



# Small cities, territorial dynamics and changes in the urban network of the Vales Region, Rio Grande do Sul, Brazil

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# Abstract

The role of small cities is analyzed in the context of urban and territorial dynamics and the changes that occurred in the urban network of the Vales Region, in the State of Rio Grande do Sul, Brazil. Methodologically, secondary data from IBGE studies on Regions of Influence of Cities (REGIC) are used, collected between 1966 and 2018. The urban network is understood as the articulated set of urban centers through spatial relationships and interactions carried out through material and immaterial flows. It is possible to see that the spatial configuration and functioning dynamics of the urban network in the Vales Region reflect the limited territorial division of labor existing in most of the regional territory, on the one hand, and result from the intense territorial fragmentation promoted by the process of municipal emancipation, on the other hand. Representing the majority of cities in the regional urban network, small cities fulfil basic functions and immediately serve the municipal population, in addition to playing an important role in structuring the regional urban network. Some of them have expanded their regional centrality and stood out in the urban network through the public territorial management they carry out and the specialized private services they provide in the region resulting from their urbanization processes, conditioned by the dynamics of regional development of tobacco agro-industrial activities and the production of pork and chicken. The regional capitals of Santa Cruz do Sul and Lajeado also stand out, as they mediate flows between the metropolis of Porto Alegre and local centers, and because of the central position they occupy in the regional urban network.

**Keywords:** Small cities. Regional urban network. Territorial division of labor. Municipal emancipation. Vales Region.



# Cidades pequenas, dinâmicas territoriais e mudanças na rede urbana da Região dos Vales-Rio Grande do Sul-Brasil

#### Resumo

Analisa-se o papel das cidades pequenas no contexto das dinâmicas urbanas e territoriais e das mudanças que ocorreram na rede urbana da Região do Vales, no Estado do Rio Grande do Sul, Brasil. Metodologicamente utiliza-se dados secundários dos estudos do IBGE sobre Regiões de Influência das Cidades (REGIC), elaborados entre 1966 e 2018. Entende-se a rede urbana como o conjunto articulado de centros urbanos através de relações e interações espaciais realizadas através de fluxos materiais e imateriais. Observa-se que a configuração espacial e dinâmica de funcionamento da rede urbana na Região dos Vales, refletem a limitada divisão territorial do trabalho existente na maior parte do território regional, de um lado, e decorrem da intensa fragmentação territorial promovida pelo processo de emancipações municipais, de outro lado. Representando a maioria das cidades da rede urbana regional, as cidades pequenas desempenham funções básicas e de imediato atendimento à população municipal e apresentam importante papel na estruturação da rede urbana regional. Algumas delas, têm ampliado a sua centralidade regional e se destacado na rede urbana através da gestão territorial pública que exercem e dos serviços privados especializados que ofertam na região decorrente dos seus processos de urbanização, condicionados pela dinâmica de desenvolvimento regional das atividades agroindustriais do tabaco e da produção de carne suína e de frango. Destacam-se também as capitais regionais de Santa Cruz do Sul e Lajeado, por exercerem intermediação de fluxos entre a metrópole de Porto Alegre e os centros locais e pela posição central que ocupam na rede urbana regional. Palavras-chave: Cidades pequenas. Rede urbana regional. Divisão territorial do trabalho. Emancipações municipais. Região dos Vales.

# Pequeñas ciudades, dinámicas territoriales y cambios en la red urbana de la Región de Vales-Rio Grande do Sul-Brasil

#### Resumen

Se analiza el papel de las pequeñas ciudades en el contexto de las dinámicas urbanas y territoriales y los cambios ocurridos en la trama urbana de la Región de Vales, en el Estado de Rio Grande do Sul, Brasil. Metodológicamente, se utilizan datos secundarios de los estudios del IBGE sobre Regiones de Influencia de las Ciudades (REGIC), elaborados entre 1966 y 2018. La red urbana se entiende como el conjunto articulado de centros urbanos a través de relaciones e interacciones espaciales realizadas a través de flujos materiales e inmateriales. Se observa que la configuración espacial y la dinámica de funcionamiento de la red urbana en la Región Vales, reflejan la limitada división territorial del trabajo existente en la mayor parte del territorio regional, por un lado, y resultan de la intensa fragmentación territorial promovida por el proceso de emancipaciones municipales, por otro lado. Representando a la mayoría de las ciudades de la red urbana regional, las pequeñas ciudades cumplen funciones básicas y sirven inmediatamente a la población municipal y juegan un papel importante en la estructuración de la red urbana regional. Algunas de ellas han incrementado su centralidad regional y se han destacado en el tejido urbano a través de la gestión pública territorial que ejercen y los servicios privados especializados que ofrecen en la región debido a sus procesos de urbanización, condicionados por la dinámica de desarrollo regional de las actividades agroindustriales de tabaco y producción de carne de cerdo y de pollo. También se destacan las capitales regionales de Santa Cruz do Sul y Lajeado, por mediar flujos entre la metrópolis de Porto Alegre y los centros locales y por la posición central que ocupan en la red urbana regional.

**Palabras clave:** Pequeñas ciudades. Red urbana regional. División territorial del trabajo. Emancipaciones municipales. Región de los Valles.



#### 1 Introduction

Milton Santos introduces his analysis of Brazilian urbanization, at the beginning of the 1990s, observing that there was "[...] a relative attenuation of macrocephalies, as in addition to millionaire cities, intermediate cities are developing alongside local cities [...]" (SANTOS, 1993, p. 9-10). According to him, simultaneous phenomena of metropolization and demetropolization began to occur in the country, with economic and urban growth at slower rates in large cities than those seen in medium and small cities located in dynamic agricultural regions of the territory (SANTOS, 1993).

In the current period, this observation/prediction by Santos is confirmed, as there is greater complexity and spatial scope of the urbanization phenomenon in the country. Also noteworthy is the diversity of cities (municipal seats) that make up the national territory, according to the varied (demographic and territorial) sizes and the different roles and functions that they play in the context of the urban network, at different spatial scales.

In the current economic, social and political scenario, globalization has led to an increase in interactions between cities and the formation of new urban networks, which has made, on the one hand, territories more competitive and complementary and, on the other, promoted inequality and selectivity between them. In this context, the functioning dynamics of the urban network allows for spatial articulation and integration, whether between the city and the countryside, or between small, medium and metropolitan cities, and between them and their respective regions of influence. These regions can be defined by the amplitude and complexity of the flows that such cities attract, generate and command in the territory (FONSECA; RAMOS, 2011). From this perspective of the regional urban network, each city plays an important role in maintaining life in society.

At a national level, several studies focus on the behavior of the urban network. Those developed by IBGE stand out, called Region of Influence of Cities (REGIC). According to the most recent REGIC publication, corresponding to 2018, this study "has the purpose of identifying and analyzing the Brazilian urban network, establishing the hierarchy of urban centers and the regions of influence of the Cities" (IBGE, 2020, p. 9). Studies on urban networks are essential for understanding economic and dependence relations, and internal and external articulation in relation to the country. For this reason, they are considered important for the formulation of diagnoses and proposals for policies, plans and programs, at regional, state and national levels (CANTARIM, 2015), and the municipal scope may also be included. It is worth highlighting that studies such as REGIC help to reveal territorial arrangements and regional dynamics in spaces far from metropolitan areas, especially in countries with territorial dimensions similar to those of Brazil (ARRAIS, 2008).

