

The Urban Dynamics of Financial Services: Centralities in the Metropolis

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Abstract

The objective of this paper is to elaborate arguments to consistently relate the dynamics of financial capital and the urban space. It is first argued that financial services follow a concentration-centralisation logic, with highly specialised services being offered at central places in the urban space, and less complex services with a more dispersed pattern. This characteristic promotes a centralised-deconcentration effect on the urban structure: the dispersal of services and urban amenities reduces transport costs and improves urban balance in a few places, while complex services are usually highly centralised, therefore promoting unbalanced (centre-periphery) urban development. In order to understand the balance between these two effects, this paper proposes an empirical study over localisation of banks, land valuation and some social features in the metropolitan area of Belo Horizonte, in Brazil.

Key Words: Banking Services, Agglomeration, Centralisation, Urban Dynamics

Área Temática: Economía

1. Introduction

Many models of urban growth, which are based on a constant outward expansion from a rigid city core, have succumbed to an urban reality that is much more varied and complex. The spatial organisation of cities reflects cultural, social, political and economic patterns which, viewed through the lens of time, are in constant motion. Taken altogether, the latter characteristics project the contemporary urban spatial structure as a result of a complex and dynamic system which responds to forces that are simultaneously competitive and complementary. These movements have altered the urban infrastructure and the conversion of land use, changing the urban spatial structure. The urban centres present, as a clear example of the interrelation between those forces, development dynamics which are marked by spaces of centralised deconcentration. These dynamics suggest that a process of deconcentration usually manifests itself in the emergence of other multifarious centralities, mostly through the clearing out of some areas and subsequent growth of others, in a typical centre-periphery process.

The consolidation of specific places in the urban area occurs without any socially desirable planning, as a by-product of the capitalist logic of production, which is led by the effects of globalisation on regional and urban inequalities throughout the world. It is our contention that several studies on urban development have been keen to contemplate sanitary, health, education, and environmental sustainability. However, very little is devoted to the comprehension of the financial dynamics of urban development. It is now fully acknowledged that financialisation processes have been gaining greater significance in the last three decades, in a context of growing financial relationships between households and firms and an increasing use of financial services that leaves financialisation with greater claims on income shares. If one suggests that financialisation has regional roots, then the urban areas can also be thought of as influenced by the logic of financial capitalism. Therefore, the urban space must change in accordance to the increasing unequal financial trend, which in turn must be considered for the comprehension of the urban development and the elaboration of cities' development plans.

Financial capital takes over spaces, mimicking its valuation objectives, generating an urban dynamic that increasingly promotes inequalities, as well as less democratic and less egalitarian cities. Thus, the objective of this paper is to elaborate on this perspective, offering arguments to consistently relate the dynamics of financial capital and the urban space. It will first be argued that financialisation follows a centralisation logic, with highly specialised services being offered at central places in the urban space, and less complex services with a more dispersed pattern. This characteristic promotes the centralised-deconcentration effect on the urban structure: The dispersal of services and urban amenities reduces transport costs and improves urban balance in a few places, while complex services, often of speculative nature, are usually highly centralised, therefore promoting unbalanced (centre-periphery) urban development. In order to understand the balance between these two effects, this paper proposes an empirical study over localisation of banks, land valuation and some social features in the metropolitan area of Belo Horizonte, in Brazil.

Section 2 discusses the dynamics of urban growth as well as the concept of centrality. In this context, the emergence of new centralities and the suburbanisation process are exposed and summarized. Then, section 3 creates the theoretical link between urban growth, centrality and financialisation. Section 4 shows some empirical evidence, using the metropolitan area of Belo Horizonte as a case of study, and section 5 concludes the paper concatenating about the urban planning implications of financialisation and urban growth.

2. Dynamics of Urban Growth and Centrality

This section revisits urban growth and location theories in order to provide a panorama of the relevant literature. The main idea is to introduce theories and approaches that deal with the location

of (financial) services and its contribution to urban growth. Given that the metropolis is the object of our study, we begin by introducing location theories that explain inter-urban growth thus providing a better understanding of intra-urban growth within the metropolis and the importance of centralities to this structure. In the second part of this section, we discuss the phenomenon of growth in new urban centralities, emphasizing the process of suburbanisation which has been developing far from the old downtown, and presenting multiple taxonomies to this process.

Four dominant growth models help to explain urban growth and the location of activities (Cuadrado-Roura, 2013): central place theory, export base theory, hubs and spokes model, and New Economic Geography (NEG) models. The latter's main strength is to incorporate the former's consolidated ideas into more formalised models, giving emphasis to centripetal and centrifugal forces driving agglomeration. The next section will explore these approaches, emphasizing the contribution of the export-base model to NEG models. In section 2.2 we will deal more closely with central place theory, its argument over the hierarchy of places and relate the latter to the idea of shifts toward a new urban and service location hierarchy (the hubs and spoke model), which invariably deals with a process of suburbanisation.

2.1. Location and Urban Growth Theories Revisited

One of the most well defined stylized facts in economics is the spatial concentration of people and productive activities. The diversity of such agglomerations might be studied through the perspective of an urban hierarchy: on one side are highly diversified metropolitan areas like New York, London, and São Paulo; on the other side, more specialized spaces, such as industrial districts like Manchester during Industrial Revolution, Detroit and Cleveland during the Fordist Era and some mono-industrial cities spread from East China to Southeast Brazil up to nowadays, and, of course, all the primary-exporter economies. Nonetheless, the agglomeration phenomenon is imminently urban. Once the urban centre is constituted by a process of agglomeration of productive activities, the city becomes the *locus* for the reproduction of capital, in such a way that its relative size becomes the main materialisation of agglomeration economies through the combination of sectors that form its economic base.

Agglomeration economies is the main driver of NEG models (Fujita et al., 1999). These models are concerned with how centripetal forces deriving from micro-behavior determining firm location, transport costs that instigate individuals to be located near large markets and the mobility of producers that entails a greater attractiveness to the places they are moving into.¹ In this agglomeration panorama, a part of the literature adopts a classification that was first used by Ohlin (1933) and Hoover (1937). Firms' spatial collective inter-relations are an exogenous factor imposing changes in the cost and production parameters of individual firms. Three main external factors affecting costs can be highlighted (Parr and Budd, 2000): a) Economies of Location (Marshall, 1890), whereby firms can benefit from the existence of a local pool of specialized productive factors (e.g. skilled labour, technical information); b) Economies of Urbanisation, providing consolidated infra-structure (transport links, public services, etc.); and c) Economies of Complex Activities, defined as the connections among the economies' supply chain (store, transportation, and distribution of goods). Economies of scale are usually given by an increase in activity at decreasing unit costs, while economies of scope involve the reductions in costs from the joint-production of two or more goods. Economies of complexity refer to the sharing of different stages or processes of production by firms.

¹ For a more detailed appreciation of NEG model, please refer to The Journal of Economic Geography v.11(2) issue on the matter.

In particular, the related literature focuses on the characteristics of different types of agglomeration economies, emerging from insights from the works of Marshall (1890) and Hoover (1948). Marshall (1890) focused on the role of local knowledge spillovers and the existence of economic inputs and expertise in local workplaces, while Hoover (1948), Ohlin (1933) and Isard (1956) argued that internal and external economies of scale in the form of economies of location and urbanization were the origins of agglomerative advantages in economies.

More specifically, Marshall (1980) portrays the importance of externalities in the formation of economic agglomerations. According to the author, the proximity among industries triggers a series of positive effects for the individual firm and the industrial sector, which are realised through economies of scale. These economies were guaranteed by the full utilization of factors of production, such as the labour force and specialized machinery, depending on the individual size of firms and the organisation of the industry. Parr and Budd (2000) reiterate the spatially dispersed character of demand, which is dependent on transaction (information) costs and face-to-face contacts. As such, dispersion of demand in a non-contiguous space calls for the understanding of the role of internal and external economies in affecting transaction costs and face-to-face contacts.

According to Parr (2002b), the spatial gathering of firms is a consequence of the latter's search for internal and external economies of scale, scope and complexity. Internal economies come from the degree of specialisation stemming from the technical, productive, and organizational improvements inherent to each individual firm. By acquiring internal economies of scale, firms become more efficient at higher operating ranges, producing more product per unit of input. Since the economies of scale are a specific feature of the individual firm, they may favor the creation of larger companies and, therefore, the spatial concentration of employment.

On the other hand, external economies are related to the interactions between firms and the surrounding structures they share, thus allowing firms to capture the benefits generated by the scale of the market. Three effects (the marshallian triad) stem from external economies: a) an intersectoral chain effect (linkages), which stimulates the development of other external economic activities to the firm. The effect comes from linkages between suppliers and users which are determined by the capacity of participating firms in a localized industry to specialize in segments of the production process, providing raw materials, intermediate goods and services to the main activity. This specialisation process allows economies of scale obtained in the different phases of the production process to generate a more efficient local production system as a whole; b) gains from specialisation of the local labour, through the development of a broader labour market, facilitating, on the one hand, the workers' access to employment and, on the other hand, the availability to employers of specialised labor at lower costs. The development of the labour market allows employers to hire more qualified individuals and, in turn, encourage workers to improve their ability and capacity through education and training, with both these efforts involving greater productivity; c) technological knowledge generated by the effects of spillovers i.e. a greater dissemination of information exchanged among firms. These spillovers refer to facilities provided by geographical proximity, which gives individuals the possibility to establish informal relationships with each other (face-to-face interactions), providing technical and organizational information relevant for the improvement of localized industrial products and processes. This creates, thus, tacit, non-codified information that is, otherwise, not capable of being transmitted to competing locations. This process of information gathering allows each of the market participants to build a more coherent picture of the overall market environment, thus improving their ability to compete.

