

Call for Research Proposals

Land Markets in Latin American and Caribbean Cities

A project of The Latin American and Caribbean Research Network

1. Justification and Background

An essential condition for a well-functioning housing sector is the availability of serviced land for residential use at a price that is affordable to most people. In Latin America and the Caribbean (LAC) the rapid urbanization process that took place in the second half of the twentieth century put unprecedented pressure on the land market. At a time when a large proportion of rural migrants who moved to cities looking for jobs had low wages and could not afford completed housing units produced by the formal sector, municipalities were unable to keep up with the pace of urban expansion and extend infrastructure, enforce urban regulation and ensure proper titling and registration of land. As a result, two major forms of informal land markets provided housing solutions for low-income households: (i) slums characterized by land squatting and generally located in more central areas; and (ii) irregular or clandestine land developments promoted by informal developers and generally located on the outskirts of cities.

According to United Nations estimates (UN-Habitat 2006), in 2005 the population of slums in LAC urban areas was 134 million. Although this figure is considerable, the region's urbanization and slum growth rates have stabilized in the past decade. Between 1990 and 2005, the annual growth rate of the region's slums was 1.28 percent, lower than overall urban population growth in that period. As a consequence, the percentage of the urban population living in slums fell from 35.4 percent to 30.8 percent (UN-Habitat 2006).

Nonetheless, the prevalence and growth of slums varies significantly in the region. While more than 80 percent of the urban population of Haiti and Nicaragua live in slums, the comparable figures for Uruguay and Costa Rica are less than 15 percent. Annual slum growth rates are very low in Brazil and Mexico, at 0.34 and 0.49 percent, respectively, but remain very high in Nicaragua and Peru, at 3.41 and 3.36 percent, respectively (UN-Habitat 2006).

The other major form of informal land markets consists of irregular or clandestine land developments. There is very little comparable information about the size and historic development of irregular land developments, but several studies have indicated that this land market is becoming the prevalent form of access to land for low-income families in Latin American and the Caribbean (Gilbert 2001). Irregular or clandestine land developments were the main form in which the periphery of several cities and metropolitan areas in LAC expanded to absorb the large flow of migrants or families that were displaced by urban renewal and slum removal programs. The process involved the subdivision of land in individual plots by a developer who may or may not have been associated with the landowner, and these subdivisions were generally located in outlying areas, often in rural areas where urban development was not permitted. Nothing more than dirt roads was generally provided and most of these subdivisions lacked infrastructure such as access to water, sewage, pavements, electricity, and transportation. Low-income families paid for the plot over a period of five to ten years and built their houses on their own over time, starting with an improvised shack and improving it with more permanent materials in 10 or 20 years. Although these developments generally had layouts that made the introduction of infrastructure and services more feasible than in slums, and property rights conditions that were easier to regularize,

bringing infrastructure to such distant locations and providing adequate transportation services has always posed a particular challenge for peripheral irregular or clandestine developments. While slums and irregular land developments have been characterized by precarious housing and neighborhood conditions, this situation has changed in recent years, in part because of public investments in basic infrastructure, and in part because of individual progressive improvement of housing conditions. Between 1990 and 2006, the percentage of houses in urban areas with access to improved sanitation facilities in LAC increased from 81 to 86 percent, and water access in urban areas is nearly universal; in 2006, some 97 percent of the urban population had access to an improved water source (World Bank 2009). On the other hand, people living on informal land have been progressively making improvements to their houses, so the proportion of urban households living in houses with durable materials has increased.

The reduction of this gap in urban conditions in the formal and informal land markets is in part explained by the proliferation of slum upgrading policies aimed at expanding infrastructure, regularizing land and/or improving housing structures in existing informal settlements. Since the democratization process of several Latin American countries began in the 1980s, governments in the region have revised their housing policies towards informal settlements, moving away from massive evictions to policies that recognized those settlements' existence and tried to improve their conditions.

The emphasis of these programs has varied. Some, such as those in Peru and Chile, have focused on the regularization of land titles (Field 2007, Brakarz et al. 2002, Calderón 1999). Others, including programs in Brazil, Chile, Argentina, Colombia and Bolivia have emphasized infrastructure and service upgrading (Imparato and Ruster 2003, Brakarz et al. 2002). Some have even addressed structural improvement, such as programs in Panama that provide housing construction kits and an Ecuadorian program that provides direct subsidies to home improvements. .

These policies have been relatively successful in improving urban conditions in existing informal settlements. Less successful, however, have been attempts to prevent the formation of new informal areas by increasing the availability of serviced land for residential use at affordable prices to low-income families in urban areas. Porto Alegre, for example, a city in the south of Brazil with a population of 1.4 million in 2000, has gained worldwide recognition for the improvement of its quality of life through poverty reduction and social inclusion programs and participatory planning (UNDP 2003). One hundred percent of the city's houses have access to electricity and are serviced by regular and recycling waste collection. Some 99.5 percent have access to treated water, and 84 percent have access to sewage systems. Yet 25.5 percent of its population lives in the city's 727 irregular settlements, whose population is growing at an estimated 4 percent a year while the population of the city as a whole is growing at 1.35 percent a year (Smolka and Damasio 2005).

