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**Regulatory Policies and Reform:  
The Case of Land Markets**

Antônio Salazar P. Brandão  
and Gershon Feder



The World Bank

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# 1

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## Introduction

1.1 Land markets in developing and industrializing countries are subject to regulatory constraints that significantly affect the operation of the market and equilibrium prices and sales, contribute to reduced efficiency, and have negative equity implications. The role of government in land market reform is to remove such regulations, establish a system of predictable market rules, and focus on the provision of information, adjudication of border disputes, enforcement of property rights, and valuation and assessment of land for tax purposes.

1.2 Several characteristics distinguish land markets. Land is a factor of production, essential to the provision of urban housing services and the production of agricultural goods. At the same time land is demanded as a financial asset. It is often a good hedge against inflation, especially in countries where financial markets are not well developed. Even in economies with well-developed financial markets and where inflation is not a serious problem, the acquisition of land is frequently part of the portfolio diversification strategies of economic agents. Financial institutions frequently prefer land as collateral for credit operations because, among other reasons, land is immobile, its depreciation is small, and its value is not eroded by inflation (Binswanger and Rosenzweig 1986). Finally, land is a heterogeneous good, a "property," whose market prices usually reflect not only its value but also its location and attached investments.

1.3 Insofar as land is a factor of production and a store of wealth, it is also a source of political power, especially in societies where access to other assets is limited. The evolution of property rights through history shows that landowners have had an upper hand in shaping policies to favor their interest, a situation that is still prevalent in some industrial and many developing countries (see Binswanger, Deininger, and Feder 1995).

1.4 The demand for land stock is derived first, from the demand for agricultural goods and housing—essentially a demand for land services. Second, it arises from infrastructure and environment-related projects, a demand often independent of land prices and determined by government objectives and other concerns. Third, it takes the form of an asset demand, in view of the financial asset characteristics of the land stock. The roles of land as a hedge against inflation, as collateral for credit operations, and as a component of the diversification strategies of economic agents are subsumed in this third type of demand.

1.5 The supply of land for the rural and urban sectors is determined by nature—availability, topography, and, in the case of agriculture, soil fertility—and by the volume and

quality of prior investments, including structures. The growth of such investments is accompanied by the expansion of services derived from a given stock of land.

1.6 Regulatory constraints affect both the demand for and the supply of land. Limitations on land use in urban and peri-urban areas, and ecological zoning, are examples of government-imposed supply restrictions. On the demand side, limitations on the use of land as a collateral for credit operations, or on the exercise of property rights by restricting (or forbidding) sales and rentals, illustrate common constraints by fiat.

1.7 Although recent analyses of land markets show a growing concern for policy and regulatory issues, the literature still lacks a robust framework capable of showing how land markets function, the major policy and regulatory constraints to their efficient operations, and the implications for reform.<sup>1</sup> This paper is a step in that direction.

1.8 The first chapter sets out to characterize land markets—their emergence, closely associated with the evolution of property rights; major imperfections; and key spatial aspects. The focus of the second chapter is on policies that affect how land markets operate, both directly (such as tenure security, zoning laws, prohibitions of land transactions, speculation, rent controls, and land taxation) and indirectly (such as credit policies and tax and tariff policies). The third chapter describes the fundamentals of regulatory policy reform in land markets and suggests a two-phase process. In the first, regulations that are inconsistent with efficient outcomes or that drive inequitable results should be eliminated. In the second phase, a new legal and institutional framework for land administration would be created. The land administration unit should be a technical unit that collects and provides (for a fee) information to the public on relevant aspects of land markets and performs all functions related to titling and conflict resolution. The final chapter suggests areas for future policy research.

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<sup>1</sup> The land market literature has been developed by urban and agricultural economists more or less independently. The agricultural land market literature was recently reviewed and extended by Binswanger, Deininger, and Feder (1995). The literature on urban land markets began with the work of Isard (1956), Alonso (1964), Muth (1961), Mills (1967), and others. It was expanded to take into account the economies of developing countries by Henderson (1982, 1988), Kelley and Williamson (1984), and Becker, Williamson, and Mills (1992). A third branch of the literature, which addresses issues associated with the process of rural-urban land conversion, is not as well developed as the other two, as Bhadra and Brandão (1993) argued in their recent survey.



# 2

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## Conceptualizing Land Markets and Property Rights

2.1 The emergence of land markets is closely related to the evolution of property rights over land. In the rural context the critical factors for the establishment of property rights and the development of enforcement mechanisms were population growth, advances in agricultural technology, and increased trade (Binswanger, Deininger, and Feder 1995; Feder and Feeny 1991). A growing population and greater trading opportunities forced the adoption of fertility-restoring technologies to permit continuous exploitation of the land, ending the reliance on shifting cultivation and long fallow periods to maintain fertility. Insofar as superseding technologies required an investment of effort and capital (tree felling, stone clearing, shrub removal, and terracing, for example), the ability to continuously exploit a tract of land over a reasonable length of time, and reap the related productivity and pecuniary gains, became crucial for agricultural development. In the urban context the appearance of permanent and more secure walled settlements, allowing dwellers to reap economies of agglomeration, created a need to define property rights over tracts of land (and the structures on them). The limited space within the walled city created a scarcity of land—the prerequisite for the constitution of a market.

### The Evolution of Property Rights

2.2 In the early stages of agricultural development, individuals were assigned long-term (or even inheritable) use rights to land, with a restricted ability to transfer such rights. This arrangement, while providing sufficient incentives for investment, avoided the social tensions engendered by the emergence of a landless class. In fact the concern for social conflicts was manifested in the earliest agrarian societies. For example, the biblical law of the Israelites (around 1300 B.C.) prescribed that every 50 years land ownership would revert to the original households (or their descendants), regardless of the circumstances under which transfers had taken place.

2.3 The loss of efficiency from restricted transferability was insignificant in such circumstances, since differences among individuals in management capacity mattered less in these times of relatively simple technology. However, as technology advanced, and the differential endowments of management skills, labor, and other nonland productive assets among individuals assumed increasing importance, the lack of transferability of property rights adversely

affected productivity, even if individual use rights were secure over the long term. Because larger economic benefits could be realized by making land transferable from low- to high-productivity individuals, transferability became possible, despite the costs associated with the growth of a landless class. Social tensions were attenuated when the urban economy began growing, absorbing the landless in activities with a high marginal productivity of labor.

2.4 The emergence of land markets and the consolidation of property rights over land created, in most societies, a powerful class of rural landowners<sup>2</sup>. In some industrial countries the power of this group declined with the relative share of agriculture in the economy. In many developing countries, especially the poorer ones, rural landowners still hold a significant share of political power. Most laws, regulations, and policies promote direct and indirect transfers that benefit these landowners. Among the most conspicuous examples of these are subsidized interest rates, equipment prices, and water tariffs.

### **Property Rights: A Categorization**

2.5 A bundle of characteristics define property rights over land: exclusivity, inheritability, transferability, and enforcement mechanisms (Alchian and Demsetz 1973). A system of property rights defines the legitimate exclusive uses of land and identifies those entitled to these rights. The complexity of the system allows for situations where, for a specific tract of land, different uses have different holders. For example, in medieval England and contemporary southern India, although the rights to the crop from a given tract of land belong to an individual, the community has a right to graze livestock on the post-harvest residue. Land rights may also include a specific stipulation of the circumstances and conditions for transfers (land cannot be transferred to individuals outside a group or community, for example). Property rights over land also have a temporal dimension: The right to use land can be defined over a short period of time (for example, a year's rental) or a longer period (for example, inheritable and permanent use rights).

2.6 The value of property rights (and the functioning of land markets) depends on formal mechanisms for defining and enforcing those rights, including the court system, police, the legal profession, land surveys, record keeping systems, and titling agencies (Feder and Feeny 1991, p. 137), as well as on social norms or religious customs.