From these interrelationships two types of external economies are derived: pecuniary and technological. Pecuniary agglomeration economies lead to a reduction in input costs without tempering the productivity of inputs, whereas technological agglomeration economies come from the productivity of inputs with no implication over costs. Thus, pecuniary economies allow cheaper

inputs in larger settlements. Firms in large cities can lower hiring costs of skilled labour, input costs, and transportation services (greater competition among bidders, greater diversity of products). Likewise, technological economies allow inputs to be more productive in larger cities. The productivity effect arises because inputs (particularly labour) tend to be more productive when firms are located near each other. For example, while engineers within a given firm collaborate in the production of patents (ideas), spillovers may arise when the contact between engineers in different firms stimulates the production process. This sense of externalities characterized by technological spillovers among firms in specialized industries was also discussed in a dynamic fashion, in what came to be known as Marshall-Arrow-Romer (MAR) externalities (Arrow, 1962 and Romer, 1986). Studies on MAR externalities state that, through time, the local (spatial) monopoly is better for urban growth than local competition, as the monopoly restricts the flow of ideas and knowledge to others, making it possible to internalize externalities by the innovator.

Urbanisation economies, in its turn, are external economies to the firms but internal to the urban center, mutually affecting firms from various industries in an urban center and dependent on the overall level of activity at that location. The main theoretical reference to urbanisation economies is Jane Jacobs (1969), usually referred, in a dynamic context, as Jacobian economies. Her hypothesis is that these agglomeration economies are the trigger to the innovation capacity of local economic actors, resulting in the increase of production efficiency and expansion of the export base of the urban center – or, more precisely, the substitution of exportations. The export-base model (North, 1955) explains the growth of a city based on economic development of its "base", which is constituted by productive activities exporting to the rest of the country (or abroad). The city also has specific production directed to the local market. However, it is its export-base which ultimately drives growth.

The original argument made by Jacobs (op.cit.) has to do with the precedence set by the city that then generates new rounds of divisions of labor (new job creation) through the cross fertilization of ideas - in other words, what is known as Jacobian externalities is just an appropriation of selected parts of her own ideas. In this case, the *cross fertilisation of ideas*, derived from the diversity present in the cities, is the key to the creation of new jobs. It is the dense presence of these institutions that are the bases of production and absorption of the *how to do*, stimulating innovative behavior and interregional growth differential rates. Jacobs' theory of cross-fertilization points to the variety and diversity of geographically nearby industries as the main driver of growth, instead of specialized and spatially concentrated industries.

The combination of technological expertise and monetary gains has also been the focus of another branch of the literature, including, for example, the phenomenon of industrial districts. Some important references include Becattini and Rullani (1995), Maillat (1995), the well-known "Californian School of Economic Geography" (Scott, 1986 Storper, 1995) and the work of Michael Porter on the competitiveness of nations.

Porter (1990) reiterates the importance of economies of location, arguing that geographically concentrated knowledge spillovers in a specialized industry stimulate growth. However, for this author, unlike MAR externalities, it is the local competition that favours growth, since competition stimulates imitation and, in turn, triggers innovation.

Since the tremendous suburbanisation process that occurred worldwide after WWII, many models from the Regional Science tradition became irrelevant in attempting to explain urban growth. Specifically, the Alonso-Muth-Mills (AMM) model was not able to cope with a polycentric city. Facing this, but trying to "save" the neoclassical epistemology applied to the urban space, Henderson (1974) endeavored to develop a model capable of accounting for the polycentric nature

of the Post-Metropolis². He explained that urban centers developed at different sizes due to asymmetry between two opposing forces: (1) External economies associated with the group of companies located in the city center; and (2) diseconomies generated by firms' need to move to the center of a larger or smaller city. Thus, each city generally has a well-defined size, which depends on the type of firms that it accommodates. As cities vary in their industrial structural organization, they have different sizes because industries differ in respect to the external economies they can produce.

As such, whenever factors of production, in certain places, acquire productivity gains in relation to a decrease in unit production costs (i.e., increasing returns to scale), production prices of goods decrease in such a way that expands the scope of the market power of those activities in areas hitherto unexplored. Through this process, productivity gains more than offset the adverse effects of transport costs on the flow of goods, expanding the reach of local markets at the same levels of prices initially set (Lösch, 1954).

The expansions of localized markets allow firms to extract internal and external economies of scale and, through a cumulative process (Myrdal, 1957), promote the growth of spatial clusters, generating and intensifying a heterogeneous distribution of productive resources in space.

Each of these aspects of agglomeration economies provides a possible rationale for the question of why regions characterized by agglomerations will engender greater economic growth than areas without such features.

2.2. Centrality

Among the various theories of urban development, perhaps the one that has had the greatest impact on literature on both regional economics and economic geography is Central Place Theory (Goldstein and Moses, 1973). The most prominent authors to develop such framework were Christaller 1966 [1933] and Lösch (1967 [1939]), although several others have also worked closely with it (Berry, 1964; Berry and Pred, 1961; Beckmann, 1968; Parr, 1997; and Bennett and Graham, 1998).

Lösch (1941[1954]) and Christaller (1933[1966]) were key to developing the concept of centrality of a specific region. In Lösch (op.cit.), a spatial demand curve is determined by transportation costs as the variable affecting the territorial limits of demand, making the "market area" a key concept (Ablas, 1982). The good produced in a specific region is offered at distance-rising costs (given by transportation costs), and the spatial range of supply is given by the minimisation of distance-related costs (Richardson, 1972; Holland, 1976). Spatial market areas are then hexagonally structured according to opposite forces rising from transportation costs and economies of scale (Parr, 2002a). The outcome is the uneven distribution of production and population throughout the space. The turning point in the theory is that the distribution of regional economic activities primarily evolves through few given points in space.

Christaller's (1933[1966]) model encompasses goods and services' demand functions that are also determined, as in Lösch (1941[1954]), by transportation costs and economies of scale. Specifically in the former author, regionally inclusive centrality functions describe the orientation of regional supply points towards local and neighbouring markets. The localities work as specialized suppliers of services fulfilling specific demands of those markets. Moreover, the position in a hierarchy of central places is determined by the degree of local specialisation in offering goods and services, or more specifically, by the maximum spatial range such special products are capable of reaching. The

² Of course, Henderson did not discuss the concept of Post-Metropolis. For additional research on the evolution of the Metropolis during the 20th Century, and subsequent considerations of it, see Soja (2000, 2013).

rank of a good or service (or the place's function) increases according to the sophistication of the goods and/or the size of their market area (Figueiredo, 2009). It is exactly this hierarchy of services that mostly distinguishes the work of Christaller (1933[1966]) from Lösch (1941[1954]). The regional distribution of economic activities follows a hierarchical system, from low order places with very few sophisticated services to high order central places, their interconnections and diversified range of services. It is important to note that the central place definition surpasses the geographical nexus. In the words of Christaller

a place deserves the designation center only when it actually performs the function of a center. It performs this function if the inhabitants have professions which are bound by necessity to a central location. These professions will be called central professions. The goods being produced at the central place, just because it is central, and the services offered at the central place, will be called central goods and central services. Similarly, we shall speak of dispersed goods and dispersed services in reference to goods which are produced or offered at dispersed places and of indifferent goods and indifferent services in reference to goods which are not necessarily produced or offered centrally or dispersedly" (Christaller 1933[1966], p. 19)

Furthermore, according to Christaller, it would be possible to differentiate between central goods of greater or lesser order. The central goods of higher order would be produced and offered in the higher order central places, while the lower order central goods would be produced in central places of a lower order and offered both in higher and lower order central places. Examples of central services are: trade, banking, public administration, cultural and religious services, business organizations and professionals etc.

It is evident from the above definitions that the concept of central place is not absolute, but relative both to the complementary area as to the other central places. In the words of Christaller

Those places which have central functions that extend over a larger region, in which other central places of less importance exist, are called central places of a higher order. Those which have only local central importance for the immediate vicinity are called, correspondingly, central places of a lower and of the lowest order. Smaller places which usually have no central importance and which exercise fewer central functions are called auxiliary central places. (Christaller 1933[1966], p. 17)

The Christallerian model is not free from criticisms. According to Cuadrado-Rora (2013), improvements in transport costs may modify any regular distribution of activities and corridors of towns may be created on axes of development. Moreover, the model has other limitations, such as a very simple argument for consumer's behavior and a low explanation power to the location of service industries.

2.3 Suburbanisation - No limits to centralities and to author's creativity

Nonetheless, the history of central places is not about inertia: new centralities emerge over time-space prisms while some decay. This perception can be framed through so-called competition among cities (Rolnik, 2016) or on smaller scales within the same city, with the emergence of new centralities in the same metropolitan region or a city-region. In this latter case, a plethora of authors is recognizing the extension of what was restricted to the inner city to increasingly diversified, complex and polycentric suburbs. As Soja (2000) noted, maybe the suburban now has become urban.

