rem* effects in any aspect of subsequent transactions which collides with their own rights. Consent will be granted or denied at the time of subsequent transactions and specifically for each transaction.

Second, the reallocation of rights is thus more automatic in business than in land transactions. The enforcement of contract rules means that *in rem* rights conflicting with the intended subsequent transaction are automatically transformed into *in personam* rights. Therefore, a reallocation takes place with every subsequent transaction. For land transactions, a similar reallocation takes place only under land registration, whereas in systems of privacy and recordation conflicting claims may subsist unless parties call for the judge to intervene.

Third, the main assurance activity of acquirers (i.e., parties contracting with all sorts of agents) also differs between business and land transactions. For business transactions, given that the law enforces contract rules and consents are granted in advance, acquirers do not need to gather such consents but just check that they have been granted in such a manner that, if necessary, they would be verifiable by a judge. In contrast, given that for land the law enforces property rules, acquirers of *in rem* rights need to gather rightholders' consents for the intended transaction; this they are either able do to (when the law requires independent publicity, in systems of land "recordation") or must necessarily do (when the law allocates rights after each transaction, in systems of land "registration").

This third consequence for the type of assurance necessary to contract safely explains many of the differences observed between the land and company registries that are the focus of the next two chapters.

TWO

Institutions for Facilitating Property Transactions

Mortgages ensure that lenders will get their money back, so they eliminate default risk and should therefore reduce interest rates. Consequently, in some countries interest rates on mortgage loans are very close to those paid on government bonds, which are supposedly free of default risk. Yet, in many other countries, adding a mortgage guarantee to a loan only slightly reduces its interest rate. A main reason for this is that different owners and prior mortgages may appear once the loan is granted. As a result, the collateral value of land remains unfulfilled; there is less credit and more of it remains in the sphere of personal exchange.[1] Why, then, are so many countries in the world unable to provide institutional support for mortgages?

The answer is, simply, that providing such institutional support is not easy. Even in the United States, many transactions on foreclosed houses had to be halted as a consequence of the foreclosure crisis that erupted in the fall of 2010, because it was unclear who were the actual owners of the foreclosed properties. This meant that insurance companies were reluctant to issue title policies, lenders were unwilling to lend, and buyers were unwilling to buy. The crisis posed the risk that the whole property financing system would collapse, taking with it most of the major US banks. Yet, the United States probably has the most sophisticated mortgage market in the world, so how was this possible? It turned out that the giant US mortgage market had weak institutional foundations. As I explain when revisiting the case at the end of this chapter, the root of the crisis lies in the fact that the United States has poor institutions for publicly recording land transactions. They are plagued by the obsolete design of public recording offices, the poor incentives of the bureaucrats in charge of them, and the vested interests of conveyancers and title insurers.

This chapter examines how functional land registries enable impersonal markets. Mortgages facilitate impersonal lending because they are directly defined on assets. As argued in the previous chapter, truly impersonal exchange must be grounded on this type of *in rem* right (*rem* from the Latin word *res*, meaning thing, asset), so that innocent third parties can trade safely, without spending resources on determining how reliable their counterparties are. But when multiple rights are defined on the same asset, this advantage can be attained only if institutions are capable of avoiding information asymmetries and collisions among rights *in rem*, such as the alternative ownership claims and prior mortgages mentioned in the examples given above.

Moreover, gains from *in rem* enforcement are greater for assets such as land, which is relatively more durable, harder to remove, and easier to identify than many other assets. But these characteristics of land, which make *in rem* enforcement more valuable, also increase the benefits of having different people simultaneously holding rights on the same land. Multiple and abstract rights on land are therefore prevalent: to reach specialization advantages, it is common to allocate physical possession, different use rights, and legal ownership of land to different sets of persons; to divide land ownership in several ways (e.g., the land, its buildings, and the mineral resources beneath it may belong to different persons); and to define other abstract rights to exploit the collateral value of the land (e.g., mortgages, including their securitization). Also, owners often hold certain *in rem* rights on neighboring land, either individually (e.g., rights of way) or through political bodies (e.g., zoning restrictions).[2] This multiplication of rights makes contracting harder by increasing information asymmetry and transaction costs, especially because many of these rights are abstract in nature (e.g., ownership claims and mortgages).