2.7 For analytical purposes property rights can be categorized into four basic types: open access; communal property; private property; and state property. In an open access regime, property rights are not specifically assigned to any individual or small group, although they may be perceived as belonging to some large group, so that the ability to exclude individuals from using the land is practically nil. In the absence of excludability, there is no incentive for

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<sup>2</sup> "History has few examples of the uninterrupted transformation of general cultivation rights to land into owner-operated family farms. . . . Nearly always, there has been an intervening period under a class of rulers who extracted tribute, taxes or rent from cultivator families. . . . The landholdings of these overlords . . . were allocated temporarily or as permanent patrimony or ownership holding, along with the right to tribute, taxes, or rent (in cash, kind or corvée labor) from the peasants residing on the estate" (Binswanger, Deininger, and Feder 1995, p. 10).

individuals to invest in restoring fertility or in conserving the topsoil, and the resource is usually subject to degradation.

2.8 In the case of communal property, rights are assigned to a specific community. Community members are able to exclude outsiders from using the land and to control and regulate its use by members. Although there may still be incentive problems, related to the unwillingness of any individual member to undertake the appropriate fertility-enhancing (or resource-conserving) investments, the group as a whole may overcome these problems by viewing those investments as a public good and using communal tax (or *corvée* labor) authority to finance investment costs. If the community is so large that exercising control is not practicable, the distinction between communal and open access systems disappears.

2.9 Under private property rights, land is assigned to specific individuals or corporate entities. Still, certain formal or informal limitations on these rights may be imposed by the state or the community. For example, the state may forbid certain uses of the land or its sale. The fewer restrictions there are, the stronger are the incentives for individuals to invest in the land. In the absence of a proper enforcement apparatus, private property rights may assume the characteristics of an open access regime.

2.10 State ownership implies that the state (or extensions of the state, such as local authorities and municipalities) possesses the property rights. The authorities may, however, transfer temporarily some of the rights to private users or to communities (for example, through the rental of state land or by providing permission to graze over state land). When the state does not assert its authority, state property may become *de facto* private property if individuals (squatters) establish their rights by physical possession and acquire informal communal recognition of their *de facto* rights.

2.11 Secure individual (or corporate) property rights are critical in establishing a structure of economic incentives for investment in land-based activities. The more these rights are restricted, the weaker will be the investment incentives and the lower the productivity of land. Restrictions on rights can come from formal inhibitions, customary conventions, or inadequate enforcement systems. Certain restrictions pertain to the horizon over which property rights may be held (for example, a lifetime possession provides less investment incentive than an inheritable possession that can be transferred to descendants; a 30-year lease provides greater incentive than a five-year lease). Other restrictions pertain to limitations on use (the absence of any restrictions provides better incentive than a system that limits use to one particular purpose) or to the security of tenure (immunity from uncompensated state confiscation provides more incentive than the right of the state to expropriate with arbitrary compensation procedures; state protection from unsubstantiated challenges by other individuals to property rights provides better incentive than a system without state enforcement of individual property rights).

2.12 Restrictions on transferability are often related to inhibitions instituted by the state or the community, typically induced by concerns for social tension. Yet these are commonly circumvented by disguised transactions, because the potential efficiency gain provides incentives for both sides of the transaction to conclude a transfer. For example, in areas where sales to

outsiders are forbidden but leases are allowed, a sale will be disguised as a renewable lease. The illegality of the arrangement introduces an element of risk, however, and thus tradability is still negatively affected in the aggregate, with a consequent efficiency loss.

### **Market Imperfections and External Effects**

2.13 So far it has been argued that the absence of well-defined or adequately enforced property rights in land hampers the functioning of land markets and leads to inefficient outcomes. Several other imperfections, stemming either from particular properties of land or from distortions in other markets that spill over, may also prevent land markets from allocating resources efficiently.

#### ***Asymmetric Information and Land Transferability***

2.14 The possessor of land often has more knowledge about the extent to which the rights to the land are (or are likely to become) contested than other individuals (especially those from another community). This limits the tradability of land, because some individuals who might otherwise be interested in acquiring the land (for a higher-value use than the current one) either may be reluctant to risk purchase or may offer a lower price (reflecting the perceived risk of challenging claims). Both outcomes tend to reduce the extent of land trading, with a consequent loss of efficiency, since land trading generally facilitates the allocation of land to higher-productivity users. It is precisely this loss of efficiency that motivates societies to establish systems of land records and title registration, which enable potential buyers to verify the authenticity of property rights offered for sale.

#### ***Transferability and Linkages with the Credit Market***

2.15 Limitations on land trading have a negative spillover effect on the credit market. Credit transactions, and in particular medium- and long-term loans, involve a significant degree of asymmetric information. The potential borrower may know much better than the lender the probability of loan repayment. This asymmetry limits the extent of credit transactions, yielding loss of efficiency, since some high-return investments that would have been financed if information were symmetric are not undertaken. This loss of efficiency induces the introduction of the collateral arrangement, whereby the borrower alleviates the lender's lack of information by offering a reasonably risk-free asset whose conditional sale could be used to repay the loan in the event of default. Land and other real estate are ideal collateral (Binswanger and Rosenzweig 1986), because their physical properties are less amenable to destruction and abuse than other property such as machinery or livestock.

2.16 For land to be useful as collateral, however, it must be easily transferable, and the property rights over it must be clearly defined (Feder, Onchan, and Raparla 1988). Thus, the same institutional arrangements that reduce information asymmetry in the land market (for

example, land registries and title documents), and thus improve its operation, are also useful for improving the efficiency of credit markets. Similarly, the inefficiencies in land allocation arising from limitations on land transfers are exacerbated by the resultant diminished use of land as collateral. A corollary proposition is that the more developed the credit market, the larger will be the demand for formalizing land rights. Indeed, a study of land policies in Thailand by Feder and others (1988) showed that land registration had a significant effect on the production efficiency of squatters (even when there was reasonable tenure security) and that these efficiency gains were mostly due to credit market linkages.

### ***Other Imperfections in the Land Market***

2.17 The acquisition of land requires a significant outlay of cash. In many developing countries, however, capital markets are imperfect, and the ability to obtain credit for land purchase requires a significant accumulation of equity before the transaction. This requirement excludes a large proportion of the population from the land market and thus hampers the market's ability to allocate land to the highest-productivity use. The existence of a rental market mitigates somewhat the efficiency loss that this imperfection could generate. In some countries, however, political tensions may engender fears among landowners that the awarding of long-term leases, or prolonged periods of absentee ownership, might weaken the owners' property rights and make them vulnerable to challenging claims by tenants. Such fears may encourage low-intensity utilization under the owners' management (for example, grazing).

2.18 Moreover, land's durability and its ability to maintain real value in an inflationary environment make it a desirable asset for storing value in economies where inflation-proof financial instruments are not readily available. As a result, individuals who lack the skills to utilize the land in agriculture or other productive uses may acquire significant amounts of land. Again, the existence of a rental market may make such land available to those who can make a more productive use of it, but the above caveats apply in this case as well.

2.19 Finally, insofar as land typically is not traded in international markets, its price reflects various distortions in other goods markets and in the agricultural terms of trade (Jones 1965; Hueckel 1972; Feeny 1982). For example, policies that heavily subsidize agriculture or protect it from foreign competition tend to translate into land prices that are higher than they would otherwise be, and into an excessive allocation of land to agriculture (as in the case of Japan).<sup>3</sup>

### **Spatial Aspects of Land Markets**

2.20 The contribution of land to an individual's income or welfare is dependent on its location. The importance of locational factors for agricultural development was stressed in the

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<sup>3</sup> It should of course be stressed that, as with other resources, the determination of land use by market forces does not take into account environmental and other externalities.

seminal work of von Thunen (1966). The work of Schultz (1953) explaining regional income differences in U.S. agriculture and that of Katzman (1974), who analyzes the expansion of the agricultural frontier in Brazil, similarly focused on the spatial aspects of land markets (see Bhadra and Brandão 1993). Katzman, in particular, noted that the price gradient of land should decline with distance from the urban center. At the agricultural frontier, where there is open access to land, the value of land would be zero. With the expansion of agriculture, lower-return activities will move away from the center to the agricultural frontier.

2.21 The urban economics literature has similarly developed a conceptual model of a monocentric city. Economies of agglomeration provide cost incentives for the location of business, and increasing transportation costs determine the location of activities along various rings from the center. The price of land declines with distance from the center. At the urban-rural border, the value of land will be the same in the two sectors. Urban activities that use land more intensively will either move away from the center (a phenomenon usually referred to as suburbanization) or substitute capital for land. The land market must be flexible to permit these adjustments to take place.

