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THE NEW ECONOMIC GEOGRAPHY OF BRAZIL: CONDITIONING FACTORS AND IMPLICATIONS [1]

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1. Introduction: The historical legacy and the map of inequalities

The process of occupation and creation of the Brazilian economic space took place with major temporal and geographic discontinuities. In the colonial period and in the first stages of an independent Brazil, occupation was focused, essentially, on the exploitation of natural resources that allowed the extraction or production of exportable goods. Some examples are: sugar in the Northeast, in the 16th and 17th centuries; gold mining in Minas Gerais, extended to Goiás and Mato Grosso, in the 18th century; cotton, in Maranhão, in the 19th century; livestock-raising in the hinterland of the South of Brazil, since the 16th century XVI; timber and tea, in Paraná and Santa Catarina, since the 19th century; coffee, in the states of Rio de Janeiro, Minas Gerais and São Paulo, in the 19th and 20th centuries; rubber, in the Amazon region, in the end of the 19th century and beginning of the 20th century, just to mention the most relevant examples. The population and regional development trailed behind the regional displacement of exporting activities. In turn, the economic vitality of regions not only depended on local conditions of production, but also, on the international market and on the Brazilian capacity to compete with other producing countries or regions (Furtado, 1964; Prado Jr, 1964; Castro, 1975).

For reasons related to territorial control, there were also efforts dedicated to the colonization of other regions, for example, the South of Brazil, where significant livestock-raising and subsistence agriculture activities were developed. In the cases of the Northeast (sugar) and Minas Gerais (gold), either as a complement or support to exportation activities, or as an alternative to the productive deterioration of the exporting sector, there was a significant rise in subsistence activities, allowing for the maintenance and increase of their population, and these factors would be decisive in explaining the lower level of development in these regions. On the other hand, given, the precariousness of the transportation system (animals, carts pulled by animals, and a rudimentary coastal and river navigation system) and, on the other, the existence of slavery and subsistence economy, both steered towards self-consumption, there was no motivation for internal exchanges or the foundation for

economic integration, as opposed to the European and North American experiences. Each producing region was directly linked to exportation ports or isolated itself, not integrating with the others. Thus, the national geographic space, as regards its occupation, has the characteristics of a real economic mosaic, a determining factor in the Brazilian regional configuration, until the present days.

From the second half of the 19th century and during the 20th century the bases for the organization and integration of the national market began to be laid down. Although the main activities were still focused on exports, the increase of free and wage-earning work, the elimination of slavery, the development of infrastructure (railroads, roads, electricity) and the growth of urban activities and services had allowed a significant increase in the production of goods and services aimed at the supply of the domestic market, which was later identified as the transition from an agricultural exporting economy to an urban industrial economy[3]. Even though this shift in economic pattern allowed the growth of new activities in many parts of the domestic territory, in what was called the origin and industrial decentralized growth directed at regional markets (Castro, 1971; Singer, 1977), it gradually promoted strong economic concentration in the states of Rio de Janeiro and São Paulo. Initially, with great expansion of the agricultural production for exportation (coffee, sugar, etc.) and for domestic market supply (foods) and, later, of light industrial products (with demand for raw materials) and urban services. In the latter two, attention should be drawn to the strong concentration in the current metropolitan areas of Rio de Janeiro and São Paulo. Due to demographic pressures in Europe and in the long occupied and more populous Brazilian regions, two migration movements took place. The international migrations to Brazil were mainly of Italians who went to the states of São Paulo, Paraná, Santa Catarina and Rio Grande do Sul. Immigration from Germany and other Central European countries (Poland, the Ukraine, etc.) headed mainly to the three states of the South region, while the Japanese went to São Paulo. From a domestic perspective, strong migratory currents originating from the Northeast

[3] The whole debate around the role of the "exportation base over regional development and its ability to induce the growth of the activities aimed at serving the local or internal market can be fully adequate in the analysis of the Brazilian exporting regions, indicating those which were and those which were not able to induce productive diversification. Please see, especially, the debate between Douglas North and Charles Tibeout, in Freedman and Alonso (1969).

region and from Minas Gerais headed to the cities of Rio de Janeiro and São Paulo and to the agricultural borders of São Paulo and Paraná and, later to the Midwest. The combined result of the international and national migration movements promoted a relative redistribution of the population in the national territory. Although the population grew in absolute terms, the participation of the Northeast region and of the state of Minas Gerais in the Brazilian population dropped from 47% and 20%, respectively, in 1872, to 29% and 11% in 1996.

The changes in the relationships of production with the growth of wage-earning work, the agro-exporting success of São Paulo, the investments in infrastructure (especially railroads), the immigrants, among others, transformed the state of São Paulo into the most dynamic region of the Brazilian economy, establishing the bases for a strong process of industrialization, concentrated mainly in its current metropolitan area (Mello, 1982; Dean, 1971; Cano, 1977; Silva, 1976). From then on, São Paulo became the leader of the national economy, establishing links with other regions, either as suppliers of raw materials and foods, or as a destination for São Paulo's industrial production, and creating a marked inter-regional division of labor in Brazil. In 1970, regarded as the peak of regional economic concentration, the state of São Paulo, with only 2.9% of the national territory, participated with 39% of the GDP and 58% of the industrial production of the country, with 44% of the Brazilian industrial production concentrated in the metropolitan area of São Paulo.

Historical circumstances and the process of regional economic concentration lead to strong disparity in the levels of per capita income and of living conditions among Brazilian regions, especially between the Northeast and the Mid-South of Brazil. Also, in 1970, Brazil's average per-capita income was US$2.315, where, at 1996 prices, Piauí's income, the poorest state, was only US$434, while São Paulo's, the richest state, was US$4.629 (IPEA/PNUD/FJP, 1998). In that year, for a life expectancy at birth of 53 years for Brazil, the Northeast's was only 44 years, against an average of 57 and 60 years, respectively, for the Southeast and South regions of Brazil. The illiteracy rate in the northeast region was above 50%, while for some states of the Southeast and South regions the rate was under 20% (Table 1).

Moreover, the lack of infrastructure, the physical distance to national markets and to ports and the difficulties of technological adaptation in the *cerrado* (savannah) and the tropical region (Amazon) made occupation difficult in the Midwest and North regions of the country, which practically remained empty until recent decades. The results of almost 500 years of the productive and geographic occupation of Brazil can be seen through the data on relative participation of states and regions in the geographic area, in the GDP, in the population and in the social indicators summarized by the per-capita income and the illiteracy rate (Table 1). This table indicates, also, important regional changes that occurred in the last three decades, as it will be analyzed along this paper.

TABLE 1

Tabela 1

Brazil: Distribution of Geographic Area, Total and Per Capita GIP, Population and Illiteracy Rate, per Major Regions and States

(In %)

Regions / States	Area	Total GIP		Population		Per Capita GIP		Illiteracy Rate	
		1970	1997	1970	1996	In PPP dollars*		**	
						1970	1996	1970	1996
Rondônia	2,8	0,1	0,5	0,1	0,8	2.025	6.448	35,3	14,3
Acre	1,8	0,1	0,2	0,2	0,3	1.302	5.741	52,7	29,8
Amazonas	18,5	0,7	1,7	1,0	1,5	1.591	5.718	37,2	20,3
Roraima	2,6	---	0,1	0,0	0,2	1.736	6.231	33,6	14,1
Pará	14,7	1,2	1,7	2,3	3,5	1.157	4.268	32,3	21,3
Amapá	1,7	0,1	0,2	0,1	0,2	2.170	5.370	33,6	15,0
Tocantins	3,3	---	0,2	---	0,7	---	1.575	---	21,2
North	**45,3**	**2,2**	**4,4**	**3,9**	**7,2**	**1.302**	**4.705**	**37,0**	**20,8**
Maranhão	3,9	0,9	0,9	3,2	3,3	579	2.158	59,5	33,1
Piauí	3,0	0,4	0,5	1,8	1,7	434	2.004	59,6	34,4
Ceará	1,7	1,5	2,0	4,7	4,3	723	2.667	55,4	31,0
Rio Grande do Norte	0,6	0,6	0,8	1,7	1,6	723	4.083	54,4	28,4
Paraíba	0,7	0,7	0,8	2,6	2,1	723	2.438	55,0	31,4
Pernambuco	1,2	3,0	2,7	5,5	4,7	1.157	3.213	49,7	26,3
Alagoas	0,3	0,7	0,7	1,7	1,7	868	2.496	60,9	36,3
Sergipe	0,3	0,5	0,6	1,0	1,0	1.013	5.122	53,4	25,1
Bahia	6,6	3,8	4,3	8,0	8,0	1.013	3.677	50,6	24,5
Northeast	**18,3**	**12,1**	**13,1**	**30,2**	**28,5**	**868**	**3.085**	**53,9**	**28,8**
Minas Gerais	6,9	8,3	10,0	12,3	10,6	1.591	5.968	34,3	12,9
Espírito Santo	0,5	1,2	1,9	1,7	1,8	1.591	6.251	32,8	14,1
Rio de Janeiro	0,5	16,1	11,2	9,7	8,5	3.761	8.653	16,6	6,3
São Paulo	2,9	39,4	35,5	19,1	21,7	4.629	10.536	18,8	7,4
Southeast	**10,9**	**65,0**	**58,6**	**42,8**	**42,7**	**3.472**	**8.843**	**22,9**	**8,7**
Paraná	2,3	5,5	6,1	7,4	5,7	1.736	6.485	31,0	11,7
Santa Catarina	1,1	2,8	3,7	3,1	3,1	2.025	6.519	18,9	7,3
Rio Grande do Sul	3,3	8,7	8,0	7,2	6,1	2.749	7.395	18,4	7,2
South	**6,8**	**17,0**	**17,7**	**17,7**	**15,0**	**2.170**	**6.865**	**23,5**	**8,9**
Mato Grosso do Sul	4,2	---	1,1	---	1,2	---	6.410	---	12,4
Mato Grosso	10,6	---	1,1	1,7	1,4	1.447	5.003	35,8	11,9
Goiás	4,0	---	1,8	3,2	2,9	1.157	5.238	35,6	13,2
Distrito Federal	0,1	1,0	2,3	0,6	1,2	4.051	14.854	17,0	6,3
Midwest	**18,9**	**3,7**	**6,2**	**5,4**	**6,7**	**1.591**	**7.073**	**32,5**	**11,6**
Brazil	**100,0**	**100,0**	**100,0**	**100,0**	**100,0**	**2.315**	**6.491**	**33,0**	**14,7**

Source: FIBGE and IPEA: Human Development and Living Conditions - Brazilian Indicators, 1998

* Real per capita GDP in dollars adjusted by rate of Purchasing Power Parity, that is, adjusted to reflect the parity of purchasing power among the countries.

** population over 10 years of age.

2. The reversion of the process of regional economic concentration

2.1. The reversion of the industrial polarization of the main metropolitan areas

a) The Metropolitan area of Rio de Janeiro

Although it was the first major industrial center in Brazil, the city of Rio de Janeiro and the metropolitan area of Rio de Janeiro began to lose their relative position in the Brazilian industrial production as the state of São Paulo and, in particular, its metropolitan area, became the major choice for industrial location in Brazil. Along this century, in addition to competition with other regions of the country, various phenomena contributed to the loss of relative significance of the economy of Rio de Janeiro: decline of its agriculture (coffee and sugar), transfer of the capital to Brasilia, crisis in the naval industry, political and social crisis of the previous decades, improved tourist infrastructure and attraction of the northeast coast and, perhaps, improvement of the negative regional effects of the processes of privatization and State reform.

The state of Rio de Janeiro contributed with 38% of the Brazilian industrial production in 1907, reducing its participation to 16% in 1970 and 8% in 1999, and 75% of such production is located in its metropolitan region. As regards the GDP, its participation fell from 16% to 11% between 1970 and 1997 (Table 1). In the last decade (1986-96), considering data from the Yearly Report of Social Information (RAIS), employment in the industrial sector of the Metropolitan Area of Rio de Janeiro was reduced from 473 thousand to 266 thousand and total employment dropped from 2.5 to 2.2 million, the worse performance of all Brazilian metropolitan areas (Table 2). As a result, the state of Rio de Janeiro and, in particular, its metropolitan area, ceased to attract immigrants, reducing its demographic growth rate (Table 3).

