



The influence of urban violence and land title irregularity on the market value of properties: A case study in Belém, an Amazon metropolis



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ABSTRACT

As has occurred with many other cities and in several emerging countries, Belém, has been occupied in a haphazard fashion without any formal planning. The high demand for living space and high cost of housing have forced people to occupy peripheral areas of cities, generating social problems that instead of being solved are actually intensifying. Urban violence and land title irregularity are some of the serious problems both for society in general and for the real estate sector, which has become more dynamic in recent years because of expanding credit. However, this economic segment faces major difficulties in its investments and its commercial transactions, often with significant losses or reductions in prices, which is in part due to these problems. This paper seeks to contribute towards understanding the real estate markets of cities in emerging countries that have such characteristics of violence and irregularity, with the objective of quantifying the influence of these variables on the price of residential properties, using as a reference the city of Belém, capital of the State of Pará (Brazil). For the study samples were collected in 6 distinct city neighborhoods, for a total of 28 items that were treated with inferential statistics and by the coast and hedonic approaches in order to analyze the variation in their value. The results achieved show a depreciation or reduction in value of up to 67%, depending on the area or neighborhood analyzed. The greatest share in variation of value was caused by location, as was expected, followed by urban violence and land-title irregularity, with percentages of 34%, 22% and 11% respectively.

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Introduction

At the beginning of the 21st century, the Brazilian real estate market began to be highly dynamic and quite active due to the greater supply and flexibility of credit resulting from the consolidation of a public economic and financial program begun in the 1990s, called the Real Plan. This program stabilized, and one might even say civilized, Brazilian finances. However, the real estate market faces a series of problems, such as land title issues and urban violence, which force its agents to seek new strategies to guarantee the production and purchase of housing on a sustainable basis, especially for the segment of the population that has less economic and financial power, and thereby reduce the country's colossal housing deficit.

The issues of violence and irregular documentation of property are, in principle, strongly correlated with the value of real estate, and that is perceived, even if subjectively, in the urban real estate market, especially in situations in which those characteristics are

most accentuated. This correlation usually produces a loss or reduction in value and, in general, is not analyzed as a specific variable among those adopted in technical evaluation studies. It is inferred that these intrinsic characteristics of urban violence and land-title irregularity are integral to the condition of being on the periphery; in other words, the locality variable in itself incorporates these characteristics. However, in this paper, we start from the premise that these may manifest themselves with differing intensities in distinct locations (peripheral or non-peripheral).

Violence and the resulting feeling of insecurity are major social problems in Latin America and have very significant economic repercussions. Analysts of the social sciences have been trying to confront this issue from both the theoretical and empirical points of view in attempting to propose public policies to address these issues, which are becoming increasingly important in the political agenda around the world. Research conducted with Latin American, North American and European populations indicates that since the 1990s, violence has become the main public opinion concern, surpassing issues such as unemployment, inflation, interest rates and high taxes in the public mind (Fajnzylber & Araújo, 2001; Paixão, 2009).

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There is broad and deep literature on antisocial or conflicting behaviors that are fields for the social, biological, medical and legal sciences, which study, theorize and discuss crime, wars and violence in ways that are not always convergent. Authors such as [Hobbes \(2003\)](#), [Bourdieu \(1989\)](#), [Arendt \(1983\)](#) and [Foucault \(1994: 38–39\)](#), among many others, are important sources for conceptual aspects of this subject. However, this is not the focus of this paper. The analytical option is the perception of violence, particularly one of its forms, crime.

[Beck \(2001\)](#), in the concept of *reflexive modernization*, describes risk as the fundamental characteristic of the contemporary society and notes the capacity of the phenomenon of fear to generate social behaviors produced by the perception of the social environment that lead to self-reflection. In that regard, the causes of the perception of crime and violence are often fear and the feeling of insecurity, and this perception also produces fear. There are thus asymmetries between crime itself and the perception of it that need to be explored as part of social reality, without denying the real existence of crime.

Various studies take into account the perception of crime and the resulting feeling of insecurity, fear and perception of violence as essential in order for public policy-makers to be able to improve policies for preventing and combating this social phenomenon.

The perception of crime operates as a mobilizing force for explaining social and individual behavior. When it is reproduced in the culture, it becomes internalized in the individual and is thus made into an objective datum for evaluating social events.

In that regard, when statistically comparing crimes committed in England and Wales and comparing the data with official police records, [Parfremment-Hopkins and Bryony Green \(2010: p. 1099\)](#) found differences in the evolution of crimes due to the methodology employed by different sources. They demonstrated the advantage of measuring the perception of crime, showing that even when the rate of crimes diminishes nationwide, the perception of changes at local levels continues to be high.

[Ripp \(2010\)](#) found that violent offenses, especially robbery and aggression, have the greatest influence on the variation in the perception of crime by the population.