Just like Santos (1993), it is possible to notice a growing metropolitan involution in the country, seen by the more significant demographic and economic growth that has occurred in medium-sized cities (SILVA; SPOSITO, 2017; SILVEIRA; FACCIN, 2021). In short, they play intermediary roles between metropolises and small cities, which are understood by Santos (1993) as local. However, it was decided that the term "small" should be used throughout this text, due to their connection with other urban centers, especially given the effects of globalization. In this sense,



between local and global, it is also possible to see a significant increase in small cities, many of which are the result of processes of political emancipation motivated by the change in the federative institutional design after the promulgation of the 1988 Constitution (TOMIO, 2022). According to Endlich (2009, p. 224): "In Brazil, the narrow formal association between the municipality and the city makes the emancipation processes relevant, as a means of access to the establishment of certain services and equipment".

In this context, this article aims at identifying and understanding changes that have occurred in the dynamics of regional urban networks and the role of small cities in this process. To achieve this objective, a case study was chosen in a given region, whose spatial scope corresponds to the Vales Region, located in the State of Rio Grande do Sul. The research involves the analysis of the main changes that occurred in the spatial configuration, in the urban hierarchy, and the functioning of this regional urban network throughout this period, by means of the source of data systematized by IBGE studies on the Region of Influence of Cities (REGIC) published in 1966, 1978, 1993, 2007, and 2018. The process of emancipation of municipalities in the region is also analyzed, based on studies on the genealogy of municipalities in Rio Grande do Sul, prepared by the Office of Planning, Governance and Management of RS, in 2018. This process led to changes in the spatial configuration and functioning of the urban network in the Vales Region.

As a data collection and analysis technique, thematic maps are presented, having been created using shapefiles made available by IBGE, edited in the georeferencing program QGis, and freely finished with vector graphics editor Adobe Illustrator. The analysis and critique of the results obtained were carried out based on the theoretical framework adopted.

In addition to this introduction and the final considerations, this article is organized into three parts. In the first, the context of small cities is addressed based on urbanization processes and the concept of urban network. Next, the territory of the Vales Region is briefly characterized, with emphasis on the changes in the territorial division of its municipalities. In the third and final part, the dynamics and transformations that shape the urban network of the region under study are analyzed.

# 2 Small cities and urban network

Although it does not refer only to the size of cities, the expression "small cities" generally has demographic analysis as a starting point for defining its scope (ENDLICH, 2017). Nevertheless, there is no consensus on the demographic parameter to be used as a reference; it is established according to the region and the set of cities that make up the urban networks in question. However, in this research, the selection of localities (municipalities) with a total (urban and rural) population of less than 50,000 inhabitants is made, a threshold adopted by the Network of Researchers on Small Cities (Mikripoli), based on the Brazilian territorial and urban reality.

The analysis of Brazilian urbanization makes it possible to verify that of the 5,570 existing municipalities, 4,882 (88%) have up to 50 thousand inhabitants; that is, out of every ten municipalities, nine are small cities (IBGE, 2021).



However, in this group of cities with up to 50 thousand inhabitants, there is wide diversity in terms of demographic size, geographical situation, economic structure, environmental, social and cultural characteristics, and their centrality and participation in the urban network. Therefore, they are diverse and distinct urban spaces, with their own, particular urbanization dynamics that should be studied so that they can be understood in their multiplicity of conditions, features, and relationships in the regional territory.

In this sense, it is understood, according to Sposito and Jurado da Silva (2013, p. 40), that "[...] small cities are urban centers that represent a smaller extension compared to centers of other size and respond to the issue of the realization of life, the production of space and capitalist reproduction, in the territorial division of labor on an international scale".

Small Brazilian cities, until the mid-1950s, did not have evident functional differentiation; however, after this period, economic and socio-spatial transformations occurred — unevenly — in regional contexts, which caused great differentiation between urban types, with the industrialization of the countryside and the development of the circulation of goods, people, capital and information being the main changes (CORRÊA, 2011).

In the context of the Brazilian territorial structure and urban network, both with regard to its quantitative representation and its location in the different regions and states of the country, there is no denying the importance of small cities in regional development processes. Small cities have played an important role in the articulation of urban and rural spaces through their centrality and administrative and economic functions; in the intermediation of flows of varying intensity and content, originating from the country's large urban centers and abroad, and those originating from their immediate regions of influence.

The urban network, according to Corrêa (2006), is understood as the articulated set of urban centers integrated on a global, regional and local scale through flows of services, goods, capital, information, and people. The centers of this network have different hierarchies, functions and several demographic dimensions, so that they establish relationships of subordination, influence and complementarity among themselves.

In Brazil, Roberto Lobato Corrêa and Milton Santos contributed greatly to the discussion on the issue of urban networks, analyzing the Brazilian urban network and its metamorphoses in the face of the structural transformations that took place in the country from the 20<sup>th</sup> century onwards.

Roberto Lobato Corrêa (2006, p. 45) says that "understanding the uniqueness of each of the national or regional urban networks in the process of creation, appropriation and circulation of surplus value should be the objective of case studies".

Corrêa (2006) also proposes that the urban network be analyzed by understanding the genesis of the urban network under study, the social dynamics and its translation into the urban network and, finally, that the current urban network be taken into account. According to the author (2006, p. 280), "the city and the urban network [...] tend to exhibit [...] patterns of forms that contain, at least partially, strong elements generated in the spatial formation from which they emerged." Therefore, "an urban network may have characteristics related to the different



moments of the formation with which it is connected or the different spatial formations to which it was related" (CORRÊA, 2006, p. 280).

The urban network can also be interpreted based on its territory, understood here as the appropriate, occupied and used space (SANTOS, 1996). Territory can be understood as resulting from the social relations of agents, through the networks established between them, especially with regard to the networks established by hegemonic parties. According to Santos (2006, p. 6):

For hegemonic parties, the territory used is a resource, a guarantee of the realization of their particular interests. Thus, the reflection of their actions leads to a constant adaptation of its use, with the addition of functional materiality to the exercise of activities exogenous to the place, deepening the social and territorial division of labor, through the selectivity of economic investments that generates corporate use of the territory.

Based on this reality, it is possible to identify in the theoretical analysis the functioning of the territory expressed through horizontal and vertical features, defined according to the interaction between logics and agents that act from local and regional to national and international scales. While the horizontal features are more related to the territorial plane of local agents, the vertical features concern the articulations between economic and business logics globally, based on connections between cities in the network. Milton Santos (2005, p. 139) explains the horizontal features as "the domains of contiguity, of those neighboring places brought together by territorial continuity". Vertical features are "formed by points distant from each other, linked by all forms and social processes".

The idea regarding horizontality and verticality is a means to understand the territory itself, the urban network, and the flows. Furthermore, the multi-scalar articulations established by large corporations from cities integrated through the urban network are worth highlighting. Through these corporations organized in global space, the current trend is for cities to unite vertically, everywhere. Still, these cities can also unite horizontally, rebuilding, according to Santos (2005, p. 143), "that basis of common life capable of creating local norms, regional norms [...]."

