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EXPULSIONS
THE FRACTALS PERIPHERIES IN BRAZIL**

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ABSTRACT

The contemporary socio-spatial process on metropolises of peripheral countries reveals a number of issues that have a new level of production of space and reproduction of the social relations in accordance with the imperatives of capital accumulation. Among these issues I would like to highlight the production of the metropolitan peripheries as a key understanding to understand the process of urbanization. This position derives from the hypothesis from which the reproduction of capital, in ever broader scale, the periphery appears as renewed possibility of carrying out the reproduction of capital and now assumes new forms of metropolitan organization derived from new socio-spatial processes. In the cities there is a socio-spatial structure that organizes the distribution of population on territory and which has been updated by a new geopolitical economy of the metropolis. Thus, the argument I want to make is that, despite the new urban forms (fragmented, dispersed, extensive, diffuse, reticular) the center-periphery concept remains essential in explaining the contemporary urban phenomenon in Brazil, despite some literature point to an overcoming of this dichotomy. Therefore, it is necessary to understand this new form from a look from the redefinition of center-periphery notions of recovering these significant. The methodology is based on the definition of poverty used from the information concerning the Income Household per capita from Brazilian Census of 2000 and 2010. The article demonstrates that the spatial expansion of the analyzed cities began to acquire, especially from the twenty-first century, a new spatial expression, which I tried to call fractal periphery, that become organized spatially dispersed and fragmented way over the territory.

1. INTRODUCTION

The form of contemporary urbanization in Brazil assumes new qualities that are determined, in especial, by new social process regulated by capital accumulation. It's necessary to redefine this dimension, taking as starting point, the expulsion of the poor peoples to the metropolitan peripheries. To doing so, I propose in order to redefine this process call these new metropolitan peripheries by 'fractal peripheries'.

Limonad and Costa (2014) explore a differentiation in the conceptual field of urban research: the opposition of the edgeless cities notion and the conservation of the center-periphery models. The authors argue que this question arose due the expressive change in the spatial organization of metropolis with the third industrial revolution that affected the distribution of population and impacted the schemes of the production of space, defying established concepts of urban studies. So much has been written about the incapacity of the concepts of center and periphery to understand the contemporary production of space. According to Limonad and Costa (2014, p.118) "[...] contemporary urban and metropolitan sprawl defies previous center-periphery correlations".

It is a fact that second half of 2000s has been occurring a reorganization of metropolitan space at different scales; as a result, they are subject to new social and spatial logic in the production of space. It must be recognized also that these new structures challenge traditional interpretations and paradigms, requiring analytical efforts to understand the current urban reality.

There is no lack of evidence about the fragmentation and dispersion of urban sprawl, which they have led to the ideas of city-region (SOJA, 2008), edgeless cities (LANG, 2003), dispersal or fractal urbanization. However, Limonad and Costa (2014) ask an essential question: "Has the idea of center and centrality expired? Or has it acquired new meaning?". The argument that I intend to build is that, despite the new urban forms (fragmented, scattered, extensive, diffuse, reticular, fractals), the concept of center-periphery remains essential in explaining the contemporary urban phenomenon. Therefore, it is necessary to understand this new urban setting based on the reinterpretation of the notion of center-periphery to the contemporary processes and forms. As pointed out by Scott and Moulaert (1997, p.267): "The dynamics shaping contemporary cities (and, as a corollary, the nature of urban problems) have shifted Significantly since the 1970s calling for new conceptual tools and new forms of political mobilization". However, this need for "new conceptual tools" must pass necessarily by the understanding of economic and social formation of each spatial context analyzed (SANTOS, 1982).

The spatial distribution of social groups is far from random, as if the underground space was socially indeterminate. Rather, there is a clear pattern of housing that defines social relations that materialized in space, show relationships of segregation.

Thus, the theoretical and methodological basis underlying these reflection is the idea that spatial inequalities are the result of the historical process of production's relations reproduction and the production space in capitalism is based on the principles of social division of labor and space and is guided to ensure the expanded reproduction of capital in ever larger scales. In this sense, my goal with this article is to present the idea of fractal periphery and discuss its development as an analytical unit. From the analysis of five Brazilian metropolitan areas (to know: São Paulo, Rio de Janeiro, Belo Horizonte, Porto Alegre and Recife) intend to demonstrate how the location of the poor coincides with the dispersed expansion of the urban built environment without, however, overcome dimension of a rich center and a poor periphery, thus developing a new organization of metropolitan space.

