

Urban Housing Informality: Does Building and Land Use Regulation Matter?

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New evidence from Brazil indicates that the regulation of land use and building standards can reinforce other factors that contribute to informal and irregular urban land occupation.

The magnitude and persistence of informality in Latin American cities cannot be fully explained by poverty rates (which are declining), insufficient public investment in social housing or urban infrastructure (which is expanding), or even government tolerance of certain opportunistic practices on the part of informal developers and occupants (*The Economist* 2007). While these factors are undoubtedly important, inappropriate land use and building regulation also seems to play a role in the resilience of the problem. It can be argued as a corollary that an alternative regulatory framework may help to alleviate informality in urban land markets.

The connection between informality and excessive housing standards is not really new in the literature (Turner 1972); and the economic connection between land use regulation and the elasticity of housing supply was proposed by Ellickson (1977). What is new is applying to developing countries the same framework used to understand the housing price dynamics in the United States. The few empirical papers in economics attempting to connect regulation and land use have not formally modeled the substitution between formal and informal markets. Consequently they did not use the differences in the two markets as their main variables.

The Scope of the Problem

Informality and precarious housing are major concerns in developing countries. According to United Nations estimates there are more than one billion slum dwellers worldwide, accounting for 32 percent of the global urban population (UN Habitat 2006).

In Latin America, the percentage of irregular housing measured by observable indicators such as land tenure or sewer connections is declining in some countries, albeit at uneven rates. Disregarding the prevalent dispute around the proper measure of informality, in most Latin American cities the problem is still sizeable, and a better understanding of its dynamics is necessary to inform sound housing policy.

In practice, measurable indicators of informality based on lack of land title or access to infrastructure and services are easier to obtain than those based on noncompliance with land use regulations and building standards. Poverty (in all dimensions) and insufficient public investment (in social housing, infrastructure, and services) are the common explanations for the persistence of informality. But there is also increasing awareness that urban land markets in general and urban norms and regulations in particular are relevant contributing factors.

High transactions costs in urban land markets accrue from red tape, lack or obfuscation of information, and discriminatory practices, as well as from other market dysfunctions derived from land ownership structure, monopolistic and speculative practices, and land use and building regulation that hinder compliance by low-income families. These factors increase market inefficiency and sustain informality.

In this article we argue that land use and building regulation managed by urban planners and officials at the local level may actually contribute to the incidence of informality. Among the 20 percent of Brazilian municipalities that reduced poverty the most over the past nine years, 23 percent also reduced untitled housing drastically, but 24 percent increased informality by more than 3.2 percent, the fastest pace observed in the country (IBGE 1991; 2000). Such differences in the performance of the low-income housing market cannot be explained only by the incidence of poverty, the



The favela Jardim Fontalis clings to a hillside adjacent to a highway in São Paulo.

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In spite of crowded and insecure conditions, many people enjoy the social networks of their informal settlements.

pace of urbanization and population growth, or other commonly used macro-level measures.

The Pros and Cons of Urban Regulation

Urban regulation benefits housing policy because it solves a property rights problem. Regulating the distance between houses, for instance, helps preserve the privacy rights of others. Regulations also help solve externality problems. For example, not regulating house set-backs might lead to public health problems due to increased humidity, the lack of light, or serious safety issues. In this case, the regulation eliminates negative externalities and increases the overall welfare of the residents.

Regulations can also have a beneficial impact by reducing the information gap in the market. If there are no predefined building standards, developers may take advantage of inexperienced buyers and overcharge them for a house that is unsafe, or sell them a plot in a new development that does not provide for adequate services, as so often is the case.

But there are potentially negative aspects to regulation as well. One consequence is the obstacle of cumbersome procedures that can lead to corruption. It is not uncommon for a subdivision license to take more than four years to be issued, for example. In their classic study, Mayo and Angel (1993) associate the complicated regulatory framework of Malaysia with corrupt officials attempting to capture rent from the population in exchange for relaxing norms, expediting licensing, and otherwise making regulatory exceptions.

Second, some regulations such as zoning ordinances can result in income segregation in certain

neighborhoods by establishing minimum standards that raise prices and effectively deter lower-income households from competing in the formal market. High house prices may be due to higher demand, but also to the lower elasticity of supply caused by such exclusionary regulations and restrictions. Malpezzi (1996) has emphasized the exclusionary aspect of land use regulation in the United States that limits integration of low- and high-income residents with the specific intention of avoiding subsidies for schools and other local public services.

Biderman (2008) furnishes evidence from Brazil to support the proposition that poor households often choose informal (untitled) houses over formal (titled) houses in response to regulations that require additional costs or “credentials” to enter the formal market and/or reduce design flexibility for house construction. This exclusionary aspect of urban regulation holds true in Brazil for infrastructure and other public services because they are seldom provided in the slums in any case. In fact, until 1988 municipalities were officially prevented by law from servicing irregularly occupied land, even though some did so in practice.

