TERRITORIAL PLANNING AND LA PLATA BASIN BORDERS

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I ASPECTS OF TERRITORIAL AND DEMOGRAPHIC DYNAMICS IN THE SOUTHERN BORDER OF BRAZIL

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ABSTRACT

This article aims at analyzing the behavior of territorial and demographic dynamics in the southernmost federation unit of Brazil, Rio Grande do Sul State, and in neighboring countries, Uruguay and Argentina. Based on previous studies conducted for the State, in which the intensification of the effects of demographic transition and the emptying of the border region were verified, this article sought to identify similarities in neighboring countries and discuss the possible causes of these dynamics. Data analysis showed that the sharp drop in population growth also strongly affects Uruguay, where the population tends to move to the southern coastal fringe, in the departments of Maldonado, Canelones and San Jose. In Argentina, this trend is less intense, except for Misiones that has attracted population. The analysis shows that, both in the border with Uruguay as in the greatest part of Argentina, this dynamics is related to the lack of economic activity and of infrastructure, which have driven the population to the most dynamic and urbanized areas.

KEYWORDS Population dynamics, demographic transition, regional development, Southern border of Brazil.

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INTRODUCTION

The link between the emergence of the modern territorial State and the establishment of borders in Europe is recurrent in the bibliography on the subject, and is related to the need of the State delimiting the territory where its power is exercised. In this sense, it is important to affirm that the borders were built by the territory of the Nation-state. This concept of fixed borders appeared in the Modern Age, linked to the political needs of centralization of territorial power and to the development of a mercantile economy in Europe, as a counterpoint to the more diffuse and flexible medieval borders, a reflection of the decentralization of political power in the period (Badie, 1995). The formation of linear borders emerges with the modern State from the fourteenth and fifteenth centuries on, when the link between the State and the citizens becomes the territory, which is the subject of sovereignty (Raffestin, 1986).

In approaching the nation-state, Foucher (2009, p. 22), in one of his works, addresses an institutional concept of border:

Borders are territorial discontinuities, with the function of political marking. In this sense, they are institutions established by political decisions, designed or imposed, and administered by legal texts: the laws of a sovereign State within them, public international law as a common law of coexistence of States even when they are dissolved, because territorial treaties are the only ones by which the succession of State is automatic.

In another definition, Foucher (1991, p. 38) defines borders, in a broader sense, as elementary spatial structures, in a linear way, with a function of geopolitical discontinuity and marking, of reference on the registers of the real, the symbolic and the imaginary. The real refers to the exercise of sovereignty in its own modalities; the symbolic refers to the sense of belonging to a political community; and the imaginary refers to the relation with the other, with oneself, with its own history and with the founding myths.

In the case of the southern border of Brazil, an effective occupation of this territory by the Europeans occurred late, linked to the disputes between Spain and Portugal for Colonia de Sacramento in the eighteenth century. However, attempts to delimit this border only took place in the nineteenth century, with the

independence of Brazil¹, Argentina and Uruguay. In fact, the limits with Argentina were only consolidated in 1898, and with Uruguay, in the year 1909. Rio Grande do Sul State (RS) is located in the southern portion of Brazil, including the country's border with Argentina and Uruguay, as shown in Figure 1.

Figure 1. Map of the limits of Brazil with Argentina and Uruguay.

The differences in the regions of border with Uruguay and Argentina are in great part due to the physical characteristics of the area, as well as to the colonization history. In the border between Brazil and Uruguay, the integration characteristics of the dry land border and the joint socioeconomic development contributed for a

¹ Magnoli (1997, p. 242) states that the predominant period of delimitation of the Brazilian borders is that of the Empire, contrary to what the “myth” of the antiquity of Brazilian borders defends.

similar productive structure on both sides of the border. The non-establishment of the borders of the Uruguayan territory soon after the independence of that country is related to political identities still in formation, because in this period there was a common identity, indistinct from the one of Brazil. According to Caetano (2011, p.171), referring to the period of Uruguayan independence:

Proliferaban por entonces, como ha sido estudiado largamente, una multiplicidad de identidades que iban desde distintas formas que referían a las nociones de lo provincial (“oriental”, “porteño”, “cordobés”), lo regional (“argentinos”, entendidos por entonces como rioplatenses) y aún lo continental (“americanos” o la persistente idea de “españoles americanos”). Los grandes conflictos y procesos sociales se dirimían en el territorio de la región. No existían fronteras: ni jurídicas (no los preveía por ejemplo la primera Constitución de 1830), ni políticas (los bandos argentinos e orientales, unitarios y federales y blancos y colorados, se asociaban permanentemente entre sí, así como también con los grupos de la conflictiva zona sur del Imperio del Brasil), ni económicas (el gran negocio de la región era el llamado comercio de tránsito, con los grandes ríos como hidrovías disponibles y disputadas) ni tampoco sociodemográficas (las incipientes configuraciones sociales y las primeras cadenas inmigratorias se asociaban a poblaciones que se desplegaban y radicaban con muy vagos sentimientos de límites).²

This predominance of cross-border characteristics between Brazil and Uruguay prevailed over a long period, until the definitive demarcation of the border in the 1920s, resulting in a joint socioeconomic development in the region. In studying the

² At that time, as has been studied at length, a multiplicity of identities proliferated, ranging from different forms that referred to the notions of provincial (“oriental”, “porteño”, “cordobés”), regional (“Argentines”, then considered as Rioplatenses) and even continental (“Americans” or the persistent idea of “American Spaniards”). The great conflicts and social processes were settled in the territory of the region. There were no frontiers: neither juridical (not foreseen in the first Constitution of 1830), nor political (the groups of Argentinean and Eastern, unitarian and federal, and blancos and colorados were permanently associated with each other, as well as with the groups of the conflict southern zone of the Empire of Brazil), nor economic (the great business of the region was the so-called transit trade, using the big rivers as available and disputed waterways) nor even sociodemographic (the incipient social configurations and the first immigration chains were associated with populations that were deployed and settled with very vague notions of limits.).

border scenarios of Peru, Cuisinier-Raynal (2001) describes five unique situations³, including the concept of Synapse that seems to fit the border between Brazil and Uruguay, with an intense exchange rate between the populations of both countries, and strong support from contiguous states.

Broadly speaking, it may be stated that, on the Brazilian side, rice crops in the flood plains of rivers and cattle and sheep breeding predominate. On the Uruguayan side, besides cattle and sheep breeding, forestry also stands out. The economic structure of the region is based on agriculture in medium and large estates, which does not favor the transfer of resources from trade of agricultural products to industry. Besides, there were no significant changes in the productive sector, with industry remaining linked to a traditional base and slow incorporation of technology.

In the border between Brazil and Argentina, the difficulties of interaction caused by the barrier represented by Uruguay River hinder a greater socioeconomic relationship. Based on the Cuisinier-Raynal typology (2001), it may be said that this border has some characteristics of Margins (Marges), with no major private contacts between border populations and State investments in infrastructure and border cooperation, and Buffer zones (Marche), especially in the northwest of Rio Grande do Sul, where cross-border relationships are sporadic and made by small roads, and also where the States have created natural parks, protected areas or reserved zones.

The only two road links between both countries occur through the cities of São Borja-Santo Tomé and Uruguaiana-Paso de los Libres, since there are no bridges in the northwest of Rio Grande do Sul State. In the Brazilian side of the border, rice crops and cattle and sheep breeding predominate at south; and soybean, corn, wheat and cassava crops, as well as cattle and swine breeding predominate at north. Also, the presence of industry of agricultural machinery and tools stands out. On the Argentine side, besides cattle breeding, rice, soy, forestry and yerba-mate stand out. On both sides of the northern Brazilian-Argentine border, the tourism related to natural and historical characteristics of the region also predominates, linked to the Jesuit Missions, established in Rio Grande do Sul from 1626 on.

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³ Namely: Margins (Marges); Buffer-zones (Marches), Fronts (Fronts), Synapses (Synapses) and Capillaries (Capillaires).

Concerning demography, the recent prospective study, RS 2030: Agenda de Desenvolvimento Territorial (RS 2030: Territorial Development Agenda; Rio Grande do Sul, 2014), has made a comprehensive reflection about the current trend of demographic emptying of the international border region of Rio Grande do Sul. The study pointed out several very serious repercussions on the economic and social dynamics of the region and the State as a whole.

This article envisages to identify similarities in the processes that occurred in neighboring countries and to discuss the possible causes of these dynamics. Therefore, it presents a comparative analysis of two interrelated processes that may worsen the socioeconomic situation of these regions: the aging of the border population combined with the loss of labor for regions with greater socioeconomic development.