2.22 In developing countries land market problems tend to concentrate at the outer rings, or peri-urban areas, where the market is often driven by prospects of capital gains. Fast urbanization and high population pressure, which characterize many developing countries, exacerbate the disputes over land in the "urban frontier." In the border areas urban and rural activities coexist, and the expected gains by landowners, speculators, and developers give rise to a specific type of land market dynamics. Whereas farmers have an incentive to reduce investment with long gestation periods, speculators have an incentive to precede developers and purchase "cheap" land. The government often steps in, sometimes to "protect" farmers from speculators and to prevent the conversion of land to the urban sector, other times to protect the interests of urban developers. Furthermore, where property rights are not clearly defined, land grabbing becomes pervasive and, in some countries, has the blessing (if not the direct participation) of the government.<sup>4</sup> (Appendix A presents empirical evidence on rural-urban land conversion and the behavior of land prices at fringe areas.)

2.23 The discussion above suggests that it is useful to distinguish among the urban, rural, and peri-urban land markets. Because each will have its own dynamics and may respond differently to economic stimuli and policy changes, regulatory intervention in land markets must consider the three separately.

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<sup>4</sup> The spatial dimension of the interactions between the rural and urban sectors deserves more attention than it has received in the recent literature (see Bhadra and Brandão 1993).

# 3

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## Policy Issues

3.1 A wide range of government interventions influence the operation of land markets. They range from policies aiming to modify the spatial distribution of economic activity (for example, industrial location) to those promoting specific sectors or activities (for example, subsidies to housing). Moreover, they can affect the land market directly (zoning laws) or indirectly (policies that affect capital markets). These interventions often reduce efficiency and almost as often discriminate against poor people. This chapter presents an analytical view of selected policy issues in land markets, based on their relative importance and whether the existence of reasonably robust research results allows unambiguous recommendations.<sup>5</sup>

### **Policies with a Primary Focus on Land Markets**

#### ***Direct Constraints on the Exercise of Property Rights***

3.2 *Tenure Insecurity.* Tenure insecurity is pervasive in developing countries. It manifests itself through multiple factors: the presence of landowners with no legal titles; inappropriate legislation governing, and legal restrictions on, the issuing of titles (for example, to farms smaller than a certain threshold); institutions unprepared to handle the technical and legal aspects of land registration, leading to multiple titles for the same parcel and improper specification of boundaries; the lack or discretionary enforcement of property rights (for example, in parts of the Amazon region of Brazil, Bolivia, Colombia, and Peru) and the lack of transparency and the high costs of registration and other procedures. Nevertheless, tenure insecurity is fundamentally a consequence of inadequate land administration and of a legal framework incapable of determining boundaries and settling disputes.

3.3 Another source of tenure insecurity is the threat of expropriation. Legal provisions in most countries allow land expropriation by the public sector for infrastructure development. Expropriation is also frequently allowed in the context of land reform or for colonization

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<sup>5</sup> The term "policy" is used here in a broad sense. The persistence and recurrence of certain situations reflect a policy, even if it is adopted by inaction of the public sector.

projects. More recently, expropriation for ecological projects has been added to the agenda of policymakers. In several developing countries, however, expropriation rules are either not clearly defined or clouded by procedural difficulties,<sup>6</sup> their implementation is discretionary,<sup>7</sup> and landowners are compensated at prices that understate market values.

3.4 The possession of a title can be an important determinant of the degree of tenure security. Feder and others (1988), studying the impact of land policies on farm productivity in Thailand, showed that the higher the degree of tenure security, the higher the demand for investment, especially for goods and services that become attached to land.<sup>8</sup> Access to the formal credit system is easier for titled farmers because they represent a lower risk for the lending institutions. A larger supply of formal long-term credit (usually cheaper than credit obtained in informal markets) helps to further increase the rate of investment. Tenure security also increases access to short-term credit, which in turn leads to greater use of variable inputs. Consequently, output per hectare, the price of land, and income are higher for titled farmers (Figure 3.1).

3.5 A relevant consideration is often the probability of eviction. The lower this probability, the greater the incentive for farmers to invest in land-attached improvements and for the formal credit system to extend credit. In regions where tenure insecurity is pervasive, the price of land will not reflect the present value of the income stream associated with the exploitation of land for agricultural production because not all land rights are legitimate or enforceable under the law. The land value will incorporate a speculative element because of the possibility of gains from (eventual) regularization or enforcement of the tenure status. Because this situation brings to the market individuals who may not be primarily interested in agricultural production, total factor productivity is likely to decline.

3.6 Tenure insecurity also precludes "landowners" in the urban sector from using this preferred form of collateral in the formal credit market. As in agriculture, it can be a binding constraint for potential borrowers, particularly for the more financially fragile. Similarly, tenure insecurity reduces the incentive to invest, especially in land-attached improvements. The capital-to-land ratio in the housing sector will accordingly be lower than otherwise. In peri-urban areas lack of tenure security is widespread,<sup>9</sup> and so the incentive for investment will be reduced. In

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<sup>6</sup> An interesting example is the concept of "reversion" in the Bolivian agrarian law of 1954, whereby land granted to farmers (except for small farms) can be reclaimed by the state if it remains idle for more than two years. In practice most reversion processes start with a request by a third party, but the law allows the state to take the initiative too. A special judicial body functioning under the Ministry of Agriculture is responsible for examining reversion requests, and the minister has the final decision. This judicial body responds directly to political interests and is clearly an additional source of tenure insecurity for commercial farmers who have not yet fully developed their lands but intend to do so.

<sup>7</sup> Expropriation rules frequently discriminate against the poor, who are not in a position to sustain legal battles with the public sector.

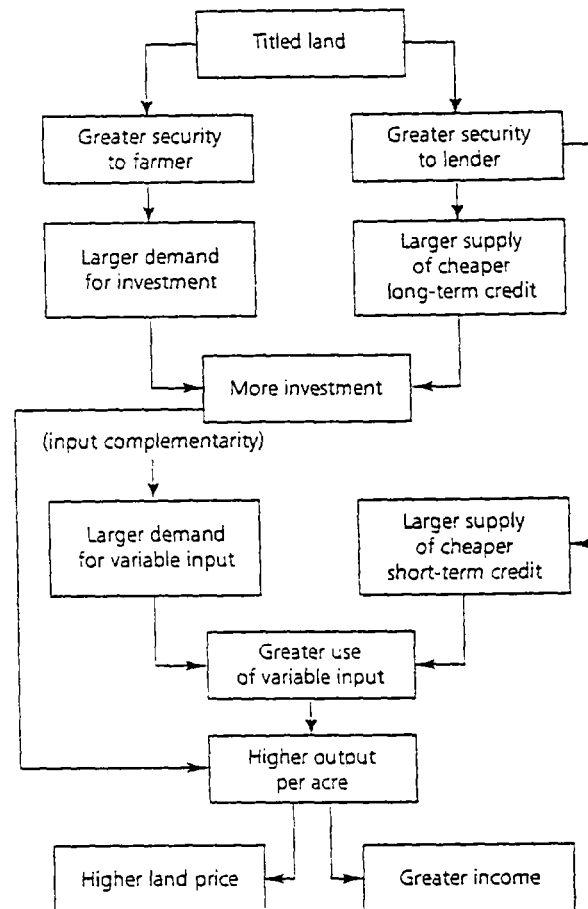
<sup>8</sup> A formal model is presented by Feder and others (1988). Feder and Feeny (1991) offer a more general model.

<sup>9</sup> In their careful analysis, Dowall and Leaf (1990) provide indirect evidence for Jakarta. They noted that "in the case of plots with low infrastructure availability, the impact of more secure tenure first declines, then rises with distance. This may reflect the fact that, in the unserved periphery of the city, the greatest conflict is occurring between formal developers and small landowners who rarely have registered claims to their land" (p. 20).



addition, as Jimenez (1982) has shown, tenure insecurity reduces the demand for house improvements and government services (see also Jimenez 1984).

**Figure 3.1: A Conceptual Framework for the Economics of Land Titling**



Source: Feder and others (1988).

