Migration and spatial dispersion of the population in the Belo Horizonte region of influence

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Abstract:

Historical evidence leaves no doubt about the relevance of the spatial displacements of the population in the organization of the national territory. In many moments throughout history, this mobile workforce served not only as an available workforce for economic activities, but also as a catalyzer of profound economic and social transformation in the regions of origin and destination. In this light, the present work seeks to assess the magnitude and main characteristics of migration and spatial dispersion of the population in the Belo Horizonte Region of Influence (ROI) (REGIC-BH, 2007), based on intermunicipal migratory flows identified in the 2010 Brazilian Demographic Survey, using the variable of fixed data. *The results indicate the general tendency of the relative loss of the demographic weight of the capital city of the state of Minas Gerais, as well as a significant spatial concentration of emigration from Belo Horizonte toward nearby towns, especially those in the outskirts of the metropolitan area. By contrast, immigration is notably spatially dispersed. Belo Horizonte receives migrants from the majority of the towns within its ROI, with a heavy influx toward the central regions.*

Key-Words: : *REGIC BH, Spatial Dispersion of the Population, Migration*

Resumo

As evidências históricas não deixam dúvidas sobre a relevância dos deslocamentos espaciais da população na organização do território nacional. Em vários momentos no tempo essa força de trabalho móvel serviu como fonte catalisadora de profundas transformações econômicas e sociais nas regiões de origem e destino e não apenas como mão de obra disponível para as atividades econômicas. Esse trabalho tem como objetivo a avaliação da magnitude e das principais características da mobilidade e dispersão espacial da população na Região de Influência de Belo Horizonte (REGIC BH), tendo como base os fluxos migratórios intermunicipais identificados no Censo Demográfico de 2010, utilizando da variável de Data Fixa. Os resultados indicam a tendência geral de perda relativa do peso demográfico da capital mineira, bem como uma significativa concentração espacial da emigração de Belo Horizonte com destino aos municípios mais próximos, sobretudo aqueles que integram sua periferia metropolitana. Por outro lado, a imigração é notadamente dispersa espacialmente. Belo Horizonte recebe migrantes de grande parte dos municípios de sua Região de Influência, com especial destaque aos centros regionais.

Palavras-chave: REGIC–BH, Dispersão Espacial da População, Migração.

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Introduction

Studies on the spatial mobility of a given population changed significantly after analyses of the reality of late industrialization countries (PACHECO and PATARRA, 1997). The dynamic of the accumulation of capital, historical inheritance, and the social structure are now considered keys to population and workforce mobility for industries in expansion or as a response to situations of stagnation faced with the growing concentration of dynamic poles. Singer (1973), for example, considers migration to be a direct reflection of the structure and mechanisms of development brought about by the capitalistic system, whose main engine is the exacerbation of regional inequalities[1]. Despite their merit, structuralist formulations fail to fully respond to the more dynamic and specific questions of the migration and displacement of workforces, which is not only linked to the needs of the capitalistic system of our day. If the means through which the spatial elements are organized can be seen as a historical result of the performance of social actors, the flow of information, capital, and people, for instance, allow for and even feed the dynamism of forms and functions of the aspects that compose and characterize this space. For Santos (1996), the need for migratory flow is one of the most important characteristics of the present-day world, which is particularly relevant to regional studies on population mobility. The migratory flows and commuting of the workforce are phenomena that manifest and materialize themselves in both time and space, and must not be considered merely as the result of a social reality and/or given economic condition, but also as the cause of other such flows, such as investment, technology, professional experience, etc., all of which have their own regional manifestations.

The analyses of the levels of urban hierarchy and the demarcation of the Regions of Influence (ROI) of Brazilian cities can be found in prior studies carried out by the Brazilian Institute of Geography and Statistics (IBGE), based on questionnaires that investigated the intensity of the flow of consumers in search of goods and services in the years of 1966, 1978, and 1993. In fact, classic studies on the Brazilian urban network have been conducted relatively frequently. The proposal of regionalization, published in 2007 (REGIC-BH, 2007), returns to the concept used in the first studies conducted by the IBGE, which resulted in another classic IBGE study: "The Breakdown of Brazil in functional urban regions," published in 1972. In the REGIC-BH (2007) study, emphasis was placed on the function of territorial management, as defined by Corrêa (1995). Classified in six hierarchical levels, according to its position within the realm of federal and business management, the final group of ROIs within the national territory encompasses a total of 711 management centers (REGIC-BH, 2007). The intensity of the connections allowed for the establishment of each ROI and the articulation of city networks. The Belo Horizonte ROI, classified in this proposal as a Metropolis, includes a total of 698 municipalities (according to the political-administrative division done in 2007), which are divided into eight Regional Capitals (B and C): Juiz de Fora, Montes Claros, Divinópolis, Governador Valadares, Ipatinga-Coronel Fabriciano-Timóteo, Teófilo Otoni, Uberaba, and Varginha.

The regional division set forth by REGIC-BH (2007) allowed for the assessment of restricted migratory flows in a network analysis, assessing the gains and losses based on ROIs from a regional center at diverse hierarchical levels. In light of these possibilities, this article aims to assess the magnitude and main characteristics of the population's mobility and spatial dispersion within the Belo Horizonte ROI (REGIC-BH, 2007) based on the intermunicipal migratory flows extracted

[1] Singer also identifies the so-called "attraction factors" and "expulsion factors". The former refer to the need for the workforce stemming from growth in industrial production and expansion of the urban services sector, which function as spatial concentration forces. In this aspect, the unequal development of the capitalistic system distributes the population according to the same logic of the intensification of economic spaces, forming large reservoirs of workforces.

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from the sample microdata from the 2010 Brazilian Demographic Census. In this research, migrants were defined based on the so-called fixed date migration, identified as those who declared their different towns of residence on the specific date of each census as compared to five years earlier, in this case, referent to the five-year period of 2005 to 2010.

