

Regional Development, Spatial Concentration and Economic Specialization in Brazil: Recent trends of employment indicators

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Abstract

This study examines recent trends of regional development in Brazil, focusing on changes in spatial distribution of production activities, using formal employment indicators along the period 1985/2010, and seeking to relate these changes with economic specialization at municipal level. The article has this structure: firstly, it discusses recent debate and evolution in the concentration of production activities in Brazil, by examining the concentration of formal employment among the States of the Brazilian Federation in 1985 and 2010. After that, the focus is on disaggregated analysis at municipal level. Methodology used at municipal-level analysis is presented and the results are discussed, regarding the dynamics and classification of selected municipalities and economic specialization of municipalities classified as “growing”.

Keywords: Brazil, Regional Development, Spatial Concentration, Economic Specialization.

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1 . Introduction

Recent trends in Brazilian regional development, particularly in relation to changes in the pattern of regional concentration of production activities and in regional economic specializations, have been the subject of debate among researchers. The analysis of these transformations certainly contributes to a better understanding of the economic and social reality in the Brazilian regions, as well as to propose public policy on this issue. This work investigates these trends, seeking to address together the issues of concentration and specialization, based on indicators of formal employment during the period 1985/2010. A large group of selected municipalities is analyzed: those with more than 10,000 formal employees in 2010, corresponding to 518 municipalities, which together account for about 80% of GDP and formal employment in Brazil in 1985 and 2010.

The paper is divided into six sections, besides this short introduction. The second section is a brief recovery of the discussion about regional economic concentration in Brazil, linking it to changes in the productive structure and specialization, and to the recent discussion of de-industrialization in the Brazilian economy. Then the third section examines the share of the national employment by States, seeking to characterize the trends of the period 1985/2010.

In the fourth section the focus is the analysis at the municipal level, with the presentation of the methodology and database used, as well as the selection of municipalities. Fifth section shows results concerning the dynamics of the selected counties, classified according to the variation of its share of total employment in Brazil over the period.

Then, in the sixth section, the analysis turns to the municipalities that have expanded their participation in a relevant way, classified as “growing”. These counties are examined for their economic specialization and its evolution in time. The seventh and final section is devoted to concluding remarks: it seeks to summarize recent trends in the spatial distribution of productive activities and economic specialization and situate them in a broader framework of analysis.

2 . Debate on regional economic concentration in Brazil

Regional concentration characterizes the Brazilian economy since its formation. Celso Furtado, in the classic book "Formação Econômica do Brasil" (Economic Formation of Brazil) addresses this characteristic along the Brazilian economic

formation process and dedicates part of the last chapter, entitled "Prospects for the next decades" to the question of regional concentration, associating it with the industrialization process. He argues that, by mid-twentieth century, Brazilian economy had reached certain degree of coordination between the different regions, and, on the other hand, the disparity in regional income levels had increased noticeably: *"To the extent that industrial development is happening to the coffee prosperity, accentuated the trend of regional income concentration"* (Furtado, 2003, p . 249, free translation).

Cano (1977, 1985) discusses the roots of the process of industrial concentration in São Paulo, identifying the importance of the coffee economy of São Paulo State for this process, particularly in the provision of infrastructure and resources for investment, as well as the development of a consumer market, from the use of wage labor, largely immigrants. The historical pattern of regional concentration had a partial reversal from the 1970s. Part of the literature on regional economy devoted to assess and measure this phenomenon and seek explanation for it, as the works of Diniz (1993) and Cano (1997).

Diniz (1993) focuses the decline in high participation of Metropolitan Region of São Paulo in Brazilian economy, considered a process of "reverse polarized". However, according to the author, this trend was halted in the 1980s, from which could be observed a "refocusing on the polygon defined by Belo Horizonte-Uberlândia-Londrina/Maringá-Porto Alegre- Florianópolis - São José dos Campos - Belo Horizonte, within which are formed the main centers of high-tech" (Diniz, 1993, p. 36). Diniz and Crocco (1996), using data from formal employment (extracted from the Annual Report of Social Information - RAIS), reaffirm the trends shown by Diniz (1993) using as units the Relevant Industrial Areas (RIA's), that are established for the selection of homogeneous micro-regions bounded by the Brazilian Institute of Geography and Statistics (IBGE) .

Cano (1997) points out that economic concentration in São Paulo, which was expanded in 1930 and peaked in 1970, was not " the cause of the delay " in other regions, because the productive structure and income already force before 1930. Between 1930 and 1970 all regions grew, albeit São Paulo grew at higher rates. However, in period between 1970 and 1985, however, this situation is reversed, featuring a stage of productive decentralization, it is cooled from 1985 with low growth in Brazil and in all regions, with results that are "more statistical than effective" (CANO , 1997, p. 107).

