



SOCIO-SPATIAL DIVISION OF LABOR AND SPATIAL SEGMENTATION OF THE LABOR MARKET IN THE STATE OF RIO DE JANEIRO – FROM 2000 TO 2010

DIVISÃO SOCIOESPACIAL DO TRABALHO E SEGMENTAÇÃO ESPACIAL DO MERCADO DE TRABALHO NO ESTADO DO RIO DE JANEIRO – 2000 A 2010

DIVISIÓN SOCIALESPACIAL DEL TRABAJO Y SEGMENTACIÓN ESPACIAL DEL MERCADO LABORAL (DE TRABAJO) EN EL ESTADO DEL RIO DE JANEIRO – 2000 A 2010

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Resumo

O Estado do Rio de Janeiro (ERJ), após a crise na década de 1980, recebeu uma nova rodada de investimentos, principalmente no setor industrial. O aumento da exploração de petróleo na Bacia de Campos e a instalação da indústria automobilística no Vale do Paraíba indicam mudanças na estrutura espacial produtiva do ERJ, fato que gera influência direta na divisão socioespacial do trabalho e na segmentação espacial de seu mercado de trabalho. O presente trabalho buscou analisar se houve, de fato, um movimento de interiorização da economia e de seu mercado de trabalho. Para isso, utilizamos os dados do PIB municipal e do Censo Demográfico, ambos produzidos pelo IBGE, para 2000 e 2010. Como resultado, observamos perda de participação no Valor Adicionado Bruto industrial e de serviços da Região Metropolitana e consequente aumento nas mesorregiões Norte e Sul do Estado. O maior dinamismo econômico no Norte provocou o aumento do deslocamento casa-trabalho de pessoas de outras regiões do Estado, porém isso não foi verificado na mesma intensidade no Sul, o que demonstra que as condições pretéritas da estrutura produtiva e do mercado de trabalho, associada ao tipo de investimento que cada mesorregião passou a ter, tiveram efeitos diferente entre essas regiões. Palavras-chave: Divisão socioespacial do trabalho. Segmentação espacial do mercado de trabalho. Interiorização da economia.

Abstract

The Rio de Janeiro's State (ERJ), after the crisis in the 1980s, received a new round of investments, mainly in the industrial sector. The increase in oil exploration in the Bacia de Campos and the installation of the automobile industry in the Vale do Paraíba indicate changes in the productive spatial structure of the ERJ, a fact that generate direct influence in the sociospatial division of labor and in the spatial segmentation of the labor market. The current work tried to analyze if there was, in fact, a movement of interiorization of the economy. For this analysis, we will use the data of municipal GDP and the Demographic Census, both produced by IBGE, for 2000 and 2010. As a result, we observe a loss of participation in the Gross Value Added (GVA) of industry and services of the Metropolitan Region and consequent increase in the North and South mesoregions of the State. The greater economic dynamism in the northern led to an increase in the work-home movement of people from other regions of the State, but this was not verified in the same intensity in the South, which shows that the previous conditions of the productive structure and labor market, associated to the type of investment that each mesoregion had, had different effects between these regions.

Keywords: Socio-spatial division of labor. Spatial segmentation of the labor market. Internalization of the economy.

Resumen

El Estado de Rio de Janeiro (ERJ), tras la crisis en la década de 1980, recibió una nueva ronda de inversiones, principalmente en el sector industrial. El aumento de la explotación de petróleo en la Bacia de Campos y la instalación de la industria automovilística en el Vale do Paraíba indican cambios en la estructura espacial productiva del ERJ, hecho que generaría influencia directa en la división socioespacial del trabajo y en la segmentación espacial de su mercado de mercado laboral. El presente trabajo buscó analizar si hubo, de hecho, un movimiento de interiorización de la economía. Para ese análisis, utilizaremos los datos del PIB municipal y del Censo Demográfico, ambos producidos por el IBGE, para 2000 y 2010. Como resultado, observamos pérdida de participación en el Valor Añadido Bruto (VAB) industrial y de servicios de la Región Metropolitana y consecuente aumento en las mesorregiones Norte y Sur del Estado. El mayor dinamismo económico en el Norte provocó el aumento del desplazamiento casa-trabajo de personas de otras regiones del Estado, pero eso no fue verificado en la misma intensidad en el Sur, lo que demuestra que las condiciones pretéritas de la estructura productiva y del mercado de trabajo, asociada al tipo de inversión que cada mesorregión pasó a tener, tuvieron efectos diferentes entre esas regiones.

Palabras clave: División socioespacial del trabajo. Segmentación espacial del mercado laboral. Interiorización de la economía.

Introduction

After the financial crisis of the 1980s (Baltar, 1996), the state of Rio de Janeiro (ERJ) received a new round of investments both in the decade that followed and in the 2000s. The situation of the 2000s brought hope and certainty after the a new cycle of public and private investments in infrastructure and production development in the country were confirmed, and placed as a priority in the government's agenda. The insertion of a developmentalist agenda resuscitated in Rio de Janeiro the possibility to recapture its primacy in the national scenario whilst participating in the economy. According to Silva (2012), even receiving investments from the 1930s, the ERJ was already experiencing continued losses of participation in relation to the national economy in all three sectors of economic activity. These losses were illustrated by the clear difficulty faced by the ERJ in developing at the same expansive rate as the other states, such as São Paulo which was consolidated at the front of the national economy. This competitiveness with the other states of the federation, according to Siqueira (2015), put the ERJ in second position in the national economy. The growing technological advances developed by the other states were compared to the growth rate of Rio de Janeiro's activities, which were once pioneering, have since become obsolete. At the same time, the transfer of the federal capital to Brasília caused the state to lose the administrative center, and consequently a large part of public investments.