Even if the analysis of the population's spatial movements, most notably the migratory flows, are merely recurring demography, studies dedicated to spatial displacements of the Brazilian workforce, especially in their regional manifestations, are sparse in prior Geography literature. Understanding the regional migratory dynamics involves the investigation of relations among the diverse forms of human establishments, emphasizing the combinations and differentiations that appear within a given space. It is this very spatiality that represents the uniqueness of this research. Historical evidence leaves no doubt about the relevance of the population's spatial displacement within the national territory, be it migratory or not. In many moments throughout history, this mobile workforce served not only as an available workforce for economic activities, but also as a catalyzer of profound economic and social transformation in the regions of origin and destination.

Brief considerations about the migration and spatial dispersion of the population

It is in the referential work of Richardson (1980) that an important discussion arises concerning the polarization reversal process. This work is based on the premise that continued growth of the concentrated area does not lead to a perpetual increase in economic efficiency, given that the marginal benefits derived from the urban and concentration scales tend to diminish when the urban center reaches a specific population size. For this author, this process is characterized by the change in the tendency toward spatial polarization within the national economy, in which the spatial dispersion leaving the central region would occur. Still, according to Richardson (1980), a sequence of facts characterizes this polarization reversal process: at the onset, a well-defined process of economic concentration is established, generating a center and a periphery. Subsequently, structural transformations in the central area begin to occur, as the adjacent nuclei begin to present a more accelerated growth toward the center, a moment in which the polarization reversal process begins, in turn producing a broader dispersion. Finally, the dispersion begins to reach the secondary centers, and the central area begins to lose population. The faster expansion of work opportunities outside of the main metropolitan area promote the redistribution of the population throughout the entire urban system, reflecting the growing comparative advantages of the secondary (mid-sized) cities. This picture illustrates the reflection of the conversion of the flow of capital and work exiting the core nucleus (metropolis) toward secondary (mid-sized) cities, promoting an increase in economic and demographic growth rates.

As regards regional studies, in the case of Brazil, the many attempts to apply these models and to reconstruct the theory are evident. However, the Brazilian structural and sectorial particularities make it more difficult to correctly understand the phenomenon in question. The works of Townroe and Keen (1984) present one of the first analyses regarding the possible polarization reversal process in Brazil. This research deals with the concrete proof of polarization reversal in the state of São Paulo between 1970 and 1980, since, in addition to the reduction in the core nucleus of the population, there are also clear signs of deconcentration. Nevertheless, the proposals for the

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possible polarization reversal process in Brazil received heavy criticism, referring to issues ranging from empirical evidence to the type of variables and methodology used. In this light, Azzoni (1986) criticizes the fact that the size of the city is considered to be an indicator of the agglomeration economies, that is, it is crucial to consider the central region to be capable of generating an attractive field for new investments. In fact, the regional attraction transcends the urban environment, whereas the locational costs are essentially urban. Therefore, it would be hasty to think that there could be a process of polarization reversal in Brazil, since, conversely, the evidence indicates that, far from constituting a sign of polarization reversal, the phenomenon observed in São Paulo would in fact be more similar to industrial sprawl within the most heavily industrialized area of the country in the process of what might be called "concentrated deconcentration" (AZZONI, 1986). Diniz (1993) provides a new model to complement the interpretation of this picture. After the undeniable economic and demographic concentration witnessed up to the end of the 1960's, what began, in the first moment, was the polarization reversal process (DINIZ, 1993).

However, the deconcentration process did not occur in a widespread manner, but rather in select spaces in the country that were well-equipped and rich in externalities, reflected mainly in the urban sprawl toward the countryside of specific Brazilian states. By contrast, Negri (1996), in addition to considering Azzoni's analogy unjust, believes that the polygon established by Diniz (1993) was inappropriate, given that, although the core region was benefitted by the deconcentration that had occurred over the previous 20 years, when its participation in the national industry was expanded from 33.1% to 49.2%, this did not represent incoherence when faced with growth outside of the polygon. The observations made by Matos (1995b) corroborate, to a certain extent, with the analysis made by Azzoni (1986), since the true reach of the supposed phenomenon of deconcentration and whether or not the existing explanations in fact cover all of the cases are unknown, even though important changes in spatial distribution of the population are already underway. It is therefore important to recognize that the majority of urban expansion within the country over the past few decades results from the multiplier effect of the exacerbation of the urban and industrial concentration in the Southeast. This process has stimulated the densification of the urban network and the links of complementarity among the diverse centralities. Lobo and Matos (2011), upon analyzing spatial dispersion in Brazil in the 1980's and 2000's, did not confirm the reliability of the polarization reversal process in Richardson's terms, nor the supposed economic-demographic deconcentration highlighted by Redwood III, among others, but did offer signs of the population's spatial dispersion, which is already prominent in some specific cases, such as in the ROI of São Paulo. In this region, the volume of migratory flows directed toward the main poles of attraction suggest a form of polynucleated dispersion (LOBO, 2009).

The process of Brazilian urbanization began to take shape in the 1940's, when the still fragile industrialization process led to a spatial reorganization of the population within the country. A new pattern of urbanization, essentially centralized, began to take shape, especially in the Southeast, where large urban centers concentrated this immense mass of urban population. This movement had been occurring since the 1930's, regardless of governmental efforts, in an attempt to open the agricultural borders (MARTINE, 1987; PATARRA, 1984, TASCHNER & BÓGUS, 1986). By contrast, the rural population only began to decline in the 1950's. In the 1970's, the urban population represented approximately 56% of the total population in Brazil, and the Southeast, with 72.7%

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of this urban population, claimed to be the greater part of the national total, although in the other large regions of the country, the urban population had also become predominant. The increase in migratory flow from the country to the city sparked the intensification of the urbanization process in and around the main Brazilian capitals, forming large and complex urban agglomerations through the process of conurbation. In fact, faced with this new urban scenario, the federal government, by means of a complementary law, approved the creation of metropolitan regions in an attempt to create the mechanisms necessary to make it feasible to manage and differentiate the common functions of the local regions (among various municipalities) from the common functions of the metropolitan regional territory (NOGUEIRA, 1994). Thus, an enormous quantity of resources were transferred, aimed at setting up at an integrated management by granting preferences in the access of such state and federal financial resources to those cities that chose to participate in the drafting and planning of this new management model. The first metropolitan regions of São Paulo, Belo Horizonte, Porto Alegre, Recife, Salvador, Curitiba, Belém, and Fortaleza were created in 1973, and in 1974, shortly after the fusion of the states of Guaranbara and Rio de Janeiro, the region of Rio de Janeiro was created.