Small and medium-sized cities, in different degrees of intensity, are places where the vertical and horizontal features present in the territory meet. Small cities, due to the territorial representation they have in the Brazilian territory — and in the region under study this is also seen —, enable spatial relationships of complementarity, cooperation, but also influence, competitiveness and subordination. This is due to the different territorial divisions of labor existing in each region and the different political articulation capabilities of local and regional parties and institutions in favor of territorial cohesion and endogenous and balanced regional development.



# 3 The Vales Region and changes in the territorial division of its municipalities

The Vales Region is located in the central-eastern zone of Rio Grande do Sul (RS) and corresponds to Functional Planning Region 2, established by the RS State government in its regionalization for the purposes of regional planning and development. This region is formed by the grouping of contiguous sub-regions of the Regional Development Councils (COREDEs)¹ of Vale do Rio Pardo and Vale do Taquari. In Image 1, based on this regional organization, it is possible to see the demographic density of urban centers (IBGE, 2010) and the transportation infrastructure: highways, railways, waterways, and airports.

The road structure contributes to and conditions the dynamics of relationships between cities in the urban network. It is possible to note that the largest population concentration occurs along the main connection routes, with the road axis that connects Santa Cruz do Sul and Lajeado, cities that are regional hubs of Vale do Rio Pardo and Vale do Taquari respectively, standing out. Between them is Venâncio Aires. These three cities have the highest population densities in the region. The remaining 56 municipal seats in this territorial section can be understood within the scope of small cities.

However, the region's system of modes is deficient in terms of spatial coverage and quality, with the road network being more significant, despite the water potential. There is a notable greater density and concentration of paved federal and state roads in the central zone of the region; at the other extreme, less favorably, is the southern portion. It is also possible to see that, to the north of the region, there are municipalities without paved access, which makes it difficult to flow local production and move people around. This is the case of the small cities of Tunas, in Vale do Rio Pardo, and Capitão and Coqueiro Baixo, in Vale do Taquari.

Federal highways BR-287 and BR-386 stand out, as they are important connecting routes with the metropolitan region of Porto Alegre, respectively, to the west and north of the State. While BR-287 serves as access to Santa Cruz do Sul and Venâncio Aires, BR-386 crosses the urban area of Lajeado and Estrela. Both highways have intense truck traffic transporting raw materials, goods, and people from other regions and even neighboring countries, bringing the Vales Region closer to the Metropolitan Region of Porto Alegre (RMPA).

<sup>&</sup>lt;sup>1</sup> COREDEs, established under political/administrative criteria and used as a planning instrument by the state Government, correspond to the scales used as a reference for the preparation of planning instruments and for the production of regional strategic plans. Starting in 1991, they constitute a permanent and autonomous forum for discussion and decision-making regarding policies and actions aimed at regional development. Currently, Rio Grande do Sul is divided into 28 COREDEs, grouped into 9 Functional Planning Regions (RFs). The RFs, in turn, are regional divisions used as a complementary scale for territorial planning, proposed by the State Planning Office, through the RUMOS 2015 study. (RIO GRANDE DO SUL, 2006; 2015).



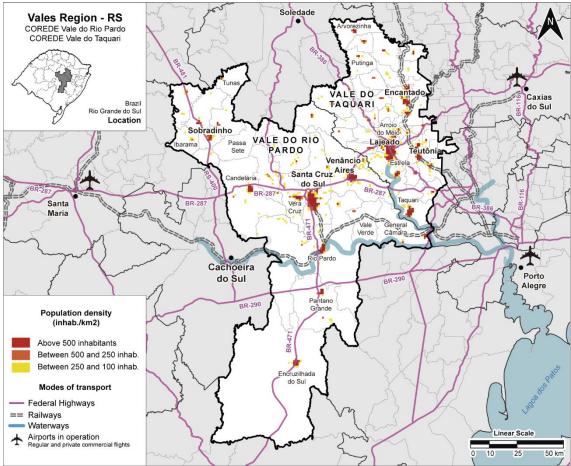


Image 1. Road system and population density in the Vales Region — RS

Source: prepared by the authors, based on IBGE (2010; 2016).

Regarding demography, according to the last Census (2010), the Vales Region had a total population of 745,864 inhabitants<sup>2</sup>. The population of this region is predominantly urban, with 68% living in urban areas and 32% in rural areas. Despite this, of its 59 municipalities, 35 had more than 50% of the population residing in rural areas (IBGE, 2010). It is noteworthy that the population configuration of the region is directly connected with the territorial division of labor in the tobacco agro-industrial complexes and the production of pork and chicken, respectively in Vale do Rio Pardo and Vale do Taquari, both in relation to the sizes and roles of the cities and the occupation of urban and rural spaces.

In this sense, the regional economy is observed based on socioeconomic analyses of the Functional Planning Regions, from the Planning Office of the State of RS (RIO GRANDE DO SUL, 2015). The Vale do Rio Pardo sub-region is the main area in the country in the production of leaf tobacco through family farming carried out on small properties. The manufacture of tobacco products makes up 80% of the Gross Value Added (GVA) structure of the Converting Industry. To a lesser extent, production in the food sector and the metalworking sector also stands out in the region. In Vale do Taquari, production in the food sector stands out in the composition of the GVA of the Converting Industry, with 69%. More specifically, the

<sup>&</sup>lt;sup>2</sup> According to IBGE (2021), the total population of the region was estimated at 814,062 inhabitants, with a growth rate between 2010 and 2021 of 9.14%.



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activities of slaughtering and manufacturing meat products (29%), dairy products (16%) and animal feed manufacturing (14%) prevail. In this sub-region, activities in the footwear production sector, and leather tanning (13%) also stand out (RIO GRANDE DO SUL, 2015).

In addition to the road infrastructure and economic issues, seen in Image 1, it is also possible to observe the reflections of historical occupation processes that result in significant differences in the formation of municipal territories in the region. In the southern quadrant of the region, it is possible to notice the presence of municipalities with larger territorial areas, a result of the historical process of establishing land structures based on medium and large properties. In the central and northern quadrants of the region, there is a greater presence of municipalities with smaller territorial extensions, a result of the historical process of colonization from small rural properties, and an intense process of municipal emancipation, starting in the late 1980s.

This strong wave of municipal emancipation occurred, according to Magalhães (2008), after the military regime in Brazil, when there was a significant increase in the number of municipalities in the country, elevating numerous small district urban centers to city status. Between 1984 and 2000, 1,405 new municipalities were created in the country, mainly in the South and Northeast regions. Tomio (2002, p. 62) points out that: "Political and fiscal decentralization was an important characteristic of Brazilian redemocratization". The 1988 Federal Constitution was the main institutional framework for creating new mechanisms of political autonomy, especially at the municipal level.