In Rio de Janeiro, since the 90s, a large part of the investments has occurred in the industrial sector, especially the mining industry. The increase in oil exploitation in the Campos Basin (Siqueira, 2015), the installation of the automobile industry in Vale do Paraíba (Silva, 2012; Arbix; Rodríguez-Pose, 1999) and several other investments made during the period indicate changes in the productive structure of the ERJ, a fact that, if confirmed, would have a direct influence on the socio-spatial division of labor and also on the spatial segmentation of its labor market.

Historically the Metropolitan Region of Rio de Janeiro (RMRJ) is perceived as the location with the highest number of jobs within the ERJ, a fact that is strictly linked to its diversity in its productive structure. As Oliveira (2017) points out, spaces with diversified markets tend to offer more opportunities when compared to specialized economies. If, on the one hand, investments outside the RMRJ open up a new social and spatial division of labor; on the other, it must be remembered that it did not stop investing in the city. Even the Complexo Petroquímico do Rio de Janeiro (COMPERJ) exemplifies this. COMPERJ would have as an input the output of the mining industry – a target of massive investments – located in the North, but the necessary chain for value aggregation would occur in the RMRJ, more specifically in Itaboraí. Still, as Osório, Rego, and Versiani (2016) show, this could be a great opportunity for productive densification in the territory, since the great majority of productive activities required to meet the demands of offshore oil extraction are outside the state of Rio de Janeiro.

Regarding the labor market in the North of the state of Rio de Janeiro, despite the intensification of oil exploration in the oil-rich Campos Basin at the expense of the investments made in early 2000, the intrinsic characteristics of it may present obstacles to a new spatial segmentation of the job market. First, the labor market of the extractive industry needs a high degree of specialization, where there is no abundant skilled labor, much less in the region where it is located. Second, when talking about labor markets in the extraction industry, it is important to approach it *stricto sensu*, that is, a small niche marked by the seasonality that occurs in the work day and the little bond created by the labor with the locality. As a result, the high degree of specialization generates a demand for labor that will not be satisfied in its own region, this attracts other workers from other regions and, in addition to the high remuneration, creates a

scenario that makes it difficult the integration of the individuals with the locality, since some of them return to their residences - located in another mesoregion - during their rest period.

But the regional debate is not limited to the dichotomy of northern RMRJ, there is an emphasis on the conjuncture for the benefit of the second, but there were other mesoregions that received investments. The Vale Paraíba, here inserted in the southern mesoregion, as said by Osório, Rego, and Versiani (2016), had investments from the installation of plants linked to the automobile industry (assembly of cars and trucks and production of auto parts) in the mid-90s, which, together with the expansion of the economy, could generate good results for the region. Still, in relation to the South, it is also necessary to disintegrate its municipalities so that the changes can be fully understood, so that there is no idea of unity in this region. Different from the North, the productive structure of the state of southern Rio de Janeiro presents a process of recent industrial formation and, at the same time, an already consolidated process. As for the process already consolidated, it is understood as the installation of the largest steel industry in Latin America, Companhia Siderúrgica Nacional (CSN), created in the 1940s, and also of the Angra dos Reis Plant, installed between the 1970s and 1980s.

These facts regarding the investment round that the ERJ deserved a thorough study, trying to analyze if there was, in fact, a movement of interiorization of the economy, followed by a new socio-spatial division of labor and, therefore, changes in the spatial segmentation of the market of work. Making the comparative diagnosis of 2000 and 2010 enables us to see if the conjuncture presented has already produced results of changes in the socio-spatial division of labor and, consequently, in the spatial segmentation of the labor market, or if there are opposing indications. Thus, our hypothesis is that, in this period, there were changes in the socio-spatial division of labor, reflecting changes in the spatial segmentation of the labor market, although not as substantive changes in all directions.

For discussion of the hypothesis presented, we organized this work in three more sections, besides this introduction. In the second section, we will analyze the socio-spatial division of labor according to ERJ mesoregions, based on the aggregate data of municipal GDP, in order to verify if there was a change in the economic structure of these spaces of

analysis. In the third section, we will make a comparative analysis of the labor market of the main spatial cuts discussed in this paper (RMRJ, North and South), based on data from the IBGE Demographic Census, since they are the only ones that allow analysis of the labor market with the spatial scope at this territorial level. An analysis of the socio-occupational structure of each space and of the work-to-work displacement between regions will be done. Finally, in the last section, the final considerations are made in order to summarize the main results found.

Socio-spatial division of labor in the state of Rio de Janeiro

This section will deal with the socio-spatial division of labor in the State of Rio de Janeiro (ERJ), understood as the economic structure of each mesoregion of the State, using the data of the Municipal Gross Domestic Product (GDP) for the years 2000-2010. The hypothesis that guided the work in this section is that the investment round was not able to induce substantive changes in the socio-spatial division of labor in this period, even though the economic indicators point to an increase of the industry in the state and greater participation of non-metropolitan mesoregions.

In the data on the participation of the sectors of economic activity in the GDP of each region and the ERJ (Table 1), it was possible to identify, preliminarily, that the composition of the productive structure of the mesoregions is not similar both among themselves and when compared to the State, with the exception of the Metropolitan Region¹, which is the most similar.