The theme of the relation between migration and spatial structuring is an old subject of reflection from a wide range of studies. Ravenstein (1980), for example, points out that there are expressive relations between economic activities and the spatial displacement of the population, especially in that which refers to distance, to the movements in stages, to the configuration of the currents and counter-currents, to the predominance of female migration, as well as to the fact that the migrations tended to generate successive movements from the areas near industrial or commercial centers. For this author, the big cities "provide facilities that are so extraordinary to the division and combination of work, to the exercise of all arte forms, and to the practice of all professionals that, each year, a larger number of people are able to inhabit these cities" (RAVENSTEIN, 1980, p.26). There are also other aspects to be considered that led to migration, such as educational facilities, climate conditions, or the cost of living. In a review of Ravenstein's theses, Lee (1980) introduces some information regarding the internal movements within late capitalist societies. In this manner, according to his analysis, the decision (never fully rational) of migration is linked to a rational decision among the so-called positive and negative factors in the regions of origin and destination. From Lee's point of view, it becomes natural that distinct people become affected in a different manner by a series of obstacles and incentives to the possibility of migration.

Although still considering the environment of capitalism, Singer (1973, p. 222) affirms that migration is a reflection of the structure and mechanisms of the development of the capitalistic system, whose main engine is the exacerbation of the regional inequalities. For this author:

> It is clear that any process of industrialization implies a vast transference of activities (and, therefore, of people) from the rural areas to the cities. However, in the capitalistic molds, such a transference tends to favor only a few regions in each country, emptying the rest. Such regional inequalities are well-known and worsen as the local decisions are made using only the criterion from a private company's perspective.

Singer's (1973) contribution, as regards his reflections on migration, lies in his identification of the attraction, which has the underlying need of a workforce, which is a reflection of the growth in industrial production and in the expansion of the urban services sector. It is also clearly important

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to highlight their functionality as forces of spatial concentration. The expulsion factors themselves are divided into change factors, stemming from the penetration of capitalism in rural areas and from the adoption of a system that diminishes the workforce, as well as in stagnation factors that are linked to the demographic pressure exerted upon the land. For this author, the regions of change lose population, but increase in productivity, which allows, at least in principle, for an enhancement of the local living conditions. By contrast, the areas of stagnation present a deterioration of the quality of life, working, at times, as "workforce breeding grounds" for the landowners and the large agricultural companies.

In the same structuralist approach, some authors still consider migration to be a flow that is profoundly linked to the creation, expansion, and articulation of the work markets. In other words, if development is unequal in the realm of capitalism, the population thus distributes itself according to the same logic of the intensification of economic spaces, forming large stocks of workforces. Despite the merits of such a formulation, they are unable to encompass the entire multiplicity of the more dynamic and specific causes of migrations, such as the comparative advantages and the external potentials that have been transforming the spaces of destination. For Matos (1995b), few assessments of migration from an urban origin have been conducted, while they almost always mention return migration. Additionally, there is little understanding of the positive effect that migration can trigger in the dynamization of the regions of destination, especially as regards the supply of qualified workforce, specific possibilities of new investments, and the exchange of technology, for example. Thus, migration provides visibility to the broader social processes, not restricting itself to being a mere indicator of the concentration and dispersion of economic activities. In fact, many researchers speak of the profile of rural and urban development, the institutional and social forms of the diffusion of information and innovation, the late or advanced insertion in the demographic transition, and the degrees of regional inequality when they discuss the end of the concentration pattern of activities. For Matos (2003), it is important to give visibility to the recent changes in Brazilian migratory patterns, which have been characterized by the diminishing of significance given to the migratory flows from rural areas toward cities and by the complexification of the urban network, signs that are evident of the increase in certain positive externalities in the outlying areas of the metropolis and of the new migratory flows in that area already moving toward mid-sized cities. Considering that the organization of the elements of space must be treated as the historical result of the performance of social actors, the flow of information, capital, and people, for example, allow for and even feed the dynamism of the forms and functions of the elements that compose and characterize the space. According to Santos (1997), migratory flow is one of the most important characteristics of the present world which is, at the same time, the cause, condition, and result of its own needs. It has therefore become clear that the flow is expressively relevant to studies concerning internal migrations, since these are, in essence, flows that are manifested and materialized within the space. This issue also treats migrant groups that are displaced within the space and are not only the result of a social reality and/or temporary economic condition, but are also the causes of other such migratory flows. Such movements/flows also undoubtedly involve investments, technology, and professional experience.

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Basic concepts and the spatial slice of analisis: Theoretical and methodological aspects

The Brazilian demographic census that has been conducted by IBGE since the 1940's, constitutes the main source of information on the Brazilian population, most notably those which refer to the so-called migratory flows. Although this is a well-known phenomenon within the public sphere, its definition is surrounded in controversy and ambiguity. Put simply, migration involves the spatial displacement of the population, based on previously established intervals or points in time. Another key conceptual aspect concerns the intention of the deliberate change in one's place of residence, which differentiates migration from other forms of spatial displacement, such as commuters and seasonal movements. The definition presented by the United Nations in *The Determinants*, in 1973, had already warned of this condition upon excluding the movements in which individuals did not remain in their supposed final destination, considering only the changes in residency among pre-defined spatial units.