Based on these aspects, this article also seeks to point out, with basis on previous studies (Rio Grande do Sul, 2012; Bertê et al, 2016), some possible reasons why this movement of population loss has become so pronounced in recent years. The cross-border and multi-scalar analysis allowed identifying the position of Rio Grande do Sul concerning the Demographic Transition⁴ in relation to other territorial units, as well as factors in common with neighboring countries that can stimulate the exit of population from the border regions.

As methodological procedures, population data provided by the governments of the three countries were used, and organized according to the age groups from 0 to 14, from 15 to 64 and over 65 years. In addition, the annual population growth rates of the inter-census periods were compared in order to identify possible population losses. The methodology covered the compared areas defined by Rückert, Carneiro Filho and Uebel (2015) for MERCOSUR. Finally, an analysis of economic factors and transport infrastructure that may be contributing to this regional scenario of population losses is carried out.

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⁴ Demographic transition is a dynamic phenomenon that affects populations over time, in which, at first, there is an increase in population growth rates (a demographic explosion), but with the drop in the birth rate, population growth rate decreases over time, tending towards stability or, even, reduction.

Figure 2. Demographic Density of RS – 2010.

DEMOGRAPHIC DYNAMICS OF RIO GRANDE DO SUL STATE AND ITS SIMILARITIES WITH URUGUAY AND ARGENTINA

Recent studies, published in the series RS 2030: Agenda de Desenvolvimento Territorial, elaborated using data from population censuses of IBGE – Instituto Brasileiro de Geografia e Estatística (Brazilian Institute of Geography and Statistics), revealed some demographic tendencies that have been conforming in Rio Grande do Sul State. These movements, which had already been detected in previous researches and censuses, became even more evident from the Census 2010 on (Jardim; Barcellos, 2011; Cargnin et al., 2014).

One of the first tendencies observed, which also started in the 1970s, was the significant increase in urban population rates. It must be taken into consideration that urbanization is a process that takes place in global scale. In Rio Grande do Sul State, the movement meant an important population shift to RMPA – Região Metropolitana de Porto Alegre (Porto Alegre Metropolitan Region). It also represented a significant growth of cities near traditional urban centers, forming the current urban network. Figure 2 shows the demographic density of the municipalities of Rio Grande do Sul in 2010, which has a large population concentration in the State northeast (next page).

Another more recent trend shows a relationship with the phenomenon known as demographic transition. The reduction of the population growth rate and the increase of life expectancy tend to cause an inversion in the traditional pattern of the demographic pyramid, with population increase in older age groups.

The population of Rio Grande do Sul, that reached the 10.7 million mark in 2010, representing 5.6% of the Brazilian population, with a declining trend in this participation, has been suffering the impacts of this transition. After a high population growth in the 1950s, when growth rates reached 2.59%, the pace decreased progressively, reaching the 1980s with an average annual growth rate around 1.55%. In the 1990s, these values were reduced to 1.48% and, in 2000, they reached 1.21%. Data of the last Census indicate a further decline in this growth pace, reaching a rate of 0.49% p.a., lower than the one of 1.17% of the Country, placing Rio Grande do Sul as the Brazilian state whose population had the lowest growth in the decade.

The major factor in this process is the decline in the fertility rate presented by the State. The average number of children per woman in 2010 was 1.8, a figure which is already below the population replacement rate⁵ that is 2 children.

The decline in the fertility rate, as well as in mortality, besides the increase in life expectancy⁶ directly affects the population age structure. In the case of life expectancy, Rio Grande do Sul, for many years, differs among Brazilian states, with one of the highest life expectations of the Country. The analysis of the period 1970-

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⁵ Population replacement rate is the average number of children that women between 15 and 49 years of age need to have in order that the population remains constant.

⁶ Life expectancy at birth is the average number of years that a group of individuals born at the same year are expected to live, if the mortality rates identified in the year of observation are steady since their birth.

2010 indicates that there was an increase of more than eight years in the state life expectancy, from 67.8 to 75.9 years in the last three decades, as may be observed in Figure 3.

Figure 3. Population distribution by age and gender, RS – 1970, 2010 and 2030.

Source: Rio Grande do Sul State Government, 2014.