The State of Rio Grande do Sul had 150 municipalities in the 1960s; 232 municipalities in the 1970s; 232 municipalities in the 1980s; 333 municipalities in the 1990s; 467 municipalities in the 2000s; and 496 municipalities in the 2010s (JURADO DA SILVA, 2022). In relation to this growing number of emancipation events, the period between the 1980s and 2000s stands out, with an increase of 114%. In this context, Silveira and Hermann (2001, p. 245) state:

At the beginning of the 1980s, Rio Grande do Sul had around 232 municipalities, a number that had remained unchanged since 1966, when, due to the military regime, new emancipation events were prohibited. During this period, the desire of districts for autonomy was accentuated, as the decisions of municipal governments regarding the application of resources were subject to pressure and legal restrictions from the federal sphere — which resulted in great dissatisfaction on the part of the communities. [...]. Among the reasons of the districts for wanting autonomy was the alleged abandonment by the municipal seats, where these communities found themselves, for the most part, hampered in their development and without the returns of the resources generated in them in works and improvements. On the other hand, it is also noticeable that the emancipation process permeates political and economic issues linked to local hegemonic segments (of district seats), that is, to the agents responsible for the social dynamics that lead to spatial fragmentation, and also linked to the position of these agents regarding the possibility of relative gain or loss of power.



At present, after the emancipation of Pinto Bandeira (a district of Bento Gonçalves) in 2013, the State now has 497 municipalities (RIO GRANDE DO SUL, 2018). RS has stood out in national discussions regarding the federative pact, due to the growing and significant number of municipal emancipation events; also, in relation to possible political/administrative changes and losses in tax revenue in accordance with Constitutional Amendment Bill 188/2019 (JURADO DA SILVA, 2022). Furthermore, in relation to proposals for municipal extinction, in 2021 the Federal Supreme Court (STF) made a declaration regarding the unconstitutionality of three state laws that allowed the emancipation of 30 municipalities<sup>3</sup>.

In order to understand the dynamics of the Rio Grande do Sul territory, the Office of Planning, Governance and Management (SPGG) and the Department of Government Planning (DEPLAN) created a family tree showing the historical process of the political/administrative configuration of the State's municipalities (RIO GRANDE DO SUL, 2018). This genealogy displays the moments of municipal emancipation through nine generations. In the first generation, there are four large towns: Porto Alegre, Rio Grande, Rio Pardo and Santo Antônio da Patrulha. From these territories, the following generations arise, in which each municipality is connected to its lineage of origin, that is, its "mother municipality".

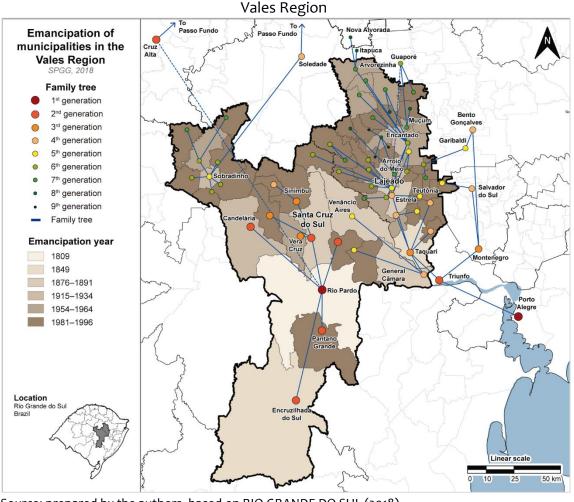
Considering specifically the Vales Region, until 1964, the Vale do Taquari subregion had 14 municipalities, while the Vale do Rio Pardo sub-region had 10 municipalities. Between the 1980s and 2000s, 22 more municipalities were created in the first sub-region and 13 in the second, with an increase, respectively, of 157% and 130%, with this growth being greater than the State average (RIO GRANDE DO SUL, 2018). Vale do Taquari stands out, with a higher increase in municipalities compared to Vale do Rio Pardo, despite having a significantly smaller territorial extension. While the former sub-region has 36 municipalities and a territorial area of 4,826.7 km², the latter has 23 municipalities and an area of 13.171,7 km² (IBGE, 2010).

Image 2 shows the municipal emancipation events that took place in the Vales Region, according to the family tree of RS municipalities (2018). The nine generations of municipalities are presented by hierarchical points using a color and size scale. The points representing generations are connected by blue lines, which indicate the relationship between the emancipated municipality and its territory of origin. The map also indicates the period in which the emancipation occurred, with a color scale, in order to highlight the most recently constituted municipalities, between 1981 and 1996.

<sup>&</sup>lt;sup>3</sup> See more at: https://g1.globo.com/rs/rio-grande-do-sul/noticia/2021/09/10/stf-declara-inconstitucionais-leis-que-deram-origem-a-criacao-de-30-municipios-no-rs-veja-lista.ghtml. Access on May 2, 2023.



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**Image 2.** Genealogy and ranges of years of emancipation of the municipalities in the

Source: prepared by the authors, based on RIO GRANDE DO SUL (2018).

Based on Image 2, it is possible to see that Rio Pardo (1809), from the first generation, corresponds to the oldest municipality in the Vales Region, especially in the Vale do Rio Pardo sub-region. The following municipalities in the region originated from it: Encruzilhada do Sul (1849), Santa Cruz do Sul (1877), and Candelária (1925); and more recently, as part of the second generation, Pantano Grande (1987), and Passo do Sobrado (1992). It is possible to notice that, despite the age of constitution of the mentioned territories, Santa Cruz do Sul has shown a greater demographic concentration and was the only one of these municipalities that underwent processes of emancipation of its districts, constituting the third generation: Vera Cruz (1959), Vale do Sol (1992), and Sinimbu (1992).

Understanding the socio-spatial dynamics that permeate the genealogy of these municipalities requires information about the process of regional historical formation. In this sense, it is noteworthy that Vale do Rio Pardo had its colonization structured from the Jacuí River and from the municipality of Rio Pardo. A city that, according to Vogt and Silveira (2001, p. 115), "despite its military origin, stood out at the end of the 18<sup>th</sup> century until the middle of the 19<sup>th</sup> century as an important commercial hub." The city is a central point of arrival and redistribution of goods for a large part of the province's territory, largely because it is located on the left bank of the Jacuí River, used for navigation and transport of products. However, Rio Pardo



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had a period of stagnation at the same time as the Farroupilha Revolution (between 1835 and 1845) and since then has entered a process of economic decline. There were many reasons for this, according to Vogt and Silveira (2001, p. 116):

With the introduction of steamboats on the Jacuí River, the largest traders and redistributors from Campanha and Campos de Cima da Serra were attracted to make their purchases directly in Porto Alegre. Thus, they left aside Rio Pardo, which therefore lost its status as a commercial hub.

Another reason for the city's decline was the fact that it only served as a transit point, either via the river or the railway that connected Porto Alegre to Uruguaiana. On the other hand, Santa Cruz do Sul, which is not bathed by a navigable river and, during this period, was 40 km away from Rio Pardo (and, consequently, from the railway line and the Jacuí river waterway), had difficulties in distributing the production (VOGT, 1997). According to Vogt (1997, p. 68):

[...] it was only in the 20<sup>th</sup> century that the problems with transport routes [in Santa Cruz do Sul] were effectively resolved. In 1905, the municipality was connected to the Porto Alegre–Uruguaiana railway by a branch line that connected the city to do Couto Station (Ramiz Galvão) [in the city of Rio Pardo]. At the end of the 1960s, Santa Cruz began to be served by the BR-471 and RS-287 highways, roads that brought it closer to other regions of the state.