Understandably, given the gains attainable, ingenious solutions have been devised. This chapter analyzes how these different solutions are organized.[3] According to the dominant strategy observed in legal systems, their function is seen as reducing the cost of finding out about adverse property claims, gathering and contracting the relevant consents, and systematically, or at least occasionally, producing a public reallocation of rights. Starting with the regime of purely private transactions, this chapter focuses on the main public titling solutions in use today: the recordation of deeds with or without title insurance, found in the United States and France, respectively, and the registration of rights available, for instance, in Australia, England, Germany, and Spain. Although the objective of this and the next chapter is to examine how the different systems of property titling and business formalization work and the nature of the tradeoffs involved in their design, chapters 4 and 5 ponder issues of organizational choice between the different alternatives.

Private Titling: Privacy of Claims as the Starting Point

Under the Roman Law tradition of private conveyance that was dominant in Europe until the nineteenth century, private contracts on land had *in rem* effects on third parties, even if they were kept secret. The baseline legal principle was that no one could deliver what they did not have (*nemo dat quod non habet*), which was closely related to the principle "first in time, first in right." So, in a double sale such as the one represented in row *a* of figure 1.3 (see chapter 1), in which an owner O sells first to buyer B_1 and later to B_2, the land belongs to B_1 because, when O sold to B_2, O was not the owner. In cases of conflict, the judge will allocate property and contract rights between both claimants (B_1 and B_2)—that is, will "establish title"—on the basis of evidence on possession and past transactions, whether or not these transactions had remained hidden.[4]

This potential enforcement of adverse hidden rights made gathering all relevant consents close to impossible, hindering trade and specialization. Most transactions in land therefore gave rise, totally or partially, to contract rights, and the enforcement advantage of property rights remained unfulfilled, especially with respect to abstract rights, such as mortgages. These difficulties are clear in the functioning of the two sources of evidence traditionally used to establish title under privacy: possession and the "chain of title deeds."

Reliance on Possession

First, the use of possession—that is, the fact of controlling the asset—as the basis for establishing property rights is a poor solution for durable assets, because for such assets it is often valuable to define multiple rights, at least separating ownership and possession. However, relying on possession to establish ownership makes it possible for possessors to fraudulently use their position to acquire ownership for themselves or to convey owners' rights to third parties. In such cases, owners will often end up holding a mere contract right, an *in personam* right, against the possessor committing the fraud. Understandably, under such conditions, owners will be reluctant to cede possession impersonally, for fear of losing their property.

Similarly, credit will involve contractual, personal guarantees provided either by the debtor or by the lender. This is because the only way of providing

THREE

Institutions for Facilitating Business Transactions

When you buy a new computer in a store, you do not check whether the salesperson has the legal power to sell it; and, when you pay for it, you do not worry that the salesperson might keep the money instead of giving it to the store or that the store might not pay the manufacturer. Even if the employee or the store fail to comply with their duties, you know that you will keep the computer. The store would have to recover the money from the salesperson and the manufacturer from the store. But you would keep the computer; thus for you the relationships among the salesperson, the store, and the manufacturer are almost irrelevant. In fact, many other possible relationships are also irrelevant. For instance, most stores are now part of corporations, legal entities that simplify a complex web of legal relationships. When you contract with their representatives, such as managers and salespersons, all these relationships are also irrelevant. These simplifications greatly facilitate exchange and, in particular, impersonal exchange: as a customer, you can focus on the computer, because proper legal institutions make sure that you are able to buy an *in rem* property right on it. Similarly, when you invest in a company that has recently issued new shares, you do not worry that some shareholders might contest the issuance decision; even if the decision failed to follow corporate rules, your purchase will be protected.

In most business contexts, the law therefore enforces "contract" rules, granting *in rem* rights or priority to third parties and greatly facilitating impersonal exchange. This protection of third parties dilutes owners' property rights, but this dilution is controlled by owners' decisions: it is owners who select and monitor the agents whose conduct might trigger the economic consequences of dilution. In the example, it is the store owner who selects its agents and salespersons, and it is the manufacturer who selects its distributors.