However, the discovery and growth of oil production in the Campos Basin, in the coast of the state of Rio de Janeiro, increased the state's participation in the Brazilian mineral production from insignificant to approximately one third of the value of the Brazilian mineral production. This contributed to reverse the economic decline of that state. Not only through the expansion of the oil production itself and its effects on income, tax revenue and employment, but also through its inter-industrial effects, including the chemical and petrochemical hubs.

In addition, the location of two assembly plants (Volkswagen and Peugeot) in the south of the state of Rio de Janeiro (Resende and Real Porto), next to the steel industry complex of Volta Redonda and to the industrial areas of São Paulo's Vale do Paraíba (São José dos Campos - Taubaté) will facilitate resumption of the industrial path in that state, with possible fiscal and economic benefits for the metropolitan area of Rio de Janeiro.

TABLE 2

Table 2

Employment: Metropolitan Regions and Macroregions of Campinas, Brasília, Goiânia and Manaus

In 1.000

Specifications	Total Employment			Transf.Ind. Employment			Services Employment		
	1986	1997	Var.	1986	1997	Var.	1986	1997	Var.
São Paulo	4.650	4.502	-148	1.782	1.031	-751	2.084	2.543	459
Rio de Janeiro	2.522	2.180	-342	473	246	-227	1.526	1.416	-110
Belo Horizonte	997	1.114	117	161	165	4	576	682	106
Porto Alegre	891	719	-172	258	194	-64	474	351	-123
Salvador	617	627	10	71	47	-24	417	440	23
Recife	574	575	1	111	78	-33	347	356	9
Curitiba	558	694	136	118	116	-2	311	418	107
Brasília	503	665	162	15	19	4	422	546	124
Fortaleza	406	460	54	79	83	4	239	267	28
Campinas	390	443	53	187	145	-42	118	189	71
Goiânia	293	332	39	28	41	13	194	205	11
Belem	254	278	24	33	18	-15	165	206	41
Baixada Santista	238	233	-5	38	25	-13	141	143	2
Vitória	236	253	17	38	30	-8	139	142	3
Manaus	220	217	-3	73	51	-22	110	127	17

Source: Ministry of Labor, Rais 1986 and 1997

TABLE 3

Table 3
Population in 1996 and Average Yearly Rates of Growth: Metropolitan Regions and Geographic Regions of Campinas, Brasília, Goiânia and Manaus

Specifications	Population in 1996 in thou. Inhabitants	Average Yearly Growth Rate (%)			
		1970 's	1980 's	1990 's	1970 - 96
São Paulo	16.583	4,5	1,9	1,4	2,8
Rio de Janeiro	10.193	2,4	1,0	0,8	1,5
Belo Horizonte	3.803	4,6	2,5	2,1	3,2
Porto Alegre	3.247	3,8	2,7	1,2	2,8
Recife	3.088	2,7	1,9	1,1	2,0
Salvador	2.709	4,4	3,2	1,6	3,4
Fortaleza	2.583	4,3	3,5	2,3	3,6
Curitiba	2.425	5,5	3,0	3,4	4,0
Campinas	1.979	6,6	3,5	2,2	4,4
Brasília	1.822	8,2	2,8	2,6	4,8
Belem	1.574	4,3	2,9	2,4	3,3
Goiânia	1.484	6,2	3,6	3,2	4,5
Manaus	1.329	5,0	1,8	2,7	3,2
Baixada Santista	1.309	3,9	2,2	1,4	2,7
Vitória	1.182	6,2	3,8	2,1	4,4
Brasil	157.080	2,5	1,9	1,4	2,0

Source: Population - IBGE/Population Count
Rates: calculated by the author

b) The Metropolitan area of São Paulo

As of the second half of the sixties, with the resumption of industrial growth in the country and the launching of a new package of projects, there has been a process of reversion of the industrial polarization in the Metropolitan area of São Paulo and, consequently there has been a drop in the region's relative participation in the industrial production of the country. At first, in an environment of rapid growth that prevailed as of the mid-sixties and during the seventies, all states grew, including São Paulo. However, the majority of states, except Rio de Janeiro and Pernambuco, grew

more than São Paulo, allowing a generalized deconcentration effect on industry (Table 4).

The basic reasons for this process of deconcentration can be summarized as follows: a) agglomeration diseconomy in the metropolitan area of São Paulo and creation of agglomeration economies in several other urban centers and regions; b) State action as regards direct investment, tax incentives and development of infrastructure; c) search for natural resources, expressed in the movement of agricultural and mineral borders, with consequences on the location of industry and services; d) market unification, encouraged by the development of the transports and communications infrastructure; e) location effects on inter-enterprise competition, especially for the exploitation of natural resources, creation of barriers to the entrance and occupation of new real or potential markets (Diniz, 1991; Diniz, 1993).

It is worth highlighting that the major transformation in this process of relative deconcentration was the loss of the metropolitan area of São Paulo, whose participation in the industrial production of the country fell from 44% in 1970 to 24% in 1999, and employment from 34% to 21%, in the same period. As regards the state of São Paulo, the weight of the metropolitan area fell from 76% to less than 50% of the value of industrial transformation and from 70% to 54% of employment. Between 1986 and 1996, according to RAIS data, formal employment in the transformation industry of the Metropolitan Region of São Paulo dropped 42%, from 1.782 to 1.031 million. Despite the growth of employment in the service sector, it was not enough to compensate the drop in employment in the industrial sector, resulting in the net loss of 148 thousand formal jobs in the period. The alleged increase of informal employment, however true, was also not enough to absorb the workforce, as proven by high unemployment rates. As a result of the economic crisis and of the increase in unemployment, migration flows to the area were discouraged, contributing to reduce the demographic growth rate (Table 4).

The economic crisis of the Metropolitan Area of São Paulo seems to worsen, with the crisis of the Brazilian economy, the competition with imported products, the difficulty to increase exports and the implementation of a series of new projects in the interior of the state of São Paulo and other states, especially the automotive sector in

the states of Rio de Janeiro, Minas Gerais, Paraná, Santa Catarina and Rio Grande do Sul and, more recently, in Bahia, generating strong political reaction from São Paulo's government against the fiscal war.

However, the Metropolitan area of São Paulo is and will continue to be the largest economic and population center of the country. The structural transformations in course, the financial centralization (banks; brokers and stock markets, goods and bonds); commercial activities; educational and research services (universities, research institutions); consulting and supporting services (marketing, law, auditing); enterprise headquarters; economic representation bodies; cargo and passenger transportation; catering and accommodation services; advanced medicine; cultural and leisure activities; commercial representation offices, among others, strengthen the position of São Paulo as the major Brazilian metropolis and the main base in the economic integration and in the network of world metropolises.

TABLE 4

Table 4						
Brazil: Distribution of VTI and of Industrial Employment, per Major Regions, States and Selected Metropolitan Areas (in %)						
Regions / States	VTI				Industrial Employment	
	1970	1980	1990*	1999*	1986	1997
Rondônia	0,0	0,1	0,2	0,2	0,2	0,4
Acre	0,0	(---)	0,0	0,0	0,0	0,1
Amazonas	0,3	(---)	1,6	1,6	1,3	1,1
Roraima	(---)	0,0	0,0	0,0	0,0	0,0
Pará	0,4	0,7	1,2	1,1	1,0	1,1
Amapá	(---)	0,0	0,0	0,0	0,1	0,0
Tocantins	---	---	0,0	0,0	---	0,1
North	**0,8**	**2,4**	**3,1**	**3,0**	**2,6**	**2,9**
Maranhão	0,2	0,2	0,4	0,2	0,4	0,5
Piauí	0,1	0,1	0,1	0,2	0,3	0,4
Ceará	0,7	0,9	0,9	1,0	1,7	2,4
Rio G. Norte	0,2	0,3	0,2	0,2	0,7	0,8
Paraíba	0,3	0,4	0,3	0,3	0,6	0,9
Pernambuco	2,2	2,0	1,7	1,3	3,4	3,0
Alagoas	0,4	0,4	0,7	0,7	1,0	1,3
Sergipe	0,1	0,2	0,2	0,3	0,5	0,5
Bahia	1,5	3,5	4,0	4,3	2,3	2,2
Northeast	**5,7**	**8,1**	**8,3**	**8,4**	**10,7**	**12,1**
Minas Gerais	6,5	7,7	8,7	9,4	8,2	10,6
RMBH	2,3	3,2	3,0	3,2	3,0	3,7
Interior of Minas Gerais	4,2	4,5	5,7	6,2	5,2	6,9
Espírito Santo	0,5	0,9	1,0	1,2	1,3	1,4
Rio de Janeiro	15,7	10,6	9,8	8,0	10,2	7,5
RMRJ	12,4	8,2	7,5	5,9	8,1	5,6
Interior of Rio de Janeiro	3,2	2,4	2,3	2,1	2,1	1,9
São Paulo	58,1	53,4	50,0	48,2	45,5	38,9
RMSP	43,5	33,7	30,2	24,0	28,4	21,2
Interior of São Paulo	14,6	19,8	19,8	24,2	17,0	17,7
Southeast	**80,7**	**72,6**	**69,5**	**66,8**	**75,3**	**65,9**
Paraná	3,1	4,3	5,7	6,1	4,6	6,7
Santa Catarina	2,6	4,1	4,2	4,8	5,6	6,6
Rio G. Sul	6,3	7,3	7,7	8,5	9,3	9,5
South	**12,0**	**15,8**	**17,3**	**20,2**	**19,4**	**22,9**
Mato G. Sul	---	0,2	0,3	0,6	0,4	0,6
Mato Grosso	(---)	0,1	0,3	0,1	0,4	0,9
Goiás	0,4	0,6	1,0	0,7	1,0	1,7
Distrito Federal	(---)	0,2	0,2	0,3	0,3	0,5
Midwest	**0,8**	**1,2**	**1,8**	**1,7**	**2,1**	**3,7**
Brazil	**100,0**	**100,0**	**100,0**	**100,0**	**100,0**	**100,0**
Source: FIBGE, Industrial Censuses 1970 and 1980 ; FIBGE, PIM/PF from 1985 to 1999; IPEA, RAIS/MTB						
Obs: (---) Value omitted in order to prevent identification of the informant --- No data						
(*) - Estimates by the author based on physical production, on the RAIS/MTB and on the regional GIP.						

In short, the Metropolitan area of São Paulo is changing its functions, reducing its relative importance in terms of concentration of the industrial production of the

country, but it is expanding its functions as a center of services and economic leadership, both in the sphere of the Brazilian economy and of the integration of the latter with the international economy.

2.2 The regional farming dichotomy: displacement of extensive farming production; productive intensification in the more developed regions and growth in the irrigated areas of the Northeast.

The state of São Paulo reached a participation of 35% in the Brazilian farming production, according to data from the Agriculture and Livestock Census of 1950. This concentration began to decrease with the expansion of the agricultural borders of the South and the Midwest regions, initiated in the thirties and fifties, respectively. In 1970, that participation had fallen to 21% (Diniz, 1987). In the last decades, the deconcentration process was maintained, and there was even a significant increase in the production of grains in the South and Midwest regions.

Regarding the movement of the agricultural border, portrayed by the production of the five main grains (rice, beans, maize, soy and wheat), it went up from the annual average of 25 million tons in the 1968/70 triennial to 77 million tons in the 1997/99 triennial (Table 4). The participation of the South, which was already 46% of this production in 1968/71, went up to 59% in 1979/81, dropping to 47% in 1997/99. On the other hand, the participation of the Midwest went up from 11% to 27% in the same period, while the Southeast's fell from 31% to 16%, the state of São Paulo's from 14% to 7% and the Northeast's participation from 12% to 7% (Table 5).

This movement indicates the removal of extensive and mechanized agricultural production to regions with lower-priced land suitable for mechanized agriculture. This is clear when comparing the participation in the production of grains with the participation in the value of agricultural production and in employment. The Midwest participated, in the 1997/9 triennial, with 27% of the production of grains, with 14% in the value of agricultural production, and with only 6% of people employed. In contrast, São Paulo participated with 18% in the value of agricultural production, 7% of the production of grains, 5% of people employed. IBoth cases involved modern,

capitalized and mercantile agriculture, the difference being in the structure of agricultural production.