Pacheco (1996, 1998) seeks to show that the partial devolution verified the data does not constitute a reversal of the polarization of the Metropolitan Region of São Paulo, for there is no emergence of alternative centers. In fact, this process is closer to

a fragmentation of Brazilian economy, with decreasing integration and supplementary interregional trade, and the increased importance of the foreign market to the country.

Diniz (2006) incorporates new elements to the analysis, building a more complex picture of recent trends in regional development in Brazil, identifying, for example, differences in the regional distribution of productive sectors. In this framework, although more integrated and higher technological content production industry presents a concentration in the area surrounding the state of São Paulo , already referred to as polygon, a relative de-concentration occurs in the most traditional segments. In this context, there is the "displacement of traditional industries in the Northeast, especially the textile, clothing and food and some new ventures in heavy segments, such as the petrochemical and Ford automotive unit, both in Bahia, "and expansion and implementation of various industrial activities related to agriculture and mineral boundaries in the Mid-west and North, and also in the industrial pole of Manaus" (Diniz , 2006, p. 8). In agriculture varied movements also occur: devolution of grain, cotton and cane sugar for areas of Cerrados (areas whose characteristics are similar to savanna), development of irrigated agriculture in the Northeast and agricultural intensification in São Paulo and nearby areas with higher value crops production per area, as cane sugar, oranges, milk production and horticulture (Diniz , 2006, p. 9) . In this context, the services follow similar pattern of devolution.

Cano (2011) notes that the 1980 brings "new determinations about the processes of regional development and urbanization", which meant major changes in the production structure and employment, and in the regional integration process. The author divides the post-1980 period in three (1980-89,1989-2003 and 2003-2010) which, although they have common characteristics, show some specifics. The first sub-period was marked by the economic crisis and the decline of industry participation in the economy. The industrial decentralization continues, but takes on a "spurious" character, as happens due to the fact that the growth rate of the industry in São Paulo State is negative or very low, and almost always in a worse situation than the other regions. From the second sub-period are implemented liberal reforms that constrain economic growth and reinforce the diminishing importance of the industry to the economy, contributing to the regression of the productive structure.

In this context, Cano (2011) highlights that the process of regional devolution continued, due to the intensification of measures such as so-called "tax war" (dispute among States offering tax exemption), export incentives and decentralized infrastructure investments. The author warns that this movement of devolution has been interpreted erroneously as the creation of "regional specialties":

"Clearly the continued devolution productive in all major sectors: the consolidation of the agricultural frontier of North and Mid West Regions and increased occupation of Cerrado areas of the States of Bahia, Maranhão and Piauí for exportable commodities, the consolidation of the Carajás mineral province, the vast expansion of oil in the States of Rio de Janeiro, Espírito Santo, and Rio Grande do Norte. Even as the "tax war" continued to operate in a strong way. We must warn that this "new economy" has been mistakenly called 'regional specializations', when in fact it comes from known production bases of 'natural resources' . The term 'expertise' in economics has a clear sense as something that stems from a deepening social division of labor, something not common, as it is a commodity." (CANO, 2011, p . 44-45, free translation).

This design brings the debate on regional economic concentration of discussion on trends of de-industrialization that would be occurring in the Brazilian economy in the recent period. Several authors have been addressing this issue and labeled different positions about. More than mere quantitative weight decrease of industry in the economy, identified in GDP and employment, the so-called de-industrialization has been identified and analyzed with various conceptual ideas and qualitative approaches that link this issue to the recent structural changes in the Brazilian economy. Thus, part of literature seek to identify, measure and evaluate these trends and relate them to ongoing structural changes in the Brazilian economy, deindustrialization trends associating the "Dutch disease" and the emphasis on primary goods exports. In general, some authors points out that these changes in the production structure would be translating into a tendency to regressive specialization, but the debate involves different positions (see, e.g., Bresser-Pereira and Marconi, 2008, and Nassif, 2008).

In addition to studies of national character, one strand of this literature has focused on Brazilian regions and states, as Sampaio and Silva (2011) and Verissimo and Silva (2011). Sampaio and Silva (2011) analyze the level of crowding in the production chains of Brazilian industry, and of a group of selected states, using the ratio Industrial Transformation Value on Gross Value of Industrial Production (VTI/VBPI, in Portuguese, or ITV/GVIP in English) as parameter, focusing the evolution of index from 1996 to 2007. The authors conclude that would occur "a process of specialization of Brazilian industry in sectors intensive in natural resources, especially those related to iron ore and petroleum activities" and, simultaneously, a trend of de-industrialization because "although intensive sectors featured natural resources present indicators that point to greater linkage effects, on the other hand the most

technology-intensive sectors would be undergoing a process of emptying the contents of their production."The results are differentiated among states, but corroborating trends for Brazil: in general, those with more diverse and intensive industrial structure in technology were the most affected by the restructuring process", showing decrease in the indicator, whereas activities related to the extraction and petroleum refining played an important role in offsetting the decline of the indicator for a number of states" (Sampaio and Silva 2011, p. 19, free translation). Veríssimo and Silva (2011) discuss the possibility of "Dutch disease", focusing on the five Brazilian regions. The authors conclude that there are signs of this occurrence in Brazil, especially in the Southeast and Northeast regions.