Rigotti (1998) reminds us that the migration variable in Brazilian demographic censuses did not always have the same comprehensiveness and analytical potential as the current version. In the 1960 and 1970 Demographic Censuses, for example, migration was applied only to the non-native residents of the municipality. In 1980 the census inquired about intramunicipal migrations, and in 1991 the census additionally investigated the municipality, the unit of federation, and the migrant's residence over the previous five years. Emigrants and immigrants, therefore, began to have a defined fixed date of migration. Clearly, an important evolution when faced with the importance of migration as a social and economic process that characterizes the Brazilian territory. Migratory flows are also key to the analysis of the structuring of the Brazilian urban network, which gain force and notoriety especially after the 1970's, whose hierarchy and areas of influence took on a similar form to that of today's migratory flows. For Lee (1980), there are no imitations in relation to the distance of the displacement or to the nature, voluntary or not, of the act of migration. By contrast, according to the UN definition, set forth in *The Determinants* in 1973, the movements whose individuals do not establish permanent roots in the region of destination, as well as those involved in seasonal, temporary, and nomad population movements, were excluded.

The survey questions set forth in successive editions of the Demographic Census of Brazil underwent many changes, especially in what concerns the information on migratory flows. According to Carvalho and Rigotti (1998), in the Censuses of 1960 and 1970, the questions about migration were directed, on the day of the referent Census, only to those who were not born in the city of residence (the non-native). The requirements included the time of residence without interruption in the Federation Unit (FU) and within the city itself, place of origin (city or foreign country) and condition of residence (rural or urban). By contrast, in the 1980 Census, in addition to intermunicipal migration, intramunicipal migration was also studied, although there was no question regarding the time in which the migratory event actually occurred. Another novelty was the indication of the prior city of residence for those with less than 10 years of residency in the city in question, which allowed, among other aspects, for the identification of return migration. In the 1991 Census, in addition to maintaining the prior questions, there was also the question of the city, state, and condition of residence five years prior (that is, on September 01, 1986). This innovation became known as the fixed date migration. The combination of this variable with the migration from the previous stage

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(prior city of residence) allowed for the identification of yet another time reference concerning the migratory path, which was restricted to the decade of the census. In addition, the question about the indication of the city of work and study, different from that of residence, was excluded from the sample questionnaire. In the edition of the 2000 Census, the removal of the variable referent to the prior city of residence was the most significant change. Moreover, the resumption of the use of the variable referent to the so-called commuter movements was another striking achievement highlighted in the 2000 Census. Finally, in 2010, one important innovation in the Demographic Census was the reinsertion of the variable of migration in the final stage, maintaining the question referent to fixed date migration. Also added was the invaluable innovation in which the reason for daily commuter displacement was explained, that is, for study or for work.

Belo Horizonte Region of Influence: characteristics and analysis possibilities

The levels of urban hierarchy and definition of the ROIs of Brazilian cities include previous studies that have been conducted by IBGE, based on questionnaires that allowed for an investigation of the intensity of the flows of consumers searching for goods and services in 1966, 1978, and 1993. Indeed, classic studies on the Brazilian urban network have been carried out with this frequency. This regionalization proposal incorporates the design used in the initial studies conducted by IBGE, which resulted in another classic IBGE study, the Breakdown of Brazil into functional urban regions in 1972. Its current version, published in 2007 (REGIC-BH, 2007), emphasized the role of land management, as defined by Corrêa (1995, p.83), for whom the territory's management center

> is that city in which, on one hand, the various state agencies are located and, on the other, along with the head offices of companies whose decisions directly or indirectly affect a given space that comes under control of the city through the businesses headquartered in it.

Simply put, the hierarchical classification in the city network prioritized two levels of centrality: Federal Management, measured by the presence of Executive Branch and Federal Judiciary agencies, and Corporate Management, which refers to the presence of different equipment and services (trade and services, financial institutions, colleges and universities, health providers, Internet providers, open television networks, and airports). The final set of nationwide ROIs consists of a total of 711 management centers, classified into six levels of hierarchy, according to their position in their respective spheres of federal and corporate management. Establishing the cities' areas of influence and articulating their networks were defined in accordance with the intensity of links between them. In addition to being hubs of public and corporate management, the investigation also considered the presence of health services. The centers' areas of influence were measured in terms of the intensity of links between the cities, based on secondary data and information from survey-specific questionnaires. In the end, twelve first-level networks were identified. Cities were classified into five major levels of hierarchy as described below:

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1. METROPOLISES – these are the country's twelve main urban centers, characterized by their large size and strong relationships between them, in addition to generally having an extensive area of direct influence. The set was then broken down into three sub-levels based on territorial extent and intensity of those relationships: 1.a – Major national metropolis – São Paulo, the country's biggest set with 19.5 million inhabitants in 2007, and placed in the first level of territorial management; 1.b – National metropolis – Rio de Janeiro and Brasília, with a population in 2007 of 11.8 million and 3.2 million, respectively, are also in the first level of territorial management. Together with São Paulo, they make up a focus of centers located throughout the country; and 1.c - Metropolis – Manaus, Belém, Fortaleza, Recife, Salvador, Belo Horizonte, Curitiba, Goiânia, and Porto Alegre, with populations ranging from 1.6 (Manaus) to 5.1 million (Belo Horizonte), which make up the second level of territorial management. It should be noted that Manaus and Goiânia, although placed in the third level of territorial management, have the size and national prominence that ensures their inclusion in this set.