2. METHODOLOGY

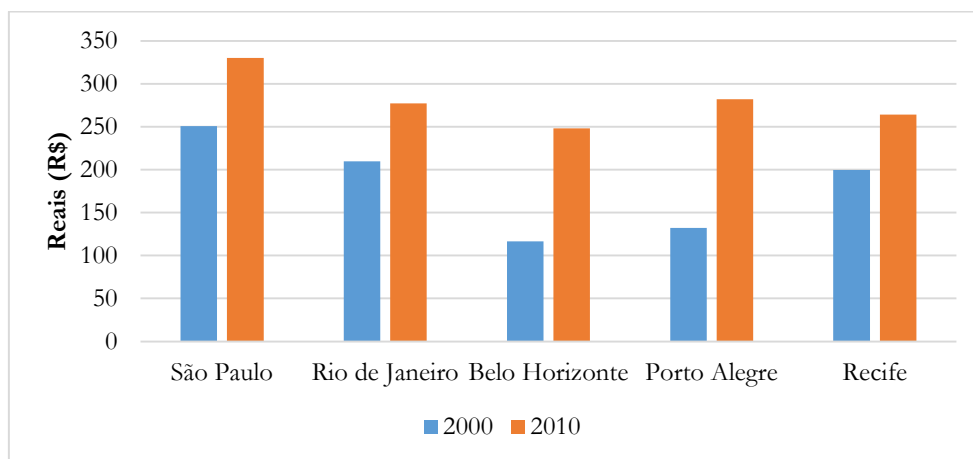
In order to measure the poverty using as database the income distribution among population the first step is to determine a poverty line. It will be considered as poor the individuals which income do not overcome this line. In Rocha's words "are defined as poor the individuals whose per capita income is less than the amount that would correspond to the need to meet all the basic needs such as food, housing, transportation, health, leisure, education, etc." (ROCHA, 2006, p.267).

The methodology is developed by Rocha (1997) and has three basic principles underlying the procedure adopted. The first concerns the use of consumption patterns observed mainly from IBGE surveys of family budget; the recognition of significant differences regarding the consumption structure and consumer prices in the different areas of the country; and the adoption of the family as the basic unit of consumption and income for poverty studies.

For this definition of poverty was used the information concerning the income Household per capita. This information is found differently between 2000 and 2010. In the census 2000 census information Household Income per capita does not exist, it is necessary to calculate it. Therefore, using the household base divided the value found in the variable Total Household Income by the number of residents. As this information was based on referring to households was necessary to perform this joint basis with the base of individuals to verify the relationship income and migration. In the 2010 census, the necessary information on the Household Income per capita stated in the basic subjects, broken down into two columns, one for value in current research year the real and the other in value in minimum wages. With this information you can select individuals who have a household income per capita below the cut defined by the poverty line.

In this study, the cutoff value of the poverty line for each of the five selected metropolitan areas is represented in the chart below.

Chart 01: Evolution of the Poverty Line in the Metropolitan Areas Selected



Source: (ROCHA, 2006)

Delimited the poor population by census tracts, the mapping performed used the point density technique to represent the concentration of the population living below the defined poverty line mapped on the scale of census tracts. To reach this value used is an extrapolation based on the average of information on household income per capita. With this information, the census tracts was established that the per capita household income is

below the poverty line, and then the number of residents are mapped on these sectors. This maneuver is necessary because, as described above, the information in the census tracts are only given by averaging.

3. CAPITAL REPRODUCTION CIRCUIT IN URBAN ENVIRONMENT

Along many works, David Harvey (1989, 2011, 2012) highlights the role of environment built as a stabilizer of the capitalist economy. According to his analysis, the creation of the built environment is one of the best ways to achieve the desired economic growth (in other words, the accumulation of capital). David Harvey (1989) highlights the need to understand how the built environment is produced and how it works as a store of value and surplus value. Thus, one can understand urbanization, investment process and production of urban land as a result of forces emanating from the list of primary and secondary circuits of capital, as proposed by Marx (2013). It is exactly this process that maintains, according to Harvey (1989, 2011, 2012), the movement of capital, which allows absorb overaccumulated capital throughout the primary circuit. While investments in the built environment impose the capitalist various barriers they have shown, even today, as the main form of capital absorption which allows advantageous returns. This entire process is only possible because of certain characteristics inherent in the production environment built: 1) long working hours; 2) Long time working; 3) long periods of life of the investment. (Harvey, 2012). Thus, it is possible to use the capital that is idle in addition to producing returns. It turns out then that Harvey (2012, p.62) calls "urban construction cycle."

