



**MEDIUM-SIZED CITIES, TERRITORIAL  
PUBLIC MANAGEMENT, AND  
REGIONAL CENTRALITIES IN  
RIO GRANDE DO SUL, BRAZIL**

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# MEDIUM-SIZED CITIES, TERRITORIAL PUBLIC MANAGEMENT, AND REGIONAL CENTRALITIES IN RIO GRANDE DO SUL, BRAZIL

## CIDADES MÉDIAS, GESTÃO PÚBLICA TERRITORIAL E CENTRALIDADES REGIONAIS NO RIO GRANDE DO SUL – BRASIL

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### ABSTRACT

The spatial relations of medium-sized cities in regional contexts and within the urban networks in which these cities are included are addressed, focusing on the importance of the territorial management of these cities in regional development processes. The function of the territorial public management that these cities exercise in the territory, through the provision of federal and state public services, is analyzed. The simultaneous supply by the medium-sized cities and the regional demand for public services create a certain space of flows in the region arising from the operation of existing federal and state public services. These flows make it possible to understand the centrality that these cities exert in the region, the spatial configuration, the different patterns of territorial distribution and relational intensity arising from the supply of and demand for state and federal public services in the regions. Methodologically, secondary data from IBGE and GEOPORTAL RS relating to the urban network and territorial public management of selected medium-sized cities in certain functional planning regions in Rio Grande do Sul were used. Thematic and flow maps were also drawn up to better capture the spatial configuration of these flows of supply of and demand for services, the spatial distribution of selected federal and state public institutions and offices, and the dynamics of the relations between the selected cities and their regions of influence. The results obtained reinforce the regional importance of medium-sized cities in their public management function, not only on a local scale, but also on a regional scale, making greater territorial cohesion possible, as well as showing the centrality that these cities exert on the regional urban network.

**Keywords:** Medium-sized cities. Territorial public management. Regional urban centrality. Territorial cohesion. Region.

## RESUMO

Aborda-se as relações espaciais das cidades médias em contextos regionais e no âmbito das redes urbanas onde essas cidades estão inseridas, focando na importância da gestão territorial dessas cidades nos processos de desenvolvimento regional. Analisa-se a função da gestão territorial pública que tais cidades exercem no território pela oferta de serviços públicos federais e estaduais. As simultâneas ofertas pelas cidades médias e demanda regional pelos serviços públicos configuram na região certo espaço de fluxos advindos do funcionamento dos serviços públicos federais e estaduais existentes. Tais fluxos permitem compreender a centralidade que essas cidades exercem na região, a configuração espacial, os diferentes padrões de distribuição territorial e de intensidade relacional advindas da oferta e procura pelos serviços públicos estaduais e federais nas regiões. Metodologicamente utilizou-se os dados secundários do IBGE e do GEOPORTAL-RS relativos à rede urbana e à gestão pública territorial de cidades médias selecionadas em determinadas regiões funcionais de planejamento, no Rio Grande do Sul. Também elaborou-se mapas temáticos e de fluxos que permitiram melhor captar a configuração espacial desses fluxos de oferta e demanda de serviços, a distribuição espacial das instituições e repartições públicas federais e estaduais selecionadas, e a dinâmica das relações entre as cidades selecionadas e suas regiões de influência. Os resultados obtidos reforçam a importância regional das cidades médias em sua função de gestão pública não apenas na escala local, mas também regional, possibilitando uma maior coesão territorial, bem como demonstram a centralidade que tais cidades exercem na rede urbana regional.

**Palavras - chave:** Cidades médias. gestão pública territorial. centralidade urbana regional. coesão territorial. região.

## INTRODUCTION

Currently, worldwide and in Brazil, we are experiencing a comprehensive, intense and uneven process of urbanization (Brenner, 2018). This process has had repercussions and impacts on the dynamics of population distribution and concentration in territories, on the distribution and spatial organization of the provision of public services, and on the management of territories (Ferrão, 2014). Furthermore, due to the expansion of economic neoliberalism and the promotion of a true “war of places” (Harvey, 2011; Rolnik, 2015), it is also possible to witness, at different spatial scales, the promotion of less cohesion and greater territorial imbalance. A result of the intense polarization of global and national metropolises, and of national and regional urban systems, which are predominantly hierarchical and that have unequal interurban articulation across territories (Medeiros, 2019).