The results of the projections made by FEE – Fundação de Economia e Estatística (Economics and Statistics Foundation) until the year 2050 must be added to these data, which reveal some aspects that demand attention, shown in Figure 4. A first aspect refers to the fact that Rio Grande do Sul will reach a maximum contingent of 11 million inhabitants in 2025 and, from then on, will undergo a gradual reduction of its absolute population, totaling 9.7 million in the year 2050. Rio Grande do Sul should be one of the first states to achieve a negative growth rate in Brazil, starting a gradual process of stabilization and reduction of its population.

There is a great disparity when this projection is analyzed by age. The contingent of population between 0 and 14 years, which has already shown a reduction between the years 2000 and 2010, should continue to fall. The number of people aged between 15 and 64 years will continue to increase and reach a maximum contingent between 2015 and 2020 and, from then on, it will begin a process of reduction. Finally, the population older than 65 will continue to increase in next decades. This kind of population growth behavior indicates that the State is undergoing a

Figure 4. Population of RS, by age group 2015 to 2050 (in thousand inhabitants).

Source: Rio Grande do Sul State Government, 2014.

demographic transition, in which the weight of the population considered inactive (those from 0 to 14 years plus those older than 65 years) divided by the working population (from 14 to 65 years) is still smaller.

If this projection for the next decades is confirmed, Rio Grande do Sul is in the height of this proportion since, from the next decade on, the relationship between inactive and active would begin to grow. Therefore, the State is experiencing the so-called Demographic Bonus, i.e., a period in which the active population is proportionally more numerous than the inactive one. Such condition indicates an advantage for development, since the most numerous active population creates better conditions for production, savings and investment. However, it is important to consider that an ageing population in coming decades involves several challenges to society and the government, mainly in issues related to health and welfare.

Extending this analysis to neighboring countries, based on data from the Censuses of Brazil (2010)⁷, Argentina⁸ (2010) and Uruguay⁹ (2011), it is possible

⁷ Data from IBGE – Instituto Brasileiro de Geografia e Estatística (Brazilian Institute of Geography and Statistics).

⁸ Data from INDEC – Instituto Nacional de Estadística y Censos.

⁹ Data from INE – Instituto Nacional de Estadística.

to identify how the demographic transition is manifested in the surrounding administrative units, causing problems in the border area. For comparison purposes, the methodology used by Rückert, Carneiro Filho and Uebel (2015) was used. Based on the Nomenclature of Territorial Units for Statistics of the European Unit (NUTS), they defined comparable areas for MERCOSUR countries, according to the following levels.

Table I

Levels of space division and number of units per country

Country	Level II	Level III
Argentina	Provinces (24)	Departments or <i>Partidos</i> (501)
Brazil	States (27)	Geographic Micro-regions (558)
Paraguay	East and West (2)	Departments (18)
Uruguay	Country	Departments (19)
Bolivia	Departments (9)	Provinces (112)
Chile	Regions (13)	Provinces (51)

Source: Rückert, Pereira e Uebel, 2015.

In this text, only the administrative units of Brazil, Argentina and Uruguay were assessed in order to verify the status of Rio Grande do Sul State and its border region in relation to the neighboring territories. It is also important to state that, for Level III of the Brazilian territory, specifically in the case of Rio Grande do Sul, the scale of COREDEs¹⁰ will be used, since it is a reference of regionalization for governmental planning of the State.

Therefore, the levels of analysis for Argentina, Brazil and Uruguay were, respectively: provinces, states and country, for Level II; and Departments or Partidos, COREDEs and Departments, for Level III, as may be observed in Table II¹¹.

¹⁰ COREDEs – Conselhos Regionais de Desenvolvimento (Regional Councils of Development) were established by the State Government through State Law 10,283, dated Oct 17, 1994. They are a permanent and autonomous forum for the discussion and decision of policies and actions that envisage regional development. At present the State has 28 COREDEs.

¹¹ Level I was not represented by country because Uruguay was already classified in Level II, due to the disproportion of the population of that country in relation to Argentina and Brazil.

Table 2

Levels of space division and number of units per country

Country	Level II	Level III
Argentina	Provinces (24)	Departments or <i>Partidos</i> (501)
Brazil	States (27)	COREDEs (28)
Uruguay	Country	Department (19)

Source: Adapted from Rückert, Pereira e Uebel, 2015.