Silveira (2005), in another perspective, investigates the concentration and specialization of the five Brazilian regions in the 1950-2000 period, using the Locational Quotient and the Locational Coefficient of Hoover, reaching the following conclusion:

"The evidence for the period 1950-85 indicates that there was, in general, a trend of decreased levels of industrial concentration among the five regions considered, followed by decreased of regional industrial specialization (...) For the period 1985 - 2000, evidence indicates, in general, for the continuity of regional decentralization of industrial activities, although this is much more present in terms of employments than Industrial Transformation Value." (Silveira , 2005, p . 206, free translation) .

Therefore, it is noticed that the process of regional economic concentration is a key issue for the analysis of the Brazilian economy and is being addressed by major authors, from different perspectives. In recent years, this process has been associated with structural changes in the Brazilian economy, on which also there are different positions among the authors.

3 The economic concentration between the States: GDP and formal employment in 1985 and 2010

After this brief recovery of the outline of the debate on regional economic concentration in Brazil, the third section focuses on the spatial distribution of GDP and employment among the States of the Federation. The data focus is on the years 1985 and 2010, combining the indications of the literature and data availability.

Table 1 shows the participation of all States of the Brazilian Federation in total national GDP and formal employment in 1985 and 2010, following the descending order from Formal Employment in 1985.

Table1-Distribution of GDP and formal employment in Brazil by States in 1985 and 2010(%)

States	1985		2010	
	GDP	Formal Employment	GDP	Formal Employment
São Paulo	35,42	33,70	33,09	29,21
Rio de Janeiro	12,20	13,33	10,80	9,26
Minas Gerais	9,75	9,16	9,32	10,54
Rio Grande do Sul	7,86	8,03	6,70	6,36
Paraná	6,08	5,49	5,76	6,32
Bahia	5,35	4,15	4,09	4,85
Santa Catarina	3,24	3,70	4,04	4,47
Pernambuco	2,62	3,55	2,52	3,49
Ceará	1,71	2,39	2,07	3,01
Distrito Federal	2,17	2,35	3,98	2,50
Goiás	1,95	1,98	2,59	2,98
Pará	1,52	1,67	2,06	2,16
Espírito Santo	1,63	1,58	2,18	1,95
Paraíba	0,72	1,16	0,85	1,32
Alagoas	0,85	1,05	0,65	1,07
Rio Grande do Norte	0,77	0,99	0,86	1,30
Amazonas	1,52	0,99	1,59	1,31
Maranhão	0,74	0,97	1,20	1,44
Mato Grosso do Sul	1,01	0,87	1,15	1,27
Mato Grosso	0,81	0,70	1,58	1,49
Sergipe	0,92	0,69	0,63	0,84
Piauí	0,38	0,65	0,59	0,86
Rondônia	0,46	0,40	0,62	0,76
Acre	0,13	0,17	0,22	0,27
Amapá	0,12	0,11	0,22	0,25
Roraima	0,07	0,07	0,17	0,18
Tocantins	-	-	0,46	0,54

Total	100	100	100	100
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Source: Own elaboration based on RAIS and IPEA (2013).

In general, there is a high correlation between the share of the States in national GDP and their total holdings of the national formal employment. There is a slight difference regarding the level of concentration, which is slightly larger in the GDP than in formal employment. Also noted was a small reduction in the level of concentration between the years 1985 and 2010 in two indicators.

It appears that the State of São Paulo, the most important in the number of formal employees in Brazil and also in GDP, reduced its participation in both indicators in the period 1985/2010: 2.33 percentage points of GDP; and 4.49p.p. in formal employment. The state of Rio de Janeiro, the second largest participation, also reduced their holdings during the period analyzed: 1.40 p.p. and 4.07 p.p. of GDP in formal employment. The third state, Minas Gerais, showed an increase in their participation in formal employment of 1.38 percentage points, and reduction in the share of GDP of 0.43 percentage points. It is important to highlight that the three states cited as the most important in the number of formal employees in Brazil is in the Southeast Region.

Some states had mildly increased their holdings over the period in both indicators: Goiás, Distrito Federal, Espírito Santo and, to a lesser extent, Ceará. The states with the lowest stakes in the two indicators are, mostly, in the North and Northeast regions. Observe that Acre, Amapá, Piauí, Rondônia and Roraima had holdings below 1 % in the period, but showed increases in their holdings in 2010 compared to 1985.