Worldwide, during the Fordist-Keynesian era, industrialisation created a huge dispersion of population around the spatial entity which characterizes the metropolis. In the United States, this process was accompanied by the so-called *white flight*, the internal migration of primarily white populations to new wealthy suburbs altogether with the decay of the downtown. Since the 1960s, however, dispersed neighborhoods have experienced growth within the services sector, such as giant shopping malls and hotels, and the materialisation of the new techno-economic paradigm: technopolis. Furthermore, the expansion of gated communities around the world, related with the marketing discourse of an "*urban utopia to a middle-class population battered by economic restructuring, fearful of crime, and hungry for the new and better images of postmetropolitan life*"

(Soja, 2000, p. 250), also intensified this process. The intensification of globalisation and consequently expansion of new international airports also has been having a role on the dispersion process, because of the nature of this infrastructure (it needs to be far from the inner city), and it lead to the marketing discourse of “Aerotropolis” (Almeida, 2015; Harvey, 2015).

To sum, the table 1 shows the name that has been used to describe this process of suburbanisation, sprawling and emergence of new centralities. As well as the urbanisation process, the author’s creativity seems to have no limits.

Table 1 - Expressions used to describe Contemporary Cities

Taxonomy	Author
Outer City	Muller (1976)
Edge City	Garreau (1991)
Global City	Sassen (1991)
100 Mile City	Sudjic (1992)
Metapolis	Ascher (1995)
Generic City	Koolhaas (1995)
Mega-cities or Metropolitan Galaxies	Castells (1996)
City Lite	Bender (1996)
Dispersed City	Monclús (1998)
Exopolis	Soja (2000)
Limitless City	Gillham (2002)
Edgeless City	Lang (2003)
Tecnurbia	Fishman (2004)
Neoliberal City	Brenner e Theodore (2002); Allmendinger et. al (2013)
City-Region	
Exurbia	Bruegmann (2005)
Aerotropolis	Kasarda (2006)

Source: Our own compilation from authors’ works

3. Financial Aspects of Regional and Urban Growth

The objective of this section is to discuss the theoretical local growth and financial attributes from a perspective that assumes their intrinsic urban features. Financial services fall into the larger category of services or tertiary activities, which are characterised by their diversity. The heterogeneity of the service industry implies that the location of firms offering services is also characterised by a high diversity, hindering difficulties in determining patterns and dynamics of location of providers of these activities.

Nonetheless, some contributions to the topic might provide indications of factors driving intra-urban localisation and growth of financial services. In the sections above we have explored some arguments, giving more importance to agglomeration and centrality features in urban growth literature. In this section we will first shortly address the main literature on the intra-urban location

and growth of services. Then we concentrate on the characteristics of the distribution of financial services.

By considering specific regional and urban characteristics of financial processes and markets, this section moves towards a new comprehension of growth, one that is urban-oriented, to describe the connections between urban spatial structure and financial services. This theoretical approach includes the interrelations between the evolution of an urban hierarchical network of financial institutions and the services they provide, incorporating the effects of localised internal and external economies. To clarify this point, we highlight the concept of financial agglomeration in order to explain the deepening of urban finance and funding processes, mostly in terms of economies of localisation, of urbanisation and of complex activities. Moreover, the concept of centrality is also envisaged, since it is crucial to explain the urban hierarchy of financial services (central goods) and the urban character of the distribution of such goods. The possibility of multi-centered spaces of (diverse) centrality in the urban context arises as the outcome of such distribution, which is related to other urban drivers such as agglomeration of diverse economic activity, working and places of leisure, the inter-urban mobility, and land value.

3.1. Intra-urban Location of Services

As mentioned above, studies on the location of services have usually been built on conventional theories of location of productive activities. Theoretical contributions such as theories of market areas and central places and those related to the location of companies within cities. However, these contributions have been quite insufficient, since the diversity of services make it difficult to generalise on the subject. Moreover, empirical studies are not abundant either, adding extra difficulties to the study of the theme (Cuadrado-Roura, 2013). As a result, new approaches to the location of services are less concerned to establish generalisable rules and more focused to develop research into a more detailed, disaggregated level.

An essential part of urban economics and geography is concerned with the key elements explaining the internal organization of cities and the occupation of land. From this perspective, the location of services (at different levels and degrees) is usually a determining factor in the morphology of metropolitan areas and the development of their centres and sub-centres (Cuadrado-Roura, *op. cit.*).

One of the main contributions to the comprehension of intra-urban features is the idea of monocentric city and Central Business Districts (CBD). City centers have traditionally concentrated a large share of services, from small business to specialised services, including public ones (religious, administrative, and cultural). This holds true for many cities, despite significant contemporaneous changes in larger cities, such as suburbanisation mentioned above. Also, there is a quite significant effort, mostly in Europe, to revitalise city centers which had gone through a long period of deterioration and neglect by public authorities.

The idea of downtown and city centre has been usually associated with the concept of Central Business District (Derycke, 1992; Glaeser and Gottlieb, 2009), occupied by financial services, professional offices (lawyers, consultants, etc.) and their specialised activities (media and advertising) and corporate headquarters, other cultural and leisure activities.

The contribution of land rent theories is also significant for the understanding of urban features of services' location. Principles of accessibility and spatial competition, initially addressed by Von Thunen (1875), have been advanced to explain the use of land and buildings in a city. One of the main contributions to the field, although, was made by Alonso (1964), which offered a model that included rent curves for a portion of land that differ according to the distance from the centre. Diverse service providers (such as banking services) can record higher costs than small industries, which may explain the concentration of such activities in the city centre and in certain business areas, as they are able to face higher costs. Moreover, the model allows one to understand the dynamics of

centralities and the emergence of new polarising places. Under such umbrella, Lowry's (1964) model might elucidate changes in the dynamics of services. By merging variables pertaining to economic base, resident population and employment in services with principles of spatial interaction, it is possible to analyse potential to agglomerate, especially of population near jobs and services around it.

Over the last forty years, cities have gone under several changes, which have been analysed and theorised. These changes are related to centrifugal forces relocating productive activities and population. Services have also been relocating, following the move of industries to peripheries, although more sluggishly, more than often staying at the urban fringes. Administration and business management, human resources, political and administration services, hotel facilities etc. have moved to fringes that are not far away from city centres. Additionally, new city centres or sub-centres has been taking place in conjunction with a growing relocation trend of urban leisure areas (cinemas, restaurants, indoor sports grounds) (Cuadrado-Roura, 2013, p. 262). Underlying this process is the cost of land and the lack of access to enough land offers, congestion costs, degradation problems of central areas, and municipal regulations favouring relocations, which are ultimately encouraged by transport infrastructures. The result is that cities are becoming increasingly polycentric, incorporating new centres where land value increases together with advantages of the premises, nature of buildings and quality of infrastructures. Prices reveal the preferences of space, the opportunities offered by new areas and its change restrictions, affecting the evolution of urban nodes.

Financial services, as part of the services industry, have also their own location and growth dynamics. As essentially an urban activity, given its high agglomeration and centralisation features, financial services are intrinsically related to urban growth, specially to the development of urban nodes or local sub-centralities. The next section explores the logics of urban agglomeration and centralisation, with emphasis to the financial services dynamics.

3.2. Financial Services Agglomeration

In a nutshell, spatial concentration is a process that enables firms to reduce costs by using regionally related internal and external economies. Economic activity concentrates because firms share local resources that reduce internal costs and increase revenues. In a way, the same idea can be extended to financial activities, since the interaction between internal and external local factors is still valid for financial markets (Thrift, 1994). A basic feature of financial markets is that they need to be intrinsically large, as the necessity to be constantly liquid requires them to grow sufficiently enough to allow investors and users in general to enter and leave at will. This also explains why financial markets are usually locally concentrated and unequally spread over the territory, as the conditions to grow are not found everywhere.

The dimensional characteristic of financial markets makes them more likely to be formed by hierarchical social micro-networks (i.e. urban) of buyers and sellers, with important effects on price-setting by the financial institutions. The dissemination of information in these markets (and the related volatility brought by it) makes it crucial to form a social network to track and process all the necessary information to generate interpretative schemes of information. The financial urban place is, thus, the locus of concentration of such flows of information, which can ultimately lead to an uneven spread of interpretations and information through a wider regional network. From a very Keynesian (or Post-Keynesian) view, we might say that the financial urban concentration is the locus where the *conventions* - psychological set of common beliefs that guide behaviours in from uncertainty - are shared in the financial markets (Carvalho, 2012). The regional space becomes a fragmented set of financial sub-spaces (urban localities) with different settings of information and interpretation turning spatial concentration into a natural response to diversely disseminated pieces of information.

In urban terms, specialised human resources and better developed infrastructures promote financial concentration through the improvements in costs related to transactions and information. Financial firms benefit from localisation features coming from the magnitude of the local economic activity, which is also responsible for further clustering of other financial activities. This is valid for all types of financial institutions and the services they offer. According to Parr and Budd (2000), from the point of view of the local size of financial markets, broad local markets improve liquidity and the share of risks, which in turn allow financial institutions to operate with lower spreads on their services. Alternatively, price signals in shallow markets (usually in the peripheries) fluctuate rather discontinuously, which imposes limits on trading activities. In terms of simple financial intermediation, local markets can be differentiated by the possibilities of transforming risk, maturity of assets (liquidity), and transaction costs. Thus, the efficient management of local portfolios has a significant impact on the valuation of financial assets.