3.7 Initiatives to increase tenure security can be costly. These costs can be reasonably estimated, whereas estimating the benefits frequently requires extensive household-level data collection and sophisticated econometric analysis. Despite the difficulties, two studies assessed the value of the benefits of increased tenure security through differences in land prices. Feder and others (1988) estimated price differentials for titled and untitled land in four regions in rural Thailand. Using a model in which characteristics of each plot were control variables, they estimated that the value of untitled land as a percentage of the value of titled land varied from 43 to 80 percent and that the net social benefits of providing titles for farmers ranged from 21 to 40

percent of the value of untitled land (p. 145).<sup>10</sup> It is interesting to note that the probability of eviction in the study areas was quite low. The price differential and the high social benefits of titling reflect mostly improved access to capital markets.

3.8 Dowall and Leaf (1990), who focused their analysis on urban land markets in Jakarta, found that the mean price differential between land with registered titles and land with weak claims was about 45 percent of the price of the latter in 1989. The price differential decreased as the distance from the center of Jakarta increased: At distances less than 5 kilometers from the center, the price differential was 65 percent, whereas it was 39 percent at distances greater than 15 kilometers. Using a hedonic price model, in which the value of land is regressed against distance from the center and dummy variables for plots with high infrastructure and for those with registered titles, Dowall and Leaf found the title dummy highly significant in the three years they studied (1987, 1988, and 1989). They concluded that the net benefit of providing registered land for both serviced (roads, sewage systems, and the like) and unserved plots is positive, justifying the implementation of a land-titling program on a cost recovery basis.

3.9 *Zoning and Other Restrictions.*<sup>11</sup> Government interventions in the land market are often part of spatial strategies aimed at reducing the growth of large cities, developing small and intermediate-size towns and lagging regions, creating growth poles, and promoting land colonization schemes (see Rondinelli 1990 for a discussion of government interventions in Asia). Several policies have been adopted in support of these strategies, such as subsidized prices of public infrastructure services, concessional loans, and tax incentives, as well as zoning laws and other restrictions to the exercise of property rights. The following are some important examples:<sup>12</sup>

- *Agricultural zoning.* These measures restrict or prohibit the construction of nonfarm buildings in agricultural areas. Without other support programs to increase productivity in agriculture and, more generally, to improve the economic opportunities in the rural sector, the effect of such policies on urban expansion will be limited. Nonetheless, zoning laws are common in developing and industrial countries.<sup>13</sup>
- *Agricultural districting.* Rather than restrict development directly, these policies instead establish districts within which farmers are protected from certain state or local regulations, or from private nuisance suits. Agricultural districting reduces the

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<sup>10</sup> Evidence for rural Africa, however, indicates that land rights did not significantly affect the use or modern inputs and yields of land-improving investments (see Place and Hazell 1993). The authors, who used the same conceptual framework as Feder and others (1988), explained the results as arising because capital and land markets are still undeveloped in these countries.

<sup>11</sup> This section draws heavily on Bhadra and Brandão 1993.

<sup>12</sup> These examples were for the most part adapted from Fisher 1982 and Murchison 1980.

<sup>13</sup> See, for example, World Bank 1990 and United Nations reports (1986, 1987a, 1987b, 1988, and 1989). In Japan, for example, several restrictions to conversion exist. In most cases farmers who wish to transfer land to other uses must request permission from the governor of the prefecture or the Ministry of Agriculture, Forestry, and Fisheries. See Australian Bureau of Agricultural and Resource Economics 1988, p. 75.

adverse impact that proximity to urban centers often has on agriculture. Private returns in agriculture are increased at the same time that the rate of conversion of land to its best alternative use is reduced, leading to an inefficient allocation of land. Nevertheless, agricultural districting is common in industrial countries, especially in Canada, the United States, and Western Europe (Barrows and Newman 1990).

- *Public purchase or private transfers of development rights.* To alter the pattern of land use, the government purchases the rights to develop certain tracts of land, with the owner retaining land ownership and other associated rights (Barrows and Newman 1990). The government may, for example, acquire the permanent right to use a certain plot for nonagricultural activities. If the government later deems it appropriate to allow land conversion to the urban sector, the right to use the land for nonagricultural activities is sold in the market. These measures typically help protect agriculture in fringe areas by slowing the expansion of the urban sector.<sup>14</sup>
- *Urban zoning.* Urban zoning, a prevalent feature of land market interventions, is often practiced by city governments, in some cases as part of a "city project." Designated residential areas and industrial districts are common examples of urban zoning. Although it is quite possible that zoning restrictions reduce efficiency because they prevent land from being allocated to the best alternative use, environmentally motivated and other restrictions, when introduced to correct well-identified and significant market failures, may be justified. Nonetheless, a comprehensive evaluation of the effects of zoning on land use patterns and on conversion does not yet exist.

3.10. *Prohibitions of Land Transactions.* Several developing countries prohibit both the sale and the rental of agricultural land. In the nonsocialist countries, such prohibitions most commonly arise in the aftermath of a land reform process as part of government efforts to impede market mechanisms from changing the structure of land tenure. Prohibitions of sales are sometimes justified as a mechanism to reduce the rate of rural-urban migration and to protect small farmers from the likelihood of foreclosure by commercial banks. The rationale for prohibitions on rentals is often founded in the view that "land is for the tiller."

3.11 These prohibitions can have far-reaching implications. A fluid market enables land to move from less to more efficient producers. In addition, where land sales are not allowed, the value of land as a collateral for credit operations disappears, reducing investment and growth.

3.12 A well-known example of outright prohibitions on land transactions is the *ejido* system in Mexico. Land was perceived and registered as communal property and consequently could not be sold or rented except within the community (Heath 1992). The Mexican

<sup>14</sup> Despite government intervention, large metropolitan areas and small and medium metropolises of developing countries continue to grow. The World Resources Institute (1988) estimated that urban population will grow from about 2.2 billion in 1990 to 5.0 billion in 2025 and account for about 90 percent of world population growth during this period. Crosson and Anderson (1992) estimated that to accommodate this population, about 125 million hectares of land—or approximately 10 percent of the potential crop land of developing countries—will have to be converted to urban uses.

government is now reforming its land legislation. But even before the current reform, there were indications that several communities were willing to join the "private sector," that is, to become fully integrated in the land market and to acquire the right to sell and rent land without any restriction. In the 1980s the government allowed community members to develop partnerships with outsiders, a move that strengthened the informal rental and sales markets on *ejido* land. The recent change in the Mexican agrarian law, and the interest demonstrated by *comunidades de ejidatarios* in joining the "private sector," confirms this trend.

3.13 One important aspect of the new Mexican agrarian law that deserves attention in countries undertaking land market reforms is that it allows, but does not require, each *comunidad de ejidatarios* to join the private sector. Local communities, in Mexico and in several other countries, often restrict land sales and rentals to community members; transactions involving outsiders require community permission. This procedure clearly undervalues community land and generates a suboptimal allocation of resources. However, it also benefits the community by reducing the possibility of social tension, by keeping the bonds that maintain the community together. Small farmers usually have neither access to risk markets to hedge against years of low prices nor access to credit markets to borrow in years of bad crops. Communities commonly provide insurance and supply credit efficiently because information and transaction costs are relatively low within the community.

3.14 Outright prohibitions of sales are not as common in urban land markets. Zoning restrictions, as discussed before, and the preservation of buildings for historical reasons seem the most common forms that governments use to restrict land transactions in cities. The latter, however, are significant only in a relatively small number of cities.

### ***Price-Related Interventions Affecting the Exercise of Property Rights***

3.15 *Speculation.* One of the most politically sensitive issues in land markets is speculation. A commonly held view is that speculation distorts resource allocation and is detrimental to the functioning of the land market. Where markets are competitive and information is evenly distributed, speculation provides liquidity to the market and transfers risk to those with a comparative advantage in risk management. However, this situation is not common in land markets in developing countries, where policy distortions and market failures are the general rule, especially at the fringe of large cities and in the agricultural frontier.

3.16 Asymmetric information is an important source of speculative gains. Because information costs are usually higher for individuals than for large companies, individuals often are at a disadvantage in transactions involving corporations. Improving the dissemination of public information on government projects, which typically trigger many speculative actions, is one of the most efficient means to reduce the informational advantage of developers and avoid adverse income distribution consequences.