Thus, in general, it is perceived that there was relatively little change in the distribution of GDP and formal employment among Brazilian States in the period 1985/2010, representing a decrease of the trend of de-concentration in 1970's. This result is in consensus with much of the literature, which has appointed limits, changes and new features for this devolution process, as the discussion in the previous section.

4 The analysis at the municipal level: Methodology and databases used

The methodology used for the analysis at the municipal level involves collecting and analyzing data on the number of formal employees in selected municipalities. Database used for obtaining this indicator was the Annual Report of Social Information

(RAIS, in portuguese), available on the website of Ministry of Labor and Employment (MTE, in portuguese). The data of Gross Domestic Product (GDP) was collected in the website of Institute of Applied Economic Research (IPEA).

Andrade and Serra (2000) investigated the spatial distribution of GDP and formal employment in municipalities of Rio Grande do Sul and found a high level of correlation between the percentage shares of the municipalities in the two variables, advocating the use of formal employment for economic studies regional .

In this paper, were selected municipalities with more than 10,000 formal employees in 2010 (518 municipalities), which account for 86.5% of total formal employment in Brazil in 1985, and 81.4 % in 2010, and almost 80% of GDP in both years.

The percentage change in employment share of each municipality in the period 1985-2010 was calculated. Subsequently, they were ranked according to their variation in the share of total national formal employment between 1985 and 2010, and three groups of variations were established: "Growing" (Subdivided into Sharply and Moderately), "Stagnant" and "Decreasing". This classification has the advantage of jointly consider the importance (or weight) of the municipality in total formal employment in Brazil with the change in this matter. Thus, in contrast to the analysis of growth rates, it avoids overestimating municipalities with very high rates of growth, but with little economic activity (see Martins et al , 2009) .

The classification is performed using the following parameters :

The class Sharply Growing encompasses the municipalities that had a sharp increase in its share in the GDP of Brazil, corresponding to values above 0.050 percentage points; Moderately Growing class involves the municipalities that had relevant positive change in share of total formal employment in Brazil (between 0.050 and 0.005 percentage points); Stagnant is a class municipalities with no significant change in their participation (range 0.005 to 0.005 percentage points); Decreasing class behaves municipalities that showed marked reduction in share of total formal employment (reduction greater than 0.005 percentage points) . The criteria for defining the boundaries of the categories are based on identifying different dynamics between the cities analyzed.

After the exam the dynamics of the selected counties in relation to its share of national employment, the focus is on economic specialization of municipalities classified as Growing (Sharply and Moderately). Analysis of productive specialization is based on the calculation of Locational Quotient (LQ) of municipalities classified as Growing (Sharply and Moderately) in the years 1985 and 2010. This index measures

the sectorial specialization of the county, compared with sectorial distribution of employment at the national level (see Haddad , 1989):

QL = municipal sector employment/ municipal total employment

national sector employment/ national total employment

Paiva (2006) argues that this index, if properly interpreted, can contribute to the study of regional development. In particular, one should avoid a simplistic interpretation of the index, as well as the simplistic opposition between specialization and diversification, since the two processes can be complementary in a dynamic regional development perspective. While referring to the idea that "diversification is the goal and measure of development", the author admits that a peripheral region only has the possibility of developing by specializing in sectors where it has greater competitiveness (Paiva, 2006, p.91).

It should also be emphasized, as shown by Paiva (2006), that the use of employment data for the calculation of QL can presents problems of interpretation and must be complemented with other indicators which. Although it is beyond the scope of this paper, this idea constitutes a interesting possibility for unfolding and interpreting the results of this work, and to continue the line of research.

Based in Lima and Simões (2010), were considered in this analysis two degrees of sectorial specialization of cities: the first is called Signs of Specialization ($1 < LQ < 4$) and the second is called Consolidated Specialization ($LQ > 4$). For this calculation yielded the number of formal employees of Sectors of IBGE (eight) and also the subsectors of IBGE (25). The data used were collected in RAIS (MTE).

5. The dynamics at the municipal level : performance and classification of selected municipalities

Table 2 shows the share of selected municipalities in Brazil in Total GDP and national employment in 1985 and 2010:

Table 2 - Share of selected municipalities in Brazil's Total GDP and in Brazil's national formal employment in 1985 and 2010 (%)

	GDP		Formal Employment	
	1985	2010	1985	2010
Selected municipalities	79,36	79,37	86,49	81,43
Other municipalities	20,64	20,63	13,51	18,57
TOTAL	100,00	100,00	100,00	100,00

Source : Author's calculations based on data from the RAIS and IBGE (2013) .