The functioning of this mechanism for protecting both owners and third parties requires that judges are able to reliably verify owners' decisions. This is easier when originative transactions, such as the one between the store and the salesperson, are publicly known. It is harder for other transactions that might remain hidden, such as many of those related to corporations. In this chapter, I explain these mechanisms, focusing on how independent registration of originative contracts and legal acts allows courts to apply market-friendly contract rules when settling disputes on subsequent corporate contracts with third parties. I start by examining why contract rules are needed in business transactions, emphasizing the common structure of the information problem and the prevalent solutions adopted in the three areas of movable property, agency, and corporations. Then I explore how the verifiable evidence needed to efficiently apply contract rules can be produced by different means in these three areas and establish a common requirement: independent publicity. When originative contracts and legal acts are known as a byproduct of market activity, they are made public informally. If they were to remain hidden, some formal publicity—independent registration—is required to prevent parties from opportunistically manipulating the relevant evidence affecting the choice of rules. Thus, the key question in all areas is the organizational requirement for independence from parties to both originative and subsequent contracts. And, as shown by history, the main difficulty in company registries is collective action among entrepreneurs.[1]

Prevalence of "Contract Rules" in Business and Exchange

Contract rules protecting innocent third parties are applied in the three main types of business exchange, that is, those aiming to (1) transfer the ownership of movable property, (2) exercise employment relationships, and (3) conduct corporate transactions. In the terms developed in chapter 1, all three are sequential exchanges in which, first, originative transactions take place between principals acting as owners, employers, and shareholders, and agents acting, respectively, as sellers, employees, and managers; and, second, subsequent transactions occur between these agents and third parties who are strangers to the originative transaction. For each of these three types of exchange, contract rules are generally efficient because the enforcement advantage that would be provided by alternative property rules is less valuable than the cost of the information asymmetry they cause. Such

FOUR

Strategic Issues for Creating Contractual Registries

In the previous chapters, I have developed a theory of formalization institutions and, in particular, contractual registries and identified some major features in their design and regulation. In the remainder of the book, I apply and extend these findings to build a practical framework for creating, developing, and regulating registries. In the present chapter, I address the most general questions, such as (1) how to interact with preexisting legal orders often best adapted to local markets, (2) the most logical sequence in developing institutions for impersonal trade, (3) priorities for reform, (4) lessons to be learnt from reforms in the areas of property titling, and (5) business formalization. In subsequent chapters I address more specific issues in the creation of registries, including choice of the type of registry, organization of registries, the challenges posed by new technologies, and the regulation of complementary services.

Understanding Conflict between Local and Wider Legal Orders

Titling reforms often cause conflict with customary property rights. This happened in Europe with the feudal system of property rights, the remains of which were for centuries a serious impediment to individual property. Meanwhile, European urban owners kept requesting the creation of land registries from their rulers. Between 1535 and 1925, England alone devised twenty-nine laws to create a real property registry (Sparkes 1999, 1–3). Similarly, as early as 1528, the cities represented in the Castilian *Cortes* asked King Carlos I to introduce mandatory registration of *censos* (a sort of indefinite leasehold). However, these demands were always left unsatisfied. Effective registration was not in place in England until the twentieth century, and effective registration was only enacted in Castile in 1861. A main reason for

FIVE

The Choice of Title and Registration Systems

Substantial variety exists among systems of land and business formalization both over time and across countries. For instance, England relied on private titling and delayed land registration for centuries. In contrast, land recordation was imported into American colonies early on, and land registration was adapted to Australia. Similarly, in most of the world, governments used to allow voluntary land titling, in which owners decide whether they register their land. However, governments and international agencies often opted for universal titling, aiming to register all land in a certain region. Also, processes for administrative formalization such as, for instance, registering firms for taxes, have traditionally been separate from contractual formalization, but it later became fashionable to integrate both types of process.

Because of this variety, choosing the right formalization system in a particular context is not easy. The previous two chapters explain how the different types of land and business registries work, as well as their functional equivalencies and organizational requirements, and how their performance depends not only on their presumed advantages and disadvantages but also on contextual, regulatory, and organizational variables. I now discuss the main design choices, drawing the main branches of the decision tree and discussing the essential costs and benefits of the different options. In this chapter, I examine the following: the decision whether to create a public titling system or to rely exclusively on private titling; the choice between voluntary and universal titling; the theoretical and empirical consideration of recordation of deeds and registration of rights; and, lastly, since all other sections focus on real property titling, the mostly parallel choices for business registration.