The participation of the industrial sector in ERJ's GDP, in addition to being relevant, increased from 2000 to 2010, from 20.4% to 23.7%. However, it is possible to observe the heterogeneity of the participation of this sector of economic activity in the regions of the state. While in the Metropolitan Region, Northwest, and Central there are participations that vary between 14.9% and 20.0%, in the North, South and the Lowland participations vary between 34.0% and 60.8%. In general, there were more mesoregions gaining participation of this sector in its GDP, in the analyzed period, a factor influencing the increase in the state.

The investment agenda presented provokes a more sensitive look at the North and the South of the state. The industry in the first mesoregion maintains the same participation presented, while in the South there is

loss. The data indicate a certain contradiction in the reflexes produced, since the investments, although realized in the industry, not only did not have effects in gains of participation as there was a benefit of the sector of services in both cases.

Table 1 - Participation of sectors in the GDP of the mesoregions and the state of Rio de Janeiro

Market Importer	2000			2016		
	Total importation	Brazilian shipments	Participation (%)	Total importation	Brazilian Shipments	Participation (%)
United States	1.375	38	2,8	1.368	33,2	2,4
China	16	0,631	3,8	812	165,7	20,4
Japan	1.045	1,914	0,2	719	0,004	0,0
Russia	425	0	-	518	138,7	26,8
South Korea	333	0,216	0,1	513	0,175	0,0
Hong Kong	71	30,2	42,5	453	330,5	73,0
European Union	429	179,9	41,9	369	116,9	31,7
Egypt	228	3,8	1,7	340	176,8	52,0
Chile	124	31,7	25,6	269	71	26,4
Canada	290	3	1,0	254	3	1,2
TOTAL*	5.808	358,6	6,2	7.711	1.400,4	18,2

Source: IBGE - Censo Demográfico. Own elaboration, 2017.

By expanding the analysis for participation in the state GDP, there is clear view of the regional dynamics present in the ERJ (Table 2). The GDP of the Metropolitan Region, although suffering a loss between 2000 and 2010, represented in the last year 71.2% of the ERJ, a fact that shows the importance of the decisions taken at the state level for this region, as well as in the decisions of the municipalities present as well. Still, the role of the city of Rio de Janeiro in the above mentioned participation can not be ignored, only the capital represented 46.7% of the Fluminense GDP in 2010, a factor that confirms it as a polarizing city in the region. The second largest mesoregion, the North, represented 11.2% of state GDP in 2010 when in 2000 it was only 6.5%. However, when analyzing the internal distribution, it is possible to see the importance of the municipalities of Campos dos Goytacazes and Macaé, which together added up to 9% of the state GDP in 2010. In the South, there is a more homogeneous distribution of

participation among municipalities, but Volta Redonda and Angra dos Reis together are still representing almost half of the GDP of their mesoregion. In any case, the South region also increased its share between 2000 and 2010, rising from 7.5% to 9.8%, respectively. The RMRJ, the North and the South are the regions with the largest participation in the GDP of the State, which justifies a more focused analysis in these regions.

Despite the continued economic concentration in the RMRJ in 2010, there was a loss of participation of the metropolis in the state's industrial Gross Value Added (GVA) and less pronounced in the GVA of services in the analyzed period. Regarding industrial GVA, there was a loss of RMRJ's participation in the state from 55.3% to 41.3%. On the other hand, the North and South regions that in 2000 had a combined participation in the state's industrial GVA of 32.7% came to present in 2010, 42.7%, which corresponds to a higher participation than RMRJ. The extractive industry in the north of the state of Rio de Janeiro and the installation of the automobile industry in the south of the state were important factors for this. These factors may also have reflected in the services sector, as there is an increase of the two mesoregions, which may be related to the logistics necessary for the existence of the industries.

Table 2 - Participation of mesoregions in the Gross Value Added (GVA) and in the GDP of the state of Rio de Janeiro

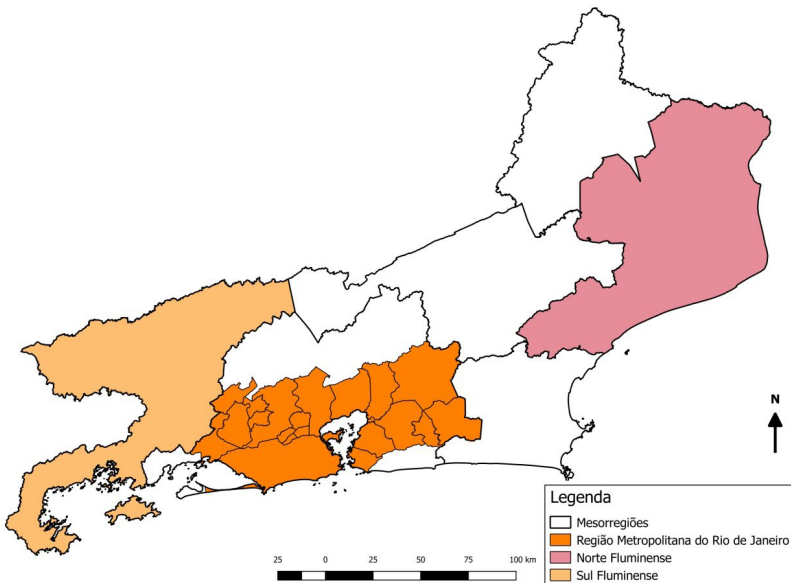
In %

Mesoregions	2000				2010			
	GVA Ag.	GVA Industry	GVA Services	GDP ERJ	GVA Ag.	GVA Industry	GVA Services	GDP ERJ
RMRJ	13,1	55,3	81,2	76,6	16,2	41,3	74,8	67,9
Perimetropolitan	14,3	2,1	3,6	3,0	11,5	3,4	3,6	3,3
North	24,7	19,4	3,4	6,5	20,2	28,6	6,1	11,2
Northwest	11,1	0,8	1,3	1,1	10,7	0,6	1,2	1,0
Central	16,7	2,0	2,3	2,2	22,1	1,7	2,2	2,0
South	13,3	13,3	5,9	7,5	12,4	14,1	8,6	9,8
Coastal Lowlands	6,7	7,2	2,3	3,1	7,0	10,3	3,6	4,9
Total	100	100	100	100	100	100	100	100