3.17 Where property rights are not well defined (or where renting agricultural land is prohibited) speculation at the fringe of large cities may reduce agricultural production. During the period between their acquisition of a plot and its sale to developers or builders, speculators

would likely increase their profits if the land were put into production. Speculators usually are not agricultural producers, however, and would have to rent out the land once they had purchased it. But when property rights are not clear, rental may entail risks of challenges by the tenant, in which case the expected cost of lost land rights might be greater than the forgone rents. This output loss, which can be large depending on the duration of the speculative period, can be avoided or at least minimized if property rights are clarified and enforcement enhanced, or if rental restrictions are removed.

3.18 Wrongheaded government policies and ill-conceived legislation are important factors inducing speculation, often with strong adverse efficiency and equity implications. In the city of Karachi, about 70 percent of land available for development is public. The supply of land is determined largely by the development authority, which sells at prices below market values, expecting these sales to help the poor. The initial purchasers, however, are most likely from the middle- and upper-income groups, who are allowed to resell. The large price differential that is observed between the two markets is evidence that supply is short (Dowall 1990a). Contrary to the government's expectations, this mechanism concentrates income, and the short land supply is likely to slow land development in the area. Potential government revenue that could be used to expand housing development for low-income groups is also reduced.<sup>15</sup>

3.19 In Bolivia all agricultural land is government-owned and cannot be sold by the government, although it can be transferred to individuals at nominal charges. The pace at which land is transferred is determined to a great extent by bureaucratic procedures rather than economic considerations. Since the recipients of these transfers are allowed to resell the land, the government loses potential revenues directly. This loss is further aggravated by the fact that the government does not tax the appreciation in the value of land resulting from infrastructure development.

3.20 A large, densely populated region of an Asian country offers an example of land market policies that lead to regressive income transfers, inefficiency, and reduced government revenue. For projects of "social interest," the government establishes the price for the release of land rights from private owners to developers and builders. Frequently, this price is low relative to market values. Furthermore, the law reduces the bargaining power of local landowners by allowing them to sell their land only to corporations that have obtained development permits for the specific areas in which the land is located. This mechanism implies an income transfer from landowners to developers and builders and, because the determination of a project of "social interest" is subjective, a strong incentive for rent seeking. Exercising their market power, developers set prices for land rights in projects not considered to be of social interest, on the basis of parameter of the "social projects," especially in areas where small owners with unregistered plots predominate. Strong population pressure and the high growth rate of the capital city ensure substantial gains for developers that purchase land in the periphery for future development. By taxing these gains through a betterment tax, the government could increase

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<sup>15</sup> Dowall (1990a, p. 22) showed that the forgone revenue was equal to about 317 percent of actual revenue in 1980 and 52 percent of that in 1985.

revenue. A more important step would be to modify the procedures associated with the release of land for social projects so as to increase competition in the land market.

3.21 *Rent Controls.* Rent controls, common in both urban and rural sectors of developing countries, have negative consequences for efficiency and equity. The experience with rent control legislation in agriculture is revealing. The common rationale for this legislation is to protect tenants from eviction and to provide them with an income subsidy at the expense of the landlord by limiting the rental value that can be charged (Binswanger, Deininger, and Feder 1995). But as soon as news of impending legislation spreads, landlords often evict tenants and resume cultivation under direct owner management using hired labor. Because hired labor entails supervision costs, producers select activities that require less supervision, even if they must forgo some output. Moreover, landlords, facing more stringent constraints on existing rental contracts, find it less profitable to invest in land improvements, while reduced contract duration fostered by rent control laws diminishes the incentives for tenants to make long-term investments.

3.22 One additional difficulty associated with rent control in rural areas is the very high cost of enforcement. In practice tenants, sharecroppers, and landowners find ways to circumvent the legislation. The government uses real resources to enforce the legislation, as does the private sector in attempting to avoid it.

3.23 Finally, a common feature of rent legislation in agriculture is the prohibition of shared tenancy or the imposition of an upper limit on the landowner's share. In situations where risk and supervision costs are high and where credit is restricted, prohibitions of share contracts may actually decrease efficiency (Otsuka and Hayami 1988).

3.24 In housing markets legislation frequently restricts or prohibits eviction and imposes ceilings on rents. As a consequence incentives to invest diminish, the rate of depreciation of existing residential buildings increases, the rate of construction of new buildings is reduced, and houses are removed from the rental market. Demand pressure causes prices and rental values to increase substantially. Frequently, due to lack of an adequate judicial system, agreements disregard legal prescriptions, as does the settlement process. The informality of these transactions, the risk they involve, and the segmented markets they create imply an inefficient outcome, although tenants will realize some income gains (at the expense of owners).

3.25 *Taxation of Rural and Urban Land.* Economists have long advocated a tax on land.<sup>16</sup> Ricardo (1949), for example, favored such a tax because "a tax on rent would affect rent only; it would fall wholly on landlords, and could not be shifted to any class of consumers" (p. 110). This view is still prevalent among economists for essentially the same reasons: A tax on land causes no distortion in output or input prices, nor does it affect private incentives to produce.<sup>17</sup>

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<sup>16</sup> Hoff (1993) recalled that Henry George (1879) argued for a single revenue source for the government, which he identified as a tax on the rent of unimproved land.

<sup>17</sup> Binswanger, Deininger, and Feder (1995) noted that a land tax based on the potential monetary yield of a certain plot under normal conditions has minimal disincentive effects, facilitates the taxation of the domestic agricultural sector while being much

3.26 In developing countries agricultural land taxes evolved from payments to landlords or colonizing powers to payments to the central governments of the newly formed states. However, the lack of strong enforcement mechanisms in the wake of the political transformation of these countries reduced revenue, and today taxes on agricultural land are seldom a significant source of revenue in the developing world. Difficulties in implementation often arise not only because of political resistance to land taxes, but also because of the high informational requirements for their administration.

3.27 Binswanger, Deininger, and Feder (1995) suggested two necessary conditions for an effective land tax. First, the administration and revenue derived from the land tax must be placed at the local level (municipalities, counties, or the equivalent) so as to lower information costs, facilitate enforcement, and make the benefits of the tax more visible to the community. Earmarking revenue for local investments (as in the United States, for example) creates further incentives for payments. Second, the tax rate must be flat or only slowly progressive so as to decrease political resistance and increase the law's enforceability.<sup>18</sup>

3.28 Several countries have attempted to reduce land speculation by imposing higher taxes on unused land. The results have been mixed (Binswanger, Deininger, and Feder 1995). One reason is that the level of taxation is often very low, and efforts to make the land tax progressive meet with political resistance from landowners. More generally, however, there are difficulties in defining precisely whether land speculation is taking place. For example, when the additional tax burden is significant, agricultural landowners are likely to lower their burden by choosing suboptimal activities such as grazing or activities that use low amounts of variable inputs (labor, fertilizers).

3.29 At the heart of the problem in the case of both urban and rural land is the fact that a positive economic return is associated with land ownership regardless of whether land is utilized. Although the productive use of land does not yield a profit for some landowners (for example, because there is a high opportunity cost on their time and capital), expected appreciation of the value of their land is sufficient inducement to maintain ownership. Taxation, in principle, could reduce the share of the capital gains accruing to the landowner. But elimination of the incentive to keep land outside the productive process may require a high marginal tax rate,<sup>19</sup> which is likely to be either politically infeasible or economically unenforceable.

3.30 Enforcement in urban areas is somewhat easier than in agriculture, but similar difficulties exist. Valuation is a continuous source of disputes (undervaluation being the norm in many developing countries) due to the lack of adequate information systems. Nevertheless,

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less regressive than poll taxes, and as long as the tax base is changed infrequently, it does not discourage investment in land improvement (p. 69).

<sup>18</sup> The Brazilian land tax is a frequently mentioned example. As written in the law, it is a progressive tax, but a large number of provisions allow deductions that make enforcement difficult. The amount of tax collected has always been insignificant and, although systematic empirical evidence is not available, many economists in Brazil and elsewhere believe that in practice this land tax is regressive.

<sup>19</sup> An extreme example may clarify the point. If land and currency were the only stores of wealth in an economy, the marginal tax on idle land would have to tax away the full nominal appreciation of the land price.

because responsibility for tax collection is more frequently at the local level, urban land taxes are a significant source of revenue.