SIX

Conveyancing and Documentary Formalization

A major issue when designing and regulating contractual registries is the interaction with professionals whose services are used to define, write, and document private contracts. Some functions of these professionals may be made unnecessary or substantially simpler (and therefore less costly, less valuable for clients, and less profitable for the professionals), which is why, in various contexts, such professionals generally oppose the creation or improvement of public registries. Moreover, even though registries reduce the value of their services, palliative regulations mandating the use of these professionals in contracts are not always updated. It is not uncommon, even decades after registries are in place, for obsolete regulations to still explicitly mandate or implicitly force parties to retain lawyers or other professionals when contracting. For example, to sell a car in Italy until 2006, parties had to hire a notary long after a registry had been in place.

The present chapter analyzes the role played by these professionals in different institutional and market contexts, with and without different types of registries. This should help in regulating the professionals' functions and also in understanding the difficulties faced by policymakers when creating and reforming registries. The main argument has already been advanced in chapter 2. There is a potential conflict of interests between transacting parties on one side and third parties on the other. In the more general terms of chapter 1, there is a potentially serious conflict between participants in originative and subsequent transactions. This conflict explains why all such institutions organize their core public services, those which are of any consequence for third parties, as a monopoly, to preserve their independence. This applies to all types of registry as well as judges. Conversely, competition plays a greater role in documentary formalization of private contracts. Even where the provision of private legal services related to transfers of property (and, less often, incorporation) is regulated or reserved for the conveyancing professions (lawyers, notaries, title agents, and so on),[1] conveying parties are free to choose among individual professionals. This freedom encourages quality in the preparation of the private contract with respect to the dimensions valued by clients. However, protecting the interests of third parties whose property rights might be damaged by the intended transaction precludes free choice of registries and judges. Instead, cases are assigned to them based on an exogenous variable, such as geography, which amounts to granting them a territorial monopoly.

This difference is key for regulating titling and formalization systems. For a start, conveyancers and registries are serving the interests of different parties and must therefore be subject to different incentives. In addition, effective registries tend to make documentary formalization and, in particular, conveyancing services less necessary. For both reasons, it is understandable that they will often be in conflict, with lawyers and conveyancers impeding the development of registries, protesting their decisions, and, when possible, subjecting them to their own private interests—in a word, "capturing" them.

Here I analyze these issues, focusing on liberalization initiatives and the impact of institutional and market changes, but first, to clarify matters, let me start by nailing down the nature of documentary formalization.

The Palliative Nature of Documentary Formalization

Documentary formalization means subjecting private contracts to different procedures that improve their evidentiary quality. A written and signed contract is more formal, in this respect, than an oral agreement. In addition, the quality of the contract can be improved if it is prepared and authenticated by professionals and witnesses. Documentary formalization helps attest to the intention of the parties, which is helpful to judges who might be called to solve a conflict between the parties but also to parties themselves, as they tend to forget the terms of the agreement with the passing of time.

As judicial evidence, documentary formalization is more or less effective for different conflicts, with its effectiveness depending on which type of exchange, as identified in chapter 1, is at the origin of the relevant conflict. It works relatively well in conflicts related to "single exchanges" because all parties to the transaction receive and keep a copy of the contract; also, both parties can be present when preparing and formalizing it and thus can ensure that it is properly safeguarded. But documentary formalization is of little help for conflicts related to "sequential exchanges" because they typi-

SEVEN

Organizational Challenges

The performance of registries and, in general, of formalization systems depends not only on the type of registry but also on how it is organized and managed. For example, in the United States, poor organization in record offices led to the creation of duplicate private registries, such as title plants for issuing title insurance policies, and of the private registry of mortgages (Mortgage Electronic Registration Systems, known as MERS) for keeping a record of mortgage loan transfers. Poor incentives for registrars also cause registration delay, during which registries of rights, in fact, act as mere recordings of deeds. This has been the case in, for example, Puerto Rico. Worse still, whatever the type of registry, when registries are so unreliable that judges do not base their decisions on the registered information, then the whole registration system may become useless.

This final chapter focuses on the three key elements of organization: information, technology, and incentives. I first consider the information required for sensible decisions, that which illuminates the essential flows of the production process and the main tradeoffs between costs and benefits. Next, I examine two technological issues: the interaction of contractual and administrative registries and the impact of new technologies on performance. Finally, I discuss the design of incentive systems, at both the divisional and individual levels, and consider the tricky issue of self-interest.

