

The Effects of the 2014 World Cup in Real Estate Market in Rio de Janeiro and São Paulo

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Abstract. Brazil has witnessed in recent years a very positive moment in the political and economic aspects. Among the many consequences, was nominated to host major sports mega-events in a short period of time. This increases considerably the expectations of economic agents, for improvements in public service delivery in urban mobility, training human resources and investment in infrastructure. Expectations are that such improvements will be obtained in standards practiced by developed nations. At the same time, we observe empirically a large increase in property prices, reaching levels never before practiced. This paper aims to describe and correlate the increases in real estate of the two largest Brazilian cities - Rio de Janeiro and Sao Paulo - and the World Cup 2014, discussing the possibility of a speculative real estate bubble.

Keywords: Financial Bubble, Real Estate Market, Mega Events, Speculation.

1. Introduction

The purpose of buying a homeownership is a problem in Brazilian history since the great migration from rural areas to urban centers in the 1960s, and the consequent urban disorganization resulting from the growth of cities associated with the population growth between 1970 and 2010 that increased from 90 to 190 million. The housing problem became an object of public policy since the creation of the National Housing Bank to the latest government program “Minha Casa Minha Vida” (“My House, My Life”).

The price per square meter grew more than 12% in the last twelve months, reaching the same levels found in prime areas of developed countries. [1]

But the housing market cannot be explained only by the principles of supply and demand. In Brazil the sale has been reduced in relation to the supply of housing in the last two years and valuation still growing.

The supply of homes has no sensitivity to short-term demand. Commonly, the production of the good is more time consuming than most other assets, thus, estimates of demand and future prices are the variables relevant to planning.

On 30 October 2007, FIFA announced Brazil to host the World Cup in 2014, which requires a return on infrastructure investments, such as urban mobility, airports, hotel chains, stadiums and qualification of manpower site. This scenario generates the expected improvement in quality of life, which is favorable to an overvaluation of real estate.

The present study attempts to scale the possibility of the emergence of a speculative bubble caused by the event mentioned discussing real estate valuation occurred in the cities of Rio de Janeiro and São Paulo.

The paper discusses the concepts and history of Brazilian real estate sector as well as the possible legacy of the FIFA World Cup. Subsequently discusses the market models in a quantitative manner, first using for both the FIFE-ZAP (Brazilian index of sales and rentals of real estate) and INCC (National Index of Construction) from January 2008 until December 2012. Despite the other host cities, the period and locations (Rio de Janeiro and São Paulo) were selected due to data availability.

Then is used asset pricing proposed by Scott and Miles [2], based on the present value of perpetuity, and finally, for evaluation of supply and demand, another indicator considered is the sales-to-inventory ratio

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(SIR). This index, provided by the housing market associations, divides the number of deals closed by the number of properties available for sale in any given month.

2. Housing Bubble

The concept of real estate bubble is closely linked to the definition used in the capital market, where it originated its characterization and quantification models. A bubble is given by the continuous increase in the price of an asset, and consequently increased expectations, which, in turn, attracts new buyers, generally speculators interested in profits from trading in the asset rather than its fruition. The increase is usually followed by a reversal of expectations and a sharp drop in price resulting in financial crisis.

As defined by Marchetti [3], the bubbles occur under certain environmental conditions such as: economic growth; collective perception of prosperity, and high degree of financial liquidity with interest rates stable.

The existence of bubble depends on the scope of the analysis, but Oreiro [4] classifies the approaches into two basic types: neoclassical or fundamentalist and post-Keynesian.

The neoclassical school adopts the conventional theory of bubbles, i.e. is essentially fundamentalist. In this case, the bubble can be defined as: $B = p - vf$, where B is the bubble size, p is the price of the asset at the time of sale and vf is the fundamental value generated by pricing methods.

For neoclassical theorists bubbles are an object of study unnecessary and do not deserve special attention. For them, the bubbles will always exist and generate benefits for the economy, because eliminating the problem of dynamic inefficiency. [4]

Under the post-Keynesian perspective is unenforceable arbitration of an ideal price of property in a market characterized by uncertainty and variables difficult to verify and quantify. Thus, they conceive that the appearance of a bubble results from discrepancy between the dynamics of the asset price and the price of their inputs and production costs - which in this study is verified by the relationship between the indexes FIPE-ZAP and INCC (National Index Construction).