TABLE 5

Table 5

Brazil: Distribution of the Value of Production and People Employed in Farming, Production of Grains and Number of Cattle, per major Regions and States

(In %)

Regions / States	Value Farming Prod.		Prod. Grains		N. Cattle		People Employed	
	1970	1996	1968/70	1997/99	1970	1996	1970	1996
Rondônia	0,2	0,7	0,1	0,7	0,0	2,6	0,0	1,7
Acre	0,4	0,2	0,1	0,1	0,1	0,6	0,4	0,5
Amazonas	1,0	0,8	0,0	0,1	0,3	0,5	1,6	2,0
Roraima	0,1	0,1	0,0	0,1	0,3	0,3	0,0	0,2
Pará	1,4	2,1	0,5	1,2	1,3	4,0	3,1	4,9
Amapá	0,1	0,1	0,0	0,0	0,1	0,0	0,1	0,1
Tocantins (1)	---	0,7	---	0,7	---	3,4	---	1,1
North	**3,1**	**4,9**	**0,7**	**2,9**	**2,2**	**11,3**	**5,3**	**10,5**
Maranhão	2,1	1,5	3,8	1,7	1,9	2,5	6,7	7,4
Piauí	0,8	0,7	0,8	0,6	1,5	1,1	3,0	3,7
Ceará	1,9	1,9	2,1	0,7	2,2	1,6	5,8	6,5
Rio Grande do Norte	0,7	0,7	0,4	0,1	0,8	0,6	1,8	1,9
Paraíba	1,4	1,0	1,0	0,2	1,1	0,9	3,3	2,7
Pernambuco	3,2	2,6	1,4	0,3	1,5	1,3	6,4	5,4
Alagoas	1,5	1,4	0,4	0,2	0,6	0,6	2,4	2,4
Sergipe	0,7	0,6	0,2	0,2	0,8	0,6	1,5	1,7
Bahia	6,1	4,4	2,1	3,2	7,2	5,7	12,1	14,0
Northeast	**18,3**	**14,7**	**12,3**	**7,2**	**17,6**	**14,9**	**43,0**	**45,8**
Minas Gerais	12,0	13,4	14,1	8,2	19,3	13,1	11,3	11,2
Espírito Santo	1,8	2,3	1,5	0,3	1,8	1,2	1,7	2,0
Rio de Janeiro (2)	2,6	1,3	0,8	0,1	1,5	1,2	1,5	1,0
São Paulo	20,8	17,6	14,2	7,2	11,6	8,0	8,1	5,1
Southeast	**37,3**	**34,6**	**30,6**	**15,8**	**34,2**	**23,5**	**22,5**	**19,2**
Paraná	12,3	11,6	17,7	22,4	6,0	6,5	11,3	7,2
Santa Catarina	4,9	6,8	5,5	6,0	2,5	2,0	4,3	4,0
Rio Grande do Sul	16,6	12,9	22,4	18,9	15,7	8,6	8,2	7,7
South	**33,8**	**31,4**	**45,6**	**47,3**	**24,1**	**17,1**	**23,8**	**18,9**
Mato Grosso do Sul (3)	---	4,6	---	5,6	---	12,9	---	1,1
Mato Grosso	3,2	4,2	2,9	12,0	12,0	9,4	2,1	1,8
Goiás	4,2	5,4	7,9	8,8	9,9	10,8	3,1	2,6
Distrito Federal	0,1	0,3	---	0,3	0,0	0,1	0,0	0,1
Midwest	**7,5**	**14,4**	**10,8**	**26,7**	**22,0**	**33,2**	**5,3**	**5,7**
Brazil	**100,0**	**100,0**	**100,0**	**100,0**	**100,0**	**100,0**	**100,0**	**100,0**
Physical Volume*	**---**	**---**	**25.060**	**76.541**	**78.562**	**153.058**	**17.582**	**17.931**

Source: FIBGE, Farming Censuses 1970 and 1995 / 1996 and Expected Crops

(*) - Production in thousand tons, number of cattleefetivo in thousand heads and people employed in thousa

(1) - In 1970 the data are added to those of the State of Goiás

(2) - Includes data of the former State of Guanabara

(3) - In 1970 the data are added to those of the State of Mato Grosso

In the opposite direction, characterizing delay of the agricultural sector, the Northeast participated with 15% of the value of the agricultural production, 7% of the production of grains and 46% of people employed.

Similarly, the livestock-raising border also moved towards the Midwest and North of the country. The cattle herd went up from 79 to 153 million heads, between 1970 and 1996. In this period, the participation of the Midwest and North regions in the national total went up from 22% to 33%, and from 2% to 11%, respectively, while the participation of the Northeast region fell from 18% to15%, and the Southeast from 34% to 24%, in the same period.

A similar phenomenon, albeit less generalized, has been occurring with the mineral sector. Until the seventies, the state of Minas Gerais participated with almost one third of the value of the country's mineral production, and over 50%, if petrol is not included. From then on a great share of investments in the mineral sector has been directed to the states of the North region, especially Carajás, to Bahia and Goiás. In turn, in the last decade, there has been an increase in the production of oil in the Campos Basin, in the coast of the state of Rio de Janeiro, raising the participation of that state from an inexpressive position to almost one third of the value of the Brazilian mineral production.

Although many of these investments have characteristics of exporting clusters, they open possibilities for some productive integration, through the local effect on employment and income, or even through the introduction of activities aimed at the supply of inputs or at processing local production.

Thus, the expansion of agricultural and mineral borders brings several economic, social and environmental implications. In special, the expansion of the agricultural production, in modern standards, in border regions, has strong a economic effect on urban activities, through the demand for inputs, machines and equipment, banking and commercial services etc. In turn, the supply of agricultural goods as inputs to industrial production opens possibilities of industrial location of some projects for the processing of agricultural production. The income effect, derived from the expansion of production and employment translates into a generalized demand for goods and services (housing, schools, trade, leisure, etc.).

This series of effects has a multiplying and expansive power on the urban activities at the border, as demonstrated and characterized in the growth of towns and cities located in regions of modern and expansive agricultural production and, to a lesser extent, in areas of mineral production.

Thus, the expansion of production borders works to decrease the migration flow from populous stagnated regions to large cities or metropolitan regions, where social problems and unemployment get worse.

From the environmental perspective, the movement of the border increases environmental risks and degradation, through uncontrolled and often illegal deforestation, through the pollution of rivers and waters, in addition to the effects of the use of chemical agents on the flora and fauna. From this perspective, while the agricultural and mineral borders create the potential for economic expansion, for deconcentration of certain regions, and for job and income generation, on the other hand, they increase the risks and the need for care and control of the environment.

The drop in the relative participation of the Southeast Region in the farming sector was compensated by industrial expansion and urban activities and, in the specific case of São Paulo, by the exhaustion of the agricultural area and productive restructuring of the sector, with a fall in the production of grains, including coffee, and increase in production of sugar cane, fruits (especially orange) and horticultural products, as analyzed before. The alterations in the structure of the agricultural production in São Paulo, with increased production of sugar cane and orange, in addition to horticulture and fruits in general, indicate a reorientation towards more intensive production, which becomes clear if one compares the larger participation in the value of agricultural production to the participation in the production of grains, in contrast with the South and Midwest Regions (Table 5). In this sense, the state of São Paulo increased its participation in the value of the production of sugar cane and orange, from 40% to 57%, and from 47% to 73%, respectively, between 1970 and 1996. In this last year, it participated with 25% of the value of vegetable production and 31% of the value of fruit production. A similar phenomenon occurs in Minas Gerais, Goiás and in the states in the south as regards the production of vegetables, fruits and milk. This production, in addition to being more area-intensive, is also

influenced by the proximity to large urban markets, featuring a typical regional specialization by vön Thunen's standards (1826). In the case of Minas Gerais, the expansion of coffee and milk production needs to be underscored. In the case of coffee, more due to climatic problems in Paraná and São Paulo and due to its adaptation in *cerrado* regions. Between 1970 and 1996 the participation of Minas Gerais in the national production of coffee went up from 27% to 55%. In the case of milk, the participation of Minas Gerais was already expressive, being 31% of the national total in 1996, with a significant share aimed at supplying the markets of the metropolitan areas of Rio de Janeiro and São Paulo.

In the case of the Northeast, in spite of a drop in participation, two phenomena attenuated the drop. The expansion of the production of grains in the western strip of the northeast (*cerrados* of Bahia, Piauí and Maranhão), as well as the irrigation projects in semi-arid regions, with great increase in fruit production. One should highlight the irrigation projects of the Vale do São Francisco, in the states of Bahia and Pernambuco, and of other fertile valleys in the Brazilian northeast, such as the Vale do Açu, in Rio Grande do Norte. Fruits and vegetables are produced In these irrigation projects, throughout the year (facilitated by the dry and hot climate). This alternative has allowed the regular supply of the Brazilian market, previously subject to a seasonal supply of various products, in addition to the possibility of increase in the exports of fruits and other tropical products.

On the other hand, the intensification of agriculture in regions closer to large markets has also allowed increased integration with the processing agro-industry, as for example the sugar, alcohol and orange juice industries. In turn, part of this intensive agriculture explores natural advantages, such as the irrigation projects in the north of Minas Gerais and the Brazilian northeast, or even the papaya in the south of Bahia and north of Espirito Santo, whose production is steered towards the large Brazilian markets.

3. The new location patterns *of the industry and the regional specializations*

3.1. Industries with strong inter-industrial integration and the macro-spatial re-concentration

Technically and economically, industries with greater inter-industrial integration capacity can be divided into two major groups: metal-mechanical and electro-electronic industries (metal works, metal products, mechanical products, transport material, electric material, electronic and micro-electronic equipment) and; b) chemical industries. The other industrial segments (non-metallic mineral products, textiles, clothes, foods, beverages, paper, leather, footwear, wood, furniture, rubber and tobacco), most of which produce non-durable goods for final consumption or general use inputs, have less need or capacity to generate broad and diversified[4] inter-industrial chain effects or industrial complexes. Thus, in most cases, they can be located in a scattered or less concentrated manner, sometimes influenced by the availability of raw materials (cement, paper and some types of agro-industries, for example), sometimes by the regional density of markets (some types of foods, drinks, clothes, furniture), or by the availability of cheap labor (textile, clothes, footwear), or by combinations of these. Most of these industries were the first ones to emerge in the beginning of the industrialization process and tend to lose importance as such process advances.

In contrast, the metal-mechanical / electro-electronic and chemical industries, because they have strong and diversified inter-industrial links, generate networks or webs of intense and diversified relations, imposing a location pattern strongly influenced by the proximity to or neighboring with other industries and urban centers with modern services, which generate external and agglomeration economies. This has been a recurrent theme in literature on regional development and industry location patterns, since the concept of industrial districts, by Marshall, at the end of the last century and retaken with the analyses of input-product and industrial complexes in the post Second World War period (Isard, 1960) and, again, in recent times with different denominations: new industrial districts (Harrison, 1992), industrial complexes (Prado, 1981), technological parks (Ruger & Goldestein, 1991), regional

[4] Measured by the chaining effects, through the Rasmussen-Hirschamn indices, the majority of them have great backward (dispersion power) and forward (sensitivity to dispersion) chaining effects (Albuquerque, 1999). However, these are, in general, unidirectional, like raw materials or inputs, or entail low technical complexity, without requirements of location proximity

conglomerates (Piore and Sabel, 1984), networks of companies and industries, districts and innovative "milieus" (Bergman, Maier and Todtling, 1991), collective learning and innovative regions (Keeble et al. 1998), or even formal models of "clusters" (Fujita, Krugman, Venables, 1999).

In the case of Brazil, in addition to the historical process of general industrial concentration in the state of São Paulo and its Metropolitan area, the segments pertaining to the two groups mentioned above were even more concentrated. In 1970, for a participation of 58% in the Brazilian VTI (industrial transformation value), the state of São Paulo participated with 68% of the mechanical industry, 79% of the industry of electric and electronic materials, 81% of the industry of transport materials, 70% of varied products and 57% of the chemical industry. The remainder of these industries were located predominantly in the states of Rio de Janeiro, Minas Gerais and Rio Grande do Sul. The only exceptions were the chemical industry in Bahia, due to the governmental influence and decision in the location of the petrochemical hub of Camaçari [5], and the electronic industry of Manaus, according to similar criteria. Thus, in 1970, for the set of industries encompassing metal works, mechanical, electrical material and communications, transport, chemical and others, the state of São Paulo participated with 65% of the VTI and the group of the states made up of São Paulo, Rio de Janeiro, Minas Gerais, and Rio Grande do Sul with 94% of the VTI of these industries (Table 6). In 1997, the group of states made up of São Paulo, Rio de Janeiro, Minas Gerais, Paraná, Santa Catarina and Rio Grande do Sul participated with 95% of the employment of the mechanical and transport material industries, 91% of the metal works industry, 88% of the chemical industry and 85% of the electro-electronic materials industry.