Source: IBGE - PIB Municipal. Own elaboration, 2017.

We can, therefore, conclude that, although the Metropolitan Region of Rio de Janeiro continues to maintain a greater economic concentration in the ERJ, there was a reduction of its participation and consequent increase in the participation of the North and South mesoregions, both in terms of GDP and in relation to the industrial GVA. This shows that in the 2000s there was a relative change in the socio-spatial division of labor in the State of Rio de Janeiro. The question is whether this change also led to changes in the spatial segmentation in the labor market between the regions of the ERJ. This is what we will try to discuss in the next section, focusing on the RMRJ, the Northern Fluminense and the South Fluminense, as the regions that presented the most economic highlight in the period (see map below).

Figure 1 - State of Rio de Janeiro: North and South geographic mesoregions and metropolitan region of Rio de Janeiro, 2018



Source: IBGE, 2018.

Spatial segmentation of the labor market

After discussing the socio-spatial division of labor in the 2000s, considering the economic conjuncture of this period, we will analyze in this section the spatial segmentation of the labor market. Our hypothesis, which seeks to be confirmed and strengthened based on the previous section, is that the investments that have caused a relative alteration in the socio-spatial division of labor, especially in the industrial sector, have not been able to alter the spatial segmentation of the labor market, mainly due to the displacement of the work of workers residing in regions other than those in which they have been working in the labor market.

For the analysis, the scheme of social stratification elaborated by the Metropolis Observatory will be used, since its capacity to express the social structure of the regional territory of Rio de Janeiro and possible changes that had occurred. As described by Ribeiro, Ribeiro e Costa (2013),

The social stratification scheme of the Metropolis Observatory was constructed by means of the occupation category, respecting the principles of the opposition of capital and labor, opposition between command and subordination, non-manual and manual labor, considering public and private work, the sectors of economic activity, and having as a filter for some categories schooling and income. Based on these principles, occupations were grouped hierarchically into 24 socio-occupational categories.

Table 3 shows the 24 socio-occupational categories, grouped in the 8 socio-occupational groups², according to data from the 2000 and 2010 Demographic Censuses.

The category of managers suffered a relative loss in all regions, a fact that can be explained by the increase of the occupation in the state, given that access to employment occurs in lower categories, characteristics opposed to the leaders.

The professionals at the higher level show a positive variation in all mesoregions of the state, an episode that portrayed a general tendency of the specialization of the Brazilian labor market in the period, mainly due to the higher level employees and the statutory higher level that make up this group, although at a lower level there was also an increase in the categories of autonomous upper level and higher level teachers.

Within the average occupations, the general tendency was of loss of participation in all mesoregions of the ERJ, except in the North Fluminense. In this mesoregion there was an increase in the categories of technical occupations and office occupations, categories that may be related by the presence of industrial activity in the territory: technical occupations, many of them directly linked to industrial activities, and office occupations by indirectly, given that investment in the industrial sector provokes a linkage in other branches of economic activity, such as in the services sector.

Table 3 - Socio-occupational categories of the Metropolitan Region of Rio de Janeiro, the Northern Fluminense mesoregion, the South Fluminense mesoregion and the State of Rio de Janeiro - 2000 and 2010

SOCIO-OCCUPATIONAL CATEGORIES	<i>(In %)</i>							
	RMRJ		North		South		ERJ	
	2000	2010	2000	2010	2000	2010	2000	2010
OFFICERS	2,1	1,5	1,1	0,9	1,6	1,2	2,0	1,4
Large Employers	1,1	0,8	0,7	0,6	1,0	0,8	1,1	0,8
Public Sector Officers	0,3	0,3	0,2	0,3	0,3	0,3	0,3	0,3
Private Sector Officers	0,7	0,3	0,2	0,1	0,3	0,1	0,6	0,3
PROFESSIONALS OF SUPERIOR LEVEL	8,5	12,3	4,6	8,6	5,7	8,6	7,9	11,7
Autonomous Professionals of Superior Level	2,0	2,4	0,9	1,4	1,3	1,6	1,9	2,3
Employed Professionals of Superior Level	3,6	5,7	1,7	3,4	2,1	3,7	3,3	5,3
Statutory Professionals of Superior Level	0,9	1,3	0,3	0,6	0,4	0,5	0,8	1,2
Teachers of Superior Level	2,0	2,9	1,7	3,2	1,9	2,7	1,9	2,9
SMALL EMPLOYERS	2,0	1,2	1,7	0,9	2,0	1,3	2,0	1,2
Small Employers	2,0	1,2	1,7	0,9	2,0	1,3	2,0	1,2
AVERAGE OCCUPATIONS	27,9	26,7	21,3	23,3	22,1	21,3	26,8	25,9
Artistic and Similar Occupations	1,4	1,4	1,1	1,1	0,9	1,0	1,3	1,4
Office Occupations	9,6	9,9	6,8	8,0	7,3	7,0	9,1	9,5
Supervisory Occupations	3,9	4,3	2,5	3,1	3,6	3,8	3,8	4,2
Technical Occupations	5,7	4,6	3,7	4,9	4,4	4,3	5,4	4,6
Medium Occupations of Health and Education	4,3	4,2	5,3	5,2	4,2	4,0	4,3	4,2
Public Security, Justice and Post Offices	3,0	2,2	2,0	1,1	1,6	1,1	2,8	2,1