Given this scenario, there is a growing effort on the part of researchers to try to understand the characteristics and specificities of the urbanization process in medium-sized cities, how their relationships



and interactions with the regional space occur and what their contribution to territorial development has been (Sposito & Silva, 2017; Llop & Usón, 2012; Gorenstein, Landriscini e Hernández, 2012).

The urbanization process of medium-sized cities has different dimensions and aspects. Among them, the centrality and the territorial management capacity that such cities exert on the regions where they are located stand out. Through administrative functions and the provision of varied public services, these cities relate to their region of influence, in addition to intermediating flows of different nature (people, inputs, capital, information, etc.) that circulate between rural areas and small cities — which are their region of influence — and the metropolises.

This article addresses the centrality of medium-sized cities and the way they exercise territorial management in their respective regional spaces of influence. The objective is to analyze how the centrality of these medium-sized cities occurs in their respective regions and in the territory of Rio Grande do Sul. For this purpose, an analysis is made of the spatial relationships that these cities establish with other cities and rural areas in the Functional Planning Regions selected in Rio Grande do Sul, through federal and state public management flows, arising from the decentralized action of the State in the territory<sup>1</sup>. The effects of urban centrality levels and indices (arising from the unequal supply of public services in the territory) on the configuration and dynamics of the urban network's functioning and on the regional development process are also discussed.

The empirical outline of the analysis includes a set of selected Functional Planning Regions (RFs) and, within them, a group of medium-sized cities and regional centers<sup>2</sup>, distributed as follows: RF 2 (Lajeado and Santa Cruz do Sul), RF 6 (Alegrete, Bagé, and Uruguaiana), RF 5 (Pelotas and Rio Grande), RF 4 (Tramandaí and Osório), RF 7 (Ijuí, Santo Ângelo, and Santa Rosa), RF 8 (Santa Maria, Santiago, and Cruz Alta), RF 9 (Passo Fundo, Erechim, and Carazinho). The regions and their

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1 The results shown here are not complete and are part of the ongoing research project “Medium-Sized Cities, Territorial Management, and Development in Selected Regions of Rio Grande do Sul”, supported by CNPq and FAPERGS. In this research, methodologically, an option was made not to analyze the medium-sized cities that make up the metropolitan regions of Porto Alegre and Serra Gaúcha.

2 The cities of Alegrete, Osório, Santiago, Cruz Alta, and Carazinho still need to be better analyzed within the scope of the ongoing research regarding their other roles and functions in the regional and state urban network, as well as in relation to other variables, such as the centrality of corporate territorial management and the interurban spatial relations in which they participate, so that it can be concluded with more reliability and with good basis in empirical data whether they can also be classified as medium-sized cities. For now, and in a preliminary way, they are being identified as regional centers that have an important centrality in the respective regions where they are located.



respective medium-sized cities make up a substantial part of the territory of Rio Grande do Sul, in the south of Brazil. The selected cities play important roles as regional centers, attracting commuters for work and study, and polarizing and influencing smaller cities and rural areas in their hinterland through the supply of commercial activities and services, as well as carrying out the function of territorial management in the context of the respective regional territories.

Methodologically, contributions from Corrêa (1996), Spósito (2007 and 2017), Sposito and Silva (2017), de Bellet and Lopp-Torné (2002), and Silveira and Faccin (2021) were used to support the approach to medium-sized cities, their regional centrality and territorial management. Likewise, the approaches of Corrêa (2006), Neil (2013), and Medeiros (2019) on urban networks and their relationship with development and territorial cohesion were used. Secondary data on administrative structures and flows in relation to federal management were collected through the studies Region of Influence of Cities (REGIC), from 2018 (2020), and Territory Management (2014), both carried out by the Brazilian Institute of Geography and Statistics (IBGE). Data on state management were obtained from GEOPORTAL RS (2021)<sup>3</sup>. The analysis was carried out based on data systematized in electronic spreadsheets, and through graphs, tables, and thematic maps, using Excel and QGIS software.

In addition to this introduction, the article contains three other sections. Initially, what is being understood as medium-sized city, centrality, and territorial public management is presented, as well as how medium-sized cities develop their territorial management through the supply and flows of public management. The second section addresses the importance of territorial management for the analysis of hierarchical and complementary relationships between the cities that make up the urban network, in addition to presenting the methodological path adopted, with emphasis on the methodological approaches made in relation to obtaining and processing data referring to federal and state public management and the definition of cities' centrality levels. Finally, the third section presents the results of the analysis, with emphasis on the main spatial configurations and characteristics of public territorial management carried out by medium-sized cities in the different functional planning regions of the territory of Rio Grande do Sul.