From Table 2, we find that the relative share of the 518 selected municipalities is much higher than the relative participation of other municipalities (5,046 municipalities not selected) both the number of formal employees as in Brazil's GDP, which shows the expressiveness of these municipalities for regional economic analysis in Brazil. The relative share of selected municipalities was close to 80 % of Brazilian GDP, remained stable in the period 1985-2010. The share of these municipalities in formal employment of Brazil was higher in 1985 (86.49 %), and decreased to 81.43 % in 2010, remaining at levels close to those of GDP.

If we remove the two municipalities with greater economic weight (São Paulo and Rio de Janeiro), the percentage change for 58.46 and 62.56, in the case of GDP , and to 61.38 % and 65.04 % for employment, showing that without the two municipalities, the set of selected cities, albeit with lower weight , increased its share in the national context on both indicators .

The number of municipalities in each class is shown in Table 3 .
Table 3 - Number of municipalities by class of variation of share of national formal employees and shares of national formal employment in 1985² and 2010

Class	Limits	Number	Share of national formal employment (%)	
			1985	2010
Sharply Growing	$\text{var} \geq 0,05$	53	9,73	14,85
Moderately Growing	$0,05 > \text{var} \geq 0,005$	248	13,34	18,31
Stagnant	$0,005 > \text{var} \geq -0,005$	90	4,26	4,85
Decreasing	$\text{var} < -0,005$	127	59,15	43,43
Selected Municipalities		518	86,49	81,43

Source: Author's calculations based on data from RAIS (2013).

²Of the 518 municipalities selected, 21 did not exist in 1985. For these municipalities it is used the first data available in each database and its classification was based on the average annual change, gathering each municipality in whose class average was closest its annual average in all indicators.

The table 3 shows that the number of municipalities classified as Growing (301) far exceeded categories Stagnant and Decreasing. It is observed that most of the selected municipalities was classified as crescents (301), corresponding to 58.11 % of 518 selected counties. In this group, there is a significant dominance of subdivision Growing Moderately, with 47.88 % of the selected municipalities, while the Growing subdivision Sharply accounts for 10.23 % of these municipalities. Moreover , 17.37 % of the counties had little variation in participation, and is therefore classified as Stagnant and municipalities classified as Decreasing correspond to 24.52% of the total.

Table 4 shows the distribution of municipalities by States:

Table 4 - Number of municipalities by class and by States. according to the variation in participation in national formal employees in Brazil (1985 /2010)

UF	Sharply Growing	Growing Moderately	Stagnant	Decreasing	<u>Sum</u>
São Paulo	6	65	33	43	147
Minas Gerais	4	44	12	9	69
Rio Grande do Sul	0	13	13	28	54
Rio de Janeiro	3	12	6	14	35
Paraná	6	18	4	6	34
Santa Catarina	6	14	6	8	34
Bahia	3	13	3	5	24
Pernambuco	4	6	1	4	15
Goiás	3	10	1	0	14
Ceará	2	7	1	2	12
Pará	2	6	1	3	12
Espírito Santo	2	5	3	1	11
Mato Grosso	2	6	3	0	11
Maranhão	1	6	0	0	7
Alagoas	0	3	0	2	5
Mato Grosso do Sul	1	3	1	0	5
Rio Grande do Norte	1	4	0	0	5
Rondônia	1	4	0	0	5
Paraíba	0	3	0	1	4
Sergipe	0	3	0	1	4
Piauí	1	1	1	0	3
Tocantins	0	2	1	0	3
Distrito Federal	1	0	0	0	1
Acre	1	0	0	0	1
Amapá	1	0	0	0	1
Amazonas	1	0	0	0	1
Roraima	1	0	0	0	1
TOTAL	53	248	90	127	518

Source: Author's calculations based on data from RAIS (2013).

In Table 4 and Map 1, attached, it is observed that municipalities classified as crescents are located in larger numbers in the states of São Paulo, Minas Gerais , Rio Grande do Sul, Rio de Janeiro, Paraná, Santa Catarina and Bahia. However, when examining the distribution of the 53 counties classified as Sharply Growing, the three states with the highest number of municipalities in this class are Sao Paulo, Paraná and Santa Catarina. There is a certain concentration of municipalities classified as Growing, Sharply Growing in particular, in the Southeast and South regions.

It appears that most municipalities classified as Growing are located in the vicinity of São Paulo, in an area similar to the polygon defined by Diniz (1993). A significant number of municipalities Growing, however, is outside this area. By examining the spatial distribution of municipalities classified as Growing, one can also realize the partial configuration of three axes of devolution from the Metropolitan Region of São Paulo: a hub for the West, coming to Acre; a hub for the North, through the Federal District and to Pará; and a more coastal axis, passing through almost all states in the Northeast.