2. REGIONAL CAPITALS – this level is made up of 70 centers that, as metropolises, also relate to the upper stratum of the urban network. With a management capability directly below the level of the metropolises, they have a regional area of influence and are the focal points for a set of activities conducted by a large number of neighboring municipalities.
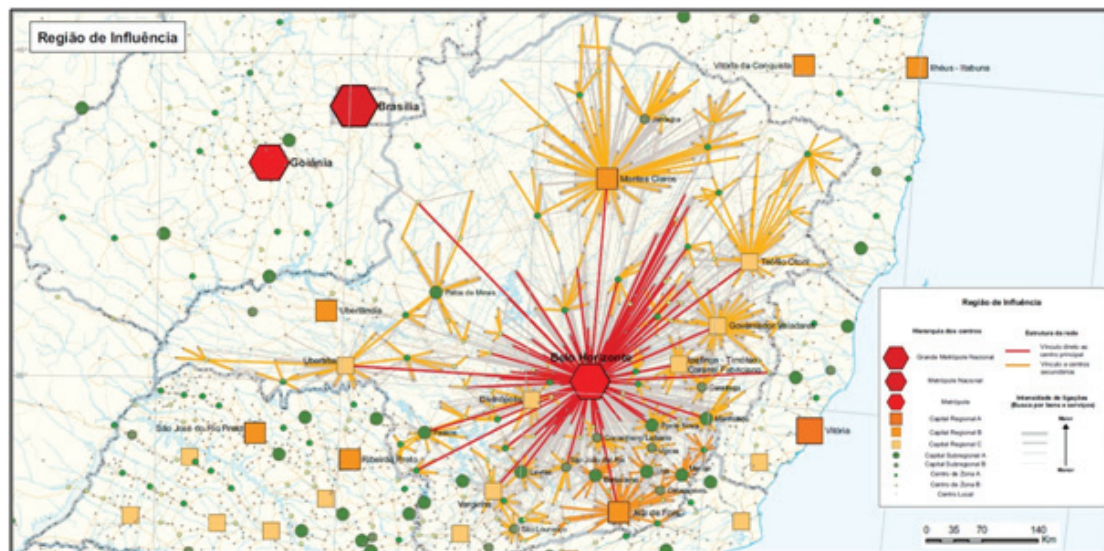
3. SUB-REGIONAL CENTERS – this level is made up of 169 centers with less complex management activities, predominantly between territorial management levels 4 and 5; they have a much smaller area of influence and, in general, their relationships with centers outside of their own network are only with the three national metropolises.

4. ZONE CENTERS – a level comprising 556 smaller cities and towns whose influences are restricted to their immediate area and that exercise elementary management functions.

5. LOCAL CENTERS – the remaining 4,473 towns whose centrality and influence do not transcend their city limits, serving only their residents and usually with fewer than 10,000 inhabitants (median of 8,133)

The ROI of Belo Horizonte (Metropolis), as defined in the 2007 REGIC, involves a total of 698 municipalities (based on a 2007 political-administrative division), consisting of two B Regional Capitals: Juiz de Fora and Montes Claros and six C Regional Capitals: Divinópolis, Governador Valadares, Ipatinga - Coronel Fabriciano – Timóteo, Teófilo Ottoni, Uberaba, and Varginha; added to the fifteen A and B Sub-regional Centers and seventy-seven A and B Zone Centers, representing a total of exactly one hundred higher hierarchy urban centers contained in the REGIC-BH. Conversely, 598 cities, most of which are urban centers within the same region, are classified as local centers, reflecting their small socioeconomic expression (Figure 1).

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Figure 1   The Belo Horizonte Region of Influence.

The 2007 REGIC provides a current picture of Brazil's urban-regional organization and, although it may raise questions about methodological and conceptual problems, while pointing out the analysis limitations, it still provides a broad picture of interdependence in which the movements of the workforce play a particularly important role. Taking the municipality as the minimum spatial unit of analysis, according to the political-administrative division in each period, subsequent spatial clusters (regional aggregations) allow for the identification of the main inflow and outflow of migrants at the different hierarchical levels: involving exchanges between Metropolises and Regional Capitals, as well as with Local Centers (other municipalities).

Evolution of resident populations and migration flows in the regic–BH: some current empirical evidence

As it relates to the resident population of the Belo Horizonte ROI, recorded in the last three censuses (1991, 2000, and 2010) (Table 1), the significant weight that Belo Horizonte has on its ROI should be evident. In fact, its share is noteworthy, although it presented a slight decline during the period in question, i.e., from 14.70% in 1991 to 14.03% in 2010. Certainly, this shift clearly shows the broader phenomenon of a declining geographic concentration of the population in major Brazilian cities, particularly in the South-Central region. Interestingly, the opposite was observed in the outskirts of the state capital, whose population within Belo Horizonte's ROI experienced significant growth – from 13.75% in 1991 to 17.95% in 2010, thus confirming the tendency toward population growth in the metropolitan outskirts of Belo Horizonte, as had already been observed in previous decades. Also noteworthy is the smaller share of the resident population in the aggregate of municipalities in Belo Horizonte's ROI, which, from 1991 to 2010, went from 22.94% to 21.37% (Table 1). Another point that stands out is the evolution of the resident population of the eight