The dynamics of size effects in the markets and the interrelations between businesses and financial firms are also important factors for the spatial settlement of financial relations. The more firms there are, the greater the fixed cost of operating in financial markets can be shared (e.g. settlement, payment, and document transportation systems). Thus, financial firms derive significant benefits from being localised in specific places. Localisation economies enable the attraction of more contacts, information turnover, greater liquidity and expertise that can foster financial innovation. Moreover, financial concentration enables further aggregation of not only a pool of specialised labour, but also of ancillary services such as accounting, legal, and computer programming, which further reduces overall costs of these services.

According to Cavalcante (2012), the concentration of financial activity occurs whenever the local demand and better general expectations prompt an increased offer of financial services at lower costs for financial firms and individuals. In these terms, financial concentration is demand-driven and supply-limited.³ Thus, given a specific local income, concentration is the clustering of financial activities in a region. In this sense, financial concentration is considered to be, essentially, driven by the replication of local financial services at falling costs for financial firms in a specific region. The improvement in prospects for the region are accompanied by local economies of scale that reduce the average cost of financial services' provision, while external economies such as the ones related to urban and complex economies provide further cost reductions by means of better organisational, informational and structural conditions in the region.

Once agglomeration, in the sense of increased financial activity in the local market, is treated as a factor being moulded by the urban context, we can start setting a theoretical background from which we can explore the urban conditioning of the financial dimensions of cities' (economic) growth. However, before doing so, another important factor must be taken into consideration. The development of local financial markets also hinges on the diversification of institutions and on the complex financial services they offer. This is because the urban features shaping the complexity of services determine the strength of spatial financial ties that eventually shape the size and limits of the city and its position in a broader regional financial network. Hence, it is crucial to stress the idea that centralisation also affects financial processes over space. This is the subject of the next section.

³ Two caveats are in order. First, it should be noted that technological and communication improvements enable the offer of financial activities by supraregional network, with services being offered remotely from different locations. However, demand for those services is usually connected to the local context. Secondly, it should also be noted that regional concentration of financial services is ultimately related to the degree of uncertainty and liquidity, features which are also intimately related to the local context. To a further discussion, see Cavalcante (2012).

3.3. Financial Services Centrality

It is straightforward to analyse financial markets through Christaller's (1966) framework (Parr and Budd, 2000; Crocco et al., 2005, 2010a; Cavalcante, 2006). Local (regional) financial centralisation may, thus, be defined as the number of complex financial services being offered at a place according to a specific hierarchy. High-order central financial places can offer a wider range of services than lower ranked places and thereby are capable of reaching more distant markets. The existence of different types of financial services with different specialisation degrees are deemed to be unequally spread over the territory. The spatial differentiation in the set of financial services being offered causes relative diversification in the regional costs for these financial services (Thrift, 1994).

The dynamics of centrality of a financial service is determined, according to Christaller (1966), by changes in regional income. This is because the producers of specialised services (e.g. financial firms) increase the spatial limits of supply whenever they sense normal profits can be maximised by expanding the offer of services. In terms of internal costs to financial firms, a variation in centrality is related to economies of scope. As such, the diversification of financial services supplied follows internal and external economies of urbanisation and complexity. The agglomeration of financial activities provides improved managerial oversight and superior levels of coordination (Parr, 2002b) for financial services. It also enables financial firms to diversify their services and enhance the participation in the regional economy. High-order financial places are able to act, by virtue of its own position on the services' knowledge structure, as the main generator and propagator of product innovation (Thrift, 1994; Friedmann, 1972). This means that the high-order financial place is able to supply complex services which are, in turn, in constant evolution following innovations in their format and content. The increased flows of income and profits that are centralised in some places not only allow reductions in costs for financial firms due to scale benefits, but also permit the diversification of products to better respond to different types of demand (liquidity and returns) by customers.

Hence, this work takes the idea of a regional financial network as functioning through financial places of different hierarchical orders, ranging from a few places with highly specialised services to low order places offering more basic services. The regional network is thus formed by the cities and the financial services they contain. Moreover, the availability of diverse complex (from low to high order) services are intrinsically an urban phenomenon, given that such availability is dependent on the local structure of economic activities, the local income generated, the dispersion of population and income through space, and the interrelationships between financial firms. All these factors take form through historical developments (path dependence), creating diverse types of urban financial fabrics, through virtuous and vicious cycles of development, forming a wider financial network of cities with diversely developed local financial systems.

Once the regional centrality starts to evolve in financial agglomerations, the financial hierarchy changes dynamically with variations in the connections of economic real activities and financial decisional locus between high and low order places. Over time, a growing region is faced with changes in financial centralisation and income that establish a new level of local financial deepening. More central services are demanded locally and the region further improves its growth prospects. Depending on the relation among different regions, local flows of funds stimulate the offer of specialised services in different places throughout the country, creating new centralities, strengthening the finance-growth nexus in local economies and consequentially promoting regional financial development.

3.4. Urban Financial Dynamics

What are then the main drivers of the urban financial dynamics? It is fundamental to understand the contribution of financial services for the inner development of the city, especially if one wants to be

informed about the development of new centralities that might shape a more balanced urban landscape and help foster better urban planning.

For the development of the argument, we must address the object of study from a two-sided perspective: on the one hand, financial urban dynamics is driven by demand factors, such as income, population density, and ease of access (primarily transport costs). On the other hand, characteristics of supply of services must also be taken into account, more specifically the decision over which services to offer, and to whom should be offered, which ultimately leads to decisions over the localisation of financial services providers. The interaction between demand and supply factors affects dynamic growth in diverse spaces in the city (metropolis), thereby altering the shapes of these places and contributing to the development of the city. Moreover, since financial services expand within a very defined scale of hierarchical services, diverse centralities in the metropolis may proliferate once this type of service starts developing at specific locations.

On the demand side, it is straightforward to relate population size and total income as the main drivers of demand for financial services. Changes in population size, in the purchasing power of people as consumers, in the composition of their spending, or in the supply of new services may modify the urban hierarchy of central places within a city (Cuadrado-Roura, 2013, p. 263). More specifically, the greater the size of the population in a given space, the higher the number of consumers of financial services (and the greater the possibility of a diversified demand). Higher levels of income are positively correlated with greater demand for financial services, both in terms of quantity and variety, as increasing levels of consumption and investment require financial access to a greater extent of services in order to cope with them. Financial services are, indeed, built to extract shares of income from households and firms, thus the higher the income the more eager financial service providers are to offer services that allow them to be profitable. Moreover, the higher the income, the greater the demand is for more complex services, which are also thoroughly designed to extract greater income margins.

This relation between per capita income and brick-and-mortar financial services is not concentrated on the high income population. During the last 30 years financialisation has increased, a process whereby the share of productive activities in income have lost significance to financial ones. Financialisation also contains a very defined social dimension, where average daily life becomes increasingly dependent on financial services. New forms of business organisation, together with new ICT technologies, have entered the financial services sphere, spreading activities to population areas historically considered of lesser significance (Cuadrado-Roura, 2013), enabling them to reach larger market areas and larger populations including low income social extracts. These individuals usually lack access to financial services and are thus financially excluded, having to cope with heavy burdens restricting them from accessing other types of services and goods. Financial exclusion may turn into financial exploration once income improves for the poorer, since the latter may not have the financial literacy to understand and make decisions over the consumption of financial services. Financial services may then spread to peripheries through a process that allows the evolution of new sub-centralities and deconcentration, although this process may be tempered with the misuse of financial services, which may lead to over-indebtedness and unfair financial relations.

It should also be mentioned that such intra-urban financial features operate through a very defined regional and global hierarchical network. The relationships of cities with their catchment areas have changed greatly as a result of new transportation and connection systems. The major changes in city networks and systems have been eliminating lower-level centres and strengthening major poles and national centres, allowing the emergence of a limited number of world cities (Sassen, 1991) which ultimately centralise decisions that impact the whole system. In the case of financial services, the system evolves into a more centralised network, which does not necessarily result in higher agglomeration. Highly complex financial services will be necessarily located at major city centres,

as they also rely on complex information and face-to-face contacts. However, the need to extract higher shares of income will eventually drive financial services to be located in new areas, where the prospects of population and income are positive. This is especially true if these new areas contain some kind of productive activity, which may also require jobs of diverse complexity (high and low skilled).

The main urban relationship, in this case, is the ease of access to financial services. Consumers may value mobility and nearby financial services providers, which in turn increase the demand for the latter. In recent decades, with the increase in communication and information technologies, a debate has risen over the end of the necessity of a physical presence for banks and other financial providers. This should not be taken as granted. It is true that remote services are gaining more significance in daily financial operations, especially for low complexity services. However, these services are not widespread through the population, especially in countries with high rates of income inequality, where large shares of the population are completely financially excluded or have large barriers to access financial services. Moreover, there are very complex services which will definitely continue to require face-to-face contacts, requiring highly specialised labour to conduct such transactions. This is in tandem with the need to deal with highly complex (hard) information in order to manage some financial services. From an urban perspective, many low income areas lack access to nearby services and remote financial services. Yet in these cases, there is still a logic to the physical presence of financial providers, as face-to-face contacts are still preferred, even for low complex financial services.