3.31 Finally, it should be noted that differential taxation rates between urban and rural land may be a significant determinant of the rate of land conversion from rural to urban uses. The stylized fact is that land taxation is higher in urban areas than in rural areas. The tax differential is capitalized in agricultural land values, creating an obstacle to prospective buyers, especially in peri-urban areas. In Japan, for example, agricultural land is taxed only lightly (and agriculture is highly protected from external competition). Not surprisingly, the cultivated land in metropolitan Tokyo-Yokohama, Nagoya, and Osaka-Kobe accounts for 16 percent of the land in these urban centers (Australian Bureau of Agricultural and Resource Economics 1988, p. 316).

### **Policies with Indirect Effects on Land Markets**

3.32 In the fringe areas of large cities and in the agricultural frontier, the present value of expected future land rents is significantly lower than the price of land due to potential capital gains. Government policies in many developing countries contribute to enlarge this wedge by subsidizing housing finance, water prices, and interest rates in agriculture; introducing tax rebate schemes designed to foster specific activities or encourage development of certain regions; and bringing about high and unstable rates of inflation through mismanagement of the macroeconomy.

3.33 Consider the Brazilian experience with subsidized interest rates in agriculture. During the 1970s, while inflation averaged 30 percent per year, the average interest rate on agricultural credit was 7 percent per year. The discrepancy between inflation and the nominal interest rate increased even further in the beginning of the 1980s. This subsidy, the most important instrument for agricultural sector support during the 1970s, attracted investment to agriculture and stimulated purchases of agricultural land. As a consequence, land prices rose relative to land rents, attracting new investors to agriculture who had neither the resources to manage an agriculture enterprise properly nor the necessary production knowledge. The mismatch of endowments led to selection of suboptimal activities, such as cattle raising. Through its credit policies, the Brazilian government transferred income to landowners and contributed to a further concentration of property, while reducing the efficiency of the agricultural sector.<sup>20</sup>

3.34 Governments in several developing countries have affected the rate of conversion of rural land to urban land by creating wedges between market and social (or shadow) prices of goods and factors. The urban bias, which often materializes in the form of implicit or explicit taxes on agriculture, facilitates the expansion of the urban sector (Krueger, Schiff, and Valdés

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<sup>20</sup> Empirical evidence confirms the impact of the credit subsidy on the price of land in Brazil (Brandão and Rezende 1992) and elsewhere (Shalit and Schmitz 1982). Econometric studies also show that inflation affects real agricultural land prices in the United States (Just and Miranowski 1988) and in Brazil (Brandão and Rezende 1992). Subsidized water in California has certainly affected agricultural land prices in that state, as it has in Colombia and northeastern Brazil. Casual evidence also indicates that urban land prices respond to inflation and to subsidies to housing.



1988). The subsidization of manufacturing and construction activities also creates incentives for the expansion of the urban sector. Other policies that have a strong impact on the rate of conversion include subsidies to urban housing and public utilities, and policies that foster the creation of more and better-quality health and educational services in urban centers.

3.35 The cost of reconvertng land from urban uses to agricultural activities is often prohibitively high. Where urban-based economic activities are promoted by highly distortionary incentive systems, governments should pay close attention to the conversion process and its long-run welfare consequences. Considering such distortions, direct intervention to inhibit land conversion could be welfare-enhancing. Without such intervention, the supply of land for agricultural activities might be suboptimal once discretionary policies are removed (see appendix B).



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## Regulatory Reform in Land Markets

4.1 Imperfections in land markets are common. Although a few are intrinsic to the nature of land itself, others are created by government interventions. In his analysis of the housing market in Bangkok, Dowall (1989) argued that an ample supply of land, strong competition among developers and builders, and an adequate supply of finance are necessary conditions for the efficient operation of the land market, especially in the fast-growing cities of the developing countries.<sup>21</sup> The three conditions apply directly to urban land markets and, properly paraphrased, would apply as well to rural land markets. However, the reform of land markets cannot be based solely on such an ideal paradigm.

4.2 Consider, for example, the issue of finance capital. The purchase of land in meaningful quantities often requires large sums of cash. Since long-term capital markets either are incipient or do not exist in many developing countries, potential purchasers of land must either use their own capital or pay the cost, and bear the risk, of breaking down a long-term borrowing operation into several short-term ones. Because of capital market imperfections, this avenue is feasible only for financially strong individuals; as a consequence, access to land becomes limited. It is not clear that those entering the land market (rural or urban) under these conditions will be the most efficient entrants. But because borrowers know more about their projects than do lenders, it is unlikely that government intervention will be effective. The government tends not to possess any informational advantage over private agents. However, to the extent that financial markets are affected by distortions that are amenable to correction by government action (such as lack of collateral enforcement laws), the policy reforms in the financial sector should be undertaken simultaneously with land market reform in order to make the land reform more effective.

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<sup>21</sup> "First, land markets require ample supply of land for residential development, and they must be free of bottlenecks and constraints which slow the delivery of residential lots to homebuilders or households. To meet this requirement, infrastructure—including roads, electricity, water, and sewage disposal—must be continuously made available. A second requirement for efficiency is competition. No specific land developer or housing builder should have sufficient market power to charge prices above what would prevail in an open and competitive marketplace. This implies that entry into the land and housing development industry must be fluid. Also no substantial barriers to entry which would hinder new firms from entering the marketplace should stand. A final requirement for efficient land markets is an ample supply of finance capital to support residential construction and to fund long-term mortgages for buyers. If these three conditions are met, there will be minimal land speculation, and housing prices will be held down to actual costs plus a reasonable profit for the developer" (pp. 1-2).

4.3 Thus, the reform process should not be confined to the identification and "correction" of market failures. Land market reform in most countries should be undertaken in two phases. First, policies that are currently impeding the market from performing its allocative function should be identified and phased out. The government then must provide the basis for the creation of a legal and institutional framework for land administration whose objectives are compatible with private incentives and that fosters competition. As with all government actions, implementation costs should be borne in mind as some policy changes, though in principle justified, are too costly relative to perceived benefits.

### **Phase One: Dismantling Distortionary Policies**

4.4 The removal of all restrictions on the sale and rental of land, including those related to minimum and maximum size, is essential to improve efficiency in land markets. Where the law does not allow the sale of public lands, or where government sales do not respond to market signals, the removal of such restrictions and revision of procedures for sales will likely increase the effective supply of land and facilitate entry and exit in activities such as agriculture and housing production.

4.5 Rent controls (and prohibitions on sharecropping in agriculture) should be completely eliminated since, as discussed earlier, they reduce incentives for investments in the housing sector and may lead to reduced efficiency in agriculture because of risk and supervision requirements. Zoning should also be eliminated, with the possible exception of environmentally motivated restrictions. If society wants to restrict land use in specific areas, other instruments, such as creation of a market for development rights, may be more appropriate.<sup>22</sup>

4.6 Land and sectoral policies must be consistent. It is common for governments to implement sectoral and spatial policies that are incompatible with the overall objectives of land policy. Many zoning laws fail because the economic incentives embedded in other policies are not compatible with the restrictions imposed by the zoning legislation. For example, the concern of governments with the excessive conversion of land from rural to urban uses often leads to zoning restrictions. But these frequently coexist with policies, such as taxation (implicit and explicit) of agriculture, subsidies to urban housing and public utilities, and better access to health and educational services in urban centers, that often weaken the zoning laws.

### **Phase Two: Institutional and Legal Reform**

4.7 Land administration in developing countries is often performed by institutions that have inadequate technical, administrative, and legal capacity. Bureaucratic procedures are cumbersome and not transparent. The costs of land adjudication are high, titles are often issued with incorrect boundary specifications, and crucial market information is not made available to interested parties at reasonable costs. In addition, the enforcement of property rights is not

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<sup>22</sup> The creation of such a market is not a trivial question. Its discussion is beyond the scope of this paper.

evenhanded and tends to discriminate against the poor. A high priority must be assigned to the implementation of institutional and legal reforms to eliminate these constraints for the operation of the land market.

### **Land Law**

4.8 One of the most important aspects of land market reform is the creation of a system of stable rules. A land law that establishes basic parameters for the operation of the market is a fundamental component of this system. It facilitates decisionmaking by economic agents (by reducing uncertainty), especially for investments with long gestation periods. In addition, the land law should provide easy and transparent access to the land administration system and to dispute settlement institutions. Such access guarantees that incentives for rent seeking are minimized and prevents biases against the poor. The law also must take into account that various systems of property rights exist in practice. In Mexico, for instance, the law recognizes communal and private property and allows communities to join the private property system if they so wish. Finally, to ensure the equitable application of established principles and protect politically powerless groups, the law should not grant discretionary powers to members of the land management system.