regional capitals that make up Belo Horizonte's ROI, which presented a general tendency to augment the regional weight during the same three decades. The highest share percentages were observed in Montes Claros and Divinópolis.
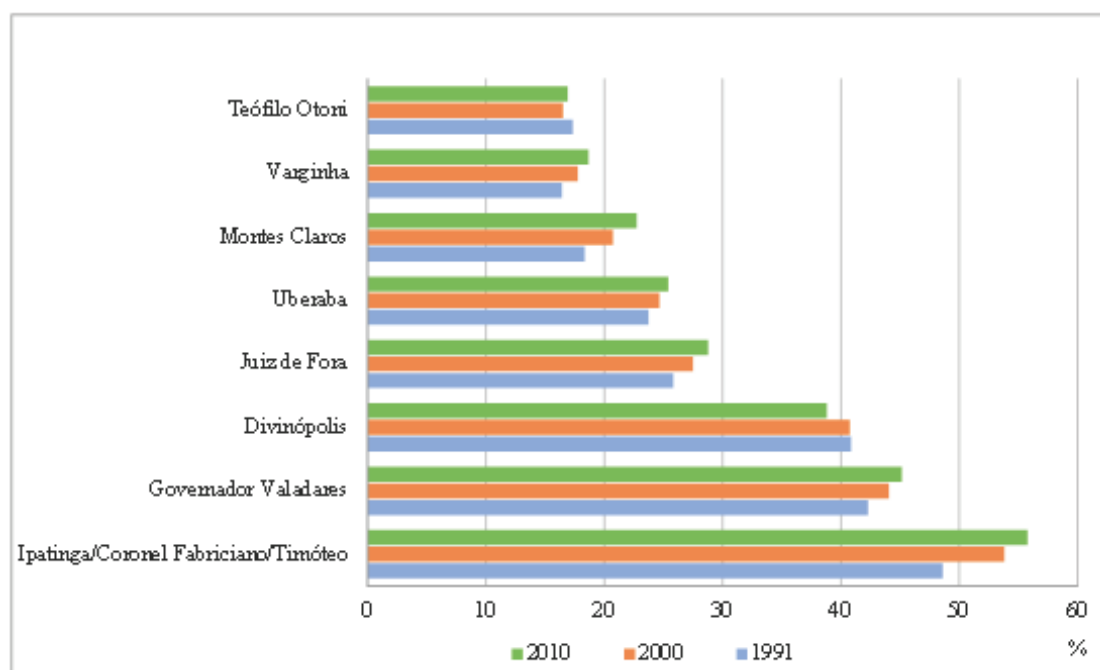
Although the largest population groups belong to the only two B regional capitals, Juiz de Fora and Montes Claros, their regional precedence was less pronounced, involving 28.78% and 22.74% of the population, respectively. Apart from Ipatinga/Coronel Fabriciano/Timóteo, with 55.77% of the population of their ROI, Governador Valadares and Divinópolis also draw attention, with 45.14% and 39.81%, respectively. Smaller shares apply to Teófilo Ottoni and Varginha, both with less than 20%. It should also be noted that there was a general increase in the share of regional capitals in their ROIs from 1991 to 2010, with the exception of Divinópolis, which dropped from 40.84% to 38.81%. Even in this case, the loss was not due to a decline in the resident population, but rather to the more rapid growth in other more dynamic spaces (Figure 2).

Table 1   **Resident population and regional share of Belo Horizonte/Regional Capitals and their respective ROIs in Belo Horizonte's ROI - 1991, 2000, and 2010**

Spatial units	1991		2000		2010	
	N°	%	N°	%	N°	%
Belo Horizonte	2.020.161	14,70	2.238.526	14,43	2.375.151	14,03
RMBH	1.889.946	13,75	2.580.762	16,63	3.039.550	17,95
RI-BH	3.153.633	22,94	3.413.823	22,00	3.618.371	21,37
Juiz de Fora	385.996	2,81	456.796	2,94	516.247	3,05
RI	1.107.710	8,06	1.204.303	7,76	1.277.253	7,54
Montes Claros	250.062	1,82	306.947	1,98	361.915	2,14
RI	1.113.257	8,10	1.174.086	7,57	1.229.843	7,26
Divinópolis	151.462	1,10	183.962	1,19	213.016	1,26
RI	219.338	1,60	267.598	1,72	335.895	1,98
Governador Valadares	230.524	1,68	247.131	1,59	263.689	1,56
RI	314.590	2,29	313.659	2,02	320.461	1,89
Ipatinga/Coronel	325.806	2,37	381.425	2,46	424.405	2,51
RI	344.414	2,51	327.542	2,11	336.561	1,99
Teófilo Otoni	140.833	1,02	129.424	0,83	134.745	0,80
RI	671.254	4,88	654.227	4,22	661.101	3,90
Uberaba	211.824	1,54	252.051	1,62	295.988	1,75
RI	680.494	4,95	770.526	4,97	868.749	5,13
Varginha	88.022	0,64	108.998	0,70	123.081	0,73
RI	447.776	3,26	504.211	3,25	536.408	3,17
Total	**13.747.102**	xxx	**15.515.997**	xxx	**16.932.429**	xxx

Source: IBGE, 1991, 2000, and 2010 Censuses

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Figure 2   Relative share of the population for each Regional Capital and
Metropolis in their respective ROIs - 1991, 2000, and 2010

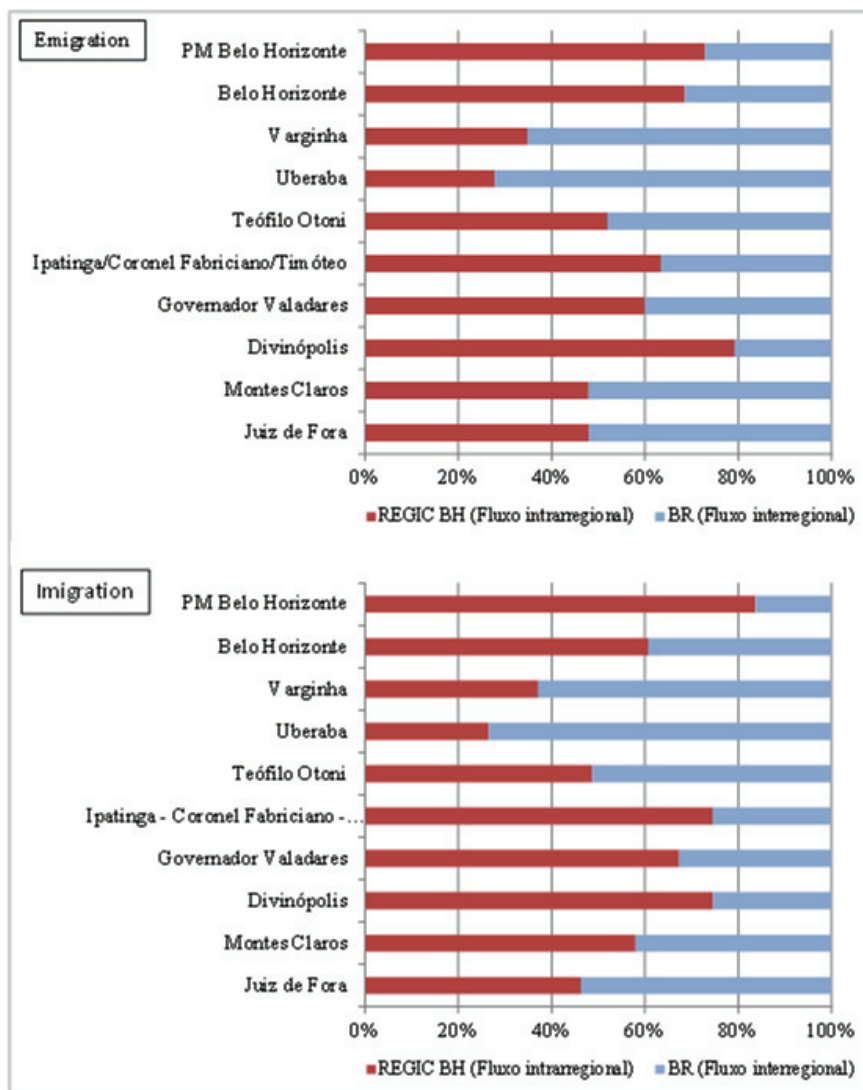### Migratory flows and the centralizing role of Belo Horizonte in the region