Several factors explain the existence of informal land markets. Low incomes and limited access to formal finance, for instance, represent two of the main demand-side factors. But income and finance alone have not been able to explain the high price of serviced land in Latin America. On the peripheries of many Latin American cities, the price of a square meter of serviced land offered by private agents are close in absolute terms to those found in cities in the developed world, where per capita income is typically 7 to 10 times higher than in Latin America. These indicators suggest that difficulty in gaining access to serviced land may actually be one of the factors that contribute to poverty (Smolka 2003).

Much knowledge has been gained in the region on how to improve conditions in existing settlements through regularization of land titles and slum upgrading, but there is less experience in how to accommodate the future growth of cities in an efficient and equitable manner. Governments previously attempted to meet these needs through sites-and-services programs that provided plots of land with infrastructure to low-income families, but these programs were extensively criticized for their high costs,

inadequate planning and layout, and poorly chosen locations (Buckley and Kalarickal 2005, Mehta and Cira 2002).

Since public supply of serviced land has not proven effective, the challenge is to find policies that would encourage the private sector to supply serviced land at affordable prices. The supply of land is affected by a number of factors: (i) geographic constraints that limit the availability of buildable land; (ii) property rights regime and the structure of land ownership; (iii) infrastructure development such as roads, electricity, water and sanitation; (iv) urban regulation such as urban growth control and minimum plot size; and (v) competition from other land uses or land hoarding as a form of savings, a protection against inflation, or speculative investment (Angel 2000). Understanding how changes in some of these factors can affect the availability of affordable serviced land for residential use is essential for the design of policies and programs that can improve formal land access among low and moderate-income households in Latin America and the Caribbean.

2. Objective

This research network project will support studies that analyze land markets, policies and outcomes in selected LAC countries to develop policy recommendations to improve the availability of affordable serviced land for residential use. The specific objectives of the study are to answer the following questions:

- What factors in the policy environment for land markets have a significant effect on land market outcomes?
- What policies are associated with an increase in urban land affordability?
- What policies are associated with a decrease in the premium associated with servicing land?
- What policies are associated with a decrease in the premium associated with converting land from rural to urban?

3. Scope and Methodology

The studies in this project will assess the effect of the property rights regime, the regulatory regime and infrastructure development on three land market outcomes: (i) land affordability, measured by the median serviced land price-to-income ratio; (ii) the premium associated with servicing land, measured by ratio of serviced land price and raw land price (land development multiplier); and (iii) the premium associated with converting rural to urban land, measured by the ratio of raw urban land price and rural land price (land conversion multiplier).

Each study will select, in each country, areas or neighborhoods in two cities that are experiencing urban growth and have differences in terms of the size of the informal market, the stringency of the regulatory regime, and the level of investment in basic infrastructure. The study will be structured in three parts: (i) a descriptive assessment of the land market in each city; (ii) a comparative statics of the effects of property rights regime, the regulatory regime and the infrastructure development on land market outcomes, controlling for other differences between the two cities such as household incomes, population size and transportation cost; and (iii) policy recommendations.

There are two general methodological approaches that have been used in the literature in the appraisal of the policy environment on land and housing prices and other outcomes: time series and cross-sectional analysis. An example of a time series analysis is the study by Lall et al. (2006). The authors examine the effects of land use and zoning regulations on housing supply and slum formation across Brazilian cities between 1980 and 2000. They find very inelastic housing supply in the Brazilian

formal housing market, which limits formal housing supply adjustments in response to demand increases and therefore increases slum formation. The imputed Brazilian formal housing supply elasticity is similar to those in Malaysia and South Korea, which are considered to have restrictive regulatory environments.

Because of difficulties in obtaining time series data, particularly in regard to land and housing prices, cross-sectional studies comparing two or more areas with differences in their respective policy environments have been widely used in the literature on developing countries. One such study is by Angel (2000), who tests whether an enabling housing policy environment¹ has a positive effect on the performance of the housing sector, using qualitative and quantitative analyses of housing markets and policies around the world. To measure the regulatory environment for urban development, the author develops a Regulatory Regime Index, a composite measure of three variables: permits delay, minimum lot size, and minimum floor area per dwelling. The regulatory index is made up of indexes that measure other elements of the housing policy environment (property rights regime index, housing finance regime index, housing subsidy index, and residential infrastructure index) and an ordinary least squares regression analysis estimates the effect of this broad index (the enabling index) on a housing price index, a rent price index, and a weighted housing price index. His results show that a more enabling housing policy environment significantly lowers the housing price index in the 45 countries studied. The same applies to the housing rent index and the weighted housing price index in the 38 countries that have little or no rent control.