Thus, Rio Pardo becomes just a pass-through. With the subsequent loss of importance of the river and railway system and the growing importance of the road system, there was a decrease in the centrality of Rio Pardo and an increase in that of Santa Cruz do Sul. Another factor that increased the importance of Santa Cruz do Sul was, in particular, the entry of international capital in the region, a process that began in the city in 1917 with the establishment of The Brazilian Tobacco Corporation, predecessor of Companhia Brasileira de Tabacos em Folha (1920) and Souza Cruz (1955), a venture financed by British American Tobacco (BAT). After the establishment of BAT's subsidiary, the hub of leaf tobacco trading moved from Porto Alegre to Santa Cruz do Sul. Subsequently, from the end of the 1960s onwards, the complete economic internationalization of the tobacco sector could be witnessed and, from the 1990s onwards, the process of concentration and consolidation of tobacco corporations began (VOGT, 1997).

In relation to the family tree of the Vale do Taquari sub-region (Image 2), it is possible to notice that the municipalities are younger (municipalities represented in darker tones on the map) and are established from the third generation onwards; the municipality of Taquari (1849) is a special case, as it comes from the Porto Alegre lineage. Estrela (1876) and General Câmara (1881) were emancipated from Taquari and, in turn, gave rise to the creation of many other municipalities, such as Lajeado (1891) and Venâncio Aires (1891), respectively, which belong to the fifth generation. Taquari also originated Bom Retiro do Sul (1959), the mother municipality of Fazenda Vilanova (1995), Paverama (1988), and Tabaí (1995), already in the last period of emancipation. Still in relation to the emancipation events of this regional context, we highlight as the most recent that of Coqueiro Baixo (1996), which is in the ninth generation.



In relation to the regional formation of Vale do Taquari, it is noted that historically its municipalities were integrated through the Taquari River, making the circulation of goods easier through the municipalities of Encantado, Arroio do Meio, Lajeado, Estrela, Bom Retiro do Sul, and Taquari until the capital, Porto Alegre, and the Port of Rio Grande. It was in this same region that the first Azorean immigrants settled, in 1700 (KREUTZ; MACHADO, 2017). The first European settlers in Vale do Taquari came to the lower part of the region, that is, south of the Taquari River, where the municipality of Taquari is located today, an area that was marked by the presence of extractive slave farms and small plots of land owned by Azorean farmers. This type of occupation persisted from the beginning of the Brazilian Empire (1822) until 1850. From then on, the arrival of new settlers as small landowners in the region ended up profoundly modifying its demographic panorama — first, with the arrival of Germans (since 1853), in the intermediate area of the region, and, later, with Italians (from 1878), in the northernmost portion — which transformed the territory, until then inhabited by squatters and indigenous population (AHLERT; GEDOZ, 2001).

The formation of towns and cities was favored by the arrival of European settlers, who diversified the local professions available — farmers, blacksmiths, carpenters, weavers, industrial workers, and shoemakers. They thus formed population centers, which would later form the seats of municipalities. In the middle of the 19<sup>th</sup> century, Vale do Taquari underwent political/administrative transformations, following the creation of the municipality of Taquari, separated from Triunfo (AHLERT; GEDOZ, 2001).

The municipality of Lajeado, in turn, initially stands out — before becoming a municipality — for its port activities and its role as a commercial hub in the region. However, the waterway system lost its importance and entered into crisis, on the one hand, due to the difficulties that the river presented to navigation, and on the other, due to road development. Following the development of the "Goals Plan" of the government of President Juscelino Kubitschek (1956–1961), the implementation of BR-386 began. Completed in 1970, Presidente Kennedy Federal Highway, known as "Road of Production", now connects Passo Fundo to Porto Alegre, passing through Lajeado. The location of this highway in Lajeado led to real estate speculation and increased the economic value of that axis, and this process was important for the growth of the municipality (SCHEIBE, 2016).

Based on this analysis of the regional organization of the Vales Region, it is possible to see the correlation between the historical processes of occupation of the territory and the presence of transportation infrastructure networks, initially waterways and then, with greater strength, roadways. Likewise, knowledge about the origin relationships of municipalities helps the geographical understanding of the territory, especially the demographic and economic dimensions. This dynamic relationship between urban centers is reflected in the constitution, structure, and functioning of the regional urban network.



# 4 Dynamics and transformations of the urban network in the Vales Region (1966–2018)

This section presents the successive configurations of the regional urban network in the Vales Region, between 1966 and 2018, based on the analysis of data collected by studies of the Region of Influence of Cities (REGIC), carried out by IBGE.

Before delving into the comparative analyses on the evolution of the hierarchy and relationships established between cities in the region, it is worth highlighting the methodological aspects that underpin REGIC. According to Cantarim (2015), over time, IBGE refined the research method. This author highlights that the first studies, published in 1966 and 1978, were underpinned by the central place theory, created by Christaller, of a locational nature, and by the theory of Michel Rochefort (1998), on the "Method of Studying Urban Networks", which is based on the previous theory, but which, however, adds the context of the urban explosion. In addition to the theories mentioned, the following studies, from 1993 and 2007, include, respectively, the informational dimension, based on Corrêa (2006), and the technological notion, also with reference to the contributions of Corrêa and researchers Camagni (1993) and Offner and Pumain (1996).

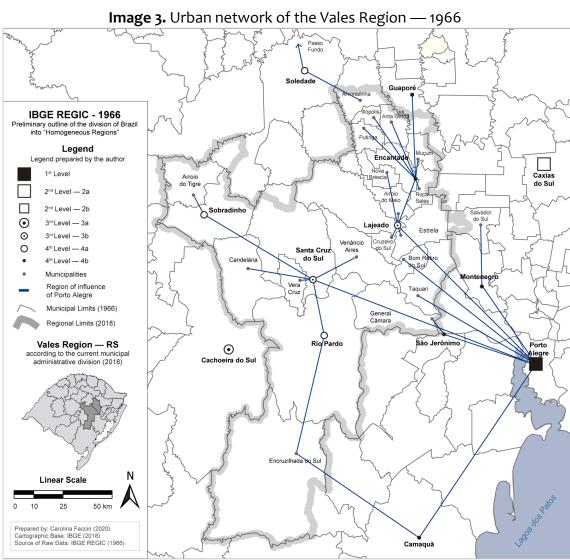
In addition to the locational aspects, the context of urban explosion, the informational and technological relationships mentioned, it is possible to observe that the most recent methodological basis, the REGIC from 2018, also focuses on a theoretical improvement in a way that is more compatible with the idea of urban network as a complex and evolutionary phenomenon. In this sense, it makes reference to Peter Taylor's (2007) "Central Flow Theory", which structures urban space through the understanding of two distinct processes: (i) "town-ness", based on the local and hierarchical nature, according to the relations of hinterland and polarization of the region; and (ii) "city-ness", which emphasizes long-distance relationships that go beyond classical spatial barriers — these relationships do not necessarily behave in a hierarchical manner. For Taylor, both processes are present in all cities, however, "the larger the city, the less it is constituted by town-ness and the more its economy becomes governed by the second type of external relations, city-ness" (IBGE, 2020, p. 70).