Concerning the population in working age, Rio Grande do Sul State is located in southern Brazil which, along with the central region, has the highest percentage of population in this age group. The same occurs comparatively with the three countries studied. In 2010, the State had 69.85% of its population in the ages between 15 and 64 years, only being surpassed by the states of Rio de Janeiro (69.90%), São Paulo (70.69%), Santa Catarina (71.26%) and the Federal District (71.36). The national averages for Brazil (2010), Argentina (2010) and Uruguay (2011) are, respectively, 68.54%, 64.25% and 64.10%. Therefore, the presence of a Demographic Bonus period in Rio Grande do Sul is emphasized. Figure 5 shows the percentage of population between 15 and 64 years for Level II.

The analysis of data for comparative areas in Level III disaggregates this information, reinforcing the idea that Rio Grande do Sul would be close to its peak of effectiveness of the Demographic Bonus. It may noticed that the highest percentages of population between 15 and 64 years are located in the northeast of the State and in some industrial regions in the central-north, which have received population in working age from the border regions of RS. In Argentina and Uruguay, the percentages of population for this age group are much lower than those found in Rio Grande do Sul State. Figure 6 shows the percentage of population from 15 to 64 years for Level III based on the censuses of the three countries.

Regarding the population in advanced age, older than 65 years of age, it is observed that, for comparable areas Level II, Ciudad Autónoma de Buenos Aires had the highest concentration, with 16.40%, followed by Uruguay, with 14.10%. High percentages are also observed in the Argentine provinces of Santa Fé (11.80%), Córdoba (11.20%) and La Pampa (11.2%), besides others from central-eastern region of Argentina, as shown in Figure 7.

Figure 5. Percentage of population from 15 to 64 years of age in Brazilian states, Argentine provinces and Uruguay – Comparable areas Level II.

Rio Grande do Sul presented a percentage of 9.30% elderly, above the Brazilian average (7.38%) and the highest of the Country, although below the averages of Argentina and Uruguay. However, in coming years, the State tends to have averages increasingly similar to those of these countries, due to the current high percentage of population in working age, and a more intense ageing process of the population when compared to the other states of the Federation.

Figure 8 shows the concentration of elderly population for comparable areas of Level III, with emphasis for the departments of southern Uruguay, especially Lavalleya (16.70%) and Colonia (16%). COREDEs with the highest percentages of

Figure 6. Percentage of population between 15 and 64 years in State's COREDEs and Argentine and Uruguayan departments – Comparable areas Level III.

elderly population in Rio Grande do Sul presented recent population losses, mainly of population in working age, particularly Centro (12.20% of the elderly), Vale do Jaguari (11.83%) and Fronteira Noroeste (11.62%), located on the Brazilian Borderland.

In general, it is noted a population ageing trend in the border area analyzed, and in Uruguay, where the demographic transition process is already consolidated, the percentages are higher. Most of the Argentine departments, as well as of the Regional Councils of Development tend to follow the same trend.

Concerning the younger age group, from 0 to 14 years, in total population, the north of Brazil and of Argentina concentrate the highest percentages. In Brazil,

Figure 7. Percentage of population older than 65 years in Brazilian states, Argentine provinces and in Uruguay – Comparable areas Level II.

the states of Acre (33.70%), Amazonas (33.18%), Amapá (33.14%) and Roraima (33.05%) stand out. In Argentina, the highest percentages are in the provinces of Misiones (32.50%) and Santiago del Estero (31.60%). Ciudad Autónoma de Buenos Aires had the lowest percentage, with 16.30%, as shown in Figure 9.

Data from Census 2010 showed that Rio Grande do Sul had a share of only 20.85% young people in its population, a percentage that is below Brazilian, Argentine and Uruguayan averages. This low participation of children indicates that RS will face significant difficulties in replacing its current working age population

The limit with Argentina represents an important rupture in demographic structure, since San Pedro (40.10%), General Manuel Belgrano (38.5%) and

Figure 8 Percentage of population older than 65 years in COREDEs and Argentine and Uruguayan departments – Comparable areas Level III.

Guarani (37.6%) departments, in Misiones province, have high percentages of population below 15 years of age. The same applies to the whole province of Corrientes, as shown in Figure 10.

For the analysis of average annual population growth rates, different periods were considered for the three countries, due to the limitations imposed by the temporality of the censuses. For Brazil, IBGE data for the period 2000-2010 were used. For Argentina, INDEC data were extracted for the period 2001-2010. As for Uruguay, INE data for the period 2004-2011 were used. The results are shown in Figure 11.