### **Institutional Framework**

4.9 Another important component of a stable system of land administration is an adequate institutional framework capable of performing the following functions:<sup>23</sup>

- *Facilitate access to land information.* A land information system that is transparent and readily accessible is essential. It will normally be based on a cadastre and will register property, with corresponding data (for example, value and nature of attached investments), as well as boundary information and tenure status.<sup>24</sup> An accessible system provides an incentive for low-income landowners to keep an updated cadastre and to register titles.<sup>25</sup>
- *Adjudicate boundary disputes.* The system should be technically prepared to map the changes in boundaries following land market transactions quickly and at reasonable costs. At the beginning of the reform process, however, it is likely that clarification of existing boundary and title disputes will require most of the resources of the land administration institution.

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<sup>23</sup> This discussion benefits from the work of Barnes (1992).

<sup>24</sup> In some countries the property registration system must remain (for constitutional or other reasons) in the judiciary system. In situations like this, a direct, preferably electronic, connection between the register and the cadastre system must be established to keep records up to date on both ends.

<sup>25</sup> In several developing countries the total cost of title registration (including time, transportation, and sometimes subsistence outside the home town) is extremely high.

4.10 One important instrument for the reduction of tenure insecurity is the possession of a registered title. As observed earlier, a number of studies show that the economic value of a title is large in both rural and urban areas. Titling is thus a critical component of urban and rural land market reform, and one that many developing countries are unprepared to handle in a timely way. The costs of titling projects can be high, and a careful cost-benefit analysis should be done in each particular case. In addition, it is important to note that rural land titling projects have met with bureaucratic and practical implementation difficulties. Appendix C contains a summary of the problems often found in World Bank projects. One of the most significant, noted by Wachter and English (1992), is the failure of projects to recognize that land titling usually entails a certain amount of land redistribution and political opposition from potential losers. Titling projects with only a technical dimension to formalize an existing situation are rare.

- *Resolve conflicts and enforce property rights.* The land administration system should be able to solve most conflicting claims in the field, which underscores the need for an in-house cadre of technical and legal knowledge. To resolve conflicts that cannot be handled in the field, an efficient appeals process through the judiciary system is of utmost importance. As a consequence of making information easily available, permitting most conflicts to be resolved in the field, and providing an efficient appeals process, the land administration system facilitates the enforcement of property rights in a nondiscretionary way.
- *Value and assess land.* The land administration system should be in charge of land valuation and assessment for purposes of the land tax, key for an efficient land tax administration. The information required for these functions—size, value, ownership status, productive capacity, and market value of outputs and inputs—is usually available in the cadastre.
- *Encourage registration.* One important function of the land administration system is to create procedures and rules that enhance, rather than reduce, the incentives to supply information and comply with registration requirements. Some countries discourage registration, for example, by only allowing registration of agricultural plots larger than a specified minimum size. As properties are subdivided through inheritance and sales, registration eventually ceases, and the cadastre and register become outdated.
- *Provide technical assistance.* The land administration system should provide technical assistance to local governments and communities. In countries where land taxation is managed at the local level, the system will have to provide cadastre information to local authorities for proper valuation and assessment. In countries where ethnic, religious, or other circumstances require special legal status for some communities, the land administration system should be prepared to provide such communities with technical assistance as well as help in conflict resolution.

- *Apply expropriation rules.* Clearly defined criteria for the expropriation of land for public projects must be established in the land legislation. The land administration unit will be responsible for executing the law and determining the compensation in each case according to land valuation studies performed for tax purposes and from cadastre information.

4.11 One of the questions in designing the land administration unit is whether it should be public or private. Certainly, several functions of this unit can be performed by the private sector. The land administration system should be considered a technical unit and only a few of its activities—probably only those related to legislation, taxation, and conflict resolution—should be in the hands of the government. In most countries, however, the land administration unit is likely to begin operations as a unit within the government, as part of the reform process. Because the backlog of unresolved conflicts is usually large and their resolution is expensive, the private sector is unlikely to be attracted to this activity at first. This being the case, it is important to emphasize that all services provided by the government should be charged on a cost recovery basis. This approach is suggested by studies of Feder and others (1988) and Dowall and Leaf (1990), which showed that the private and social benefits created by these services are higher than their respective costs.





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## Suggestions for Further Research

5.1. The need for additional research is great. One area in which more empirical analysis is needed is the assessment of the benefits of tenure security. Although the results of Feder and others (1988) and of Dowall and Leaf (1990) indicated that the social return of titling projects is positive, the African experience casts some doubt about the general applicability of this finding (see Place and Hazell 1993). Insofar as socioeconomic and cultural factors are fundamental for an understanding of the role of tenure security, empirical analysis in countries of diverse cultural backgrounds would provide firmer grounds for the evaluation of the economic returns of these reforms.

5.2. Another theme that deserves further research is land conversion, which has caught the attention of policymakers in several countries and given rise to interventions to halt or slow the process. Nevertheless, even acknowledging that the costs of land conversion are high and quite visible, it is not clear whether government intervention is called for. Observed rates of land conversion may in fact be too low rather than too high. From the point of view of efficient allocation of resources, the questions to be answered are as follows: Should the government intervene in the process, or should land allocation between rural and urban uses be determined entirely by market forces? Are the latter likely to generate an efficient allocation of land between rural and urban uses? In the presence of other distortions in the economy, can direct government intervention be welfare-enhancing? If so, what kinds of policies are likely to be most effective? Why have many of the policies in developing countries aimed at reducing the rate of land conversion been ineffective?

5.3. The economic cost of existing regulations must be made explicit so that decisionmaking is well informed. For that purpose a comprehensive modeling effort involving both the agricultural and nonagricultural sectors is called for. Factor markets and the cost elements that underlie the asymmetric nature of land conversion must be carefully considered, and spatial variables must be explicitly introduced in the general equilibrium framework.

5.4. The need for land market reform is urgent in the developing world. After the adjustment of macroeconomic and trade policies, factor market reform will be essential to enhance supply response. In particular, land market reform is essential for agricultural development and for the provision of affordable (but not subsidized) housing in urban areas. The

task is daunting. The reforms will likely take a long time and require large amounts of resources. They are certain to face political resistance from groups that benefit from the existing system. The research suggested here will hopefully contribute to an improved design of these important reforms.

# Appendix A

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## Land Price Gradients in Urban Land Markets

The rate of land conversion has been very high in many cities in developing countries, and land market pressure has been greatest at the fringe areas of large cities. Dowall (1990b) noted that in Bangkok "the pace of urban land conversion from the mid-1970s to the mid-1980s was phenomenal, averaging about 21,250 rai per year.<sup>26</sup> But it increased even more during the 1984—88 period—more than doubling to 46,250 rai per year" (p. 5).

Conversion has also been extremely high in Jakarta. According to a World Bank (1990) study, "so intense is land pressure in Java that the need for house-lots alone is estimated to require the conversion of some 10,000 ha [hectares] of agricultural land per year. The Indonesia National Urban Development Strategy Project has calculated that Indonesian cities will also expand by 376,000 ha between 1980 and 1995, of which 222,500 ha would be in Java. Thus, Javanese cities are expected to expand by about 15,000 ha per year. Roads, industries and other uses are expected to increase total land conversion to 40,000 ha per year" (p. 45).

Ingram and Carroll (1981), who studied land conversion in Latin American cities, showed that from 1950 to 1970 the population density at the periphery of 10 cities<sup>27</sup> rose and, with the exception of Belo Horizonte, Brazil, the growth rate at the periphery was higher than that at the center. Dowall and Treffeisen (1990) reported that density in Bogotá increased faster for rings farther away from the center of the city. Although density in the center of Bogotá declined from 1973 to 1985, it increased outside the center, more so at the outer rings (p. 6). They cited evidence that real land prices in downtown Bogotá peaked in 1970 and have declined since then, whereas prices have increased at the fringe areas of Bogotá and beyond.