TABLE 6

[5] One should highlight that the regional distribution of the VTI of the chemical industry is strongly influenced by the weight of oil refineries, many of which are isolated processing units, without any local industrial integration.

Table 6

Brazil: Participation of the Selected States in the VTI (1970) and Employment (1997) of the Metal-mechanical-electrical and chemical Complex

(%)

States	Metal works		Mechanical		Electric and Communications		Mat. Transport		Chemical		Total of Complex	
	1970	1997	1970	1997	1970	1997	1970	1997	1970	1997	1970	1997
São Paulo	52,7	46,5	68,5	57,4	78,9	54,2	81,1	63,9	57,2	53,9	64,6	54,2
Minas Gerais	18,7	17,8	5,4	4,8	1,5	7,9	1,3	14,0	2,7	6,6	6,8	11,0
Rio de Janeiro	17,5	9,1	14,4	5,0	11,9	5,2	11,9	4,0	23,1	11,4	17,0	7,8
Paraná	0,9	3,8	1,4	6,7	0,3	6,1	0,7	4,3	1,8	4,6	1,1	4,8
Santa Catarina	1,1	4,1	2,1	7,8	0,6	5,2	0,8	2,4	0,4	4,5	0,9	4,6
Rio G. do Sul	5,8	9,3	6,1	13,1	3,8	6,2	3,1	6,9	5,5	7,0	5,1	8,5
Total	96,8	90,6	97,9	94,9	97,0	84,9	98,8	95,4	90,7	88,0	95,6	90,8
Brazil	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0

Source: FIBGE - Indistrial Census 1970 and MTB - Rais 1997

Several factors confirm the trend of maintaining and strengthening the location of the metal-mechanical and electro-electronic complexes in the Mid-South region: the expansion of the mechanical and transport material industry in Minas Gerais (led by the FIAT enterprise), of the aeronautical industry in São José dos Campos, of a diversified – mainly high-tech -industrial park in Campinas, the industrial growth of the Curitiba region, including the location of Volvo, the success of the industrial areas of Santa Catarina and Rio Grande do Sul, and the recent decision to establish several automotive plants in Juiz de Fora (Mercedes), Sete Lagoas (Iveco), Resende and Real Porto (Volkswagen and Pegeout), Nova Odessa and Indaiatuba (Toyota and Honda), Curitiba (Renault, VW-Audi, Chrysler), Porto Alegre (GM) and of high-tech segments near metropolises and medium-sized cities of the region.

Ford's recent decision to establish a new plant in the Metropolitan area of Salvador, together with the announcement of the Asia Motors and Hyundai projects, was taken on the basis of heavy tax incentives and powerful political efforts. The absence of a network of suppliers of parts and components, of a specialized labor market and other external economies will increase the productive costs of Bahia's automobile complex. However, its maintenance for a certain number of years, in case it reaches a scale that enables the establishment of suppliers, can create conditions for their growth, if the productive territorial complex is consolidated.

As regards the chemical industry, although the petrochemical hubs of Camaçari (Bahia) and Triunfo (Rio Grande do Sul) have been maintaining their

expansion, several factors indicate that it tends to expand in the states of Rio de Janeiro and São Paulo, with intense integration force in São Paulo, such as the establishment of the largest oil refinery of Brazil in the state of São Paulo (Paulínea), the arrival of the Bolivian gas, the expansion of the oil and gas production in the coast of Rio de Janeiro, and the announced petrochemical and gas hubs in that state, together with the largest industrial park and the largest market area in the country.

Additionally, the technological changes underway and the relative success of industries and areas based on industries involving more sophisticated technology, especially Campinas, São José dos Campos, São Carlos, Santa Rita de Sapucaí, in the Metropolitan area of São Paulo itself, and in the Metropolitan Areas of Belo Horizonte, Curitiba and Porto Alegre, and in other medium-sized cities of the Mid-South Region, tend to reinforce the expansion of modern industry in this region. The location requirement of these industries are the availability of modern urban services (education, university and research centers, professional and qualified labor, consulting work, marketing etc.), of economic infrastructure and accessibility, proximity with other modern industries and urban consumption services (education, cultural and leisure activities, trade, etc.) (Markusen et al. 1986), all of which are available in these regions.

Thus, the new location pattern of core industry (metal-mechanical, electro-electronic, chemical) and of advanced technology industries (micro-electronic, information technology, telecommunications, fine chemistry, biotechnology), will combine the growth of second-level metropolises and their peripheries (Curitiba, Belo Horizonte, Porto Alegre, Campinas) and medium-sized cities, mostly those located in the Mid-South Region. This hypothesis confirms the trend of a macro-spatial re-agglomeration of industry in this region, combining the change of functions of prime metropolises without eliminating their polarization capacity. In this sense, between 1970 and 1999, the participation of the states of Minas Gerais, São Paulo, Paraná, Santa Catarina and Rio Grande do Sul, excluding the Metropolitan area of São Paulo, in the Brazilian industrial production, went up from 33% to 54%. This demonstrates the difficulty in changing the macro-spatial pattern of the Brazilian industry, and the

subordinated condition of the North, Northeast and Midwest regions to the economic dynamics of the Mid-South Region and its leading center, the city of São Paulo.

3.2. New dynamic industrial hubs: predominance of the non primary metropolises and medium-sized cities of the Mid-South Region

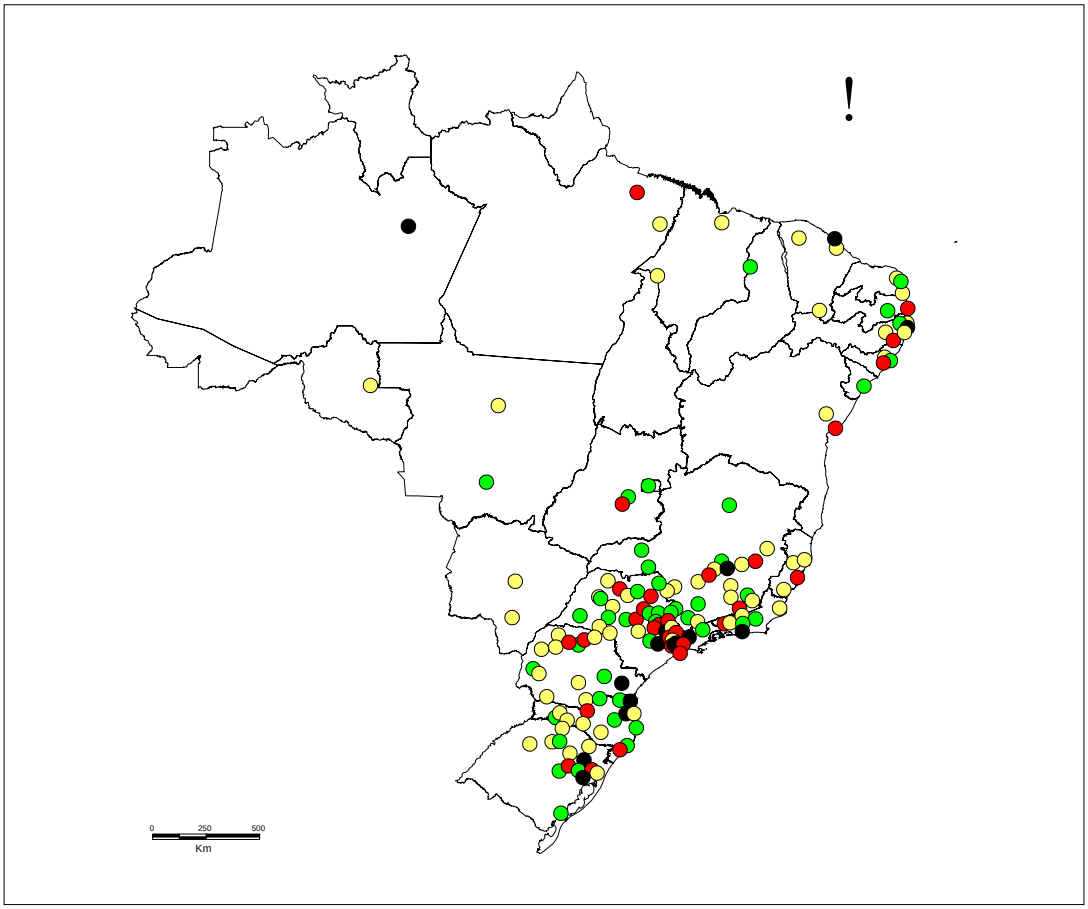
The industrial expansion experienced in the seventies, and to a lesser extent in the following decades, combined the process of relative deconcentration of Metropolitan Areas of Rio de Janeiro and São Paulo with the industrial expansion of the interior of the state of São Paulo itself and the states of Minas Gerais, Paraná, Santa Catarina and Rio Grande do Sul, either in the Metropolitan Areas of Belo Horizonte, Curitiba and Porto Alegre, or in a great number of large or medium-sized cities in the mentioned states.

Taking into account the relevant industrial agglomerations, understood as the IBGE's geographic micro-regions with more than 10.000 people employed in industry, according to data of the Industrial Census of 1970 and 1980 and data of the 1991 RAIS, the number of such agglomerations, in Brazil, went up from 33, in 1970, to 90, in 1991 (Diniz and Crocco, 1996). As this was a period of great industrial expansion in Brazil, all regions grew, even though at very different rates. Most new agglomerations are within the area denominated dynamic industrial polygon, whose vertices are Belo Horizonte, Uberlândia, Londrina, Porto Alegre, Florianópolis, São José dos Campos, going back to Belo Horizonte (Diniz, 1993). This polygon contained 24 and 64 relevant industrial agglomerations, respectively, during the years mentioned above. In the state of São Paulo, this number increased from 10 to 25 in the same years, indicating the trend of combining the reversion of the polarization of the metropolitan area with the industrial growth of the interior, coherently with the economic and demographic expansion of the Brazilian medium-sized cities (Andrade and Serra, 1998). In the states of Minas Gerais, Paraná, Santa

Catarina and Rio Grande do Sul the number of relevant agglomerations grew from 14 to 39.

Considering the most recent period and taking all micro-regions with over 5.000 people employed in the transformation industry, according to data of the RAIS, a total of 150 micro-regions was identified, (Table 7 (Attached) and map 1). In the analysis of this table several elements stand out. In the first place, the total industrial employment is falling, due to the processes of technological and organizational modernization, with increase of productivity and the transfer of many activities to the service sector. For this reason, the number of micro-regions with more than 10.000 people employed remained virtually the same between 1991 and 1997. However, they behaved very differently, as indicated by the variations in employment in Table 7 (Annex).