Figure 9. Percentage of population from 0 to 14 years of age in Brazilian states, Argentine provinces and Uruguay – Comparable areas Level II.

According to Figure 11, considering an analysis for Level II, Rio Grande do Sul, Uruguay and Ciudad Autónoma de Buenos Aires constitute a core of low population growth in the area. It is also worth noticing that the highest population growth rates for the three countries occurred in peripheral regions, in Region North of Brazil and in southern Argentina.

Considering the chosen areas, it may be observed a population growth of 0.20% p.a. in Uruguay, 0.49% p.a. in Rio Grande do Sul and, respectively, 0.71% p.a., 0.72% p.a., and 1.47% p.a. in the Argentine provinces of Corrientes, Entre Rios and Misiones. Rio Grande do Sul was the Brazilian state whose population had

Figure 10. Percentage of population from 0 to 14 years of age in COREDEs and Argentine and Uruguayan departments – Comparable areas Level III.

the lowest growth in the period. Uruguay had an even lower population growth, whereas Argentine provinces presented higher growth rates than those of Rio Grande do Sul and Uruguay. The analysis for Level III is shown in Figure 12.

Figure 12 identifies in detail this core of low population growth that is formed between northern Rio Grande do Sul and the interior of Uruguay, with negative growth figures in the periods considered. In Uruguay, only six departments record positive average annual rate for the period 2004-2011: Maldonado (2.19% p.a.), Canelones (0.96% p.a.), San José (0.68% p.a.), Colonia (0.68% p.a.) and Río Negro and Salto, both with 0.20% p.a. Except for the last two, all are located near the Capital Montevideo, a region that concentrates more than half of the Uruguayan

Figure 11. Average annual population growth rate in Brazilian states, Argentine provinces and Uruguay – Comparable areas Level II.

population. The other thirteen departments have lost absolute population, with rates ranging between -0.01% p.a., in Paysandu, and -0.85% p.a., in Artigas.

In Argentina, the demographic situation in the border region with Rio Grande do Sul was heavily influenced by government policy. Settlement plans, incentives and constraints that occurred in some historical moments eventually had a significant impact on the border region with Brazil, both in Corrientes and in Misiones. It should be noted that, especially in the case of Misiones, population growth was heavily impacted by the migration of Brazilians, who settled there in an expressive amount between the decades of 1950 and 1970. In departments as San Pedro and Manoel Belgrano, the estimates show that 70% of the inhabitants are Brazilian or

Figure 12. Average annual population growth rate in COREDEs and Argentine and Uruguayan departments – Comparable areas Level III.

children of Brazilians, who settled there either because of the political instability experienced by Brazil during the military dictatorship, or by the search for new agricultural frontiers. At present, although these movements have diminished, these departments are still impacted by descendants of those immigrants (Ferrari, 2014).

Between 2001 and 2010, although some border departments of Argentina, when compared to the departments of Uruguay and to COREDEs in Rio Grande do Sul, presented higher levels of population growth, the provinces to which they belong, mainly Corrientes and Entre Ríos, had low population growth in relation to most other provinces in Argentine territory. Especially when compared to southern Argentina, which has been helped by incentives of government policies.

The geographic region that occupies the borders of the north, west and part of the south of Rio Grande do Sul is characterized by a process of population emptying. COREDEs Celeiro, Fronteira Noroeste, Missões and Fronteira Oeste presented, in the period 2000-2010, negative population growth rates that ranged between -0,57% p.a. and -0,33% p.a.

In the north, on the border with Argentina – COREDEs Celeiro, Fronteira Noroeste and Missões – the region is characterized by the presence of a large share of the population living in rural areas, which in many cases is still close to 50% of the total. Such population, especially the younger one, tends to migrate to more prosperous urban centers in search of work. Whereas in COREDE Fronteira Oeste, close to Uruguay, population loss is mostly associated to the population already living in the cities, where there are more than 90% of the inhabitants. Further south, Campanha region, in the border with Uruguay, although presenting a positive rate, had a low increase, only 0.04% p.a.

As in Uruguay, the emptying of these regions is opposed to others of greater economic dynamism and population concentration. Therefore, in the case of RS, a higher population concentration is verified in the eastern COREDEs, which polarize employment, workforce training and health services, consequently prone to a greater development.