(Continue)

(In %)

SOCIO-OCCUPATIONAL CATEGORIES	RMRJ		North		South		ERJ	
	2000	2010	2000	2010	2000	2010	2000	2010
SPECIALIZED TERTIARY WORKERS	20,4	20,2	18,3	18,0	19,9	19,3	20,2	19,8
Trade Workers	9,4	11,1	9,4	10,1	10,0	10,7	9,4	10,9
Specialized Service Providers	11,1	9,1	8,9	7,9	9,9	8,6	10,8	8,9
SECONDARY WORKERS	20,2	20,2	23,7	25,5	26,1	28,3	20,9	21,2
Modern Industry Workers	3,9	3,7	4,5	5,1	6,9	8,1	4,0	3,9
Traditional Industry Workers	3,9	2,9	4,7	3,3	3,0	2,7	4,0	3,1
Auxiliary Services Operators	5,1	5,4	4,6	5,8	5,7	7,1	5,0	5,4
Construction Workers	7,3	8,3	9,8	11,3	10,5	10,4	7,8	8,8
TERTIARY WORKERS NOT SPECIALIZED	18,4	17,3	18,8	15,9	19,1	16,6	18,6	17,3
Non-Specialized Service Providers	5,3	6,2	6,0	6,0	5,6	5,9	5,4	6,1
Domestic workers	8,8	9,3	9,3	7,9	10,4	9,3	9,2	9,3
Street vendors e Factotum	4,3	1,8	3,5	1,9	3,0	1,5	4,1	1,8
AGRICULTURAL WORKERS	0,6	0,7	10,3	6,9	3,6	3,4	1,6	1,5
Farmers	0,6	0,7	10,3	6,9	3,6	3,4	1,6	1,5
Total	100	100	100	100	100	100	100	100

Source: IBGE, Censo Demográfico 2000 and 2010. Own elaboration from the socio-occupational categories of the Observatório das Metrôpoles, 2017.

In the secondary workers, it is observed that there was an increase of participation in the North and South regions, in contrast to what happened in the RMRJ, which maintained its participation. The increase in these regions was mainly due to the increase of the workers of the modern industry and the workers of the auxiliary services. This can be justified by the type of industrial investment that took place in these regions, the automobile industry and the mining and quarrying industry, in the South and North, respectively, capable of enhancing services related to industrial logistics. The RMRJ and the North also had an increase in the participation of construction workers, a behavior that was generally observed throughout the country, but the South region practically maintained its participation in this socio-occupational category.

In relation to the non-specialized service workers, it is possible to confirm the result of the national conjuncture of the analyzed period when it is observed that there was a reduction in the participation of street vendors and sellers in all mesoregions, due to the expansion of employment, mainly formal, in Brazil. This category has an important characteristic because it is marked precisely by the informality, that is, it has suffered positively the impact of the increase of the occupations and the formalization of the work. However, the category of domestic workers only increased in RMRJ, considering that in the North and the South there was a reduction of their participation in the period. Non-specialized service providers also experienced an increase in RMRJ and still in the South region, but maintained the same participation in the North region in the analyzed period.

Therefore, when comparing the regions in the period 2000-2010, what is seen is specific changes in the socio-occupational structure in all regions. The RMRJ mainly changed the participation of higher education professionals and non-specialized tertiary workers, with a view to increasing the former and reducing the participation of the second socio-occupational category. The North and South of the State of Rio de Janeiro registered an increase in the categories of higher education professionals and secondary workers, but it reduced the participation of non-specialized tertiary workers. That is to say, the great difference between these last regions and the RMRJ is that in those there was increase of participation of the workers of the secondary, which did not occur in the RMRJ. And this increase was mainly due to the greater participation of the workers of modern industry and the workers of the auxiliary services. This means that the industrial investments made in the 2000s contributed to an increase in occupations linked to the secondary sector. The question is whether this increase was due to the incorporation of the existing labor force in the region (both in the North and in the South) or if it was necessary to attract labor from other regions, which will be done from the data of interregional displacement.

Northern Fluminense Region

When considering the region of origin of people moving to the northern mesoregion, we can observe that there was an increase in the

attraction of this mesoregion of all types of origin (costal lowlands, RMRJ, Other municipalities) between 2000 and 2010, according to presented in Table 5. However, because in 2000 it is not possible to differentiate the reason for the displacement (whether it is for work or for study), it is difficult to know if this increase was predominantly due to work. However, since the increase in displacement in absolute terms was very high considering all origins, it can be observed that in 2010 the work motive presented a greater participation among the types of displacement, which makes it possible to verify that the North mesoregion has passed to attract more labor over the period analyzed.