While demand factors for finance are key to the urban dynamics, the supply of financial services should not be dismissed. Decisions over the quantity and complexity of services that should be provided are fundamentally driven by demand, but they are also carefully designed to maximise returns for financial service providers. Therefore, decisions on where to locate and which services to provide (and at what price) are deeply rooted in space, and land value and urban amenities likely play a role in such decisions. There is, indeed, a historical urban development process that is characterised by a path dependence that shapes the localisation of financial providers. Once they decide where to locate, agglomeration economies take place and financial spatial concentration burgeons. However, the dynamics of urban development usually opens new spaces in the city (metropolis), allowing new opportunities for financial services expansion. It is also likely that the supply of (more complex) financial services is also correlated with the development of specific centralities in the city. In this process, land value might appear to be a significant feature shaping the decisions over the localisation of banks and other financial providers.

Financial services are, however, unique in that they are able to recreate and foster economic activity. Financial services providers, such as banks, have the means to offer services that not only reduce costs but also foster other economic activities. This is the case of the provision of loans by the bank system. Once located in a new area, banks are capable of advancing loans to individuals and firms that may, if investment is realised locally, support urban development. Therefore, it is expected financial activity will not only follow, but also create its own demand. From an urban perspective, this means that financial services can anticipate the formation of new centralities and, thus, foster such development.

4. Empirical Analysis

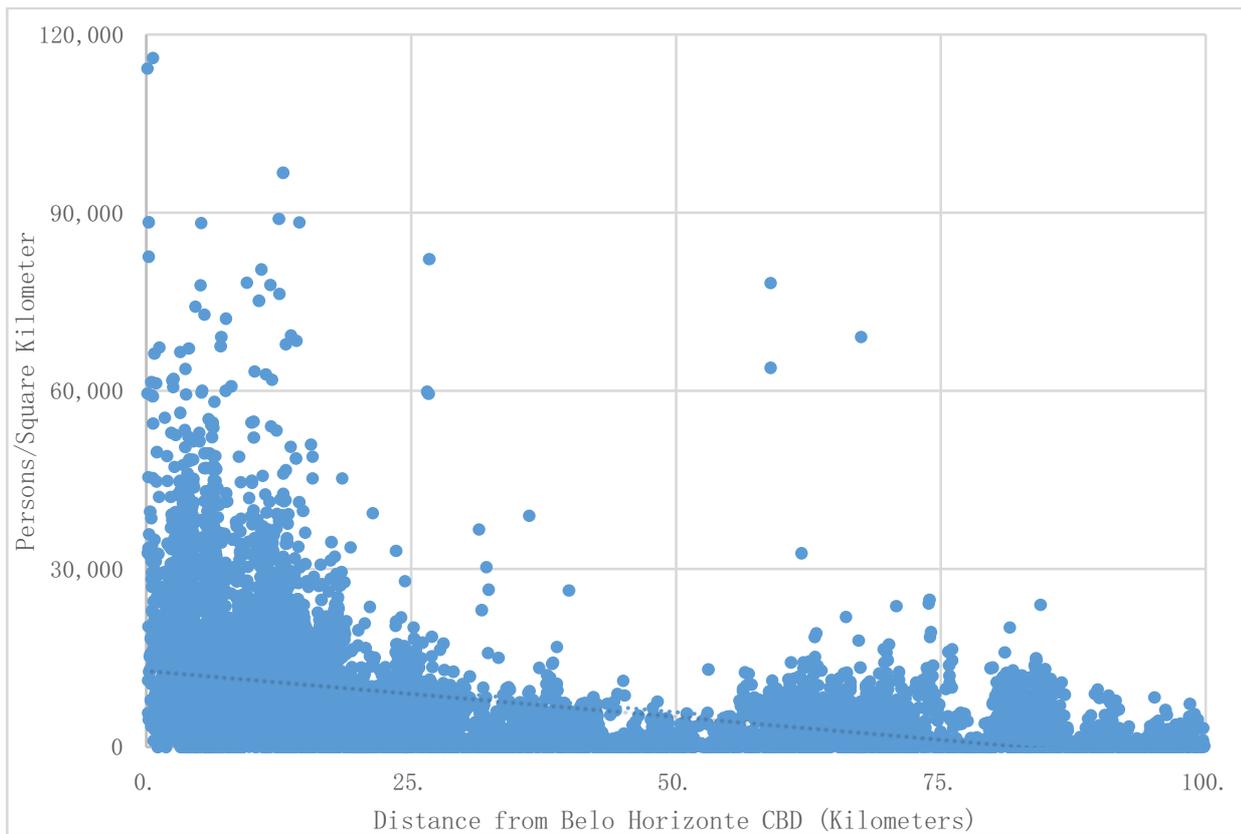
This section highlights localization patterns of brick-and-mortar financial service providers through empirical analyses from within the Metropolitan Region of Belo Horizonte. The analysis on financial services dynamics is done by analysing the localisation of bank posts and branches. There are very significant differences between the two. A bank branch requires a bigger physical structure and a more diversified labour force to be functional. The bank branch is able to offer a great range of banking services, from the very simple to very complex services. Bank posts, on the other hand,

are places where more simple banking services are offered, from telling machines to mail and lottery offices. These providers are directly subordinated to banks, serving as outposts supplying low complexity services (cash withdrawal, payments of bills etc.). We thus have a hierarchical difference between a bank branch and a post. The former is able to replicate its services activities to a larger area, while posts usually serve the immediate vicinities.

Income and population data come from the IBGE census, while information on banks and posts localisation is provided by the Central Bank of Brazil. Data on land values and real estate was compiled from web sources, such as real estate agencies' websites.

One first point we should highlight relates to monocentricity, a cornerstone for urban economics models, commonly considered in terms of population density. Chart 1 displays the density for the all areas with the metropolitan region as well as all other areas within a 100 kilometer radius from the supposed CBD - Praça 7, in the city center of Belo Horizonte.

Chart 1. Population Density Belo Horizonte Metropolitan Area and Metropolitan Collar (2010)

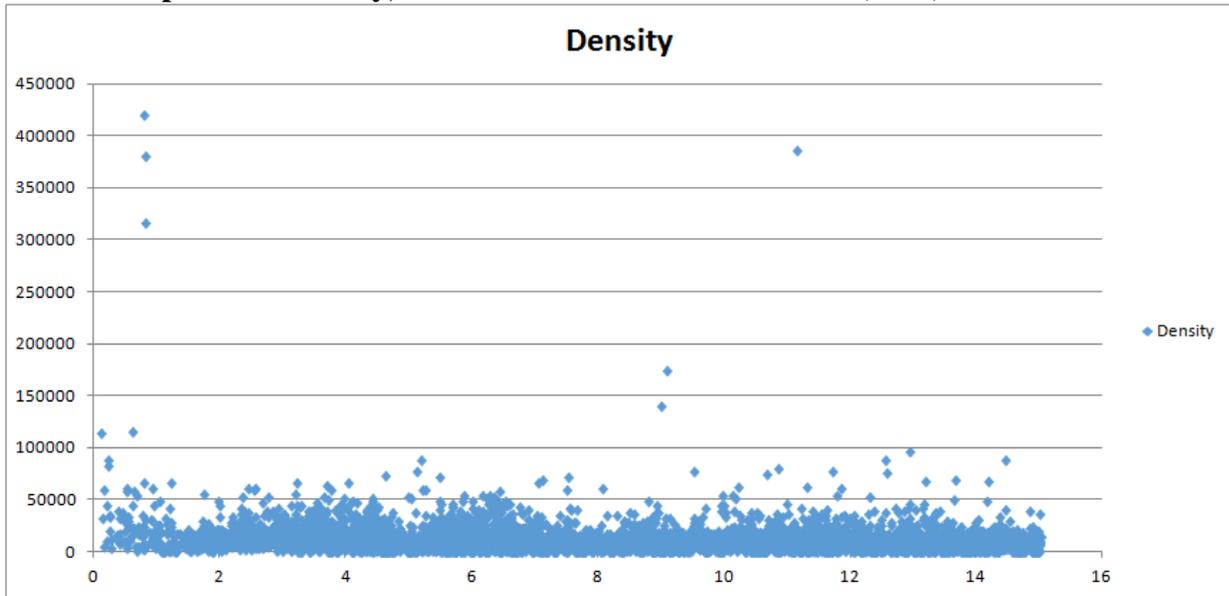


Source: IBGE; Own tabulations based on Census 2010

Chart 1 clearly portrays a monocentric urban pattern, with the highest concentration of populations residing within 15 kilometers of the CBD, the distance between Praca 7 and Contagem. Several spikes in highly populated areas appear 25 kilometers and 32 kilometers from the CBD, representing polycentric population concentrations, like Betim, Reibeirao das Neves, and Vespasiano. Obviously, there is a clear pattern of logarithmic decayment in general. However, there are also obvious indications of polycentricity. It is also clear that after the range of 50km, new larger agglomerations appear, representing the downtowns of cities in the metropolitan collar and along the border of the metro area. If we shed some light on what occurs *inside* the capital city, the hypothesis of monocentricity weakens - at least if we consider the Praça 7. Chart 2 shows it.