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3 GEOPORTAL RS is a platform for sharing geospatial data, services and applications from the State of Rio Grande do Sul, produced by the State Spatial Data Infrastructure (IEDE)-RS.



## MEDIUM-SIZED CITIES, REGIONAL CENTRALITY, AND TERRITORIAL MANAGEMENT

The concept or notion of a medium-sized city, according to Sposito (2017) and Corrêa (2017), has a relational nature. Every medium-sized city can only be understood in the spatial and temporal contexts in which it finds itself and through the relationships it establishes in and with the region in which it is located and with the urban network which it is a part of.

The characteristics and particularities of the relationships that medium-sized cities establish with cities smaller and larger than them — in a given regional or national geographic space — allow for a better understanding of their role in territorial management.

It is also possible to refer to these cities as “intermediate” cities, due to the position of mediation of regional flows and of intermediation between a village and a large city that they occupy in the regional division of labor and in the urban network (Sposito, 2017; Pippi, 2019).

It is understood that to define a city as a “medium-sized city”, one should, simultaneously and complementary, consider its demographic dimension in its relationship with other cities that make up the regional or national urban space, in addition to also take into account its urban economy, its functions, and its centrality exerted on the regions in which it is located. Although quantitative demographic parameters are important for this definition, taken in isolation they are not sufficient to support it.

Thus, the notion of a medium-sized city considered more appropriate is that which identifies cities as those with a significant demographic contingent in the national and regional contexts, and/or that have economic concentration and centralization and a consolidated function of intermediation in terms of economy and public services (and of diverse flows) between its hinterland and the metropolis (Bellet e Llop-Torné, 2002).

In this definition, it is also necessary to take into account the levels of economic activities resulting from the confluence of transport and logistics systems, the spatial reconfiguration arising from the modernization and productive restructuring of the agricultural sector, which redefine the activities of industry, commerce, and services, and the urban functions and centrality of medium-sized cities (Sposito *et al*, 2007; Santos, Silveira, 2001).

Medium-sized cities carry out functions of articulation, intermediation, and distribution of products, goods, services, information, orders, and capital, playing a strategic role in the urban and regional



production system. They also play a regional command role and consolidate their status as centers of decentralized private and public management. This occurs through headquarters and subsidiaries of companies, and through offices, branches, and regional units of federal and state public administration located there. Such cities thus reinforce their hierarchical position in the regional and state urban network (Silveira & Faccin, 2021; Moura e Werneck, 2001).

Regarding the nature of territorial management that medium-sized cities carry out in a territory, the conceptual definition by Corrêa (1996, p. 35) is understood as appropriate for this analysis; it says that “it makes up a facet of economic, political and social management, being subordinate to it, but also conditioning it. It is the spatial dimension of the general management process, confined to the space under the control of a State or a given company”.

When thinking about the territorial public management, but also about the private management that cities carry out in a given region or in a given territory, it is necessary to consider, as pointed out by Silveira *et al.* (2018, p. 68), the following:

Cities, as centers for the organization of social life, in their economic and political dimensions, and spaces for the concentration of population and productive activities and public and private services, are reference units in the territory in and from which different strategies and management actions are triggered by both the State and the Market. They intend to guarantee their reproduction, through a given spatial organization of their fixed locations, or geographic objects, and their flows or actions, in a multi-scale perspective: combining simultaneously and unequally management actions at the scales of the municipality, the region, the country, and the global space.

In other words, if, on a national and global scale, metropolises play a prominent role in territorial management, on a national and regional scale, medium-sized cities also stand out for their important role in managing the territories and regions in which they are located. This territorial management is expressed through the spatial relationships that these cities make happen and that they attract, and through the role of intermediation of different flows that they exercise.

By furthering and centralizing territorial management flows, medium-sized cities exert a certain regional influence, in addition to hierarchical command in the regional urban network. Public territorial management flows occur through the control that the State, through its organization and management of public services, establishes in/from the space. Private territorial management flows are related to the actions and strategies of organization, control and spatial use carried out



by companies through their headquarters located in these cities or subsidiaries of other companies attracted to these cities (Silveira *et al.*, 2021).

In both flows, the actions, relationships, and strategies aim to control the organization of the space. Or, as Corrêa (1992, p. 115) rightly points out: “the creation and control of spatial forms, their functions and spatial distribution, as well as certain processes such as spatial concentration and dispersion, which shape the organization of space in its origins and dynamics.”