The political economy behind the exclusionary aspects of regulation has a long-standing precedent in Brazilian history. The *Sesmarias* system of land tenure rights, instituted by King Ferdinand I of Portugal in 1375, provided tenure through either royal concession (for the elite) or proof of productive use of the land (for those with the means to produce). Brazilian municipalities continue to enforce urban regulations in some areas of the city, but not in others (Rolnik 1997). The removal rather than upgrading of slums in high-income, inner-city neighborhoods is a case in point. This double standard allows for the accommodation of the poor in certain areas without investing in infrastructure and service provision.

Other reasons for the presence of unreasonable regulations in Brazilian cities today include the rent-seeking behavior of officials that results in their resistance to regulatory reform, and the regulator’s response to pressure from developers to keep low-income families out of certain areas. There are many illustrations in the urban planning literature of such corruption and collusion in Brazil.

Regulators also tend to ignore the unintended effects of land use and building ordinances. It is not uncommon for one municipality to simply adopt the urban norms and regulations of another municipality in order to comply with federal man-

dates regarding master plans, for example. This practice only increases the likelihood of negative impacts in the housing market because it perpetuates inappropriate regulatory policies.

An example of the impact of urban regulations on the cost of housing and potentially on informality in Brazil is the Social Urbanizer, a public initiative to entice informal developers to comply with land use regulations. In the first successful case in São Leopoldo in 2008, the developer requested that the municipality reduce the minimum lot size from 300m² to 160m² (984 sq. ft. to 525 sq. ft.) in order to provide more affordable housing options. In return the developer accepted some impositions from the municipality in the form of direct investment in urban infrastructure and services (Damasio et al. forthcoming).

Impacts of Regulation on Informality

In the 1990s Brazilian municipalities enacted several land use and building regulations that can be clustered in four main types: parceling norms, zoning, urban growth boundaries, and building codes. Some municipalities enacted a few such regulations in the 1980s or even earlier, others did so during the first half of the 2000s, and many others have not yet enacted all or even one of these regulations. These differences in the timing of enactment offer a unique analytical opportunity to isolate the role of regulation from other events affecting the housing market.

Ideally the impact of regulation on the housing market should be evaluated by comparing municipalities that are identical except that one enacts a certain regulation while the other does not. Finding identical municipalities is not always feasible, however. A standard procedure to partially overcome this problem is to use the outcomes of non-

enacting municipalities to estimate what enacting ones would have experienced had they not introduced a regulation. The difference between outcomes of enacting and not enacting a regulation would suggest a gross estimation of the regulation impact on the size of the variation in the share of informality.

Our study took advantage of the opportunities offered by the Brazilian case. First, the timing difference in the enactment of regulations among municipalities permits comparisons among them. Second, the information available from the census and other national surveys is extensive, covering the enactment date of the regulation, tenure status declared by homeowners, and a generous number of control variables including population, income, and poverty level. Third, data are available for more than 2,000 municipalities, allowing for meaningful statistical analysis. Such an opportunity for research on informal settlements is rare, and is one of the main reasons that robust evidence on the determinants of informality is so hard to find in the literature.

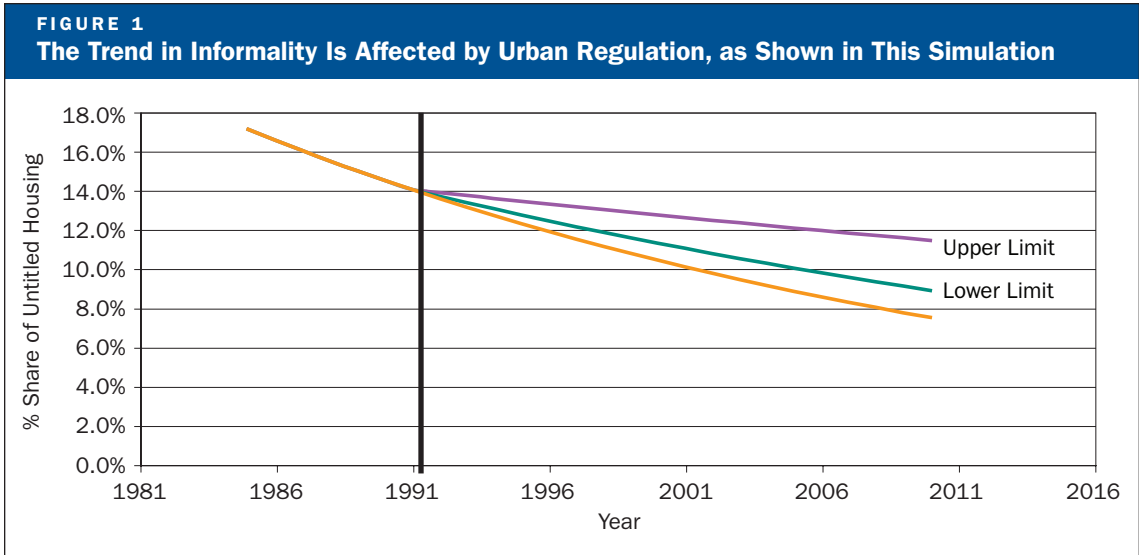
Given the long-lasting nature of a house, both formal and informal housing is measured as a share of all housing, rather than as a stock number of houses. The measure of informality used in this study is the share of untitled housing, which is defined as untitled land occupation as declared by homeowners who responded to a census survey question about whether or not they own the land on which their home is located.