Land values and population density gradients can also be used to analyze pressure on the land market in the fringe of large cities. Land price gradients are often estimated based on modified versions of the equation

$$V(x) = V(0)e^{hx}$$

where  $V(x)$  is the land value at distance  $x$  from the central business district,  $V(0)$  is the land value at the central business district, and  $h$  is the estimated land value gradient.

Table A.1 displays the estimated land value gradients for selected cities. For three of the four cities, the land price gradient falls (in absolute value) over time.<sup>28</sup> This pattern indicates that the pressure over the land market increases as the distance from the city center increases. The fringe areas are those where the pressure is the highest.

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<sup>26</sup> Since 6.25 rai is approximately equal to 1 hectare, this amounts to 3,400 hectares

<sup>27</sup> Belo Horizonte, Bogotá, Buenos Aires, Cali, Guadalajara, Mexico City, Monterrey, Recife, Rio de Janeiro, and São Paulo.

<sup>28</sup> These regressions are not strictly comparable. In the case of Bangkok, for example, a dummy variable was introduced to control for the presence of services in the areas.

In their study on Bogotá, Dowall and Treffeisen (1990) departed from the monocentric city model and instead used a multicentric model. Their gradient values are coefficients of the distance from the center of an individual neighborhood ("barrio") to the center of the proposed subcenter. Their values differ from those of Pachón and Hernandez (1989) but still show, for most subcenters, a decline over time.

Population densities are positively correlated with land values. The results shown in Table A.1 can be extended to a larger number of cities by analyzing the density gradients estimated (using an equation similar to that for the value gradients). Population density gradients for several Latin American cities are shown in Table A.2, which for most cities reveals the same flattening of the gradient over time.

**Table A.1: Land Price Gradients for Selected Cities**

<i>City</i>	<i>Year</i>	<i>Gradient</i>
Bangkok	1988	-.0574
	1989	-.0558
	1990	-.0538
Bogotá	1973	-.1000
	1985	-.0200
Jakarta	1987	-.1813
	1988	-.1735
	1989	-.1690
Karachi	1980	-.0418
	1985	-.0577

Sources: Data for Bangkok from Dowall (1990b); for Bogotá from Pachón and Hernandez (1989); for Jakarta from Dowall and Leaf (1990); and for Karachi from Dowall (1990).

**Table A.2: Population Density Gradients for Selected Cities**

<i>City</i>	<i>Year</i>		
	<i>1950</i>	<i>1960</i>	<i>1970</i>
Belo Horizonte	-0.26	-0.28	-0.27
Bogotá	..	-0.25	-0.12
Buenos Aires	-0.21	-0.14	-0.12
Cali	..	-0.41	-0.21
Guadalajara	-0.45	-0.46	-0.41
Mexico City	-0.37	-0.27	-0.17
Monterrey	-0.32	-0.27	-0.19
Recife	-0.25	-0.21	-0.19
Rio de Janeiro	-0.09	-0.08	-0.07
São Paulo	-0.14	-0.13	-0.12

.. Not available.

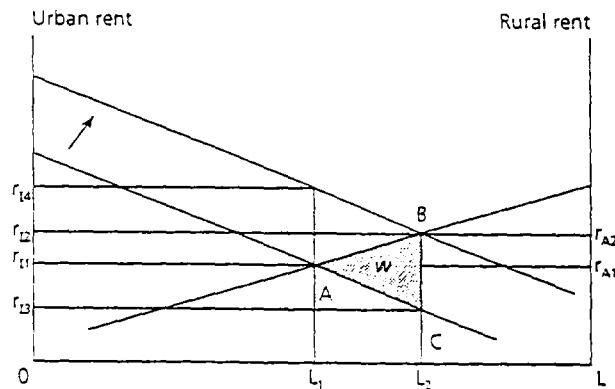
Source: Ingram and Carroll (1981), Table 5.

## Appendix B

### Welfare Analysis of Zoning Restrictions

This appendix considers the welfare implications of a tariff to protect the industrial sector both with and without the simultaneous imposition of a restriction on rural-urban land conversion. Figure B.1 shows the value of the marginal product of land in the urban and rural sectors. The use of land in the urban sector is measured on the horizontal axis from left to right; the use of land in the rural sector is measured from right to left. The length of the horizontal axis is the total availability of land. Point A represents an equilibrium where there is no restriction on the use of land and no tariff is imposed. In that equilibrium,  $L_1$  units of land will be used by the urban sector,  $L - L_1$  units will be used by the rural sector, and the land rental will be  $r_{A1} = r_{I1}$ . When the tariff is imposed, the value of the marginal product shifts to the right, leading to a new equilibrium, B, where  $L_2 - L_1$  units of formerly rural land are shifted to the urban sector. The (market) rental value of land increases to  $r_{A2} = r_{I2}$ . However, the social value of land for the urban sector is  $r_{I3}$ . At each period, the social cost of this policy is represented by the area of triangle ABC, which we will call  $w$ .

**Figure B.1: Welfare Implications of a Zoning Restriction**



Source: Bhadra and Brandão (1993).

If the policy remains in place for  $t$  periods and the interest rate is  $i$ , the total economic loss is given by the equation

$$TC = \sum_{n=1}^t \frac{w}{(1+i)^n} = \frac{w}{i} \left[ \frac{(1+i)^t - 1}{(1+i)^t} \right] \quad (1)$$

In period  $(t+1)$ , when the tariff is removed, the equilibrium should return to point A. But because of the high costs of reconversion of land to the rural sector, it does not return to A. The social cost of the policy can be as large as  $w/i$ . If, however, the tariff is only a temporary instrument to transfer resources to the urban sector, and if the government simultaneously imposes a restriction

on the conversion of land to the urban sector, this cost could be entirely avoided. In this case the urban rent increases to  $r_{I4}$  and the agricultural rent remains at  $r_{A1}$ . This difference persists as long as both the tariff and the zoning restriction are in effect.

The above analysis rests on the assumption that the costs of enforcing the zoning restriction are negligible. As long the costs of enforcement are less than  $w$ , such a policy will be desirable from a welfare point of view.

The analysis here remains fairly partial equilibrium in spirit, for only one market is considered in Figure B.1. Although this simple representation is useful in illustrating the fundamentals of the problem, there are additional complications. For example, while land is moving from agriculture to industry in response to the tariff, it is likely that both labor and capital will also move in this same direction. However, when the tariff is removed, these two factors of production might return to agriculture more easily than land does. This clearly affects the cost calculations in a fundamental way. The amount of capital and labor that returns to agriculture will depend on a number of factors related to the characteristics of the technology in the two sectors, other "push" and "pull" factors operating in agriculture and nonagriculture, and other policies that change the relative returns to these factors in each sector. A satisfactory answer thus depends on a careful accounting of all of the relevant elements, some of which may even counteract the initial impact of the tariff (for example, a subsidy for irrigation water). Moreover, tariffs affect demand structures and government budgets; the added revenue may generate further infrastructure construction and hence further shifts in the curves depicted in the figure. An applied general equilibrium model is required to take into account all the elements that influence this process and to assess their quantitative importance.

## Appendix C

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### The World Bank's Experience with Rural Land Titling

In their review of the World Bank's experience with rural land titling, Wachter and English (1992) included 12 projects approved during 1971-81 and evaluated during 1982-91. Only one of these projects was a dedicated land titling project. Wachter and English concluded that almost all the projects suffered from one or more of the following problems:

- *Lack of political support.* Because land titling usually involves considerable redistribution of land rights (and of land itself), it is likely to suffer strong opposition from those who stand to lose in the process. Only under special circumstances will a land titling project consist of purely technical operations designed to formalize (or legalize) an existing situation.
- *Conflicting bureaucratic priorities or infighting.* In most of the projects Wachter and English reviewed, land titling was not the main component. Consequently, the agency responsible for the land titling component was not always properly involved in the project and often was not persuaded to change its own priorities to focus on the land titling component.
- *Lack of institutional capacity or unwillingness to commit adequate resources.* Wachter and English stressed that although land titling requires state participation, public administrations in several cases were not prepared to perform specific tasks. The major difficulties include deficient land records, lack of reliable maps, and low capacity of agencies to distribute titles.
- *Underestimation of the complexity or costs of the tasks to be carried out.* Substantial cost overruns occurred for those projects for which cost data were available. This, coupled with qualitative statements in evaluation reports, led Wachter and English to conclude that the complexity of land titling projects was substantially underestimated.





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