Producing Useful Information for Decisions on Formalization Systems

In fall of 2010, mortgage foreclosures were all but frozen in the United States because of lawsuits about the status of the intermediary (MERS) that lenders had created to circumvent a decentralized, heterogeneous, and slow

CONCLUDING REMARKS

In the fall of 2010, the main US mortgage lenders all but stopped foreclosure proceedings against their defaulting debtors because of lawsuits alleging that they had improperly registered mortgage transactions and therefore lacked a legal right to foreclosure. When the ensuing crisis threatened another collapse of the financial system, which was still recovering from the 2008 meltdown, attentive observers started realizing that contractual registries play a key role in a modern economy. Their lack of previous awareness is far from unique. For more than a century, developed nations have been enjoying these typical institutions of the liberal state, which provide the legal infrastructure for impersonal markets, such as mortgage lending and securitization.

Analysts and policymakers have taken them for granted, focusing their attention instead on newer welfare-state interventions, such as pensions or healthcare. Their disregard for the institutional foundations of markets goes a long way toward explaining why most of the US registries that I have analyzed in this book are stunted, shaky institutions whose functions are partly provided by private palliatives. In land, the public county record offices have been unable to keep up with market demands for speed and uniform legal assurance. Palliative solutions such as title insurance duplicate costs only to provide incomplete *in personam* guarantees or even multiply costs, as Mortgage Electronic Registry Systems (MERS) did by being unable to safely and comprehensively record mortgage loan assignments. In company registries, their lack of ownership information means that they are of little help in fighting fraud, and their sparse legal review implies that US transactions require more extensive legal opinions. In patents, a speed-oriented US Patent and Trademark Office combines with a strongly motivated patent bar to cause an upsurge of litigation of arguably dangerous consequences for innovation.

The 2008 financial crisis unveiled yet another case, as it was exacerbated by weaknesses in the markets for financial derivatives, related to a possible deficit in central clearinghouses and organized exchanges, which also commoditize transactions by eliminating personal characteristics, therefore performing similar functions to contractual registries. Traders in organized exchanges are indifferent about their counterparties' solvency because they do not deal with each other but with the exchange, in contrast with traders in informal over-the-counter (OTC) transactions (Telser 1981; Pirrong forthcoming). Similarly, acquirers of real estate need to worry mainly about the content of the register. In a sense, they do not deal with sellers but with the registry. Unsurprisingly, similar private interests are involved, as both the dealers selling OTC derivatives and conveyancers examining land-title quality and customizing title guarantees are displaced by the more industrial production of, respectively, exchange trading of financial derivatives and truly *in rem*, real, property rights. To overcome the collective action problem in the creation of both organized exchanges and contractual registries, more effective public interventions are necessary.[1]

Behind these weaknesses in public registries lies a misunderstanding about the role of registries in the economy and the proper role of the state in providing services for the registration of private contracts. For markets to function, it is often thought that a minimal state is good. This confuses the liberal-state institutions *supporting* markets with the welfare-state institutions *replacing* markets. Registries are conceived as unnecessary barriers instead of as facilitators of transactions. Such disregard for registries' value and their organizational complexity leads to policies that, by minimizing public registries, give way to the overgrowth of industries providing ineffective palliative services, such as those of lawyers, notaries, title insurers, or financial dealers.

Recapitulation

The alternative view presented in this book is that, far from being unnecessary burdens on market participants or, at most, trivial and easy-to-build depositories of data, functional property and business registries are valuable market facilitators. They are costly and fragile institutions that must be well designed and wisely managed to be effective in reducing transaction costs and thus make truly impersonal (that is, asset-based) exchange possible.

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 economic analyses of "property rights" but lies at the core of the basic conflict between property enforcement and transaction costs that 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 for business and corporate assets, similar differences arise 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, for example, 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 the law 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, benefiting 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.

The theory highlights that independence is an essential attribute of registries. By incurring a registration cost, they make private originative contracts verifiable, allowing courts to apply market-friendly rules to subsequent contracts, thus eliminating parties' information asymmetry and enabling truly impersonal—that is, asset-based—exchange. Registries are not ordinary processes, however, because such asset-based, *in rem*, property rights are valid against everybody and therefore affect not only the transacting parties but also third parties. These third-party effects are quasi-judicial: registries produce undisputable judicial evidence on legal priorities or a final reallocation of rights; their nature is therefore intrinsically public. Private provision of palliative services (not only traditional conveyancing but also title insurance or mortgage registries such as MERS) lacks the independence necessary to be granted public effects. Thus, it falls short of enabling impersonal asset-based exchange.