The results show that, despite the picture of small and slow changes and relative stability in the spatial concentration among the States, significant changes have occurred in the share of total employment at municipal level in Brazil. Among the municipalities with the highest economic relevance (those with more than 10,000 formal employees in 2010), the largest number presented a favorable performance in the period, increasing its share of total formal employment in Brazil, being classified as Growing: together, these municipalities increased from about 23% of the national formal employment to over 33%.

6. Productive specialization of crescents municipalities

The analysis of the productive specialization of municipalities classified as Growing (Sharply and Moderately was based on the results obtained by calculations of Locational Quotients (LQs) of formal employment in each of these counties for the years 1985 and 2010. The results are analyzed, first, in a more aggregated form, in eight sectors of IBGE Classification and then more disaggregated, in 25 subsectors IBGE Classification.

Table 5 - Number of municipalities by sector of specialization and degree of specialization in the years 1985 and 2010, according to IBGE classification.

Sector (IBGE)	1985 ³			2010		
	Sings	Consolidated	Total	Sings	Consolidated	Total
1 - Mineral Extraction	16	27	43	10	22	32
2 - Manufacturing Industry	68	0	68	94	1	95
3 - Industrial Services of Public Utility	13	3	16	18	3	21
4 - Construction	12	4	16	31	6	37
5 - Trade	59	0	59	38	0	38
6 - Services	11	0	11	11	0	11
7 - PublicAdministration	9	0	9	12	0	12
8 - Agricultural, Plant Extract, Hunting and Fishing	44	35	79	34	21	55
TOTAL	232	69	301	248	53	301

Source : Author's calculations based on data from RAIS (2013) .

The table shows that, in 1985, the sector of the manufacturing industry (2) obtained the highest number of municipalities (68) with evidence of specialization, but no one had consolidated this specialization. The Agricultural sector (8) also stood out, accounting for 79 municipalities with some expertise, being 35 of them with consolidated expertise.

It is observed that in 2010 there was a significant change in the pattern of sectoral specialization of municipalities. Comparing the 1985 data with the 2010, it appears that reduced the number of municipalities with consolidated specialization in the eight sectors of IBGE, from 69 to 53. The distribution of expertise among the sectors also varied: It was a growth in the number of municipalities with specialization in Manufacturing Industry (2) and Construction (4), and a reduction in the sectors Agriculture (8), Mineral Extraction(1) and Trade (5).

Looking at the period 1985-2010, it can be concluded that the municipalities classified as Growing are undergoing a kind of productive diversification, reducing the number of municipalities with consolidated specialization. Moreover, the results show that these municipalities expanded their specialization in the Manufacturing and Construction Industry, at the expense of the sectors Agriculture, Mineral Extraction and Trade, although the three remain relevant.

³ Among the municipalities classified as Growing, four were created after 1985. For these municipalities, the QL was calculated based on data of the first year available: Parauapebas-PA (1989); Teixeira de Freitas - BA(1987); Eusébio-CE (1992); and Horizonte-CE (1992).

Table 7 contains more disaggregated data:

Table 7 - Number of municipalities by subsector of specialization and degree of specialization in the years 1985 and 2010, according to IBGE classification.

Industry(IBGE)	1985			2010		
	S*	C*	T*	S*	C*	T*
01-Extrativa mineral	2	22	24	6	16	22
02- Non-metallic mineral products	4	23	27	6	12	18
03-Metallurgical industry	0	8	8	2	9	11
04-Mechanical industry	3	8	11	2	10	12
05-Electrical and communications	2	10	12	2	18	20
06- The transportation equipment	0	9	9	0	19	19
07- Wood and furniture industry	2	28	30	3	12	15
08- Paper industry, cardboard, editorial and graphical	0	4	4	2	4	6
09- Rubber, tobacco, leather	1	4	5	1	6	7
10-Chemical, pharmaceutical, veterinary , cosmetics	3	10	13	7	14	21
11-Textile and clothing	2	18	20	7	16	23
12-Footwear industry	0	9	9	0	15	15
13- Food, beverages and ethyl alcohol	5	20	25	9	17	26
14- Industrial utilities	5	2	7	4	1	5
15-Building and Construction	3	3	6	9	4	13
16-Retail business	9	0	9	3	0	3
17-Wholesale trade	7	4	11	7	1	8
18- Credit institutions, insurance and capitalization	0	1	1	1	0	1
19- Trade and property management , securities,	0	2	2	4	1	5
20-Transport and communications	5	2	7	4	0	4
21- Accommodation services, supply , repair, maintenance, writing , ...	3	6	9	7	1	8
22- Medical, dental and veterinary services	7	3	10	2	0	2
23-Education	2	4	6	6	2	8
24-Direct public administration	6	0	6	5	0	5
25- Agriculture , forestry , animal husbandry, plant extraction	8	22	30	8	16	24
Total	79	222	301	107	194	301

(S = Signs; C = Consolidated; T = Total)

Source : Own elaboration based on RAIS (2013) .