Table 4 also shows that, in 2010, the greatest displacement of people to the northern mesoregion was from the costal lowland mesoregion (excluding internal displacements of the mesoregion itself), a fact that exposes a dynamics between the two mesoregions, considering that in 2000 this displacement was 2,455 people and in 2010 it increased to 21,651 people, an increase of 782% in the period. This demonstrates that many municipalities of the coastal lowlands are impacted by mining activity in the North, these impacts are seen from the economic sphere - with a generation of activities linked to industry - to the social sphere, as we are dealing with in the labor market. There was an increase in the work-to-work movements of the Metropolitan Region of Rio de Janeiro to the North mesoregion since in 2000 the displacement was done by 6,633 people and in 2010 was made by 11,673 people, an increase of 76%. There was also an increase in the movement of other municipalities in the State of Rio de Janeiro and Brazil to the North mesoregion, from 7,406 people in 2000 to 21,058 people in 2010, corresponding to 184%. The attraction, therefore, of people from other regions to the northern mesoregion increased from 16,494 people to 54,382 people, between 2000 and 2010, increase of 230%. As this increase was expressive, the question is whether it was able to change the socio-occupational structure of the northern mesoregion. That's what we'll see next.

Table 4 - Municipality of origin of people who travel to Northern Fluminense mesoregion for work or study – 2000 and 2010

Municipality of origin	Displacement for Northern mesoregion									
	2000		2010						Total	
			Reason							
	Work		Study							
	N.	%	N.	%	N.	%	N.	%		
Municipalities of the northern mesoregion	10.263	38,4	20.657	31,4	6.188	40,2	26.876	33,1		
Mun. Mesoregion of Coastal Lowlands	2.455	9,2	18.350	27,9	3.273	21,3	21.651	26,6		
Municipalities of RMRJ	6.633	24,8	9.596	14,6	2.062	13,4	11.673	14,4		
Other municipalities of the ERJ and Brazil	7.406	27,7	17.168	26,1	3.864	25,1	21.058	25,9		
Total	26.757	100	65.771	100	15.387	100	81.258	100		

Source: IBGE, Censo Demográfico 2000 and 2010. Own elaboration, 2017.

The data of Table 5 shows the participation of the employed population of the North mesoregion of the socio-occupational categories according to the occupied residents in the said mesoregion as well as their move towards it. At the outset, there is an increase in the participation of employed persons moving to the North in all categories except two (artistic and similar occupations and domestic workers). However, the main highlights were the categories of private sector managers (14 pp), employed professionals (10.2 pp), technical occupations (16.7 pp) and traditional industry workers (11.6 pp), which had an increase of more than two digits (in percentage points) in the participation of the workers moving to the northern mesoregion. In the second level, with an increase of between 5 and 10 percentage points in the share of the displacements in each category, there are also the workers in the auxiliary services (8.5), occupations of supervision (7.7), workers in modern industry (6, 5), higher-level statutory (6.3), office occupations (6.3), public sector leaders (5.4) and teachers (5.1). This shows that the main increases occurred in categories related to whether the public sector was to productive activities per se.

Table 5 - Participation of the residents of the Northern Fluminense mesoregion and of the employed persons who move to the Northern Fluminense mesoregion for work by socio-occupational category - 2000 and 2010

SOCIO-OCCUPATIONAL CATEGORIES	<i>In %</i>					
	2000			2010		
	A	B	Total	A	B	Total
OFFICERS	91,0	9,0	100	87,2	12,8	100
Large Employers	96,6	3,4	100	93,5	6,5	100
Public Sector Officers	95,8	4,2	100	90,4	9,6	100
Private Sector Officers	73,1	26,9	100	59,1	40,9	100
PROFESSIONALS OF SUPERIOR LEVEL	90,4	9,6	100	82,6	17,4	100
Autonomous Professionals of Superior Level	96,4	3,6	100	93,7	6,3	100
Employed Professionals of Superior Level	82,8	17,2	100	72,6	27,4	100
Statutory Professionals of Superior Level	88,1	11,9	100	81,8	18,2	100
Teachers of Superior Level	96,5	3,5	100	91,4	8,6	100
SMALL EMPLOYERS	97,7	2,3	100	93,3	6,7	100
Small Employers	97,7	2,3	100	93,3	6,7	100
AVERAGE OCCUPATIONS	92,8	7,2	100	83,9	16,1	100
Artistic and Similar Occupations	96,9	3,1	100	97,5	2,5	100
Office Occupations	95,6	4,4	100	89,3	10,7	100
Supervisory Occupations	87,6	12,4	100	79,9	20,1	100
Technical Occupations	84,7	15,3	100	68,0	32,0	100
Medium Occupations of Health and Education	98,2	1,8	100	95,0	5,0	100
Public Security, Justice and Post Offices	92,0	8,0	100	87,6	12,4	100
SPECIALIZED TERTIARY WORKERS	96,9	3,1	100	95,5	4,5	100
Trade Workers	97,8	2,2	100	96,9	3,1	100
Specialized Service Providers	96,0	4,0	100	93,7	6,3	100
SECONDARY WORKERS	91,8	8,2	100	85,4	14,6	100
Modern Industry Workers	87,7	12,3	100	81,2	18,8	100
Traditional Industry Workers	87,8	12,2	100	76,2	23,8	100
Auxiliary Services Operators	92,3	7,7	100	83,8	16,2	100
Construction Workers	95,8	4,2	100	91,8	8,2	100

(Continue)

SOCIO-OCCUPATIONAL CATEGORIES	<i>In %</i>					
	2000			2010		
	A	B	Total	A	B	Total
TERTIARY WORKERS NOT SPECIALIZED	97,6	2,4	100	96,3	3,7	100
Non-Specialized Service Providers	97,7	2,3	100	94,6	5,4	100
Domestic workers	97,4	2,6	100	v	2,5	100
Street vendors e Factotum	98,0	2,0	100	97,5	2,5	100
AGRICULTURAL WORKERS	99,3	0,7	100	99,2	0,8	100
Farmers	99,3	0,7	100	99,2	0,8	100
Total	94,8	5,2	100	89	11	100

Note:

A = Occupied residents of the Northern mesoregion.