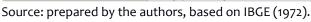
The distinct and complementary theoretical bases that have supported, over time, the REGIC studies can also be observed in the way in which the studies name the different levels of urban hierarchy in which cities are classified at each moment. Thus, while in 1966 the main cities in the region were classified as "level 3b" centers and the small cities with lower centrality were identified as "subordinate municipalities", in 2008, respectively, they were identified as "Subregional Centers A" and as "Local Centers". Another evolution seen throughout the REGIC studies concerns the aspects evaluated. Proposals up to the 1990s assessed centrality, hierarchy, area of influence and flows; from 2007 onwards, aspects of territorial management are also assessed (CANTARIM, 2015). The primary advance of the 2018 studies refers to the evaluation of these aspects also by means of international relations, both through international connections from the land border strip and through long-distance connections analyzed through the presence of companies and advanced services in Brazilian cities.



Next, the REGIC analysis is carried out for the region chosen in this study, so that the dynamics and transformations of this urban network can be observed more closely. Images 3, 4, 5, 6, and 7 present the classification of the urban network according to the REGICs, respectively, of 1966, 1978, 1993, 2007, and 2018. The cities are represented on the maps by icons of different shapes, sizes and colors, which indicate their classification in the urban network, and, with blue lines, their area of influence over other urban centers is shown.

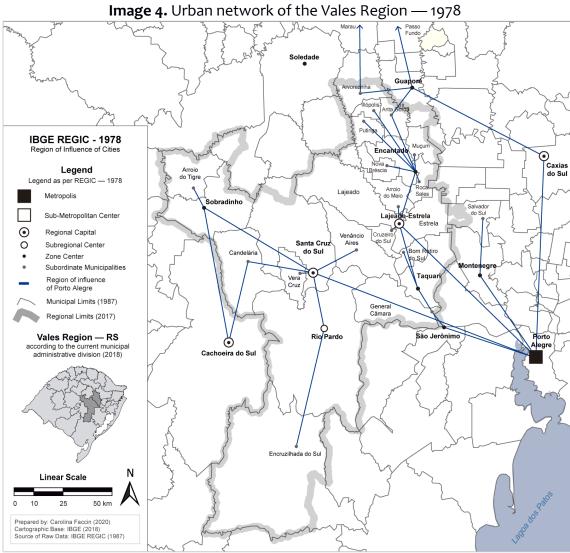
In the first study, in 1966 (Image 3), the cities of Santa Cruz do Sul and Lajeado stand out with greater hierarchy in the Vales Region, classified at "level 3b". At an immediately lower level, the small cities of Sobradinho and Rio Pardo were classified at "level 4a", and Encantado, at "level 4b". The other urban centers were classified as "Subordinate Municipalities" (IBGE, 1972). In this classification, it is possible to see that the state capital, Porto Alegre, is in the first level and exerts direct influence on some municipalities in the Vales Region, such as Santa Cruz do Sul, Lajeado, Bom Retiro do Sul, and Taquari.







In 1978 (Image 4), the urban center of Santa Cruz do Sul and, together, the centers of Lajeado and Estrela stood out in the region, with the "Regional Capitals" classification. At a lower level, the small city of Rio Pardo was classified as "Sub-Regional Center", and the small cities of Sobradinho, Taquari, and Encantado, as "Zone Center". The other 16 small cities in the region were classified as "Subordinate Municipalities" (IBGE, 1987). It should be noted that, unlike the following surveys, until 1978, the small city of Rio Pardo still had relative importance in the regional urban network. In relation to the state of Rio Grande do Sul, it is possible to see a change in the influence of Porto Alegre over the cities of the region; classified as a "Metropolis", it now has a direct relationship only with the "Regional Capitals". Another change, which can be observed in the state context, concerns the hierarchical level of Santa Cruz do Sul and Lajeado–Estrela, equivalent to that of Caxias do Sul, which in the previous study was classified at a higher hierarchical level.

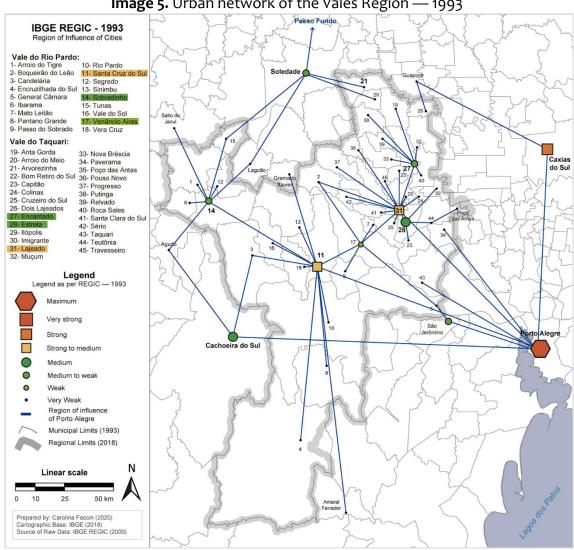


Source: prepared by the authors, based on IBGE (1987).

In 1993 (Image 5), the centrality of Santa Cruz do Sul and Lajeado was classified at the "strong to medium" level; the small city of Estrela, at the "medium" level; and Sobradinho and Encantado, as "medium to weak". The other 38 small cities



in the region were classified at the "very weak" level (IBGE, 2000). In comparison to 1978, it is possible to notice the gradual rise of the city of Venâncio Aires as an important regional center, and the decrease in importance of the small cities of Sobradinho and Rio Pardo. This study revisits the hierarchical differentiation between the most central cities in the Vales Region and Caxias do Sul; it is also possible to notice the resumption of the direct influence of the capital of Rio Grande do Sul over other municipalities in the region, now in connection with Taquari and Paverama.



**Image 5.** Urban network of the Vales Region — 1993

Source: prepared by the authors, based on IBGE (2000).

Data from 2007 (Image 6) shows the medium-sized cities of Santa Cruz do Sul and Lajeado once again standing out, classified as "Sub-Regional Centers". Venâncio Aires and the small cities of Estrela and Encantado are classified as "Zone Centers A"; and the small cities of Sobradinho, Sinimbu, Arroio do Meio, Teutônia, Muçum, and Arvorezinha, as "Zone B Centers". The remaining 48 small cities were classified as "Local Centers" (IBGE, 2008). Regarding relations of influence, there is a direct connection between Porto Alegre and Sobradinho, which exerts influence on neighboring urban centers, standing out as a hub in this portion of the Vale do Rio Pardo Region. The direct connection between Porto Alegre and Encruzilhada do Sul



also stands out; however, this small city finds itself in an isolated condition, given the weak connection with other municipalities in the region.