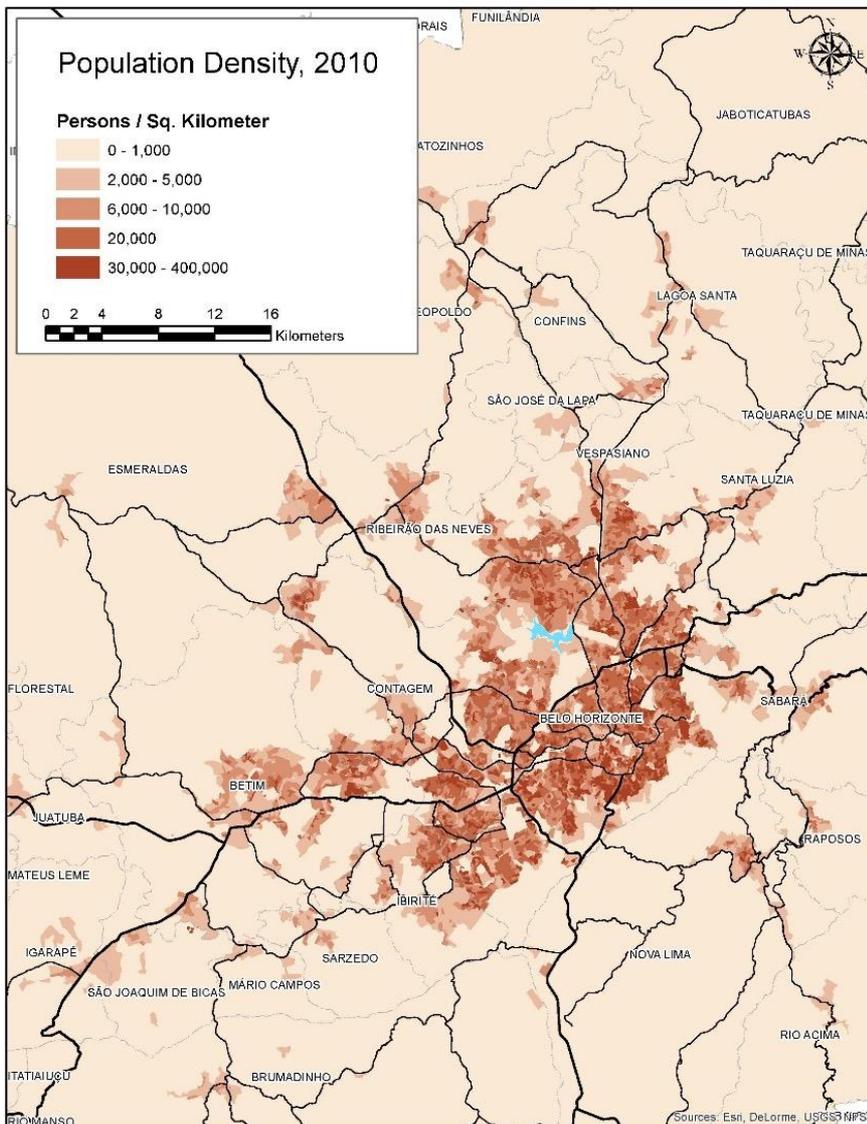
Chart 2 exposes density *increases* in the range between 0 and 4 kms from downtown, with a large concentration around the fourth km. It is the ‘Savassi effect’: the intense concentration of high income people living in apartments around the Savassi district. So, maybe a suggestion for future works might be to use Savassi or Liberdade Square as a CBD. But other specificities still appear in Chart 2 moving from left to right in the horizontal axis. Around the fifth kilometer, the density drop, and then increasing again around the range of 6 - 7 kms. It is the effect of suburban and new centralities such as Buritis (South-west), Ouro Preto and Castelo (Pampulha region), and Cidade Nova (Northeast). Then, the density has a very smooth fall up to the kilometer 15, with the high density district of Venda Nova (north) appearing as an outlier 11 km from downtown. Hence, it is hard to say in a monocentric city, at least in terms of population. Map 1 shows it spatially.

Chart 2. Population Density, 0-16 kilometers - Belo Horizonte (2010)



Source: IBGE, Own tabulations based on Census 2010

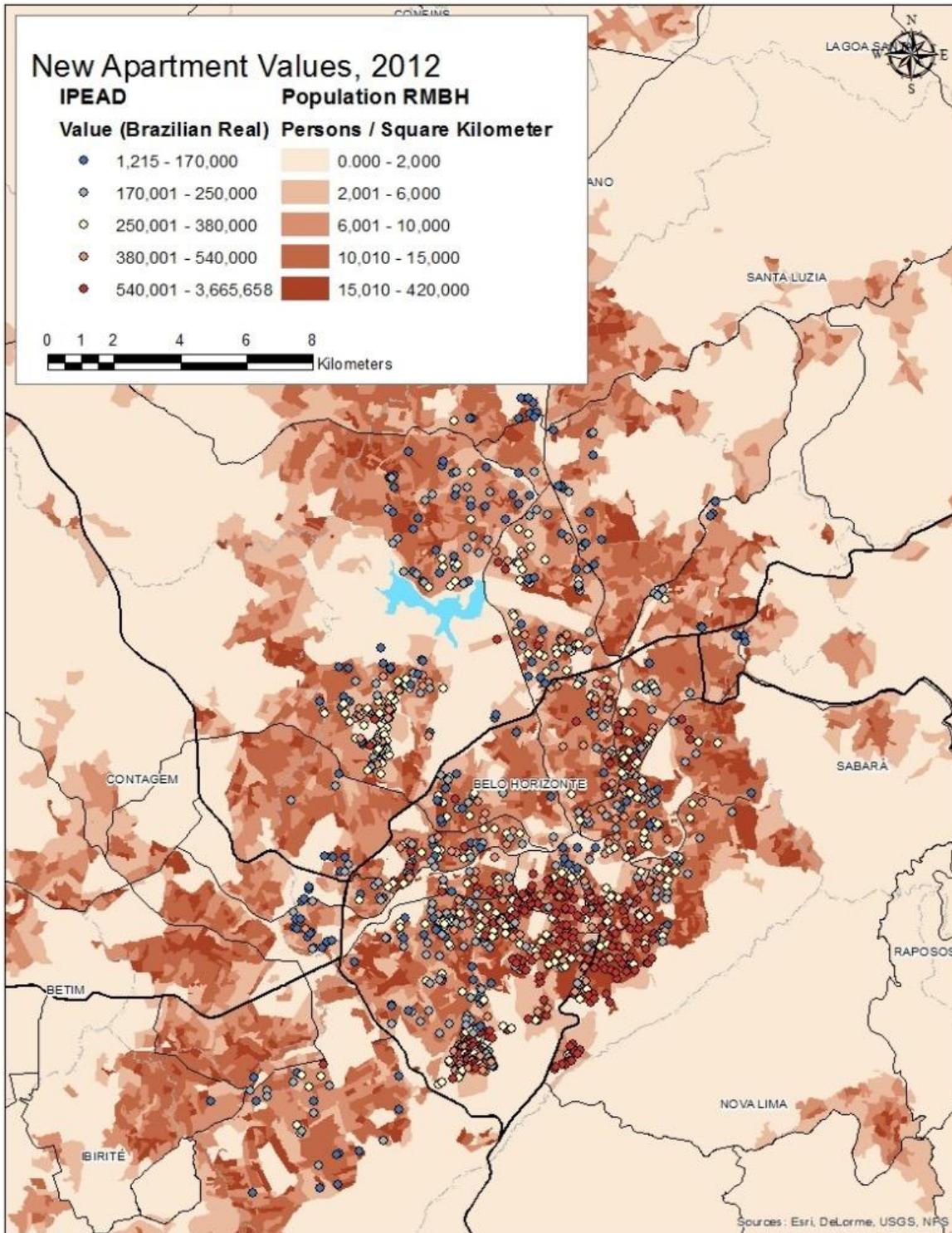
Map 1. Population Density (2010)



Source: IBGE

In this panorama, it is worth mentioning that some suburban centralities, like Buritis, Ouro Preto, Castelo, and Cidade Nova are relatively new creations made by real estate developers. It can be realized from Map 2, which displays the number of apartment transactions in 2012 within Belo Horizonte corporate limits. It also provides the average income of each area within the city. Yet, it is important to note how the primary concentration of high income populations, the Savassi/South Zone, continues to harbor a large number of transactions of luxury apartments. Sales of lower value apartments occurred especially to the north of the Pampulha Lake, in the Venda centrality.