Methodology and Data Sources

The studies financed by the project will use time series or cross-sectional analysis (or a combination thereof) that compares areas or neighborhoods in two cities in each country that have differences in terms of the size of the informal market, the stringency of the regulatory regime, and the level of investment in basic infrastructure. Studies should control for other factors that affect land prices identified as relevant by economic theory such as household incomes, population size and transport cost. Proposals should aim to use or construct data bases either at the individual plot level or at levels of disaggregation specific enough and with sufficient variation across areas or neighborhoods, regulatory regimes and other variables of interest to allow identification of the effects of different factors on land prices. Preference will be given to proposals that build on the detailed methodology included in Annex 1.

In order to ensure comparability and consistency across country studies, the measures to be used by each study, especially those related to land market outcomes, property rights regime, regulatory regime and infrastructure development, should aim to be consistent with the Housing Indicators Program, a joint program of the World Bank and the United Nations, started in 1990 and discussed in Angel (2000).

Land prices. A standard way of examining the effects of the policy environment on land prices is observing what happens at the margin of a city. The literature assumes that land supply is fixed at the city center, so price is entirely demand determined at those locations, but at the periphery of the urban area the supply of land is infinitely elastic, so the price is determined by the cost of supplying land (Monk and Whitehead 1996). Selected studies should conduct a survey to collect

¹ Angel defines an enabling housing policy environment as one that meets each of five criteria: adjudication of property rights in land and housing, development and regulation of housing finance institutions, administration of housing subsidies, provision and maintenance of residential infrastructure, and regulation of land and housing development. The author quantifies any given housing policy regime along one of its five components and arrives at a composite measure of the degree of enabling of the housing policy regime as a whole, the Enabling Index.

data on rural land prices, raw land prices, and serviced-land prices in typical areas on the urban fringe that are currently undergoing residential development. Preference will be given to surveys that build on the proposed methodological approach outlined in [Annex 1](#).

Property rights regime. The property rights regime, the formal and informal rules concerning acquisition, sale, development and use of real estate properties, is an essential component of a well-functioning land market, but the literature has been struggling to find ways to measure it. For the purpose of this project, the strength of the rule of law concerning real estate properties will be assessed by measuring coverage, performance in terms of regularizing existing informal neighborhoods, and costs. Tentatively, and depending on data availability in each city, selected studies should measure land registration coverage (the ratio between residential properties registered in the land registration agency and the total number of residential properties according to household surveys inside the city limits); rate of regularization (proportion of the housing stock in squatter occupation given partial or full tenure rights during the year); and registration cost (median ratio of the cost of registering the least expensive plot and the market value of the plot).

Regulatory regime. The regulatory regime includes all laws and regulations that affect the process of developing, building, owning and managing the urban land and housing stock. This study will focus on the laws and regulations that affect land development for residential use, such as urban growth controls and residential zoning and land development regulations. Tentatively, and depending on data availability in each city, selected studies should measure minimum lot size (minimum lot size for a single-family housing unit in a new 50-200 unit residential subdivision); permits delay (median length in months to obtain approvals, permits, and titles for a new, medium size (50 to 200 unit) residential subdivision in an area at the urban fringe where residential development is permitted); and regulatory cost of land development (costs associated with obtaining development permits, paying development fees and taxes, securing utility service rights, and obtaining and transferring individual titles to plots of land);

Infrastructure development. In this project, urban infrastructure for the purpose of land development for residential use is defined as basic physical networks such as roads and walkways; water, sewerage, and drainage; electricity; and telecommunication. In addition, some services and facilities affect the quality (and price) of land developments, such as public transportation, waste disposal, police and fire protection, schools, parks and playgrounds, sports and cultural facilities and healthcare facilities. While there are several indicators that can measure availability and adequacy of urban infrastructure systems, this study will focus on those that can most likely be collected in a wide range of cities.

Selected studies should assess three aspects of infrastructure development: coverage, performance, and fiscal management. Tentatively, and depending on data availability in each city, studies should aim to measure coverage of infrastructure systems by measuring in each city the percentage of houses with access to piped water, sewerage systems, electricity, and telephone service; kilometers of paved road per capita; volume of solid waste disposed of and treated; and amount of public open space per capita. Measures of infrastructure performance will tentatively include reliability of water and electricity services and travel time to work. A measure of fiscal management will include the city's infrastructure capital and operating expenditures per capita. Infrastructure expenditure per capita is defined as the ratio of total expenditures (operations, maintenance, and capital) by all levels of government (including private utilities and parastatal agencies) on infrastructure services (roads, sewage, drainage, water supply, electricity, and garbage collection) in the city during current year to the city's population.