Similar conclusions were obtained by [Davis and Dossetor \(2010\)](#) when they applied statistical modeling to a 2007 crime census sample from Australia, comparing categories of gender, age, education and sources of information on crime in the Australian context. They concluded that as the real crime rate diminishes, the perception of a rise in crime increases.

[Pfeiffer, Windzio, and Kleimann \(2011\)](#), in a study on the perception of crime from the perspective of audiences of television shows, demonstrated that although there was a drop in the real crime rate, for the television audience there was a perception of an increase in violence, with a resulting pressure for applying harsher penalties for offenders.

In summary, these studies essentially demonstrate that the perception of criminality and thus of violence is significantly different from the actual amount of crime. This perception is in fact fundamentally subjective and produced by feelings of insecurity and fear.

Although violence is a global phenomenon, its dimensions are distinct in different parts of the world. Latin America, with only 14% of the world's population, is responsible for 42% of firearm-related homicides in the entire world, and in Brazil, the numbers are alarming: with less than 3% of the worldwide population, it is responsible for 11% of firearm-related deaths occurring yearly around the world ([Pérez, 2008](#)).

In Brazilian urban centers, the tendency toward increasing violence since the 1980s has been unequivocal and considerably more intense than in other regions of the world. [Souza and Lima \(2006\)](#) note that the death rate from external causes rose from 59 per 100,000 inhabitants during the 1980s to 75.2 per 100,000 inhabit-

ants in 2002. In Eastern Europe, the rate is less than 3, and in the USA, it varies between 5 and 6.

In the local environment, the issue of violence demands local responses. According to [Morrison, Buvinic, and Shifter \(2005\)](#) and [Paixão \(2009\)](#), the local government is the level best prepared to address urban violence because it maps and diagnoses violence at the intra-urban level with the greatest agility and can build solutions that are in line with the reality of local violence.

The question of legality or land-title irregularity in the use, possession, occupation and ownership of land is also a serious problem in the great majority of Brazilian cities, whether in large cities or in smaller urban centers in the more developed regions, such as the Center-South or in the so-called peripheral regions such as the North-Northeast.

[Fernandes \(2006\)](#) notes that almost 50% of the population in the two Brazilian megacities of São Paulo and Rio de Janeiro—in other words, between 8 and 9 million persons—are in situations of land-title irregularity. In the federal capital, Brasília, in the areas not belonging to the Pilot Plan (the original project), an incredible 92% of urban allotments are informal, 7% are formal and only 1% are effectively registered ([Governo do Distrito Federal, 2006](#)). Urban lands or properties in Brazilian cities are, in one form or another, mostly irregular, illegal or informal. Specifically in the case of Belém, the focus of this article, approximately 70% of properties do not have legal security in terms of domain and title ([Cardoso, 2007](#)). This means that what is irregular, informal or illegal in this context is the rule and what is regular or legal is the exception.

The issue of land-title irregularity is a broad and complex topic that varies from country to country and is highly tied to legal/land office aspects but also has a strong technological, social and cultural nature and consequences, in terms of citizenship, economics, and even symbolism for urban areas.

[Perlman \(2010\)](#) found that the “favelas” of Rio de Janeiro—the areas out of conformity in urbanistic terms that in principle are the irregular urban spaces in terms of land title issues—present high degrees of violence and fear, along with drug trafficking and vigilante groups.

This study starts with the premise that there is a significant cause-and-effect relation between the condition of regularity for real estate properties and their market values because the possibility of financing, which generally produces a rise or positive elasticity in prices, only exists if the market is considered legal ([Avelar et al., 2009](#)). In other words, one must present the documentation required by financial/banking institutions, which in the case of legislation and practice in Brazil, fundamentally means a certificate or Registration of the Property with the appropriate Land Title Office.

This study is based on the assumptions that violence or the feeling of insecurity produced by it and land-title irregularity are phenomena that occur in both regions considered worse and better in terms of infrastructure (peripheral or not) and that both violence and irregularity produce variations in or impacts on real estate values. A quantitative approach (multiple regression) is adopted in this study, using the TS SISREG software package, to the application of the comparative market (price) approach, the cost approach and also hedonic methods to the study the influence of the “urban violence” and “land-title irregularity” variables on the market value of residential properties. The case study was developed in the city of Belém-PA, a city in the Amazon, using data collected in 6 neighborhoods (Nazaré, Umarizal, Pedreira, Marco, Guamá, Terra Firme). Statistical analyses were conducted in an effort to develop a model (equation) that would represent the variation of value in the presence/absence of the conditions of violence and irregularity (the hedonic method)—a model that can be applied or replicated in other cities in Brazil or even in other countries in which situations of urban violence and land-title illegality are recurring, with adaptations for regional/local peculiarities and singularities.

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