At a more disaggregated analysis, it appears that, considering the interval between 1985 and 2010, also reduced the number of municipalities with consolidated specialization. This result indicates a general trend of diversification of productive activities for municipalities classified as Growing.

The distribution among the subsectors also changed significantly, showing an increase of participation of various sectors, especially sectors 05 (electrical equipment), 06 (transport equipment), and 11 (chemistry). Moreover, the sub-sectors that had the largest reductions in the number of municipalities with specialization were: 02 (non-metallic minerals), 07(wood and furniture) , 22 (medical services) and 25 (agriculture).

Both in the aggregate analysis (eight sectors) and the more disaggregated analysis (25 subsectors), the results indicate that the group of municipalities classified as Growing reduced their degree of specialization, indicating a trend of diversification of production between 1985 and 2010. Distribution of specialization among sectors and subsectors had a significant change between the two years. Among the sectors and subsectors focused, it is observed that this group of municipalities increased industrial specialization, especially in segments with higher technological intensity as OECD Classification (see Annex 1), at the expense of lower-technology sectors (agriculture and minerals, for example).

Although it can make a more accurate and comprehensive interpretation of the data from the collection of more information, the findings reveal that municipalities that are classified as Growing are on a path that reinforces the importance of the industry to its productive structure.

We identify in this paper that, between 1985 and 2010, municipalities that increased materially its participation in the national formal employment have followed a different trajectory from that identified by other studies, increasing its specialization (measured by QL formal employment) in industrial (and construction) sector, especially in the industries with higher technological intensity. This movement identified in the group of municipalities classified as Growing opposes findings from the literature for the industry and the Brazilian economy, considered in aggregate, as well as for regions and most industrialized states. In short, municipalities classified as Growing is revealing opposite trends to those identified by the literature as deindustrialization or regressive specialization.

These movements are not necessarily mutually exclusive, but his opposite directions put the need for further research and broaden the basis for the interpretation of recent economic trends, at least in relation to space, can certainly bring a number of trajectories.

7 . Concluding Remarks

In the context of the debate about the trends of the Brazilian regional development, changes in the spatial concentration of productive activities and in regional specialization are constituting object of research and debate. Examination of data on formal employment allows addressing these changes characterizing trends and treating important for understanding the dynamic Brazilian regional issues in the recent period.

In summary, the current analysis, which focused on the period 1985/2010 showed the following main points :

a) The distribution of formal employment among the States is somewhat less concentrated than the distribution of GDP. During this period there was a slight reduction in the level of concentration in both indicators, although a tendency of stability predominates;

b) Among the 518 selected municipalities, which are the most important in formal employment and in the GDP, accounting together for more than 80 % of these indicators, the majority (301) increased their share in a relevant way. However, much remained stable (127 municipalities) and a significant portion (90 municipalities) decreased their share, showing that there was a heterogeneous behavior of selected over the period 1985/2010 municipalities ;

c) Municipalities classified as Growing are distributed among most of the States, predominantly from Southeast and South Regions;

d) In relation to sectorial specialization, most of municipalities classified as Growing are shows specialization in Industry and Agriculture. Between 1985 and 2010, decreased the proportion of municipalities with consolidated specialization, while it increased specialization in Industry and Construction, at the expense of the sectors of Agriculture , Trade and Services ;

e) At a more disaggregated analysis results show that, among the municipalities classified as Growing, there was increasing specialization in industrial subsectors of higher technology (especially electrical equipment, transportation equipment and chemical) over more traditional subsectors (as agriculture) and lower technological intensity (non-metallic minerals, wood and furniture, for example).

It can be concluded that, although the analysis in the period shows little changes to submit certain stability among the States, it also reveals significant changes in the spatial distribution of activities at the municipal level, with different dynamics among the selected municipalities. It also appears that the differentiated dynamics of municipalities is related to their specialization: the set of municipalities which

significantly increased their share in formal national employment showed signs of reduction in the degree of specialization, while increased the number of municipalities with a specialization in industries with higher technological intensity at the expense of traditional sectors .

The contrast of these trajectories with recent trends of the Brazilian economy is important for further analysis and debate. The interpretation of this phenomenon certainly undergoes a more reasoned and comprehensive understanding of the interaction between diversification and specialization within the regional development process, which can constitute lines of research and additional paths for explaining trends.