An analysis of migration from the period of 2005/2010, based on the 2010 census, highlights some of the regional characteristics. With regard to emigration, one can see a predominance of regional flows originating from the main regional centers of the REGIC-BH, in which Uberaba, Varginha, Montes Claros, and Juiz de Fora stand out (Figure 3). In Varginha and Uberaba, the most prominent cases, emigration to other Brazilian municipalities outside the limits of REGIC-BH corresponded to 72% e 65%, respectively, of the regional emigration. This high percentage can be explained, in large part, by the attraction exerted by the São Paulo job market, which has historically attracted large numbers of emigrants from these regions. Rio de Janeiro and Salvador play a prominent role in Montes Claros and Juiz de Fora, with Salvador also having an influential appeal in Governador Valadares and Ipatinga/Coronel Fabriciano/Timóteo. The state of Espírito Santo also exerts a force of convergence in these centers. The results in terms of immigration are similar and reflect exogenous forces, except for the ROI, which is directly affected by Belo Horizonte. Thus, the strong economic and social interaction arising out of the geographic proximity of these regional, internal, and eccentric centers to Minas Gerais is crucial in explaining the magnitude and direction of these migratory vectors. Therefore, it seems that Belo Horizonte does not have enough force of attraction to draw many of these migrants to its own ROI.

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The cartograms represented in Figure 4 identify the different spatial distribution patterns of Belo Horizonte's emigrants and immigrants within its ROI. While immigration is spatially diffuse, coming from various places throughout the state, especially those who made their way to their own regional centers, emigration is still highly concentrated in areas closer to the capital, especially in the metropolitan outskirts. Many of the migrants who left Belo Horizonte headed for municipalities that are part of the western (Contagem and Betim) and northern (Ribeirão das Neves, Santa Luzia, and Vespasian) peripheral axes.
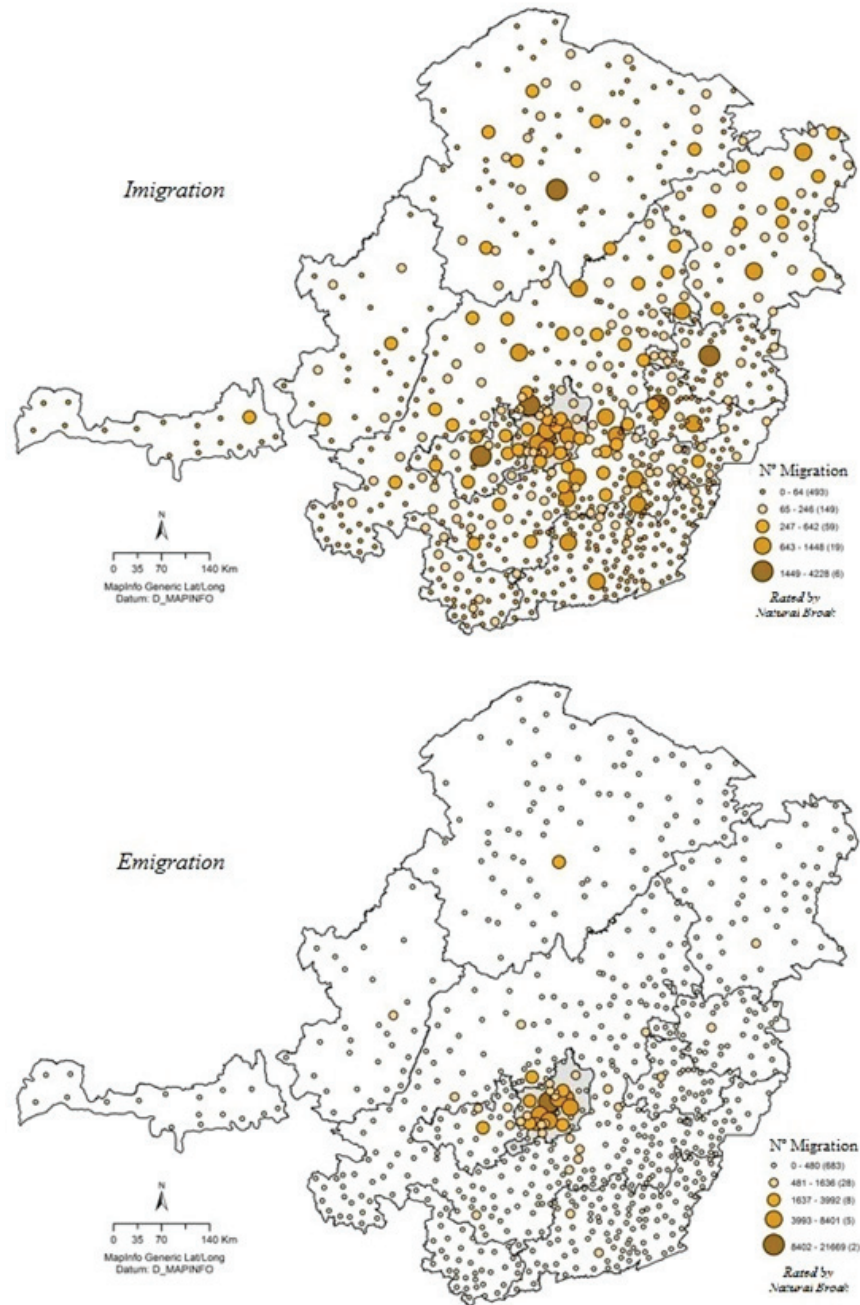
Figure 3   Relative share of intra and inter-regional migration in the Belo Horizonte ROI – migration for the period of 2005/2010