The INCC is the main indicator of the Brazilian civil construction prices. It is calculated from a weighted average of prices of forty-one construction materials and eleven items of labor.

The index FIPE-Zap is an indicator of housing prices organized by FIPE (Institute of Economic Research) in partnership with the website Zap. Its calculation began in early 2008, through classified ads, with weighting the value of each property considering variables such as floor area, number of bedrooms, neighborhood, etc.

3. Brief History of the Housing Market in Brazil

The housing deficit, which dates from the late 19th century, emerged with the start of national industrialization. This fact led to overcrowded cities, also increasing the demand for housing for the new workers. The solution to this problem was given by agglutination of several low income families in the same house called “cortiço”.

Fearing the devaluation of its assets which was located near the slums, the upper classes expropriated families who lived there and knocked down these buildings forcing them to seek housing in peripheral places and precarious location now known generically as “favela” (slum). [5]

From that time it was observed that the location of a property becomes important pricing variable. The houses closer to the city center, which has better infrastructure, were valued, however, a land in the slum was practically given to anyone interested in building a house..

The expansion of suburbs and slums was accentuated in decades that followed and reached about 3.6 million homes in 1950 [5]. In this context, the system of housing finance was almost non-existent, with inflation at the time, the fixed interest rate for credit produced negative real rates, discouraging private banks.

In 1964 was created the SFH (Housing Finance System) in order to facilitate the acquisition of property and promote the national real estate market. This system was based on the collection of funds from savings accounts and the guarantee fund of the employee. In parallel, was created BNH (National Housing Bank), a

bank regulator and mediator of housing credit. This organization was responsible for implementing the public housing policy.

The SFH also had a poor performance during the 90s, due to the economic crisis. However, in this decade were made important changes in the system of financing such as raising funds through real estate funds.

After 2002, the economy gradually gave signs of stabilization and growth. In recent years there has been a reduction in interest rates, increased purchasing power and implementing access mechanism of low-income families to home ownership, for example, the program "Minha Casa Minha Vida" giving direct subsidies and offering attractive rates for popular real estate acquisition.

All these factors contributed to the recovery of the SFH in the last decade, growth in the number of financing housing units was approximately 30% per year.

4. Differences and similarities between the Brazilian and U.S. housing market

The U.S. housing crisis began in the late 90s with the highest housing appreciation in 50 years, in a short period of time the buildings reached triple in value [6]. This fact was driven by low interest rates for loans based on mortgages which, in turn, meant that investors opted for the immobilization of capital rather than liquidity.

When the proportion of the population with the capacity credit was covered to give permanence to the growth cycle that generated good profits, the rules for granting mortgages were reduced, in order to reach a new segment of society that was not previously qualified (subprime).

According to Filho and Borça Jr [6], a large portion of these new borrowers could not afford the mortgage payments after the initial periods. The solution was to make a new, larger mortgage on the property, since it had appreciated, and settle the old with the borrowed money. In addition to lowering the value of benefits, the operation also gave a residual value in cash where debtors spent as they wished, which further increased the feeling of prosperity and was called "credit binge."

When the cycle began to retreat due to rising interest rates and real estate devaluation, the system collapsed. Debtors failed to make a new mortgage to repay the old and the benefits were even higher due to floating interest rates. The consequences are known by everyone.

When compared with the case of Brazil, there are many facts similar to the American crisis. In recent years achieved one of the lowest rates of risk-free interest of Brazilian economic history, which generated not liquidity preference.

The implementation of the program "Minha Casa Minha Vida" allowed access to people before ignored by banks, the real estate market. However, it is worth highlighting that the direct subsidy given by the government keeps the installments at levels sufficient to discharge the debts.

The occurrence of a housing bubble in Brazil would not produce the effects observed in the United States, due to the conservative practices of housing credit applied in Brazil, the high government participation in the market as an intermediary and executor of policies to encourage housing beyond high degree of regulation of financial institutions by the Central Bank.

In Brazil, the mortgage is not a usual form of housing finance; sales contracts are rigid and provide little opportunity for exclusive pursuit of leverage. To ensure the enjoyment of the good by low income people, the government restricts the ability to lease or sell the property until they are paid off, avoiding speculative purposes.

5. The Mega Sporting Events and Their Legacy

Although of recent origin, according to Santos and Souza [7] the mega sporting events dating back to Ancient Greece, from the twentieth century have become sufficiently important so that your host be turned cause of dispute between countries. They became a way of show of force in the Cold War, such as the Olympic Games in Moscow 1980 and Los Angeles in 1984.