The theory also provides an analytical toolkit for setting priorities when establishing new registries, both in developing and developed countries. In developing countries, the main risk stems from registry projects that are often premature and poorly designed. The aid industry sells such projects as drivers instead of as contributing factors for economic development, favoring a universal-titling, minimum-average-cost approach that spends gaily on creating huge but unsustainable registries producing low-quality services. To avoid creating such large but weak registries, it would be preferable to follow the economic rationale that can be drawn from past experience. Historically, registries have been developed on a selective, demand-driven, fee-for-service basis, ensuring that the most valuable transactions and assets are registered first and that proper legal quality is achieved.

Similarly, in many developed countries, registries are dysfunctional. If they are to be reliable, there must be both independence from parties and effective processes. Independence can be achieved by making registries territorial monopolies, similar to courts, but, as often happens in the public sector, monopoly endangers effectiveness and calls for strong corrective incentives. Most registries were created more than one hundred years ago and their design and organizational basis have often been debased as a consequence of mismanagement and capture by the private interests of both the registries' own bureaucracies and the palliative industries set up by lawyers and conveyancers. Registry reform therefore requires a drastic change in the incentives of both users and providers, often reinventing old structures such as user fees, public franchising, pay for performance, and the professional career and stricter personal liability of registrars.

The Challenge of Public Registries

Organizing registries therefore is harder than it might seem at first sight. But the rewards are greater than ever due to their enhanced potential, related to technological changes that both increase demand and reduce costs.

This challenge is not new. Throughout history, solutions enabling impersonal exchange have developed unequally across countries and economic activities. Although market-enabling contract rules covering commerce and finance were applied in business trade since the medieval law merchant, it has taken almost ten more centuries to apply similar rules enabling impersonal markets in property and company law.

The difference has mainly been linked to different trade opportunities and, therefore, differential *demand* for institutional change across economic activities and legal areas. But something else must also have been going on, since market-enabling and, in particular, contract rules were applied earlier in areas in which judges could safely base their decisions on the publicity produced as an unintentional byproduct of contractual and economic processes. This gap suggests an additional *supply* explanation: enabling rules are applied later where applying them requires the support of registries.

Indeed, both property and company registries were first proposed by cities and merchants during the Middle Ages, but they were generally created later and often unsuccessfully. As described in the historical references in previous chapters, governments have struggled for almost ten centuries to organize reliable registries that could make enabling rules safely applicable to real property. Similarly, company registries were adopted by most governments only in the nineteenth century, after the Industrial Revolution. Moreover, though most countries have now been running property and company registries for more than a century, only a few have succeeded in making them fully functional, as shown by the fact that in most countries adding a mortgage guarantee to a loan does not significantly reduce its interest rate. Furthermore, registry development has imperfectly matched demand across countries, as illustrated by the late creation of the company register in Britain.

The introduction of registries has been protracted because it involves multiple difficulties, not the least substantial being that their value depends on solving a collective action problem among beneficiaries, because part of the benefits of registering accrue to others. And even functional registries are fragile creatures, as the value of their services disappears altogether when corruption or incompetence lead to fraud, error, or, most often, delays and gaps in registration. They also have to fight against private producers of palliative services (i.e., documentary formalization) who usually prefer weak or dysfunctional registries, as they increase the demand for their services. Moreover, they suffer the added drawback that mainstream law first developed for facilitating personal exchange. Consequently, most legal resources, including not only the human capital of judges, scholars, and law practitioners but also other intangible assets, such as conceptual frameworks and academic curricula, were originally—and to a large extent, still are—adapted to personal exchange. Institutional delay is thus partly caused by path dependency.

Today, these two sets of factors—demand for institutions supporting impersonal market transactions and the difficulties involved in supplying them—are being affected by technological changes that both increase such demand and reduce the costs of contractual registries. On the one hand, communications technologies have made new possibilities for impersonal trade potentially profitable, thus increasing the demand for the institutions, such as registries, that support impersonal trade. On the other hand, computerized databases lower registries' operating costs, telecommunications dramatically facilitate access, and digital signatures not only reduce costs but also enhance security by ensuring parties' agreement without any need for having every contract authenticated by a third party. Economic development therefore hinges, more than ever, on governments' ability to overcome the difficulties and private interests that are holding back the effective registries needed to enable impersonal exchange and exhaust trade opportunities.