Public management of the territory happens, above all, through the State, which produces and organizes the space, both through its economic activity and through the implementation of various sectoral public policies. It is up to the State, through its structure and services, to serve the population, be present in the territory, collect information, and organize public resources. Therefore,

State public institutions, in order to carry out their actions, are generally organized spatially in a multi-located manner, with various installations and offices in the Brazilian territory, having an internal hierarchical structure that reflects the given way in which the State manages the territory, through its various administrative bodies (Silveira *et al.*, 2018, p. 70).

From this perspective, the centrality and the roles of intermediation and command that these medium-sized cities play in the spatial relationships and interactions in their regions and in the organization and functioning of the regional urban network, through territorial public management flows, are essential dimensions for the analysis of dynamics and for the formulation of public policies for regional development.

## **MEDIUM-SIZED CITIES, URBAN NETWORK, AND FEDERAL AND STATE TERRITORIAL PUBLIC MANAGEMENT: METHODOLOGICAL APPROACHES**

The federative dimension of the public management contributes to several aspects pertinent to territorial management, especially in a country with a territorial area as large as Brazil. From this perspective, “Regions of Influence of Cities 2018” (REGIC) (Ibge, 2020) addresses the federal public management, intending to establish hierarchical centers in the Brazilian urban network. The location of institutional centers creates decision-making hubs, which form reference points for the provision of services and, therefore, creates specific management flows that directly impact territorial dynamics.



In the analysis of the centrality and spatial relationships that medium-sized cities have in their regions of influence and in urban networks, through the flows and networks of the public and private territorial management that they command, contributions from the central flow theory, developed by P. Taylor (2007) and Taylor, Hoyler and Verbruggen (2010), are also used. It also served as the foundation for the 2018 REGIC. This theory is based on the premise that every urban system is simultaneously made up of two processes: on the one hand, the city continues to have the role of providing public and private goods and services, polarizing its surrounding region in a contiguous manner, and, on the other hand, it is part of a network of long-distance connections, which interconnects in a selective and not necessarily hierarchical way. According to the authors, the first type of spatial relations and connections that the city promotes is called “town-ness”, corresponding to the relations with its hinterland, through which the city polarizes a region. The second type of spatial relations that the city establishes is “city-ness”, which occurs between cities beyond the hinterland or region of influence, being modeled in a reticular manner, without an effect of territorial coverage (Taylor, Hoyler e Verbruggen, 2010 e Ibge, 2018).

“City-ness” relationships are carried out through urban activities that make long-distance connections, linking cities of different sizes, as is the case with some private companies that export goods and services beyond the local market, and with relationships between headquarters and subsidiaries of the same company. But these are also the cases, in our understanding, when taking as a reference the scales of the national and state urban network, of non-contiguous relationships that cities establish with other cities through connections between units of multi-located public bodies, both at the federal level (for example, the Brazilian Social-Security Institute [INSS], the Federal Revenue Service, and the Federal Police) and at the state level (for example, the Military Brigade, the Civil Police, and the State Courts).

The methodology established in the 2018 REGIC study computes the centrality index of the federal public management in Brazilian cities. To this end, multi-located and decentralized institutions were selected at national level: the INSS, the Ministry of Labor and Employment, the Federal Revenue Service, the Federal Courts, the Regional Electoral Courts, the Regional Appellate Labor Courts, and the IBGE. The hierarchical levels of each institution were identified, and their



headquarters were mapped using data collected from their own websites and through direct requests (made by e-mail) during 2018 and 2019. These hierarchies are equalized in five levels of administrative management (Figure 1), so that the mathematical formula that assigns weights to each level is applied, expressing the importance of each one.

**Figure 1** | Classification of decentralized federal public units in their territorial management levels

Management Level	INSS	Labor Office	Federal Revenue Service	IBGE	Federal Courts	Electoral Courts	Labor Courts
5	Headquarters of INSS	Headquarters of the Labor Office	Headquarters of the Federal Revenue Office	Headquarters of IBGE	Superior Court of Justice	Superior Electoral Court	Superior Labor Court
4	Regional Offices	–	Fiscal Regions	–	Regional Federal Appellate Courts	–	–
3	–	Regional Labor Offices	–	State Units	Judicial Sections	Regional Electoral Courts	Regional Labor Courts
2	Management Offices	Regional Labor Management	Federal Revenue Offices and Trial Offices	–	Judicial Subsections	–	–
1	Branches	Regional Labor Branches	Federal Revenue Branches and Inspection Offices	Branches	–	Electoral Zones	Labor Courts

Source: IBGE, Office of Geosciences, Geography Department, Regions of Influence of Cities 2018.