Map 1- Geographic Micro-regions with more than 5000 industrial jobs in 1997

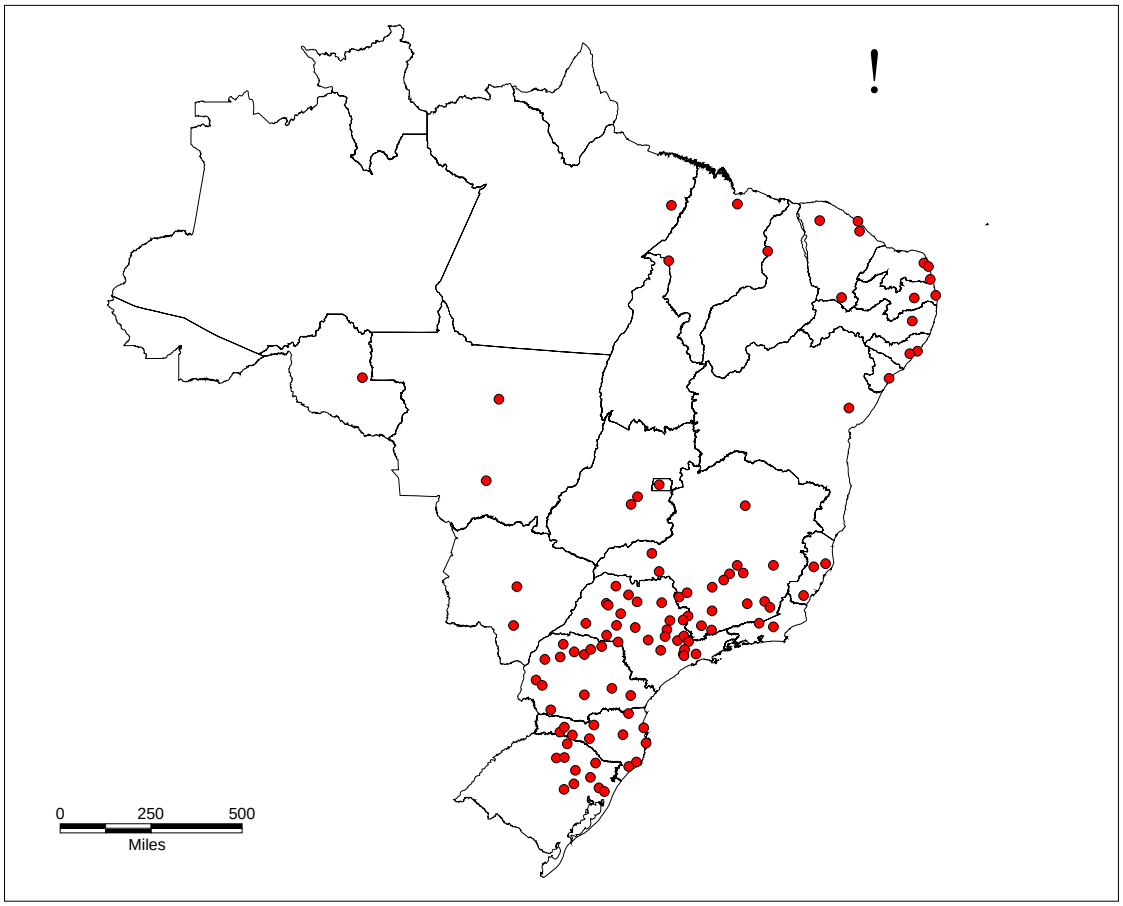


Source: 1997 RAIS Data, and *Malha Municipal do Brasil* – IBGE, 1994.

Out of the total of micro-regions, 61 had between 5,000 and 10,000 industrial jobs in 1997. Out of these, 36 had a positive growth of industrial jobs between 1986 and 1997. Attention should be drawn to the cities located in dynamic, consolidated or border agricultural regions, as shown in Map 2. Most of them show expansion linked to the farming sector, without much potential for becoming diversified industrial centers. Out of the most dynamic, only the cities of Itajubá (MG) and Sobral (CE) are not linked to the agricultural border. Itajubá, for its proximity to São Paulo, the university/academic base, and its proximity to Santa Rita do Sapucaí (MG), where telecommunications industries are being developed. This region, also close to Pouso Alegre, has great potential for growth and diversification. The growth of Sobral reflects the location of a Grandene plant (footwear) with great demand for non-qualified labor. Considering the relative distance from markets, the deficiency in

urban services and external economies, one cannot expect Sobral to become a major industrial center.

Map 2 – Geographic Micro-regions with positive growth in industrial employment and/or with growth of total employment superior to the Brazilian average, 1986-1997.



Source: 1997 RAIS Data, and *Malha Municipal do Brasil* – IBGE, 1994.

Considering the areas with between 10,000 and 20,000 industrial jobs, out of a total of 44, only five stand out (Montes Claros, Florianópolis, Apucarana, Uberlândia and Chapecó). Montes Claros is a city that receives incentives from SUDENE. The attempt to establish a set of high technology industries was not taken forward, even though Biobrás and Valée, two technological border industries, are located there. In the last years, the growth of Montes Claros has been closely linked to the textile

industry. Chapecó is linked to the food agroindustry, without much potential for industrial diversification. Nevertheless, the other three cities show great potential for growth. Florianópolis has modern infrastructure, university and research institutions and is integrated to the São Paulo-Porto Alegre industrial corridor and to the network of medium-sized and industrial cities of Santa Catarina (Blumenau, Joinville, Jaraguá do Sul, Criciúma, etc.). In that city, modern technology industries have been established in coordination with the local university system. Apucarana is located between Londrina and Maringá, constituting one of the most dynamic industrial areas of the country, for its strong link with the agricultural and livestock-raising sectors of the west of Paraná and Mato Grosso do Sul, for the urban size of the group of cities (more than a million inhabitants) and for the service infrastructure. Similarly, Uberlândia became an important location alternative as an interface between major Brazilian markets, especially São Paulo and the agricultural and livestock-raising border of the Midwest. It has a good urban infrastructure, provides support to the productive sector and is a supplier of modern services, including a university center.

The 31 micro-regions with between 20,000 and 50,000 industrial jobs, in 1997, have a network of dynamic and well structured cities. Ten of them stand out: São José do Rio Preto, Criciúma, Divinópolis, Gramado/Canela, Lajeado/Estrela, Londrina, João Pessoa, Goiânia, Maringá, São Miguel dos Campos). The vitality of São José do Rio Preto is associated with the economic growth of the northwest of São Paulo and its productive integration with the region of Campinas/São Paulo, Ribeirão Preto and the cities of the *Triângulo Mineiro*. Criciúma, associated with the carbon and ceramic industries, is part of the São Paulo-Porto Alegre industrial axis. Gramado/Canela and Lajeado/Estrela, due to their proximity, tend to integrate with the industry of the Metropolitan Region of Porto Alegre and Caxias do Sul, constituting an industrial area with great potential for expansion, despite the crisis that hit the leather and footwear industry of Vale dos Sinos. Londrina and Maringá, together with Apucarana, create a dynamic industrial urban complex, in the west of Paraná. Goiânia, thanks to its strong link to the agricultural and livestock-raising border of the Midwest, to its proximity to Brasilia and to the tax incentives provided by the state of Goiás, is one of the Brazilian capital cities experiencing the greatest

growth, although it may be difficult to envisage its industrial diversification and sophistication. Divinópolis, based on the steelworks industry and the industry of clothes and footwear, due to its proximity to Belo Horizonte, and to the potential effect of the duplication of the Fernão Dias Highway (BR-381), became an important alternative location in the center of the state. João Pessoa experienced its growth due to tax incentives, to its specialization in the areas of textiles, clothes, footwear and foods. Considering the competition with other location alternatives in the Northeast, this city is not likely to become a diversified industrial area. One should also mention the growth of employment in São Miguel dos Campos (Alagoas), derived from the expansion of the juice-alcohol industry, without capacity for diversification or integration.

Finally, considering the 16 industrial areas with more than 50.000 jobs, only two had real growth of the industrial employment: Belo Horizonte and Fortaleza. Belo Horizonte, due to the productive diversification of its Metropolitan Area, led by the FIAT complex, but diversifying because of the entrepreneurial base of the state, the urban size and the supply of modern services. Fortaleza, due to the combination of economic and political factors, through which there has been a fast and significant expansion of the local entrepreneurship, attracting industries from the Mid-South Region of Brazil by means of tax incentives, cheap labor and favorable political environment.

Although they have not experienced growth in industrial employment in the last years, four other micro-regions with over 50.000 industrial jobs should be included among those with great potential for expansion: Curitiba, Campinas, São José dos Campos and Caxias do Sul. Curitiba, for the great volume of investments in the automobile sector, for its proximity to São Paulo, the tax incentives and the urban density, translated into market and services. Campinas, for being an important location alternative for the expansion of high technology industries, especially in the electronic segment. It has an excellent university and research infrastructure and diversified services, pleasant living environment, broad specialized labor market and is integrated to the most important urban-industrial network of the country, both to the Metropolitan Area of São Paulo and to the interior of the state.

São José dos Campos, even though it has gone through a certain crisis due to problems with the military segment and EMBRAER, has excellent university and research infrastructure, and excellent location in the Rio-São Paulo axis. The recovery of EMBRAER will play a decisive role in the revitalization of that region. Finally, Caxias do Sul, specialized in the metal-mechanical segment, is integrated to the Metropolitan Region of Porto Alegre and to the industries of the mountain cities, representing an important location alternative, especially if MERCOSUR consolidates and expands.

In the light of the analysis developed so far, rather than identifying micro-regions or cities with greater potential for growth and industrial expansion, meso-integrated spaces were identified, combining one or more micro-regions with positive industrial performance in the last years, of a certain size, and favorable location conditions. Among these, and following the geographic order, one should highlight:

a) meso region of Caxias do Sul /Gramado- Canela and metropolitan area of Porto Alegre

b) meso region of the coast of Santa Catarina and Vale do Itajaí (Florianópolis, Itajaí, Blumenau, Jaraguá do Sul, Joinville)

c) meso region of Curitiba, with possible extension to Ponta Grossa

d) meso region of Londrina -Apucarana- Maringá

e) meso region of the Vale do Paraíba in the state of São Paulo (São Jose dos Campos, Taubaté), with possible extension to the Vale do Paraíba in the state of Rio de Janeiro (Resende, Volta Redonda, Porto Real)

f) meso region of Campinas - extended (Campinas, Piracicaba, São Carlos/Araraquara, Moji Guaçu)

g) meso region of Ribeirão Preto-São José do Rio Preto

h) meso region of the south of Minas Gerais (Pouso Alegre, Santa Rita do Sapucaí, Itajubá)

i) meso region of Belo Horizonte

j) meso region of the *Triângulo Mineiro*-South of Goiás (Uberaba, Uberlândia, Catalão)

k) meso region of Goiânia- Anapólis

l) meso region of Salvador

m) meso region of Fortaleza

In addition to the meso regions mentioned, with emphasis on industrial growth, one should consider the potentialities of the development of cities specialized in services, as for example the capital cities of the northeastern coast, where there is great potential for the development of tourism or light industries, such as in the region of Fortaleza.

3.3. Transfer and growth of the textile, clothes and footwear industries to the Northeast

In the last years, announcements have been made regarding the transfer of textile clothes and footwear industries from the states of the Mid-South Region to Northeastern states, especially Bahia and Ceará. Special emphasis was given by the combination of the crisis of the footwear industry in Rio Grande do Sul with the transfer of a large Grandene plant (footwear) to Sobral (Ceará) and an Azalea plant (footwear) to Itapetinga (Bahia).

A systematic survey of these transfers is not available. VTI data show that the state of Ceará had its relative participation in the textile industry increased from1.6% to 3.8% and in the clothes and footwear industries from 1.2% to 3.2%, between 1970 and 1985. In 1997, the state participated with 5.6% of the employment in the textile industry and 7.9% in the footwear industry, confirming the largest relative growth of these industries in that state. Similarly, Bahia increased its participation in the VTI of the textile industry from 0.7% to 2.5% between 1970 and 1985, even though its participation in employment in 1997 was only 1.5%. The footwear industry did not present formal growth, maybe because the largest transferred units were still not in operation. Altogether, the Northeast Region increased its participation in the VTI of textile, clothes and footwear industries, from 8% to 13% between 1970 and 1985. In 1997 it participated with 15% of employment.

TABLE 8

Table 8

Brazil: Relative Participation of the Macroregions in the VTI (1970/1985) and in Employ
of the Textile, Clothes, Footwear, Food and Beverage Industries

(%)

Regions	Textile, Clothes and Footwear Ind.			Food and Beverage Ind.		
	1970	1985	1997	1970	1985	1997
North	0,8	1,1	0,5	1,3	2,1	2,4
Northeast	7,5	12,8	14,8	12,2	13,7	23,7
Southeast	78,7	62,4	51,5	65,4	52,4	44,8
South	12,6	23,1	31,1	18,4	27,8	21,7
Midwest	0,4	0,5	2,1	2,6	4,0	7,5
Brazil	100,0	100,0	100,0	100,0	100,0	100,0

Source: FIBGE - Industrial Census 1970/1985 and Rais 1997

In the food and beverage industries the increase was, respectively, from 12% to 14% and 24%. On the other hand, the participation of the states of the Mid-South Region in the textile, clothes and footwear industries fell from 91% to 82% and of foods and beverages from 84% to 67%, in the same years. (Table 8)

The case of Ceará combined the transfer of productive units from other states with the growth of local companies, in a new articulation between the political power and the rise of the new entrepreneurial elite in the state of Ceará (Abu-El-Haj, 1997). Research carried out by Coimbra and Rosa (1999) on determinants of industrial location in Ceará, analyzing 140 companies established in Ceará between 1991 and 1995, concludes that 66% of companies and 40% of the investment came from a local source and the remainder came from other regions (Mid-South, other northeastern states and abroad). In the case of the textile industry, 45% of the investment came from states of the Mid-South Region. They concluded that 53% of the location weight is due to the existence of tax incentives and cheap labor, and 11% is due to regional raw materials.