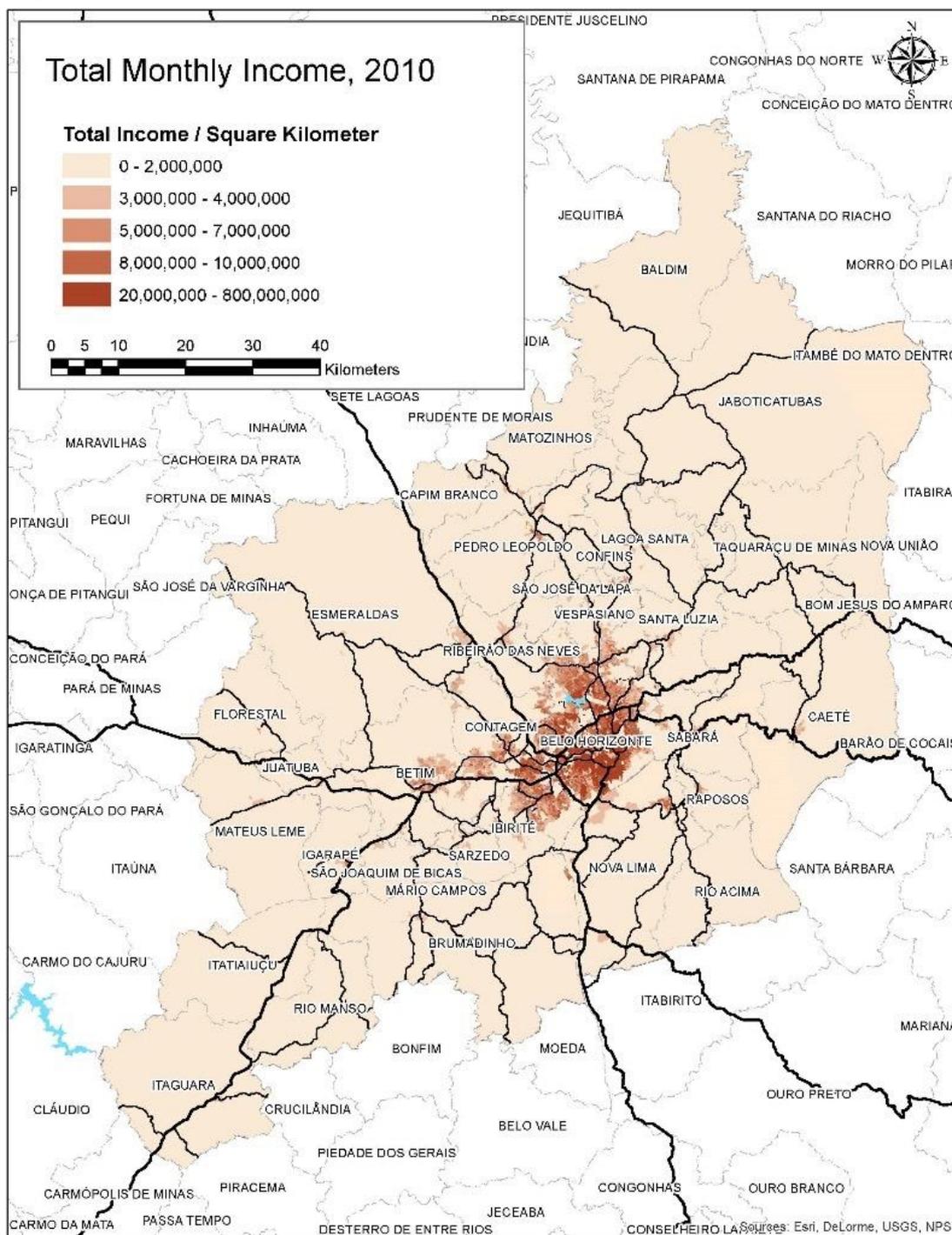
Map 2. New Apartment Values in Belo Horizonte, 2012



Source: IBGE, IPEAD

What about the financial centralities, or the dispersion of financial services? One might consider that what is important to the banks' strategy is less the concentration of people and the *average* income of an area, and more the *total* income of the area. Total income represents the average income multiplied by the number of residents who has an income in an area. Therefore, Map 3 exposes how the South zone agglomeration represents the main 'mass' of income in the metro area, as well as some centralities such as Buritis, Ouro Preto/Castelo and Cristiano Machado which also have high income mass concentration. The North area of the city, e.g. Venda Nova, despite the huge number of residents, does not have a high total income, expressing the inequality which describes Brazilian society.

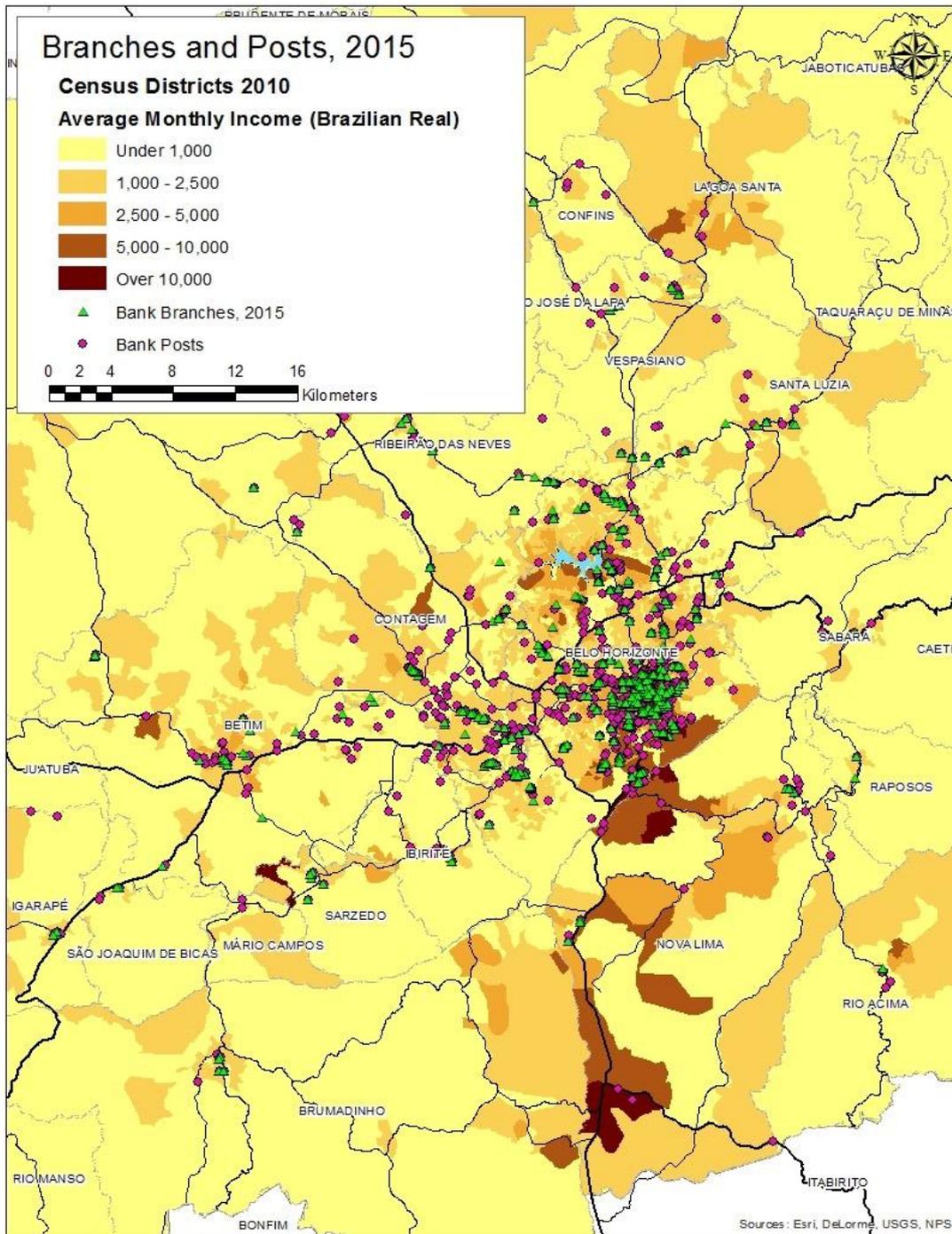
Map 3. Total Monthly Income



Source: IBGE

MAP 4 shows the concentration of bank branches and bank posts within the Metropolitan Area, while MAP 6 shows to where new banks branches grew between 2007 - 2015. A first look at MAP 4 will reveal a very concentrated pattern of location, which is highly correlated to income distribution. There is also presence of very few banking services providers in municipal headquarters, which indicates places of smaller centralities (Caeté, Brumadinho, Betim, and Santa Luzia). These are all given sub-centralities in the metropolitan region. Nonetheless, looking more closely at the location of new branches and posts reveals the dynamics of the hypercentrality (downtown Belo Horizonte) and its subcentralities.