According to the 2018 REGIC:

The number of public entities in the Cities was added, at each level, in order to compute the Public Management Centrality Index. To weight the centrality of each City, weights were assigned to each of the levels, so that a level has a weight twice as high as that of the immediately previous level (REGIC, 2018. p. 74).

The IBGE (2020) formulation for the Public Management Centrality Index was as follows:

$$CGP_j = IP_{1j} + (2 \times IP_{2j}) + (4 \times IP_{3j}) + (8 \times IP_{4j}) + (16 \times IP_{5j})$$

Where:

CGP<sub>j</sub> is City j's public management centrality

IP<sub>X</sub> is the number of public institutions of level X considered in City j.

The systematization of data by IBGE resulted in the creation of a scale of different levels of centrality of the federal public management, from 1 to 8. Where 1 designates the city with the highest, and 8, the city with the lowest Centrality Index in the context of the national urban network.



Regarding the state public management, as far as is known, there is currently no corresponding study that establishes quantitative and qualitative parameters for analyzing the centrality of cities in relation to territorial public management at the state scale of the urban network. This finding motivated us to build the state public management centrality index, based on the concept and methodology used by IBGE in REGIC (2018).

Thus, the methodology used by REGIC in the approach to the federal public management so that is possible to understand how spatial relationships between medium-sized cities and their regions of influence occur in the context of the urban network of Rio Grande do Sul was adapted. Furthermore, the 2018 REGIC also adopted, in its approach, the spatial unit of Population Arrangements (AP), created in its own study, published by IBGE in 2016 (Population Arrangements and Urban Concentrations in Brazil). “AP” is a term that refers to a group of municipalities with intense relationships, municipalities that are in a conurbation or that have a strong commuting movement for work or study, which, for these reasons, were considered as a single unit of analysis. In relation to the state public management, an individual analysis of data from each municipality was carried out, with data grouped in Population Arrangements not being considered.

In a similar way to the 2018 REGIC study, some state public management bodies with different structures and levels of decentralized territorial management were selected. Namely: Health, Education, and Security (Military Brigade and Civil Police), three of the main management sectors in the State with great influence on the daily life of the population; Autonomous Department of Highways (DAER), responsible for managing road transport and maintaining the road network, an essential infrastructure for the circulation of diverse flows and connection between cities and locations; Agriculture, given the importance of this sector in the State’s economic structure; Institute of Technical Assistance and Rural Extension (EMATER), responsible for technical assistance services to farmers; and the Registry of Commerce of the State of Rio Grande do Sul (JucisRS), responsible for the registration and opening of companies.

Those institutions were chosen with the aim that the main flows representing the way in which the State manages the territory are covered, taking into account their intensity and scope. In this sense, state units of basic management more distributed within municipal territories — for



example, health units and state schools — were not included in the research, because, given their significant number on the intra-municipal scale, they would make their use difficult for obtaining a Centrality Index that was more representative and coherent with that of the medium-sized cities on the scale of the state urban network.

Therefore, territory management levels were defined according to the administrative organizational structure of each state public body or institution (such information was extracted from the official websites of each of them). As shown in Figure 2, administrative management levels range from 1 to 3, with level 3 being the highest in the hierarchy, and level 1 being the lowest in the hierarchy.

**Figure 2 |** Administrative levels of state territorial public management

Management Level	Health	Education	Security		DAER	Agriculture	EMATER	JucisRS
			Military Brigade	Civil Police				
3	Offices	Offices	State Command	Police Chief's Office	Headquarters of DAER	State Office	Central Office	Headquarters of JucisRS
2	Regional Management Offices	Regional Management Offices	Regional Command	Regional Institutional Headquarters	Regional Supervision	Regional Supervision Offices	Regional Office	Regional Office
1	Hospitals with ICU Beds	–	Battalions	Stations	–	–	–	Service Station

Creation: the Authors, based on data from IEDE, 2022.

After collection and organization of the data relating to the location and number of state public management units/departments in the selected administrative sectors, they were mapped based on the “State Spatial Data Infrastructure” (Iede, 2019). Subsequently, the mathematical formulation developed by REGIC was adapted to the present study to build the Centrality Index for the state public management, as follows:

$$CGP_j = IP_{1j} + (2 \times IP_{2j}) + (4 \times IP_{3j})$$

Where:

CGP<sub>j</sub> is City j's public management centrality

IP<sub>X</sub> is the number of public institutions of level X considered in City j.