In the case of Bahia, research carried out by the author in the region of Itabuna identified, in addition to Azalea, transferred to Itapetinga, the Kildare and the Penalty plants, which were transferred, respectively, from Rio Grande do Sul and São Paulo to Itabuna and the Ramarin plant to Jequié.

These industries demand little backward productive integration, basically few uniform and easy-to-transport raw materials. Since they are final consumption, non-durable industrial goods, they do not generate forward inter-industrial effects either. Thus, their local impacts are the jobs created and their multiplying effect through the

generated income. However, almost all jobs are of low qualification, which considering the northeastern labor market, with high labor supply, implies in low wages. Thus, low wages and existence of a broad range of tax incentives (formal and informal) are decisive in the location option - federal incentives through SUDENE, state incentives (ICMS differentiation, which in practical terms represent exemptions), municipal exemptions, land donations, infrastructure construction, in addition to other benefits granted in the context of the "Fiscal War".

4. Demographic growth and urban reconfiguration

Between 1940 and 1996 the Brazilian population was practically multiplied by four, going up from 41 to 157 million inhabitants, even though the demographic growth rate has fallen significantly in the last decades [6].

However, the Brazilian demographic growth did not take place evenly among regions, not only because of regional differences in fecundity but, mainly, because of migration movements. The result was the continued alteration in the regional distribution of the population among Brazilian regions [7]. Moreover, demographic growth was followed by a fast process of urbanization, mainly from industrial growth and its impacts on income and urban services. Between 1940 and 1996, the degree of urbanization (percentage of the population living in cities) went up from 31% to 78%. Similarly to the demographic growth, the urbanization process occurred with marked differences among Brazilian states and regions - in some states the urbanization degree surpassed 90% (95% for São Paulo, 93% for Rio de Janeiro), while in others it was around 50% (Maranhão 52%, Pará 54%,etc.) (Table 9).

Between 1960 and 1996 the number of municipalities in Brazil doubled, going up from 2,766 to 5,509. In turn, the demographic growth together with the

[6] 2.4% per year in the forties, 3.0% in the fifties, 2.9% in the sixties, 2.5% in the seventies, 1.9% in the eighties and 1.4% in the 1991-96 census period.
[7] In 1900 the Northeast participated with 39% and Minas Gerais with 20% of the Brazilian population, dropping to 29% and 11% in 1996.

urbanization process resulted in the increase of the urban network of cities with over 50,000 inhabitants, from 38 in 1950 to 124 in 1970, and 369 in 1996, with 177 cities with population over 100.000 inhabitants. As many of these cities have urban areas that are adjoining to others, the size of urban concentrations increases (Map 3).

The reconfiguration of the urban network is the result and at the same time the determinant of the new economic geography of the country. As one can observe, the urban network of the Mid-South Region and the development of the transportation and communications systems strengthen the economic integration of the region and reinforce the macro-spatial pattern of industrial and service concentration. Secondly, one can observe the growth of medium-sized cities in the more developed agricultural regions, either in consolidated areas of the Mid-South Region, such as the west of São Paulo and the west of Paraná, or in the extensive agricultural and livestock-raising borders. In contrast, the Northeast does not experience the development of a network of medium-sized cities, with high concentration prevailing in some capitals (Salvador, Recife, Fortaleza) and in other capitals. In addition to not forming an integrated urban-industrial and services network, the large concentration of the population in few cities aggravates the social problems of employment and housing.

TABLE 9

Table 9

Brazil: Regional Distribution of the Brazilian Population and Degree of Urbanization

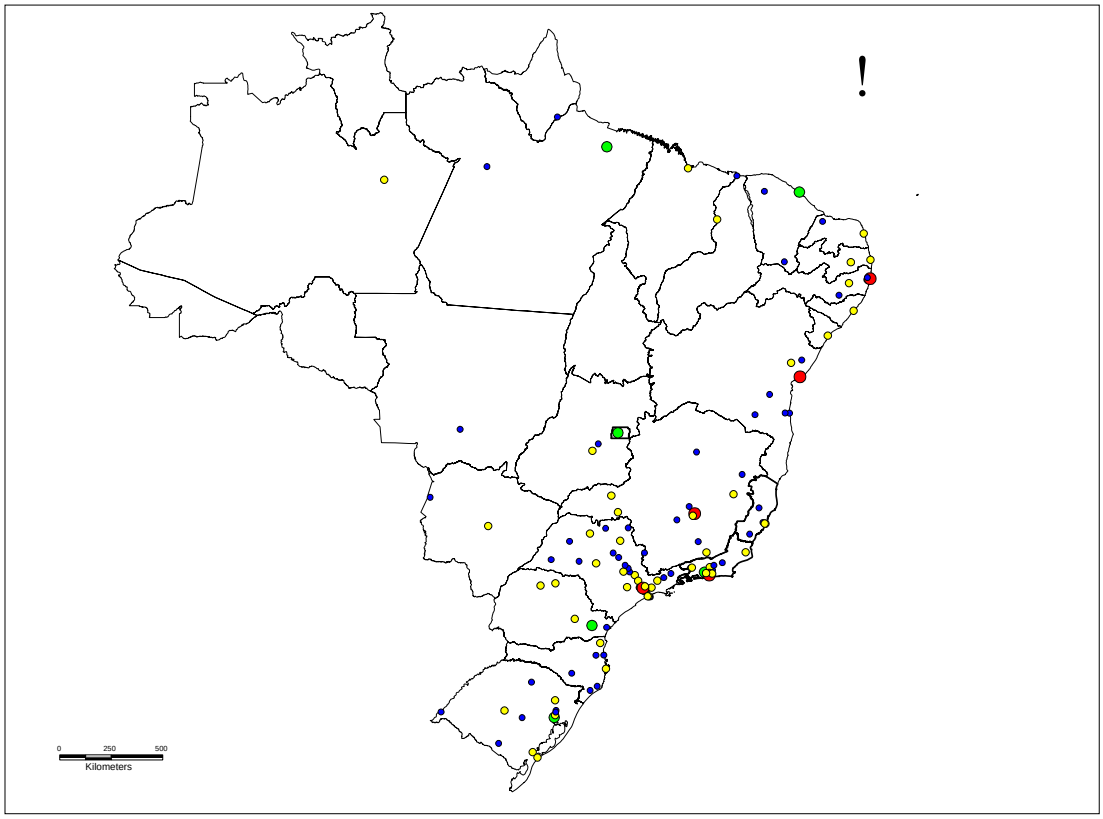
In 1.000 inhab.

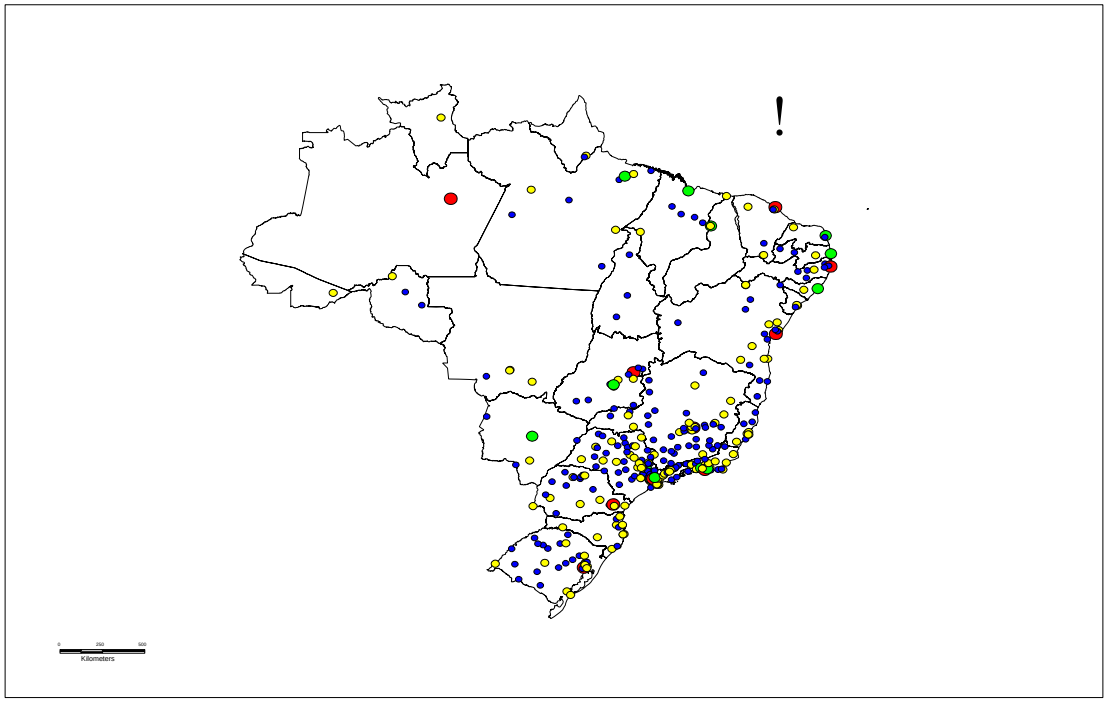
Regions/States	1940			1960			1980			1996		
	Hab.	(%)	G.U.	Hab.	(%)	G.U.	Hab.	(%)	G.U.	Hab.	(%)	G.U.
Rondônia	---	---	---	70	0,1	43,3	491	0,4	46,5	1.231	0,8	62,0
Acre	80	0,2	17,7	158	0,2	20,7	301	0,3	43,9	484	0,3	65,2
Amazonas	438	1,1	23,9	708	1,0	32,9	1.430	1,2	59,9	2.389	1,5	73,9
Roraima	---	---	---	28	0,0	42,9	79	0,1	61,6	247	0,2	70,5
Pará	945	2,3	30,4	1.529	2,1	25,6	3.403	2,9	49,0	5.511	3,5	53,5
Amapá	---	---	---	68	0,1	51,4	175	0,1	59,2	379	0,2	87,1
Tocantins	---	---	---	---	---	---	---	---	---	1.049	0,7	70,7
North	**1.462**	**3,5**	**27,8**	**2.562**	**3,5**	**37,4**	**5.880**	**4,9**	**51,6**	**11.290**	**7,2**	**62,4**
Maranhão	1.235	3,0	15,0	5.469	7,5	17,7	3.996	3,4	31,4	5.223	3,3	51,9
Piauí	818	2,0	15,2	1.242	1,7	23,0	2.139	1,8	42,0	2.673	1,7	58,2
Ceará	2.091	5,1	22,7	3.296	4,5	33,3	5.288	4,4	53,1	6.810	4,3	69,2
Rio G. do Norte	768	1,9	21,4	1.146	1,6	37,2	1.898	1,6	12,8	2.559	1,6	72,1
Paraíba	1.422	3,4	21,9	2.001	2,8	34,9	2.770	2,3	52,3	3.306	2,1	68,4
Pernambuco	2.688	6,5	29,3	4.097	5,6	44,6	6.143	5,2	61,6	7.399	4,7	74,0
Alagoas	951	2,3	24,1	1.258	1,7	33,4	1.983	1,7	49,3	2.633	1,7	63,1
Sergipe	542	1,3	30,7	752	1,0	38,5	1.140	1,0	54,2	1.624	1,0	70,2
Bahia	3.918	9,5	23,9	5.920	8,1	34,3	9.454	7,9	49,3	12.542	8,0	62,4
Northeast	**14.434**	**35,0**	**23,4**	**25.182**	**34,6**	**33,9**	**34.812**	**29,3**	**50,5**	**44.768**	**28,5**	**65,2**
Minas Gerais	6.763	16,4	25,0	9.658	13,3	38,8	13.379	11,2	67,2	16.673	10,6	78,4
Espírito Santo	790	1,9	20,4	1.171	1,6	29,2	2.023	1,7	64,2	2.803	1,8	77,6
Rio de Janeiro	3.612	8,8	61,3	6.611	9,1	78,9	11.292	9,5	91,8	13.406	8,5	95,5
São Paulo	7.180	17,4	44,1	12.809	17,6	62,6	25.041	21,0	88,6	34.121	21,7	93,1
Southeast	**18.346**	**44,5**	**39,4**	**30.249**	**41,6**	**57,0**	**51.734**	**43,5**	**82,8**	**67.003**	**42,7**	**89,3**
Paraná	1.236	3,0	24,5	4.268	5,9	30,6	7.629	6,4	58,6	9.004	5,7	77,9
Santa Catarina	1.178	2,9	21,5	2.118	2,9	31,8	3.628	3,0	59,4	4.875	3,1	73,1
Rio G. do Sul	3.321	8,1	31,2	5.367	7,4	44,4	7.774	6,5	67,6	9.638	6,1	78,7
South	**5.735**	**13,9**	**27,7**	**11.753**	**16,2**	**37,1**	**19.031**	**16,0**	**62,4**	**23.517**	**15,0**	**77,2**
Mato G. do Sul	---	---	---	---	---	---	1.370	1,2	67,1	1.928	1,2	83,2
Mato Grosso	432	1,0	29,8	890	1,2	38,6	1.139	1,0	57,5	2.236	1,4	75,8
Goiás	826	2,0	17,2	1.913	2,6	30,1	3.860	3,2	62,2	4.516	2,9	85,8
Distrito Federal	---	---	---	140	0,2	63,0	1.177	1,0	96,8	1.822	1,2	92,9
Midwest	**1.259**	**3,1**	**21,5**	**2.943**	**4,0**	**34,2**	**7.545**	**6,3**	**67,8**	**10.501**	**6,7**	**84,4**
Brazil	**41.236**	**100,0**	**31,2**	**72.688**	**100,0**	**44,7**	**119.003**	**100,0**	**67,6**	**157.080**	**100,0**	**78,4**