Source: IBGE, 2010 Census (sample data)

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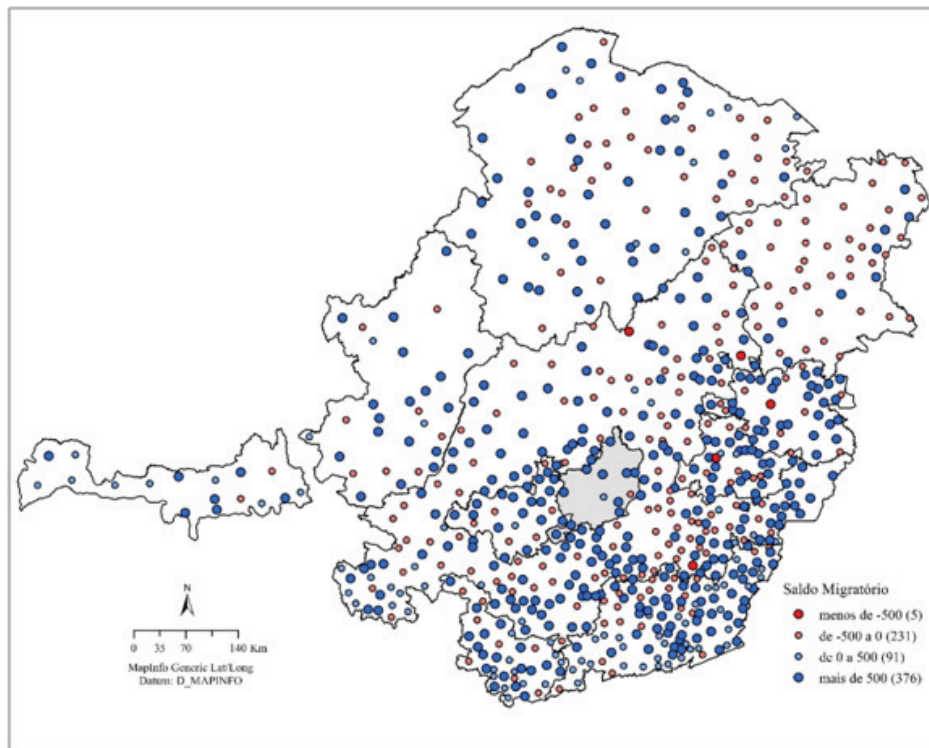*Geografias*   115
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Figure 4   Number of Belo Horizonte immigrants and emigrants
Belo Horizonte ROI – migration for the period of 2005/2010

Source: IBGE, 2010 Census (sample data)

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In terms of regional migrations for the period of 2005/2010, the result is the prevalence of population loss from Belo Horizonte to other cities within its ROI (Figure 5). Examining population exchanges involving the state capital, 66.43% of the municipalities that make up the REGIC-BH exhibited a positive net migration. A total of 376 municipalities showed a balance of greater than 500 in this installment. Out of the cities with the largest balance, the biggest concentrations were seen in the ROIs of Juiz de Fora, Varginha, Uberaba, Governador Valadares, and Ipatinga/Coronel Fabriciano/Timóteo. As expected, in the Montes Claros and Teófilo Ottoni ROIs, whose social and economic conditions have historically been recognized as being less favorable, municipalities with a negative migration balance are more frequent.

Figure 5   **Municipal migration balance in exchanges with Belo Horizonte ROI – migration for the period of 2005/2010**

Source: IBGE, 2010 Census (sample data)

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Conclusion

There has been a recurring debate on the spatial dispersion of the population in recent years, due, in part, to the explanatory power of the demographic dynamics of the Brazilian population. Empirically based on the REGIC-BH, this work presents an effort to analyze regional migration, with emphasis on flows involving the state capital and the major regional centers that make up its ROI. In general, the results suggest that, even though Belo Horizonte is the center of the regional urban network, as defined by its own REGIC, there is still a relative "weakness" of its articulations with these eight capitals, especially in light of the power of attraction of the country's major cities: São Paulo, Rio de Janeiro, and Brasília.

The significant spatial concentration of emigration, as opposed to spatially dispersed immigration, shows that Belo Horizonte continues to be a reference for immigrants within its own REGIC, although emigrants coming from the metropolis focus on its area of immediate influence. Additionally, the emphasis in both emigration and immigration is on several municipalities in the Greater Metropolitan Region of Belo Horizonte, such as Contagem and Betim (Western Axis), and Ribeirão das Neves and Santa Luzia (Northern Axis).

Lastly, it should be noted that there are opportunities for studies on the spatial mobility of the population, as outlined by the 2007 regional REGIC. By providing a current picture of the urban-regional organization in Brazil, the REGIC also allows the flows to be assessed in a network perspective, although, as mentioned above, it is subject to theoretical and methodological questions. Nevertheless, it can be especially useful, for example, in the regional analysis of Brazilian population dynamics, as explained in the example of this work, in which aspects of migration in the Belo Horizonte ROI were analyzed.

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