Thus defined, the proportion of untitled housing in Brazilian cities decreased in the 1990s, due in part to institutional changes associated with the 1988 Constitution, which reduced the time required to legitimize the right of adverse possession of uncontested urban land occupation from

Lack of land use and building regulations can create health and safety problems for residents.



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25 to 5 years. Landowners became less complacent about tolerating land occupation, as indicated by the reduction of land invasions and the rise of market acquisition (albeit through informal means) as the predominant form used by the poor to acquire land. The declining trend in informality is also associated with economic stabilization, the strengthening of local municipal finances, the revival of the mortgage market, and the slow reduction in poverty rates observed during the decade. The impact of regularization programs, even in their limited scope, is another factor in reducing informal settlements.

Figure 1 presents projections using estimated parameters that compare the decrease in the rate of untitled housing, starting at 17.5 percent in 1985, with an upper and lower limit based on one standard deviation. The long orange line in the figure represents the exponential trend for municipalities that have not enacted land use or building regulations. The other lines represent upper (more regulation) and lower (less regulation) limits for municipalities that enacted regulations in 1991, when the proportion of untitled houses reached 14 percent.

One way to interpret these results is to fix a goal in terms of the proportion of untitled housing desired, and then evaluate how long it takes to achieve this goal given changes in regulation among municipalities. If the goal is to reduce the share of untitled houses from 14 percent to 12 percent, then a city that did not enact regulations affecting the formal housing market would have achieved this goal by 1996, while an otherwise identical city that enacted regulations in 1991 would have taken an additional two to ten years on average to reach

the same goal. In other words, the timeframe will be longer in the more regulated municipalities.

The results clearly show a significant impact of regulation on informality and refute the notion that the formal and informal housing markets are independent. It is apparent that informality can be induced by the same regulations that apply to formal markets, which means that it is incorrect to design policies circumscribed to informal areas. Although the results are not always very precisely estimated, the measures of regulation always have expected signs and their confidence levels are always above 81 percent. Furthermore, when we compare municipalities that enacted urban regulations closer to 2000, the estimated impact on informality declines as expected, showing consistency in the results (Biderman 2008).

Looking Forward

The argument and evidence presented here suggest that inadequate regulation in developing countries may reduce residential alternatives for households, inducing or pushing them into informal arrangements. Subsidies could provide adequate compensation to mitigate the exclusionary effects or the unintended consequences of certain necessary regulations, making them applicable to every citizen. But in the absence of subsidies, unduly high urbanization standards and land use restrictions could exclude a sizeable group. For instance, a very high parceling standard (e.g., minimum lot size of 300m² [984 sq. ft.] when plots smaller than 50m² [164 sq. ft.] are not uncommon) may result in one group living on larger lots and another on much smaller lots. Instead of guaran-

teeing minimum standards for all, such a norm could exacerbate inequality.

Clearly one cannot conclude that land use and building regulations should be abolished. Regulations have an important role in creating a better urban environment. However, the undesirable consequences of inducing informality through increasing house prices need to be faced. Sound housing policy should take these indirect effects into consideration. The challenge is how to preserve the positive externalities of the urban norms and also stimulate the production of affordable housing. The issue of how much positive externality can actually be extracted from a given regulation should also be taken into account.

For example, the social value of the externality generated by a density restriction may not necessarily be larger than the value lost in welfare associated with a restriction in the supply of urbanized land. A case can certainly be made regarding the extent to which certain regulations currently enforced in Brazilian municipalities in fact provide more exclusionary privileges to certain groups or outright red tape and procedural obstacles which push house prices up without creating positive externalities for the city as a whole (Henderson 2007).

As far back as the late 1980s urban planners in Brazil recognized that urban norms and regulations were increasing development costs and affecting social housing. In spite of the lack of statistical evidence, practitioners became aware that minimum lot sizes, mandatory parking lots, impediments to mixed uses (commercial and residential), and similar urban land use regulations were not conducive to increasing the supply of affordable housing.

A pragmatic approach was taken to minimize such constraints through the ZEIS (Special Social Interest Zone), where cost-increasing regulations would be relaxed so that affordable housing could be promoted. Most ZEIS are defined to coincide with the boundaries of existing squatter settlements and are used as a tool for municipalities to regularize previous irregular land occupations by simply stating that the settlement does not need to comply with the norms generally applicable to urban areas in the municipality. The drawback of this palliative measure is that a municipality is no longer compelled to intervene in the area since, by definition, the ZEIS is already in compliance. In other words, the double standard opens the door for the municipality to ignore the problem beyond issuing a zoning ordinance.

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In sum, housing policy reform in Brazil today requires a broader approach that articulates financing, technology, and urban management elements, and moves away from the paternalistic supply of shelter or the narrow focus on informal settlements. We have argued that the role of land use and building regulation is an indispensable factor to be reckoned with in any attempt to seriously address the challenge posed by informality in Brazilian and other third world cities. **L**