Source: FIBGE: Statistics Annuary of Brazil, 1995 and Population Count 1996.

Urban Network over 50.000 inhabitants in 1970 and 1996

Maps 3 and 4





Source: Population Count- IBGE, 1996 and *Malha Municipal do Brasil*, 1994.

5. Ongoing transformations and their possible regional impacts

In the series of modern transformations with possible regional impacts, three are highlighted: a) the external opening and the MERCOSUR; b) the technological changes and productive reorganization and; c) the change in the concept and role of the State and in the process of privatization. Additionally, the orientation of Federal Policies should be considered, as regards programs and projects under the Program of National Development and Integration Axes.

5.1. The possible regional impacts of the external opening

Although there was little real growth of Brazilian exports along the eighties, there were changes in their regional composition. In the first place, one should highlight the drop of relative participation of the Northeast Region in the national total from 12% to 10% (Table 10). Secondly, one should highlight the growth of relative participation of the North and Midwest Regions. The first one, due to the growth in the exportation of ore from Carajás. The second, due to the growth of production and exportation of agricultural "commodities", mainly soy. The Southeast Region maintained its relative participation of 60%, with different rates among its states. The South Region suffered a small drop, mainly due to the state of Paraná, with coffee and timber loosing their weight.

In the nineties, there was real growth of exports, with structural changes; however, the major trends of regional distribution were maintained. The growth of exports in the Northeast Region was negligible, continuing the loss of relative participation, which fell from 10% to 7% between 1990 and 1998 (Table 10). The North Region stabilized its relative participation, growing at the same rate as the country, due to the mineral exports. The Midwest Region continued to increase its participation, for the reasons previously pointed out, the growth of agricultural production and exports, mainly soy. The South Region presented significant recovery, because of the effects of MERCOSUR and the diversification of Paraná's exports, with growth in the exports of industrialized goods, especially transport

materials, through the Volvo plant. The Southeast Region, however, although it has grown in absolute terms, suffered a small drop in its relative participation.

TABLE 10

	Table 10					
Brazil: Distribution of Exports and Imports, per Regions and states						
Regions / States	Exports			Imports		
	1980	1990	1998	1980	1990	1998
North	**2,96**	**5,71**	**5,07**	**3,64**	**6,75**	**5,96**
RO	0,04	0,03	0,07	0,08	0,03	0,03
AC	0,00	0,01	0,00	0,00	0,02	0,00
AM	0,38	0,57	0,52	2,71	5,63	5,38
RR	0,02	0,00	0,00	0,00	0,01	0,02
PA	2,16	4,93	4,32	0,84	1,05	0,44
AP	0,36	0,18	0,12	0,01	0,01	0,03
TO	---	---	0,03	---	---	0,07
Northeast	**11,52**	**9,65**	**7,27**	**6,37**	**7,23**	**6,60**
MA	0,06	1,41	1,24	0,22	0,49	0,55
PI	0,09	0,10	0,12	---	0,03	0,05
CE	0,78	0,73	0,69	0,60	0,55	1,13
RN	0,27	0,28	0,20	0,02	0,11	0,14
PB	0,24	0,17	0,11	0,04	0,16	0,27
PE	2,38	1,27	0,71	1,65	1,10	1,59
AL	2,12	0,93	0,57	0,37	0,29	0,14
SE	0,05	0,12	0,06	0,00	0,11	0,18
BA	5,53	4,63	3,58	3,47	4,38	2,54
Southeast	**60,44**	**59,93**	**58,68**	**73,87**	**74,56**	**69,02**
MG	10,33	14,64	14,84	0,10	4,19	6,65
ES	4,47	4,50	4,71	3,04	2,89	6,03
RJ	6,10	4,63	3,49	26,09	23,27	7,86
SP	39,53	36,15	35,64	44,64	44,22	48,47
South	**24,55**	**21,54**	**24,37**	**15,52**	**10,63**	**16,69**
PR	9,91	5,95	8,27	1,75	3,03	7,06
SC	4,26	4,64	5,09	5,18	1,58	2,10
RS	10,38	10,96	11,01	8,59	6,02	7,52
Midwest	**0,31**	**1,79**	**2,37**	**0,60**	**0,83**	**1,60**
MT	0,14	0,81	1,27	0,00	0,11	0,15
MS	0,05	0,33	0,34	0,55	---	0,25
GO	0,12	0,64	0,75	0,00	0,36	0,53
DF	0,00	0,01	0,01	0,05	0,36	0,67
ND	0,22	1,38	2,24	---	---	0,13
Total	**100,00**	**100,00**	**100,00**	**100,00**	**100,00**	**100,00**
Value*	**20.132**	**31.414**	**51.120**	**24.961**	**20.649**	**57.550**
Source: SECEX - DECEX						
ND - Não Declarados						
(*) - Value in million dollars						

In short, the Brazilian Northeast, the poorest region in the country, has been losing relative participation in exports, since it is not able to modernize and expand some traditional activities of the region, such as the production of sugar, cocoa, or to expand new activities suitable for international competition, even though it has increased the exports of juices, nuts and cellulose. In contrast, the North and Midwest Regions have been extending their participation in Brazilian exports, owing to the growth of production of some mineral and agricultural commodities.

As regards the possibility of growth of the exports of the North and Midwest Regions, based on agricultural and mineral commodities, the Southeast and South Regions, with 83% of the Brazilian exports in 1998, has a diversified exportation agenda with a major focus on industrial goods. Thus, one understands that the possibility of significant expansion of Brazilian exports would depend on the export competition capacity of these two regions. Moreover, there is the effect of the MERCOSUR, not only in increasing trade between Brazil and its partners (Argentina, Uruguay and Paraguay), but in particular for the geographic position of these countries in relation to Brazil, strengthening location in the Mid-South Region.

The analysis of the regional impacts of imports is empirically difficult, since there is no direct link between regions that import and regions that invest or consume these imports. This is because the majority of imports are accounted for according to ports and airports of arrival or often by the import companies, and most of them are based in large cities, and later redistributed in the domestic territory. Thus, the analysis will be on the regional distribution of imports, such as accounted for by Brazilian statistics (Table 9), attempting to subsequently relate the structure of imports to regional productive structures, in order to evaluate how and where imported products compete with national products.

Between 1990 and 1998 Brazilian imports went up from 23 to 58 billion dollars. There was a general growth of the imports and most regions were impacted, however, in different ways. In the Midwest Region, specialized in livestock-raising and agricultural production of grains, the impact of imports in terms of competition with local production was negligible, since it is an exporting Region and there is no competition of the imported product with the local production (soy,

maize, meat). In the case of the North Region something similar occurred. Primary production (mineral, timber, herbs, rubber, etc.) did not suffer any competitive impact. In contrast, in the case of Manaus' industrial hub the importation of inputs was facilitated, which discouraged and even destroyed the incipient local production; however, in a manner compatible with the interest of producing companies, in general branch offices of multinationals. Considering the maintenance of high incentives to the electronic production of Manaus, international competition did not destroy it, one of the reasons being that it is made up mainly of branch offices of multinationals, which establish a certain international division of markets (Diniz and Santos, 1995).

In the Northeast Region the situation is different. Imported products do not compete with the production of traditional goods of agricultural origin, such as sugar, cocoa, nuts, fruits, juices. In contrast, the textile and clothing production has been affected by the importation of similar goods, especially those of Asian origin. The petrochemical production of Bahia, with the process of privatization and the presence of multinationals, has been establishing an international division of markets according to specializations, especially with Argentina.

In the South Region several types of competition with imported products were established. In the first place, the canned food industries of Pelotas-Rio Grande region faced strong competition from imported products from Europe (Greece) and MERCOSUR. Secondly, the wine industry, with strong competition with European and South American wines. Thirdly, the importation of meat, milk and derivatives, from MERCOSUR, affected local production. The leather and footwear industry has also gone through a severe crisis, because of overvaluation, hindering exports, and the increase of internal competition with imported products.

Finally, the Southeast Region, where the largest share of industrial production is located and with a more diversified agenda. Not taking into account the automotive sector, previously analyzed, the Region faced competition with imported products in various segments: inputs, machinery and equipment, textile materials, clothes, foods, etc. There are some specific cases where the competition with imported products brought about a devastating effect. It is the case of the

textile industry of the Limeira-Americana region, with drastic reduction of production and employment and the closing of many plants.

5.2. The regional impact of the privatization process

The process of productive deconcentration witnessed since the seventies relied on a strong presence of the Federal State, through direct productive investment (petrochemical hubs, steel plants, fertilizer industries, among others), tax incentives (SUDENE, SUDAM, SUFRAMA, credit subsidies, etc.), and great infrastructure development (transportation, telecommunications, electricity), especially during the 2nd National Development Plan (Castro and Souza, 1985).

The political orientation of the State's actions was, partly, aimed at promoting productive deconcentration, as much towards recovering the economy of poor, not very dynamic regions, such as the Northeast, as towards the occupying the empty borders of the Midwest and North Regions of the country. These actions took place through federal and state policies, in combination and complementation, which were decisive in the process of industrial deconcentration, in the advances of the agricultural and mineral borders, in the rearrangement of the population, and the expansion of urban services.

The deep fiscal crisis, at federal and states levels, reducing the public investment capacity, and the changes in the concept of the State, in favor of privatization of state-owned companies and other services provided by the public sector, led the Brazilian Government to adopt privatizations.

Along the nineties, the country went through one of the fastest and broadest privatization processes known in world economic history, including various segments of the infrastructure.

Several negative consequences of this privatization process are clearly predictable, especially as regards infrastructure. If the privatizations had been carried out to unburden the State from those activities that are of interest to the private sector and, in turn, to strengthened public investments in the regions lagging behind, the

privatization process would have been beneficial to regional development. However, either due to the fiscal crisis or to the political-ideological orientation, what is being done is a mere withdrawal of the State, leaving the poor regions to fend for themselves and, consequently, worsening their relative situation. Since the privatizations happened mainly in the more developed regions, the possibility of modernization and expansion would increase the amount and quality of supply, facilitating the attraction of new investments for the region. In contrast, the poor or empty regions, left out of the privatization interests, would tend to increase the gap of infrastructure supply, contributing to the maintenance or increase of regional inequalities.