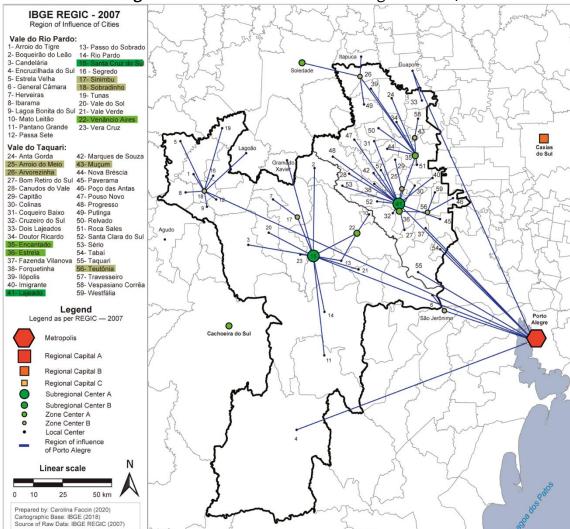


Image 6. Urban network of the Vales Region — 2007

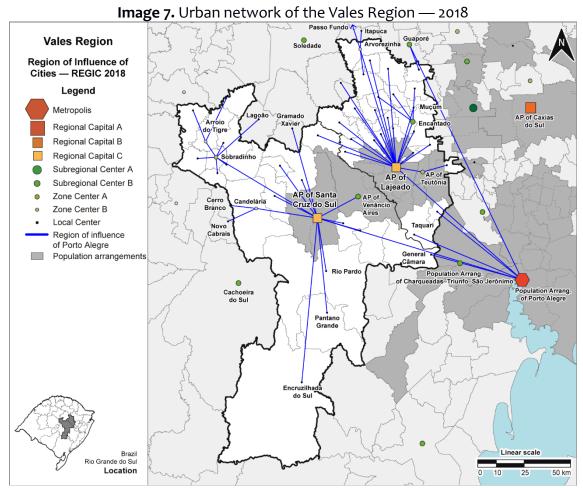
Source: prepared by the authors, based on IBGE (2008).

The data referring to the 2018 REGIC (Image 7) shows that, acting as an intermediary between the "Metropolis" (Porto Alegre) and numerous "Local Centers" are the "Regional Capitals C" of Santa Cruz do Sul and Lajeado, both grouped into "Population Arrangements" (APs)<sup>4</sup>. The AP of Venâncio Aires and the small city of Encantado are classified as "Sub-Regional Centers B", at an intermediate level; as "Zone A Centers", there are the small cities of Sobradinho and the AP of Teutônia; and as "Zone B Centers", there are the small cities of Arroio do Tigre, Arvorezinha, and Candelária. The other small cities/municipalities are either classified as "Local Centers" or are included in the "Population Arrangements" of Santa Cruz do Sul, Venâncio Aires, Lajeado, and Teutônia (IBGE, 2020). In relation to the regions

<sup>&</sup>lt;sup>4</sup> Population Arrangements are made up of groups of municipalities that are strongly integrated due to their frequent population commuting dynamics for work and study, according to the criteria of the Population Arrangements and Urban Concentrations of Brazil study, published by IBGE in 2016 (IBGE, 2020).



of influence existing in the region, the medium-sized cities of Santa Cruz do Sul and Lajeado stand out, in addition to the small cities of Sobradinho, Encantado, and Teutônia, which serve as centers of attraction for the municipalities in their surroundings.



Source: prepared by Carolina Rezende Faccin, based on IBGE (2020).

According to the spatial relationships characterized as "town-ness" and "cityness" proposed by Taylor (2007), and incorporated by the REGIC methodological innovation of 2018, it is noteworthy that both are present in the functioning dynamics of the urban network in the Vales Region.

In the region's cities, the existence of local and/or regional spatial relationships between them and their region of immediate influence can be observed, delimited by the municipal territory and/or, in some specific cases, due to the city's demographic size and greater economic dynamism and service provision, expanding its hinterland to a greater number of neighboring or nearby municipalities, connected by transport infrastructure. In this group of cities, the logic of hierarchical relationships between cities characterized by the notion of "town-ness" prevails, in which each city exercises its condition as a central place in relation to the territory that it polarizes or influences.

However, in addition to these hierarchical relationships, some of these cities also establish spatial relationships of cooperation, complementarity, and mutuality with other cities on broader (national and international) spatial scales, also through



the specific and distinct dynamics of their urban economies, their export capacity and the spatial configuration of the provision of specialized private and public services that such cities offer. Such relationships make up a network relational structure characterized by the idea of "city-ness". Among these cities, the international relations of the medium-sized city of Santa Cruz do Sul, in Vale do Rio Pardo, stand out, marked by the presence of the headquarters of companies in the tobacco agroindustrial complex in the city, such as multinational corporations Philip Morris International, Japan Tobacco International (JTI), British American Tobacco (BAT), and Universal Leaf Tabacos. It is also possible to see the connections established by the medium-sized city of Lajeado, in Vale do Taquari, where the headquarters of domestic companies such as BRF S.A. (a company resulting from the consolidation of the Sadia and Perdigão brands), Docile Alimentos, Florestal Alimentos, and Bebidas Fruki are located.

The prominent influence of the urban centers of Santa Cruz do Sul and Lajeado, in the regional urban network, occurs due to the concentration of a large part of the companies and services that make up the regional territorial division of labor and the establishment of subsidiaries and headquarters of multinational corporations. According to data from RAIS (2018) and CAGED (2018), Santa Cruz do Sul has 4,016 establishments and 41,805 active employment relationships, representing respectively 18.2% and 21.2% of the total in the Vales Region. Lajeado, in turn, has 3,924 establishments and 35,817 active employment relationships, representing 17.8% and 18.2% of the regional total. The tobacco product manufacturing sector stands out in Santa Cruz do Sul, as it employed, in 2018, around 7 thousand temporary workers and 3 thousand permanent workers. Santa Cruz do Sul also stands out for the presence of headquarters and subsidiaries of multinational corporations in the tobacco industry, such as the Brazilian headquarters of Universal Leaf Tabacos and Japan Tobacco International, and subsidiaries of British American Tobacco and Philip Morris International. In Lajeado, the poultry slaughter sector stands out (which employed 4,982 people in 2018), as well as the presence of a subsidiary of the multinational corporation BRF S.A. The presence of headquarters and subsidiaries of multinational corporations implies the establishment of vertical networks between Santa Cruz do Sul and Lajeado towards the cities where the global headquarters of these companies are located.

It can be seen that Lajeado polarizes a greater number of municipalities compared to Santa Cruz do Sul, even though the two cities have the same hierarchical classification by REGIC. It is possible to attribute this fact not only to the economic relations that characterize the sub-regions of Vale do Taquari and Vale do Rio Pardo, but also to the process of municipal emancipation previously described (Image 2), through which 44 municipalities were emancipated from Lajeado, while only 4 originated from the municipality of Santa Cruz do Sul.

In this context, it is possible to notice that the city of Caxias do Sul, located in the Serra Gaúcha region, had a certain influence on the municipalities located to the north of Vale do Taquari through the municipality of Guaporé (Images 4 and 5) until the 1990s. It can be seen that it ceased to exert this influence after the REGIC of 1993, in the same period in which the number of municipal emancipation events increased and that improvements occurred in the quality of the road system, facilitating the movement of flows between municipalities in the Vales Region itself.



Until the beginning of the 1990s, Cachoeira do Sul, a municipality located in the central region of RS, also directly influenced the Vales Region, particularly in the Vale do Rio Pardo portion, through connections with Candelária and Sobradinho. Although REGIC data indicate that this influence decreased from 1993 onwards, it is possible to see that the city still exerts influence over Sobradinho and the municipalities in the north of Vale do Rio Pardo, due to the presence of government agencies in the territory, that is, the decentralized provision of public services related to the Federal Revenue Office, the Social Security, and the Federal Justice (SILVEIRA et al., 2018).