Thus, urban order, or how to structure materially and ideologically urban space is derived from the hegemonic order that economically organizes society (CANETTIERI, 2015). Thus the production of urban is a materialization of the dominant capitalist order (macrostructural order) and its contradictions (RIBEIRO, 2008).

The capitalism, for the sake of its own reproduction has a dynamic of constant renewal (CANETTIERI, 2015). In this way requires constant updating of processes and socio-spatial ways to continue to perform the accumulation implying an internal reorganization (without changing its core capital based on separation - work). During these updates, Harvey (2010) identifies a substantial change occurred in the countries of late capitalism in the 1970s in the accumulation process that the author calls of flexible accumulation. Thus, new spatial forms are produced tax this transformation: forward to a more dynamic and less rigid accumulation, processes and socio-spatial forms also come to be organized based on these principles.

Thus, one can understand the production of a new geopolitical economy of the metropolis as argued Magalhaes (2008) based on Soja (2008). The changes in the accumulation regime are marked by an easing (HARVEY, 2010) and a post-Fordist characteristic (SOJA, 2008) impact in the form of organization of urban space and its production. This new geopolitical economy means the insertion of the urban context of globalization at the same time it involves the formation of specific spaces for each activity and, above all, for each class.

4. FINALS CONSIDERATIONS

There is the production of the metropolitan space, a class dimension. This metropolitan structure, as argued in the previous pages, is organized to meet the requirements that the capital's expanded reproduction requires the space. In several texts from Engels' analysis (2011) on *The Condition of the Working Class in England* in the nineteenth century, through the theories of Harvey (2012) and Lefebvre (2001) and the empirical work of many other authors as Smolka (1992), Fix (2001), Faulhaber (2011), Boulos (2014) or Canettieri (2015) among others, is shown that the capitalist production of urban space implies, in

general, the expulsion of the poor from their dwelling places to be reallocating according to the interests that structure the urban order.

As I sought to argue in this brief analysis, without delving in each specific case, the Brazilian urbanization is seated in the expansion of the metropolises that occurs from the peripheries, agreeing thus with the observation Milton Santos (1978). However, this expansion has to acquire, especially from the twenty-first century, a new spatial expression, which I tried to call fractal periphery, which become organized spatially dispersed and fragmented way over the territory. This spatial form of the city explains the need that capital has found early this century to reproduce the considerable fees, as David Harvey (2011, 2012) exposes. In other words, the central argument that guides this work is that is not currently needed more the existence of spatial continuity between the rich center and poor periphery. They begin to be other ways to appropriate the profit that this spatial organization of the city developed. It is therefore a new urban structure that supports this new form of the city. A new spatial expression although the content keeps the same: the very functioning of capitalism.

Thus, one must speak the obvious: The living is spatially determined by the structure that organizes (materially and symbolically) the metropolis. That said is that one should replace the question of Limonad and Costa (2014, p.118): "Has the idea of center and centrality expired?". Apparently not, since the logic of producing centers (or even centralities) and peripheries is the logic of capitalism itself, and in particular of dependent capitalism as expressed in Brazil.

This spatial form of the city explains the need of capital has found in the 21th century to reproduce at considerable levels. In other words, the central argument that guides this work is that it is currently not required over the existence of spatial continuity between the rich center and poor periphery. Come into existence other ways to appropriate the profit that this spatial organization of the city developed. It is, therefore, a new urban structure that supports this new form of the metropolis. A new spatial expression although the content keeps the same: the very functioning of capitalism. So, what is observed is a hegemonic form of contemporary socio peripheral capitalist society; its manifestation in space. It is worth mentioning that the city structure is at the same time, product and condition of capitalist dynamics. This dynamic, however, goes through updates to the accumulation regime, which implies the organization of new spatial forms of cities. With that, I tried to argue that the fractal peripheries is a kind of "safety valve" of the contradictions of capitalism, is a material expression of the spatial organization of the metropolis into a new cycle of accumulation. More than that, it should be noted that the idea of fractals peripheries is primarily a metaphorical form of social relations of production that generates space in both hierarchical and fragmented. Thus, it should be noted that the process periphery of the Brazilian metropolises in fractal form as described not simply extinguished earlier historical expressions, in particular the center-periphery dimension.

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