The mega events more than sports meetings, became elements of marketing strategy, seeking to attract more tourists, generating profitability of the tourism sector in a given region, spread a positive image of the place or strengthen a brand on the market. [8]

In addition to becoming a lucrative business it appears that such events bring positive externalities that are historically overvalued, while the possible negative aspects are undervalued. There are several elements that influence the real estate market, because of the expectations of economic agents with increased local pride, international recognition of the region, reducing the crime scene, etc., which allows to infer a possible correlation between the Cup and the real estate valuation.

Expectations related to the realization of mega sporting events go beyond the event itself. The set of expectations is related to the possible legacies.

Although it is difficult to implement it has been agreed by the international organizations, resolutions of urban mobility problems, the construction of sports equipment, human resource development and other improvements

Fifty-one urban mobility improvements are planned for the host cities, São Paulo and Rio de Janeiro will receive, respectively, the monorail and BRT (Bus Rapid Transit). The sum of federal investments in these two cities reaches 1.1 billion dollars. [9]

The set of projects affects the expectations of economic agents, bringing up speculative aspect of pricing property, contributing to the possible formation of the housing bubble.

The 3rd Balance of Cup conducted by the Ministry of Sports [9] provides details of the projects of the second planning cycle. It includes: 12 projects for expansion of metropolitan fiber optic networks, 32 projects with 400 interventions in infrastructure in the host cities, 240 thousand opportunities for professional qualification in tourism, expansion of hotel supply, and 14 integrated centers of command and control for public safety. Primarily the qualification of manpower affects twice the price of the property, and qualified citizens with higher income have a higher propensity to consume these goods.

Besides the effects of the World Cup 2014, it is necessary to note that there are specific aspects of valuation for each host city. In the case of Rio de Janeiro, there are a number of factors impacts on the market; the most representative is that the city will also host the 2016 Olympics. The Olympic Games are the greatest sporting event in the world and has never been conducted before in the Latin American country.

Another key element in the valuation of Rio de Janeiro was the public safety policy, who adopted the UPPs (Pacifying Police Units) in communities previously dominated by drug dealers. This policy valued points less sought and without infrastructure. The end trafficking in communities increased property values in adjacent neighbourhoods.

Many of these "slum" neighbourhoods are located in a prime area of Rio de Janeiro (South Zone) that has no geographic areas for expansion. Thus, the communities were also targeted by the real estate speculation for housing or business related to tourism.

6. Analysis and Result

Under a post-Keynesian perspective, uncertainty and unquantifiable variables present in the business does not allow pricing. To check the existence of a price bubble, the best assessment tool is given by the difference between the inputs and the selling price of the property.

Over the past three years, the Rio de Janeiro grew by 84.3% in the valuation of real estate, São Paulo increased 65.6%. The graph below compares the percentage growth index FIPE-Zap selling with INCC since January 2008, the month that started the calculation of the indicator of the housing market in Brazil, very close to the announcement date of Brazil to host the 2014 World Cup (October 2007).

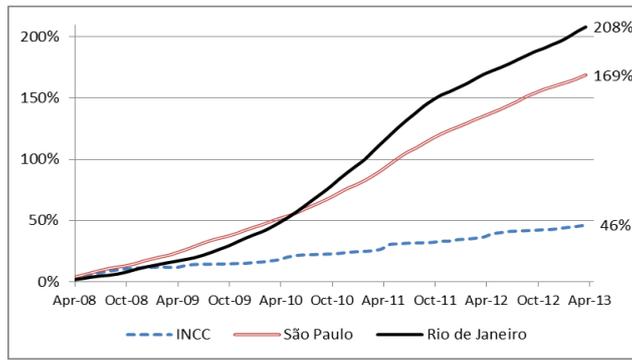


Fig. 1: FIPE-ZAP Index and INCC.

The discrepancy between real estate prices, especially in Rio de Janeiro, in relation to the costs of inputs given by INCC is easily verifiable, which seems a real estate bubble.

However, if the inputs do not explain the increase in the value of housing, should test the hypothesis by demand growth, mainly because it is characterized as a market for future goods. The graphs below show the sales-to-inventory ratio (SIR) of the cities studied, with 12-month moving average.