B = Occupied who move to the Northern mesoregion.

Fonte: IBGE, Censo Demográfico 2000 and 2010. Own elaboration from the socio-occupational categories of the Observatório das Metrópoles, 2017.

Southern Fluminense Region

In the southern region of the state of Rio de Janeiro, the main type of displacement observed among the municipalities is that occurring within the mesoregion itself. However, it is interesting to note that there was a change from 4,567 to 9,495 people moving from RMRJ, representing an increase of 108%. In the occupied ones moving from other municipalities of the ERJ and Brazil, there is an increase of 67.1%, where the number of individuals increased from 7,593 to 12,685. The fact that both the employed in municipalities of the RMRJ and those of other municipalities have varied positively in absolute terms was not represent in the distribution presented in 2010. When comparing the distribution of this structure with that presented by the Northern Fluminense (Table 4), the difference in the spatial segmentation of work in these regions is evident. The North presents a dynamic of greater attraction of labor of other regions. This finding is due to the fact that in the northern mesoregion only 33% of the displacements are residents of the region, while in the South this displacement corresponded to 76%. The fact that the greater displacement of the workforce is internal to the South region itself may be due to the characteristics of the industries that were attracted to its

territory, as well as to the historical and already consolidated presence of industrial activities in this mesoregion. But it can also be derived from the existence of an adequate supply of labor to the requirements of the industries that are established there because this space has historically been characterized as a space of industrial production. It may be due to the fact that the industrial branches that have settled in the municipalities of this mesoregion require little labor because they are productive structures of high levels of technological development.

Table 6 - Municipality of origin of people who travel to the South Fluminense mesoregion for work or study - 2000 and 2010

Municipality of origin	Displacement to South mesoregion							
	2000		2010					
			Reason				Total	
	Work		Study					
	N.	%	N.	%	N.	%	N.	%
Municipalities of the southern mesoregion	41.668	77,4	52.012	76,5	19.808	76,1	71.897	76,4
Municipalities of RMRJ	4.567	8,5	7.668	11,3	1.816	7,0	9.495	10,1
Other municipalities of the ERJ and Brazil	7.593	14,1	8.269	12,2	4.404	16,9	12.685	13,5
Total	53.828	100	67.948	100	26.029	100	94.077	100

Source: IBGE, Censo Demográfico 2000 and 2010. Own elaboration, 2017.

Table 7 shows the participation of employed persons living in the South Fluminense mesoregion and those who move to that mesoregion to work according to the socio-occupational categories in both 2000 and 2010. The only socio-occupational categories that had a significant increase in participation of the displaced population in the period 2000 and 2010 were private sector management, who increased their participation from 5.1% to 17.6%, representing an increase of 12.5 percentage points, and the leaders of the sector public sector, which increased from 1.3% to 9% the percentage of people displaced to the South mesoregion, corresponding to an increase of 7.7 percentage points. All other categories had a slight increase or had a reduction in this participation, which could be seen by the population as a whole since in 2000 the participation of the employed population that was attracted from outside the southern mesoregion

was 2.6% in 2010 to 3.2, an increase of only 0.6 percentage points. This data demonstrates, therefore, that in this mesoregion the labor market dynamics are organized from the existing labor force in the mesoregion itself because proportionally the number of people attracted from other regions by the labor market of the south of Rio de Janeiro is very small.

Tabela 7 - Participation of the resident workers in the South Fluminense mesoregion and the workers moving to the South Fluminense mesoregion for work in the socio-occupational categories - 2000 and 2010

SOCIO-OCCUPATIONAL CATEGORIES	2000			2010			<i>In%</i>
	A	B	Total	A	B	Total	
OFFICERS	97,5	2,5	100	93,1	6,9	100	
Large Employers	98,0	2,0	100	95,7	4,3	100	
Public Sector Officers	98,7	1,3	100	91,0	9,0	100	
Private Sector Officers	94,9	5,1	100	82,4	17,6	100	
PROFESSIONALS OF SUPERIOR LEVEL	94,8	5,2	100	94,5	5,5	100	
Autonomous Professionals of Superior Level	97,7	2,3	100	97,7	2,3	100	
Employed Professionals of Superior Level	92,8	7,2	100	94,1	5,9	100	
Statutory Professionals of Superior Level	89,5	10,5	100	88,2	11,8	100	
Teachers of Superior Level	96,4	3,6	100	94,6	5,4	100	
SMALL EMPLOYERS	97,3	2,7	100	98,9	1,1	100	
Small Employers	97,3	2,7	100	98,9	1,1	100	
AVERAGE OCCUPATIONS	95,9	4,1	100	95,9	4,1	100	
Artistic and Similar Occupations	97,7	2,3	100	95,6	4,4	100	
Office Occupations	98,4	1,6	100	97,9	2,1	100	
Supervisory Occupations	96,6	3,4	100	95,3	4,7	100	
Technical Occupations	95,2	4,8	100	95,5	4,5	100	
Medium Occupations of Health and Education	98,0	2,0	100	97,0	3,0	100	
Public Security, Justice and Post Offices	81,6	18,4	100	84,3	15,7	100	
SPECIALIZED TERTIARY WORKERS	98,8	1,2	100	98,4	1,6	100	
Trade Workers	98,7	1,3	100	98,7	1,3	100	
Specialized Service Providers	98,8	1,2	100	98,1	1,9	100	