The city of Soledade, located in the north of the state of RS, continued to have a certain influence in the Vales Region for longer than the aforementioned cities. In REGIC studies prior to 2007, this city has direct connections with some urban centers to the north of the region, either due to proximity or due to a historical relationship, as is the case of Tunas, emancipated from Soledade.

Additionally, Table 1, using data relating to the urban population of the municipalities (IBGE, 2010), displays the demographic structure of the urban network. There is a predominance of small cities, and of the 59 urban centers in the region, 40 are in cities with less than five thousand inhabitants, making up the lower level of the urban network. It is worth noting that, of these 40 centers, 21 have less than 2 thousand inhabitants — most of them are located in Vale do Taquari, which has municipalities with smaller territorial extension and closer to each other, with urban centers of smaller demographic size. At the top level, the medium-sized cities of Santa Cruz do Sul, with more than 100 thousand inhabitants, and Lajeado, with more than 50 thousand inhabitants, stand out (IBGE, 2010).

**Table 1.** Demographic structure of the urban network of the Vales Region: number of cities per urban population range

up to 2 thousand inhabitants	from 2,0001 to 5,000	from 5,001 to 10,000	from 10,001 to 20,000	from 20,001 to 50,000	from 50,001 to 100,000	more than 100,001
21	19	6	6	5	1	1

Source: prepared by the authors, based on IBGE (2010).

In the scope of the small cities in the Vales Region, there is a significant diversity of roles and functions that they perform in the urban network. For example, in 2018, the urban centers of Venâncio Aires (72,373 inhab.), Estrela (34,669 inhab.), Encantado (23,047 inhab.), Sobradinho (15,041 inhab.), Arroio do Meio (21,121 inhab.), Teutônia (34,275 inhab.), Arroio do Tigre (13,452 inhab.), Arvorezinha (10,422 inhab.), and Candelária (31,475 inhab.) have remained at intermediate levels in the regional urban hierarchy (as Sub-Regional Centers B, and Zone Centers A and B) (IBGE, 2021).

These municipalities are characterized by playing a complementary role in the regional urban system, due to the urban centrality they have in relation to their immediate surroundings, as well as having some important headquarters of companies and industrial plants. Examples of companies and industrial plants: multinational corporation Alliance One International (tobacco), in Venâncio Aires; cooperative Dália Alimentos, in Encantado, and cooperative Languiru, in Teutônia (chicken, pork, and dairy products); Brasilata (steel packaging), in Estrela; Companhia



Minuano de Alimentos (chicken), Fábrica Neugebauer (chocolate), and Bremil (meat processing products), in Arroio do Meio; Calçados Beira Rio (footwear and leather production), in Candelária; among others. Arroio do Tigre, Arvorezinha, and Sobradinho do not have large prominent industrial plants, and in these municipalities, retail trade and government bodies predominate (RAIS, 2018).

In this context, it is possible to notice that the importance of Venâncio Aires, Arroio do Meio, and Teutônia has grown over the years thanks to the prominent participation of these municipalities in the territorial division of regional labor. In Venâncio Aires, there are important industrial plants of the tobacco sector and, in Arroio do Meio and Teutônia, there are industrial plants of the food sector.

On the other hand, the small cities of Rio Pardo and Taquari have had a constant decrease in their influence in the region, although both are related to the historical process of formation of the sub-regions of Vale do Rio Pardo and Vale do Taquari, respectively. Over the last 30 years, it has been observed that, in Vale do Rio Pardo, the small city of Rio Pardo has experienced a decrease in centrality in the regional urban network, while Santa Cruz do Sul has increased; this fact can be justified by the loss of importance of the river and railway systems and the growing importance of the road system. In a similar way, the city of Taquari — the point of origin of the expansion of the first settlements in Vale do Taquari — suffers a decrease in centrality in the regional urban network, caused by the decrease in the use of river navigation, in addition to the municipal emancipation events that have occurred. It is possible to highlight the growing centrality of the city of Lajeado in this sub-region.

## **5 Final considerations**

In the Vales Region, it is possible to notice an evident relationship between the spatial configuration of the current urban network and the process of municipal emancipation. The influence of Santa Cruz do Sul, Sobradinho, in the Rio Pardo Valley, and Lajeado, Estrela and Encantado, in the Taquari Valley, is maintained, since these, having been "mother" municipalities, continue to polarize, maintain relations and establish flows with the cities in their immediate surroundings thanks to the historical relationship of formation of the municipalities in the region.

The geographic proximity of the Vales Region to the Porto Alegre Metropolitan Region (RMPA) is significant for the context of this regional urban network. Over the years, Porto Alegre has maintained and intensified its influence in the region, given its relative spatial proximity and the connections established by the BR-287 and BR-386 highways with the medium-sized cities of Santa Cruz do Sul and Lajeado, which facilitate the circulation of people and material goods between these cities and the RMPA.

The comparative data from REGIC studies, from 1966 to 2018, indicate a stable urban network with few significant changes throughout the analyzed period. Acting as an intermediary between the "Metropolis" (Porto Alegre) and the "Local Centers", there are the "Sub-Regional Centers" of Santa Cruz do Sul and Lajeado. The prominent influence of these two centers in the context, respectively, of the subregions of Vale do Rio Pardo and Vale do Taquari occurs through the concentration of a large part of the industrial and service companies that make up the territorial



division of the regional labor. Furthermore, these two medium-sized cities are historically favored in the region's formation process, whether due to their position in geographic space, the penetration of international capital in 1917 (as in the case of Santa Cruz do Sul) or the implementation of federal highways (as in the case of Lajeado).

At an intermediate level, as "Zone Centers", the cities of Venâncio Aires and Sobradinho, in Vale do Rio Pardo, and Estrela, Teutônia, and Encantado, in Vale do Taquari, are characterized by playing a complementary role in the regional urban system, due to the urban centrality they have in relation to their immediate surroundings, as well as having some important headquarters of companies and industrial plants.

Over the years, there was an increase in the number of small cities in the urban network, given the intense process of municipal emancipation that took place. For the most part, these small centers play the role of transit centers for agricultural production, since the growth dynamics of small-population municipalities in the Vales Region are predominantly linked to the agricultural economy. In relation to this, the agricultural production of tobacco and corn, in Vale do Rio Pardo, and the raising of chickens, pigs, and dairy cattle, in addition to the production of corn and vegetables, in Vale do Taquari, stand out.

It is also worth highlighting the coexistence in the region and in the regional urban network of spatial relations of "town-ness" and "city-ness", as defined by Taylor (2007). These spatial relationships express the capacity of cities to promote hierarchical relationships on a local and regional scale, and relationships of complementarity and economic cooperation with other cities on a national and international scale. The different and unequal way in which these cities establish these relationships is due to the differences in their urban economies, their participation in the territorial division of labor, their demographic size and their functional complexity.

Finally, according to the theoretical framework, it was also found that the cities and the urban network tend to have patterns of form that include, at least partially, strong elements generated in the spatial formation from which they emerged. The transformations in the regional urban network could be understood from the different moments of the formation in which it was inserted, and also through the different spatial formations with which it was associated.

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