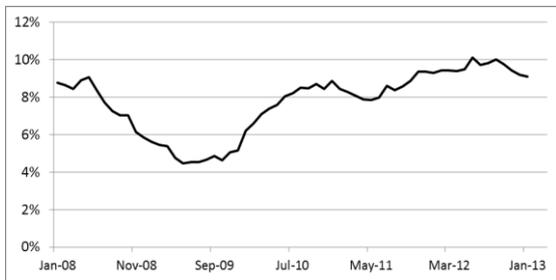


Fig. 2: Rio de Janeiro - SIR 12-Month Moving Average.



Fig. 3: São Paulo - SIR 12-Month Moving Average.

Through the graphs it is clear that both the real estate markets of Rio de Janeiro, as São Paulo have been affected by the subprime crisis in the second half of 2008. The trend of the two cities became distinct since the beginning of 2011. While Rio de Janeiro shows a slight growth in some sections of stability, São Paulo presents decrease. The explanation for this finding may be due to public safety programs implemented in Rio de Janeiro and the 2016 Olympic Games. However, in either case the strength of demand does not explain the observed strong increase in the value of housing.

As inputs and demand cannot elucidate the great value of real estate in the two largest cities in the country, according to the view presented, these prices come from speculation. Speculation is an uncertain factor that cannot be measured, it is the sum of the expectations of economic agents that can perform or not, ie, is a generator environment conducive to the emergence of bubbles.

Considering property as an asset whose value behaves similarly to an action, Scott and Miles [2] and Carvalho [10] adapted the Gordon model for calculating a growing perpetuity. The price of the property P is given by:

$$P = \frac{R}{r + \delta + c - val}$$

where

R is the rent and r , δ , c and val are respectively the rates market interest, depreciation, insurance and rent growth.

Assessing the economic outlook from January 2008 until December 2012 it appears that the values of r , δ and c have a positive change, but not enough to produce lower prices. Thus, only the rent and the expected appreciation could significantly affect the housing boom observed. The charts below compare cumulative indexes for property purchase and rental for both cities.

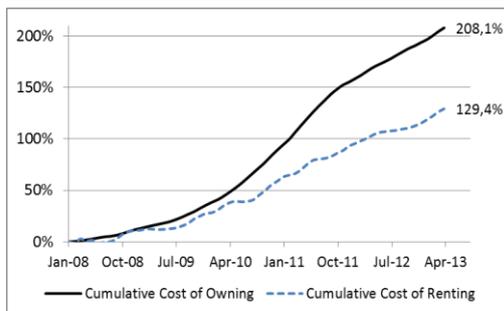


Fig. 4: Rio de Janeiro – FIPE-Zap Indexes.

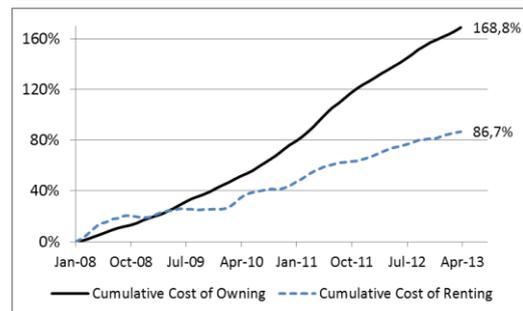


Fig. 5: São Paulo – FIPE-Zap Indexes.

There is a significant discrepancy between the amounts accrued for sale and rent. Even though the latter has grown in both cities, the difference indicates that the speculative factor, i.e., the variable "val", probably has the greatest weight in the pricing process of buildings in the two cities.

7. Concluding Remarks

Although it is difficult to identify and classify real estate bubbles, taking into consideration the models adopted in this article, it is possible to observe the existence of a favourable environment for the emergence of overvaluation of real estate price. Observed in the two cities, it is possible to notice that Rio de Janeiro was the capital most affected by speculation, based on the realization of the World Cup, and also the implementation of UPPs and hosts the Olympic Games.

And specifically with respect to the difference between the values of real estate prices and the amount of your rent, Carvalho [10] draws attention to the fact that the two series are co-integrated, which means that they cannot move away from each other for a long period of time. There should be a long-term relationship between them. There is a maximum and minimum prices determined by the rental income from the tenant. Thus, when the limit is reached and the market value of the property is much higher, a trend revealed by the data of the present study, the selling price of real estate will tend to fall, "busting" a speculative bubble.

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