Measures of land market outcomes. Studies will collect primary data to measure three land market outcomes:

- i) *Land price-to-income ratio*, a measure of land affordability, defined as the ratio of serviced land price (median land price of a formal developed plot at the urban fringe in a typical subdivision) and median income;
- ii) *Land development multiplier*, a measure of the premium associated with servicing land, defined as the ratio of serviced land price and raw urban land price (median land price of an unserviced plot on the urban fringe given planning permission for residential development in an area currently being developed); and
- iii) *Land conversion multiplier*, a measure of the premium associated with converting rural to urban land, to assess if urban growth controls are limiting residential expansion, defined as the ratio of raw urban land price to rural land price (median price of a nearby plot in rural-agricultural use without permission for residential development).

4. Selection Criteria

Research institutions may present a proposal for this project. The final number of proposals accepted will depend on the quality and the proposed budget of the proposals received. Each approved research proposal will receive financial support from the IDB up to **US\$45,000**. Proposed budgets will be evaluated taking into account the scope of work proposed.

Proposals should include a detailed background section and literature review, sources of data to be used, the strategy for collecting land prices, when appropriate, and the detailed empirical strategy. Projects that seek extra funding to complement financing by other institutions are strongly encouraged.

Final papers will be considered for dissemination as IDB working papers and may be included in a book or a special journal issue on land markets in LAC. For studies with only IDB funding, other forms of dissemination or publication should be explicitly approved by the coordinators until the journal issue option has been fully defined. Proposals may include suggestions for further dissemination of the final version of the paper and its policy implications. In addition to the final papers, research institutions or teams of individual consultants should submit the complete database used for the study.

5. Proposal Submission

Research institutions interested in submitting a proposal should pre-register before **March 8, 2010** by [clicking here](#). If unable to pre-register before the due date for proposals (March 26), please send an email to res@iadb.org. Proposals are due **Friday, March 26, 2010**.

Proposals should be submitted using the [Web Submission Form](#). Please note that there are two options within the submission form: one for institutions and another for teams of individual researchers. Please make sure to choose appropriately.

The following information will be required for submitting your proposal:

- The proposal with all the technical aspects involved in the development of the study, based on the Terms of Reference outlined in this Call for Proposals.
- A budget indicating the time and resources that will be used within the context of the research work plan. **The budget is requested as a separate file and should not be included in the proposal.** The budget proposed should disaggregate items financed by the IDB contribution and those financed by the research institution. The budget should distinguish among amounts assigned to professional honoraria, “overhead” and other major categories of research expenditures.
- The name and *Curricula vitae* (three pages maximum) of the research leader and other researchers involved. The research team should demonstrate its ability to meet the objectives of the project, including relevant experience. Please note that for proposals submitted by institutions, subsequent substitutions for researchers originally specified in the proposal may be made with prior approval from the project coordinators, but the research leader (of each subject) should lead the entire project until its full completion. Conditions regarding the substitution of researchers apply only to contracts with institutions and not to contracts with individual researchers.
- The institution must provide the name and contact information of the legal representative, with authority to sign contracts with the IDB, if selected to conduct the study.

Note: ALL proposals and research papers must be submitted in English.

6. Coordination and Schedule

The IDB project team consists of: Maria Teresa Souza and César Bouillon (technical coordinators), Ophélie Chevalier, Arturo Galindo and Carolina Piedrahita. David E. Dowall, University of California at Berkeley, will act as external advisor for the research project.

The tentative schedule of activities is as follows:

March 8, 2010: Due date for **pre-registration**.

March 26, 2010: Due date for receiving proposals. Institutions should ensure that complete documentation is submitted through the [Web Submission Form](#).

April 16, 2010: Announcement of selected research proposals.

April 29-30, 2010: Initial **videoconferences** with selected research teams.

May 28, 2010: Due date for receiving a **preliminary report** with an annotated outline of the research paper, data sources, and methodology to be used in the study.

September 10, 2010: Due date for receiving a **first draft** of research papers.

September 23-24, 2010: First Discussion **Seminar** (location to be determined).

November 26, 2010: Due date for receiving a **second draft** of research papers and delivery of the datasets utilized by the study to the IDB.

December 6-7, 2010: Second Discussion **Seminar** (location to be determined).

January 14, 2011: Deadline for **final version** of the research papers, including a summary that discusses policy lessons.

7. Financial Aspects

The IDB will contribute up to **US\$45,000** for each study, depending on the scope of the work proposed.

The payment schedule is as follows:

30 percent within 30 days of signing the formal agreement between the IDB and the respective research center.

20 percent within 30 days of presenting and approving the first draft of the research paper

20 percent within 30 days of presenting and approving the second draft of the research paper and upon delivery of the datasets utilized by the study to the IDB.

30 percent upon approval by the Bank of the final research paper.

8. Bibliography

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