On the other hand, the ongoing structural changes and the absence of the State in terms of regional policies will surely contribute to the "market rationale" aggravating regional and social inequalities, bringing serious social and political consequences for the country. To make things worse, the Federal Government has been allowing a severe "fiscal war" among the States for the attraction of investments, which has corroded public finances, compromising future revenues, deviating relative prices and making actual donations to multinationals companies. In this war, the winners are the more developed states, with better location advantages and better financial and political situation. This will surely contribute to aggravate the Brazilian regional inequalities.

The level of regional and social inequalities have changed into a serious political problem and into regionalist pressures on the federal government, compelling it to take economic policy measures aimed at the development of the regions that are lagging behind, even as a precondition for the maintenance of the federative pact and the governance of the country.

5.3. The regional impacts of the technological changes and productive reorganization

Despite the Brazilian technological lag in relation to industrialized countries and others undergoing a fast industrialization process, in Brazil, one can observe a fast process of technological modernization. This process can be observed through the

great effort dedicated by the Federal and State Governments, by the academic, university and research systems, and by companies, in the creation of institutional and regional innovation systems (Cassiolato and Lastres, 1999); the results of productivity increase, of changes in the productive and managerial organization patterns and in the emergence of new industrial areas with strong presence of high technology industries. Among these industrial areas the following regions should be underscored: Campinas, São Carlos, and São Jose dos Campos, in the state of São Paulo; Santa Rita do Sapucaí / Pouso Alegre and Belo Horizonte, in Minas Gerais; Curitiba, in Paraná; Florianópolis, in Santa Catarina and Porto Alegre - Caxias do Sul, in Rio Grande do Sul.

Rio de Janeiro, hypothetically a good location for technologically modern activities, for the presence of a large academic-university system, modern research institutions, urban services and an industrial base, does not manage to spark them, perhaps due to the social climate unfavorable to business. The city of Campina Grande, in Paraíba, with a good university and research base, although dedicating great effort to the development of an micro-electronic / I.T. hub, has not reached expressive results, maybe due to the large distance from main markets, the absence of adjacent industries and other facilities required for the development of modern technology industries. In recent years, the Government of Bahia has been trying to create a computer science hub in Ilhéus, by means of heavy and diversified forms of incentives. Research carried out by the author, in 1999, identified the existence of 16 companies located in Ilhéus with a total of 685 jobs. Through interviews, it was concluded that there is no local integration, they are mere assemblies. There are no engineering schools in the region. The conclusion is that it is an artificial hub, similar to Manaus, whose survival and development are doubtful.

These characteristics can, in general terms, be extended to the other areas of the Brazilian Northeast. Great effort has been dedicated to several of them, such as Fortaleza, Recife, Salvador; however, with modest results. The new industrial projects that are being attracted to the Northeast Region are strongly influenced by cheap labor and tax incentives, with little local inter-industrial effect, such as the

textile, clothes and footwear industries. The recent decision of Ford to change the location of its new unit, from Rio Grande do Sul to Bahia, owing to political disagreements with the Government of Rio Grande do Sul and to the heavy incentives granted by the Federal Government and the Govern of the state of Bahia, is likely to create the conditions for a regional productive integration.

Manaus, although it has achieved a major increase in the production of electronic consumer goods of, watches, clocks, optical equipment and other light goods, constitutes only an assembly center, made possible by tax incentives, based on the importation of parts and components and without any local productive integration.

In this sense, our interpretation is that the technological changes in course will tend to strengthen the process of re-agglomeration in the Mid-South Region, especially in the cities with good location features, with highlight to medium-sized cities in the state of São Paulo, to the periphery of capitals and some medium-sized cities in the other states of the Mid-South Region.

5.4. The possible impacts of the planned investments in the Program for National Development and Integration Axes

The study called *Eixos Nacionais de Desenvolvimento e Integração* (National Development and Integration Axes), in its conclusion phase, will bring about great progress by abandoning the notion of isolated hubs or regions and seeking to establish development guidelines to create complementing and synergetic effects between physical and social infrastructure and productive, public and private activities, integrating and optimizing economic spaces and seeking the integration of the national economy.

As regards the advance of this conception and of the intentions expressed by its coordinators, in practice, the orientation of the work entails some implications which are contradictory to the intentions expressed and even with the idea of reducing regional inequalities in the country. In the first place, although the words used are development and integration, the regionalization established through the nine axes, the majority without any integration and aimed at linking producing regions to ports, has an strong export bias. Not that one should not encourage exports or take advantage of national potentials. However, considering the geographic, economic and population dimension of the country, one cannot expect an opening coefficient similar to that of small-sized countries, such as most countries in Eastern Europe and Asia. Thus, the priority should be national integration, in the physical-territorial, economic, social and political senses. Secondly, the work implies a certain denial of the perspective of integration of South America while, on the other hand, the strengthening and expansion of MERCOSUR is emphasized. All the axes point toward the Atlantic and none inland or to neighboring countries. Thirdly, there is no emphasis on the structural changes that contribute to the non-concentration of income (housing, sanitation, education). There is no clear definition of priorities. In the list of 365 programs there seems to be a certain illuminist vision, not taking into consideration that the regions or the projects compete among themselves. For example: modernization of the Port of Santos x Sepetiba; navigation of the São Francisco River x North South Railroad or expansion and improvement of the Belo Horizonte-Pirapora-Unaí branch. Since it is expected that most projects will be taken up by the private sector, the obvious selection is of those with greater yield prospects, which, in general, would happen in the more developed regions, possibly worsening the concentration. In this sense, a road bypass in the metropolitan area of São Paulo, however necessary, while reducing the transport gridlock, will end up strengthening the concentration. Fourth, although the importance of cities on the command of the economic space is clearer, the work left the cities outside the study, stopping at their doors. Thus, there is no coordination between the investments provided for in the study of the axes and the urban policies. Fifth, the current regional development instruments, institutions and policies are not compatible with the

guidelines proposed in the study, including how to ensure the compatibility and implementation of a regional development policy within the scenario of an open fiscal war among states. Sixth, the regional technological policy did not receive due attention, although it is well known that this is one of the main tools for regional development.

Thus, our conclusion is that the study of the axes and the guidelines of the Multi-Year Plan may worsen regional concentration in Brazil, or might not contribute to national integration or to productive and urban deconcentration.

6. Conclusion

1. The economic occupation of the Brazilian territory, scattered and disintegrated until the 20th century, evolved to strong economic concentration in Rio de Janeiro and São Paulo, as from then on;
2. As a result of the economic concentration process along more than a century, the economic and social inequalities among Brazilian states and macro-regions were heightened. In 1970, peak of the concentration, the per-capita income of the state of São Paulo was 11 times higher than Piauí's, and 5.3 times higher than the combination of the states of the Northeast. In that year, for an illiteracy rate lower than 20% in the states of Rio de Janeiro and São Paulo, the rate was around 60% in the states of the Northeast region;
3. The last decades have witnessed the onset of an economic deconcentration process, with a reduction of inequalities, which, however, remain high. The highlight was a reversion of the industrial polarization in the Metropolitan Areas of Rio de Janeiro and São Paulo. The first one had its participation in the value of industrial transformation reduced from 16% to 8%, between 1970 and 1999, and the second from 44% to 21%, in the same period. These changes are also reflected by a drastic fall in formal employment, especially in industry, in these metropolitan regions;
4. Along the last seven decades there has been a movement of the extensive agricultural and livestock-raising production (grains and meat). Initially to the states

of the South region, then to the Midwest, and finally towards the North region and the Northeastern *cerrados*. As a result, the participation of the Southeast, specially São Paulo's, in the value of the agricultural and livestock-raising production has been reduced.

In turn, in last the three decades there has been an intensification of agriculture and livestock raising activities in the more developed states, especially São Paulo, with the substitution of extensive activities (grains and meat), to more intensive activities (sugar cane, orange, horticulture, fruits, milk).

The movement of the extensive agricultural production influences migration movements and establishes dynamic integration with the border cities, inducing the establishment of agro-industries and diversified expansion of urban services.

The agricultural intensification in the more developed areas closer to large urban markets also leads to the expansion of agro-industries in these regions (sugar, alcohol, orange juice, foods, dairy products etc.).

As a new fact, the north of Minas Gerais and some northeastern states have been establishing areas of intensive and irrigated agriculture, especially fruits, opening new prospects for the poorest region of the country;

5. The movement of relative industrial deconcentration from the Metropolitan Areas of Rio de Janeiro and São Paulo that occurred as of the mid-sixties benefited, in a first phase, the majority of the states and regions of the country. However, the heavy industry (mechanical, electric, electronic, transport material and chemical) seems to be restricted to the macro-region going from the center of Minas Gerais to the northeast of Rio Grande do Sul, in the area we call the new industrial polygon. Because they have strong industrial ties, these industries tend to agglomerate in the more developed macro space, creating productive networks or webs, which translate into external economies, further strengthening the agglomeration. Moreover, these industries benefit from the best location factors of the Mid-South Region (infrastructure, market, labor market, university-academic and research systems, productive integration, etc.)

These characteristics prevent changes in the macro-space pattern of the Brazilian industry. This change could only occur with the emergence of a new technological industrial complex that would establish new location conditions, such as the example of the microelectronics and computer industry in California;

6. In this sense, the new dynamic industrial hubs are being established or developed in non-primary metropolises or medium-sized cities of the Mid-South Region, combining the reversion of the polarization of primary Metropolitan Areas (Rio de Janeiro and São Paulo) with the macro-spatial re-agglomeration in this region.

Because of such trend, the identification of thirteen meso-spaces with significant potential for industrial expansion shows that only two are in the Northeast (Salvador and Fortaleza), one in the Midwest (Goiânia- Anápolis) and the other ten in the Mid-South Region (Caxias- Gramado Canela - Porto Alegre; the coast of Santa Catarina and Vale do Itajaí; Curitiba, Londrina Apucarana- Maringá; Vale do Paraíba in São Paulo and Rio; Campinas; São Jose do Rio Preto – Ribeirão Preto; South of Minas Gerais; Belo Horizonte and Uberaba- Uberlândia);

7. Considering this trend, a series of light industries, predominantly textile, clothes and footwear, are being transferred to northeastern states, led by cheap labor, a varied range of incentives and some raw materials. Although they do not hold the strength and weight to modify the regional industrial pattern, they are important for the economic development of the Northeast;
8. The demographic and the urban growth confirm the regional trend of the economy. The degree of urbanization and the network of cities of the Mid-South Region increase. The medium-sized cities of consolidated agricultural regions and borders also grow. In the Northeast Region, large metropolises and other capitals grow, but the growth of medium-sized cities is low, indicating the weak internal integration of the regional economy. The alternative with the most potential is the exploitation of the coastal urban network for the development of light industrial and services activities, with emphasis on the tourist potential.

9. The main transformations in course, such as the external opening, the creation of MERCOSUR, the privatization process, the technological changes and the productive reorganization seem to reinforce the Brazilian regional pattern, getting in the way of a macro- spatial change and hampering the take off of the northeastern economy;
10. Finally, the set of projects within the National Development and Integration Axes, the Multi-Year Plan, in spite of their integration deconcentration aims, also have some flaws, such as the primary exporting bias and extreme emphasis on linking regions to ports, not considering cities etc. Moreover, the competition among projects and regions and the political power itself could result in the implementation of those located in regions with greater potential for growth, such as the São Paulo road bypass, further reinforcing concentration.

7. Elements for a Brazilian regional policy

Some guidelines are set out below, as suggestions and elements for discussion, for the formulation of a regional development policy for the country:

a) Establishment of a new regionalization for planning purposes, going beyond the current IBGE's division, establishing the macro, meso and micro hubs as a reference for the regional policy, similar to the European Union's current policy;

b) Centralization of budgetary resources a single fund, with allocation decision by the Congress, in order to prevent conflict among instruments and resources, often annulling each other;

c) Elimination of the "Fiscal War";

d) Adaptation of technological policies, according to economic characteristics and regional potentials;

e) Definition of an urban policy and its coordination with the other regional instruments and policies;

f) Coordination among the regional policies and their horizontalization in terms of environmental preservation;

g) Emphasis on national integration and integration with South America.

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