Thus, it may be observed that migratory movements responsible for the decline of population in these border areas occur within the respective countries. Cross-border population movements are still of little significance. These cross-border movements tend to be intensified in the analysis of next censuses due to the entry into force of the Agreement on Residence for Nationals of States Parties of MERCOSUR, which has been bilateralized by Brazil and Uruguay on October 26, 2006. This agreement allows that the applicant be considered a permanent citizen two years after his/her legalization in the country (Lemos, 2013, p. 172).

SOME ECONOMIC AND TRANSPORT INFRASTRUCTURE ASPECTS OF THE BORDER OF RIO GRANDE DO SUL

In Rio Grande do Sul, some features of the international border have significant influence on migratory movements towards the east of the State. Some aspects such as lack of integration of its infrastructure and economic characteristics do not

contribute for the permanence of the border population in its place of origin.

In the border of Brazil and Uruguay, economic activities are dominated on both sides by extensive cattle breeding and rice cultivation. In the Uruguayan territory, forestry also stands out. Production of milk and fruit are common on both sides, and the last one has been recently introduced on the Brazilian side.

On the border with Argentina, the Brazilian side is more dynamic, with grain production and a well-structured agribusiness, with emphasis for the segment of agricultural machinery and implements. On the Argentine side, that comprises the provinces of Corrientes and Misiones, forestry dominates, and also breeding activities, although with low participation in the total production of the country.

Thus, the border region of Rio Grande do Sul is dominated by agricultural production, with middle and large estates and low incorporation of technology in the south, and small estates in the north, which also require greater dynamism. These economic characteristics are important for the population emptying process observed, since the largest economic concentration of the State is located in the eastern portion of Rio Grande do Sul, represented by Porto Alegre-Caxias do Sul axis.

To these factors are added the infrastructural ones. The articulation between Rio Grande do Sul and these countries occurs through the main modes: road, air, rail and water. Road transport is the one with more connections. In Rio Grande do Sul, these connections are made by BR-116, BR-101, BR-290 and BR-285 roads, according to Figure 13.

BR-116 enters the State by the municipality of Vacaria, through Caxias do Sul, Canoas, Pelotas and Jaguarão/Rio Branco. BR-101 crosses the State in north/south direction, in the coastal region, being interrupted, between the municipalities of São José do Norte and Rio Grande, by the channel that connects Patos Lagoon with the Atlantic Ocean, and from the municipality of Rio Grande it continues until Chuí/Chuy. BR-290 and BR-285 connect the eastern part of Rio Grande do Sul to Argentina and Uruguay, and BR-290 goes from RMPA –Região Metropolitana de Porto Alegre (Porto Alegre Metropolitan Region), until Uruguiana/Paso de los Libres, also connecting, through BR-180, the cities of Santana do Livramento and Rivera. BR-285 connects BR-116, from Vacaria until São Borja/Santo Tomé, from where it goes to Itaqui/Alvear, Uruguiana/Paso de Los Libres, and Barra do Quaraí/Bella Unión, by BR-472 (Rio Grande do Sul, 2012). However, the absence of road links is observed in the northwest of the State, on the border with Argentina0.

Figure 13. Road infrastructure and connections with other modes in the border region of RS

The main airway connections are between the airports of Porto Alegre, Montevideo and Buenos Aires. Whereas railway connections are organized through logistic platforms located in the municipalities of Santana do Livramento, Uruguai and São Borja. Nevertheless, it may be observed that several of these connections are deactivated, as in the case of the rail branch Cacequi-Santana do Livramento. Furthermore, it may be noted that the differences in gauges between Brazilian railways and those of their neighbors hamper greater integration by this mode.

In the waterway transport mode, the main connection is by coastal shipping between the ports of Buenos Aires, Montevideo, Rio Grande and Porto Alegre,

and the Port of Rio Grande is the one with greater importance and potential for expansion. MERCOSUR Waterway, that passes through Jacuí, Taquari, Caí, Sinos, Gravataí, Camaquã and Jaguarão rivers, connecting with Patos Lagoon through Guaíba Lake, continuing through São Gonçalo Channel and Mirim Lake, presents a great potential for infrastructure integration between Brazil and Uruguay.