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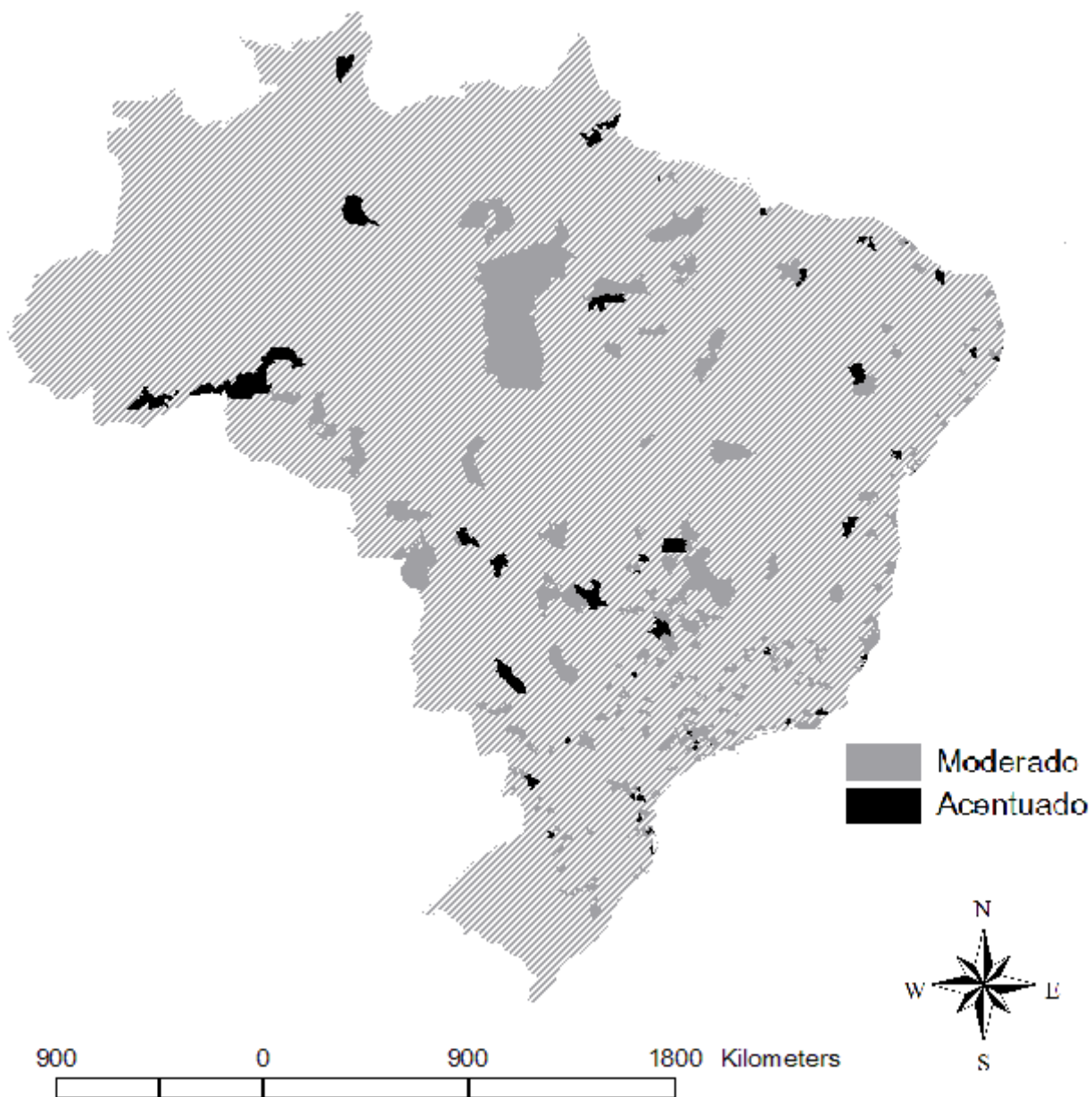
7. Attachments

Anex 1 - Subsectors of IBGE Classification and classification of industries by technological intensity according to the OECD

Sub-sector	Technological Intensity (OCDE)
01- Mineral Extraction	Low
02- Non-metallic mineral products	Med-Low
03-Metallurgical industry	Med-Low
04-Mechanical industry	Med-High
05-Electrical and communications	High
06- The transportation equipment	Med-High
07- Wood and furniture industry	Low
08- Paper industry, cardboard, editorial and graphical	Low
09- Rubber, tobacco, leather	Low
10-Chemical, pharmaceutical, veterinary , cosmetics	High
11-Textile and clothing	Low
12-Footwear industry	Low
13- Food, beverages and ethyl alcohol	Low
14- Industrial utilities	
15-Building and Construction	
16-Retail business	
17-Wholesale trade	
18- Credit institutions, insurance and capitalization	
19- Trade and property management , securities,	
20-Transport and communications	
21- Accommodation services, supply , repair, maintenance, writing...	
22- Medical, dental and veterinary services	
23-Education	
24-Direct public administration	
25- Agriculture , forestry , animal husbandry, plant extraction	

Sources: IBGE and OCDE

Annex 2 – Municipalities classified as Growing (Sharply and Moderately) in formal employment (1985-2010)



Source : Own elaboration based on RAIS (2013) .