(Continue)

In%

SOCIO-OCCUPATIONAL CATEGORIES	2000			2010		
	A	B	Total	A	B	Total
SECONDARY WORKERS	97,2	2,8	100	95,9	4,1	100
Modern Industry Workers	96,8	3,2	100	95,1	4,9	100
Traditional Industry Workers	98,8	1,2	100	97,1	2,9	100
Auxiliary Services Operators	96,7	3,3	100	96,1	3,9	100
Construction Workers	97,3	2,7	100	96,2	3,8	100
TERTIARY WORKERS NOT SPECIALIZED	99,0	1,0	100	98,6	1,4	100
Non-Specialized Service Providers	98,8	1,2	100	98,2	1,8	100
Domestic workers	99,3	0,7	100	98,8	1,2	100
Street vendors e Factotum	98,3	1,7	100	98,6	1,4	100
AGRICULTURAL WORKERS	98,4	1,6	100	97,9	2,1	100
Farmers	98,4	1,6	100	97,9	2,1	100
Total	97,4	2,6	100	96,8	3,2	100

Note:

A = Occupied residents of the Northern mesoregion.

B = Occupied who move to the Northern mesoregion.

Source: IBGE, Censo Demográfico 2000 and 2010. Own elaboration from the socio-occupational categories of the Observatório das Metrôpoles, 2017.

Final considerations

This work sought to analyze the socio-spatial division of labor and the spatial segmentation of the labor market in the State of Rio de Janeiro between the years of 2000 and 2010. The temporal cut was given as a research strategy in view of the greater investment round of industries that occurred in the State of Rio de Janeiro, posing as contrary behavior to what was observed in previous decades. The hypothesis that emerged was that important changes occurred in the socio-spatial division of labor, with reflexes in the spatial segmentation of the labor market, although they were not as significant.

Based on the analysis of the economic indicators, the table presented was a relative change in the socio-spatial division of labor in the State of Rio de Janeiro. This change was based on two pillars: the

loss of participation of the Metropolitan Region of Rio de Janeiro in the industrial and services GVA, and the increase in the participation of the North and South Fluminenses in the industrial and service GVA. It was noted that the North, in particular, presented a significant change, driven by the international demand for oil.

At the same time, the aforementioned situation brought direct effects on labor market indicators. However, in general, the socio-occupational structure of the ERJ and the mesoregions analyzed, with a relative centrality of the RMRJ, was maintained, although there was an increase in participation in the category of secondary workers in both the North and South mesoregion, driven by the increase of the participation of the workers of modern industry and of the workers of the auxiliary services.

When analyzing the work-home displacement, it was possible to understand the particularities and distinctions between the North and South mesoregions. In general, there was an increase in participation in the displacement of people from other regions to the North of the state, mainly of employed persons linked to both the public sector and productive activities, which shows that the investments in this mesoregion required attracting labor from other regions. The same was not true in the southern region of Rio de Janeiro since the increase in the number of people displaced to this region was very small. This means that the investments made in it did not require attracting labor from other regions.

These evidences can be understood due to the characteristic of the productive structure and labor market of each mesoregion. In the north of the state of Rio de Janeiro, from the 1990s onwards, the exploitation of the extractive industry was systematically carried out. In this area, there was no adequate workforce, qualitatively and quantitatively, to fulfill its demands. For this reason, it was necessary to attract labor other regions of the state and country. In the south of the state, the installation of new industrial plants did not require the attraction of labor from the outside for two apparently divergent reasons, but could be complementary: (i) because there had already been a production space in the past, which made it possible to meet the demand for certain skilled labor; (ii) because the technological standard of the new industrial plants that have come to be located there has as characteristic the demand for little labor. That is, the past conditions of the economic structure and labor market and

the new industrial technological pattern influence the way in which the changes in the spatial segmentation of the labor market operate. This is also true for RMRJ since it continued to ensure a similar socio-occupational structure between 2000 and 2010, due to the great weight that its productive structure already had in the ERJ economy, even though it has undergone changes in its relative participation in the industrial and service sectors.

Notes

1 The Metropolitan Meso-region corresponds to the classification made by the IBGE, while the Metropolitan Region is the region, with fewer municipalities, instituted by complementary state law. To facilitate the analysis, the IBGE Metropolitan Meso-region was divided between RMRJ and Perimetropolitana, the first being established by the State and the second, the remaining municipalities that complete the IBGE classification.

2 They are: (i) managers, (ii) higher level professionals, (iii) small employers, (iv) medium occupations, (v) specialized tertiary workers, (vi) secondary workers, (viii) agricultural workers.

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Authors' contributions

All the authors offered substantial scientific and intellectual contributions to the study. The author Marcelo Gomes Ribeiro was the founder of the research project that resulted in this article. Their contributions were given in the theoretical-conceptual elaboration of the

object of analysis and revision of the manuscript. The author Vitor Vilar Drumond was responsible for the bibliographical revision and writing of the text. Data extraction, organization and interpretation were done by the two authors. The final text expresses a collective work carried out over 2 years of coexistence and discussion among authors.

Received for publication on October 06, 2018

Accepted for publication on November 17, 2019

Published on March 07, 2019