Therefore, as pointed out in the study *Perfis Socioeconômicos dos COREDEs* (Socioeconomic Profiles of COREDEs – Bertê et al., 2016), mainly the northwestern region of Rio Grande do Sul has a scarcity of transport infrastructure. This characteristic hinders the flow of local production, predominantly generated in small farms, contributing to its loss of competitiveness. The economic repercussions of the lack of infrastructure in this region may contribute to the observed population losses.

From the viewpoint of integration on a local scale, the most relevant factor is the existence of a significant network of twin-cities that characterizes the border of Rio Grande do Sul¹². The ten cities that form this network are small urban agglomerations, connected to the large axis Buenos Aires/São Paulo, having as intermediary hubs Porto Alegre and Montevideo. They have a local integration that can be increased, as occurred with the creation of binational technical schools, in Santana do Livramento and Rivera, with the joint sanitation plan of Aceguá, in Brazil, and Acegua, in Uruguay, and with the Agreement for Permit of Residence, Study and Work, in force in the localities in the range of up to 20 kilometers on both sides of the Brazilian-Uruguayan border (Lemos, 2013).

Therefore, besides the economic factors linked to demographic issues and the consequent population emptying, infrastructure characteristics are also relevant. In the border with Uruguay, the dry border revives this issue. Whereas in the border with Argentina, the existence of the physical barrier represented by Uruguay River deeply hampers a greater dynamics in the border integration.

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12 Twin-Cities: Chuí-Chuy; Jaguarão-Rio Branco; Aceguá-Acegua; Santana do Livramento-Rivera; Quaraí-Artigas; Barra do Quaraí-Bella Unión on the border of Rio Grande do Sul and Uruguai; and Uruguaiana-Passo de los Libres; Itaqui-Alvear; São Borja-Santo Tomé, Porto Xavier-San Javier and Porto Mauá-Alba Posse on the border of Rio Grande do Sul and Argentina.

FINAL CONSIDERATIONS

The data analysis showed that, save for the specifics of each case, the demographic dynamics prevailing on the Brazilian side are similar to Argentine and Uruguayan ones. Although there are variations in the economic structure on the different sides of the border, all are marked by low demographic density and lack of economic dynamism. These characteristics, especially in the border of the State and Uruguay, are enhanced by the combination of elements as population ageing, and high emigration and low fertility rates.

According to the analysis, Rio Grande do Sul and its border region are in an intermediate position regarding the Demographic Transition process. If other Brazilian states and provinces of the Argentine border are considered, there is a less advanced stage of changes in the population profile, while in Uruguay this situation is already similar to that of developed countries, with an already aged population and low birth rates.

This situation requires special attention, especially from the State, which must propose policies so that this rupture does not generate negative socioeconomic effects. Policies aimed at the aging population and a new approach on early childhood and fundamental education are essential aspects in this new reality.

Therefore, it should be noticed that there are already long-term studies carried out by Rio Grande do Sul State Secretariat of Planning, Governance and Management – Futuro RS: Agenda de Desenvolvimento (Future RS: Development Agenda – Rio Grande do Sul, 2016) that envisage to provide the basis for public policies concerning this new demographic profile.

Regarding population growth, on the Argentine side, the province of Misiones differs from this characteristic. In the case of San Pedro and Manoel Belgrano departments, growth was historically associated to the migration of Brazilians in search of new agricultural frontiers. Whereas the south of this province is linked to the demographic policy of Argentine government, which took place from the 1980s on.

In Uruguay, a population movement in the north-south direction may be observed, towards the departments near Montevideo. This movement seems to occur due to similar factors to those of the southern border of Rio Grande do Sul,

such as economic dominance of agriculture of middle and large sized estates, with slow incorporation of technology, besides low industrial development. However, more detailed studies on the similarities between economic structures of the border region between Brazil and Uruguay are still required.

In Rio Grande do Sul, the dominant population movement is in west-east direction, with the population leaving the border region. In the south, the aforementioned economic structure contributes for these movements of population departure. In the border with Argentina, mainly in the northwest, an agriculture structure of small and middle sized estates predominates, what also seems to offer little appeal to the settlement of the population. However, the region of Santa Rosa has a very dynamic industry of agriculture machinery and implements.

Besides the economic factors connected to demographic emptying, lack of infrastructure is also significant, mainly in the northwest region of Rio Grande do Sul. The difficulties of integration with Argentina, as well as the relative isolation of that region also influence the demographic dynamics observed.

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