MAP 4. Bank Posts and Bank Branches 2010

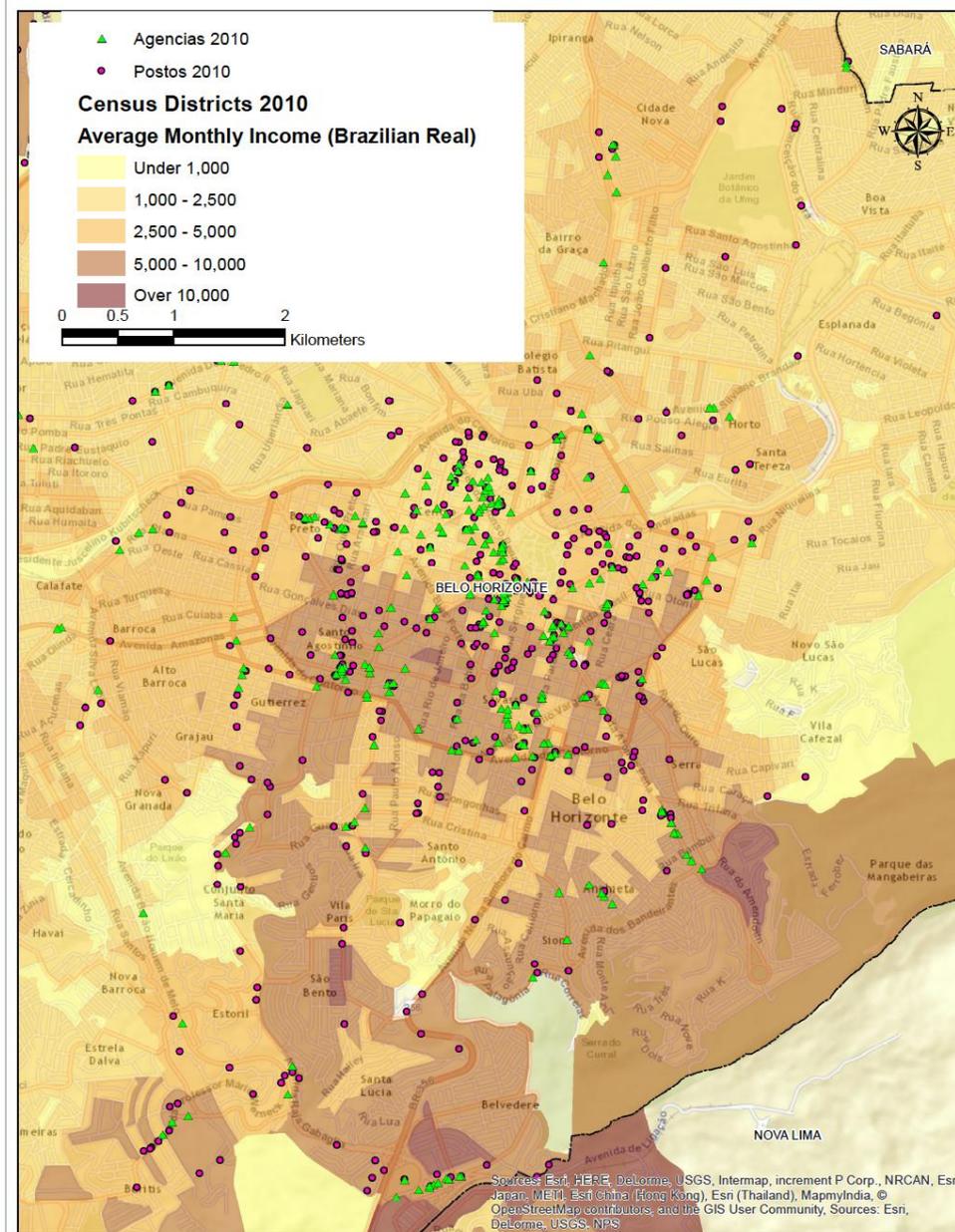


Source: IBGE, Central Bank of Brazil

The basic conclusion is that there are some significant trends in the metropolitan region. First, we may refer to the historical downtown. Historically, banks initially located at the Belo Horizonte city

center (represented by Praça Sete, at the crossroads of Amazonas and Alfonso Pena Avenues). Over time, new bank branches have moved to the south of the city center, mostly following population and income mass, which are very high in the southern neighbourhoods (MAP 5). However, banks have maintained their original historical location. We can then assume that some path dependence is significant in banking services location. This is mostly due to the very hierarchical nature of the services, running from bank headquarters (also nationally) to branches of a lesser order to posts.

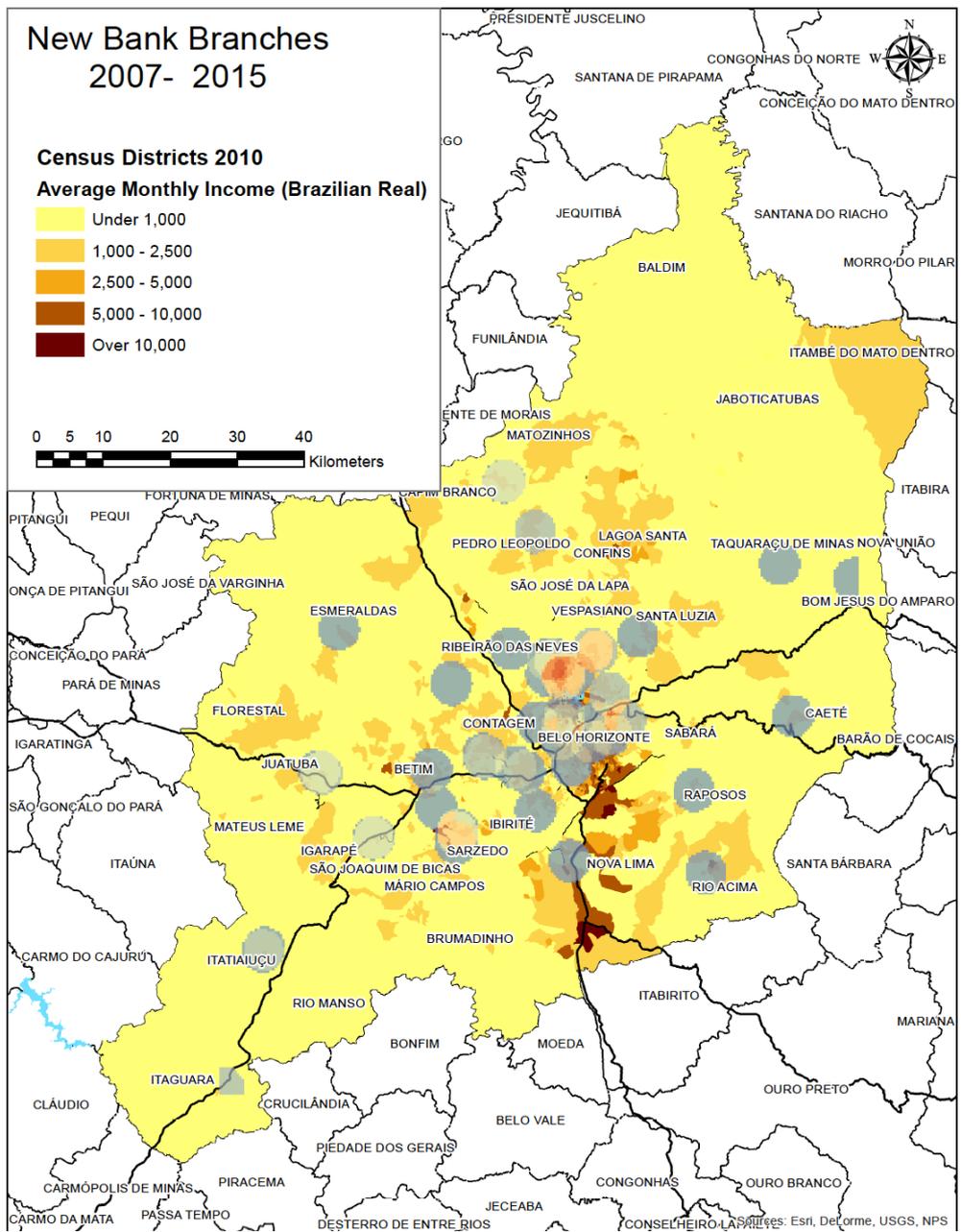
MAP 5 - Income, Banks Branches and Posts, Downtown Belo Horizonte (2010)



Source: IBGE, Central Bank

Also, we can see in MAP 6 an urban development axes to the west, in the direction of Contagem and Betim, municipalities that have been marked by strong economic activities. New bank branches and posts have been locating along the fringes of urbanized areas in these municipalities. Therefore, centripetal forces stemming from agglomeration of activities may be assumed as the main drivers of such centralities. Moreover, land rents are also low in these regions, which attract new populations.

MAP 6 - New Bank Branches, 2007-2015



Source: IBGE, Central Bank of Brazil

Finally, the last decade has shown new trends in the development of the metropolitan region that can be seen from the movement of banking services. A new trend during this period was a dispersion of branches and posts, with a large number of banks growing towards the north, specifically on Padre Pedro Pinto street in Venda Nova, and in the neighborhood of Justinópolis. This phenomenon certainly illustrates urban structural changes stemming from overall Brazilian economic changes between 2003 and 2014. This period witnessed a significant drop in income inequality, which fostered the extension of a variety of services to poor people who were originally excluded from such services before. In the case of Venda Nova, residents who previously lacked access to brick-and-mortar financial services before, now have better access to such services. On the other hand, a very recent move to the South, with private development plans (C-Sul) have not yet attracted banking services. The South of the metropolis, is historically occupied by the high income class and gated communities, which serve as holiday and weekend places of leisure. That banks have, historically, decided not to locate in these areas (given high land rents and difficulties in access) may prove a problem to these new development plans.

5. Conclusion: Urban Growth, Financial Centralities and Urban Planning

Influence on the formation of urban spatial structure on the modern day metropolitan area overwhelmingly belongs to globalized market forces, even beyond the control of local and regional policy initiatives. One overarching urban pattern has become clear from both the literature and empirical analyses: The continued dominance of urban centralities and polycentric subcentralities while at the same time the ever increasing extension of population and services into the hinterlands. This growth both drives, and is driven by, access to financial capital and services. While technological and communication advances have changed consumer behavior, broadened mobile access to services, and reduced transportation costs, and in spite of the liquid nature of capital, access to financial services from brick-and-mortar establishments continues to be, and will continue to be, essential within urban markets as a result of economies of urbanization and other synergistic effects of spatial proximity. This is especially true for low income populations who often lack access to mobile banking services yet are increasingly gaining access to services due to policies and market forces that reduced inequality during the past decade.

Thus, in considering policy implications to this work, it is clear that while the global market has transformed the urban and regional landscape, indeed even changing the definition of *urban*, planning, policy, and metropolitan governance certainly have roles to play in creating livable, equitable, and sustainable communities, especially within the context of the neoliberal paradigm and the current instability in federal governing structures. Specifically, policies and planning that continue to promote access to services, in particular for marginalized populations within concentrations of poverty, have the potential to close the inequality gap and provide opportunities for traditionally isolated communities.

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