The systematization of the collected data allowed the creation of a scale of centrality levels of the state public management, from 1 to 8, in which 1 designates the city with the highest, and 8, the city with the lowest Centrality Index in the context of the state urban network.



## MEDIUM-SIZED CITIES AND TERRITORIAL PUBLIC MANAGEMENT: REGIONAL URBAN CENTRALITIES IN RIO GRANDE DO SUL

As outlined above, the analysis of the centrality exerted by medium-sized cities and regional centers in relation to federal and state public management was carried out based on the selection of a group of cities that perform important command functions and intermediation roles in different flows in the territories of the functional planning regions where they are located, and in the respective regional and state urban networks.

In Table 1, it is possible to see what the general demographic data of the municipalities and respective cities and functional regions analyzed were like in 2010 and in 2022 (IBGE, 2010 e 2022).

It is possible to see that the group of medium-sized cities and other regional centers have high urbanization rates. With the exception of Bagé and Santa Rosa, which in 2010 had rates of 84% and 88%, respectively, the other cities had rates equal to or greater than 90%. In addition to being the most populous cities in their respective regions, the significant population contingent combined with the greater complexity of the urban economy and the urban and regional centrality of these medium-sized cities largely justifies the establishment of decentralized management and service units and structures for state public bodies in them.

**Table 1 |** Demographic data of municipalities, medium-sized cities, and Functional Regions

Cities	Urban Population	Rural Population	2010		Urbanization Rate	2022	
			Total Population	Urbanization Rate		Total Population	Urbanization Rate
Santa Cruz do Sul	105,190	13,184	118,374	88.9%	133,230	99.6%	93,646
Lajeado	71,180	265	71,445	99.6%	93,646		
<b>Functional Region 2</b>	<b>505,954</b>	<b>239,910</b>	<b>745,864</b>	<b>151.2%</b>	<b>785,081</b>		
Osório	37,917	2,989	40,906	92.69%	47,400		
Tramandaí	40,577	1,008	41,585	97.58%	54,387		
<b>Functional Region 4</b>	<b>254,373</b>	<b>41,710</b>	<b>296,083</b>	<b>85.91%</b>	<b>372,615</b>		
Pelotas	306,193	22,082	328,275	93.27%	325,689		
Rio Grande	189,429	7,799	197,228	96.05%	191,900		
<b>Functional Region 5</b>	<b>705,261</b>	<b>137,945</b>	<b>843,206</b>	<b>83.64%</b>	<b>822,464</b>		
Bagé	97,765	19,029	116,794	83.7%	117,938		
Alegrete	69,594	8,059	77,653	89.6%	72,409		
Uruguaijana	117,415	8,020	125,435	93.6%	117,210		
<b>Functional Region 6</b>	<b>284,774</b>	<b>35,108</b>	<b>319,882</b>	<b>111.4%</b>	<b>724,606</b>		
Santa Rosa	60,366	8,221	68,587	88.0%	76,963		
Santo Angelo	71,804	4,471	76,275	94.1%	76,917		
Ijuí	71,550	7,365	78,915	90.7%	84,726		
<b>Functional Region 7</b>	<b>526,090</b>	<b>233,501</b>	<b>759,591</b>	<b>69.3%</b>	<b>760,771</b>		
Cruz Alta	60,594	2,227	62,821	96.5%	58,913		
Santa Maria	248,347	261,031	261,031	95.1%	271,633		
Santiago	44,735	4,336	49,071	91.2%	48,938		
<b>Functional Region 8</b>	<b>644,370</b>	<b>480,783</b>	<b>807,487</b>	<b>79.8%</b>	<b>791,324</b>		
Erechim	90,552	5,535	96,087	94.2%	105,705		
Carazinho	58,253	1,064	59,317	98.2%	61,804		
Passo Fundo	180,120	4,706	184,826	97.5%	206,224		
<b>Functional Region 9</b>	<b>760,004</b>	<b>309,265</b>	<b>1,069,269</b>	<b>71.1%</b>	<b>1,104,421</b>		
<b>Rio Grande do Sul</b>	<b>9,100,291</b>	<b>10,693,929</b>	<b>1,593,638</b>	<b>85.10%</b>	<b>10,880,506</b>		

Creation: the Authors, based on IBGE (2010, 2022), 2023.



In relation to the total urban and rural population of the analyzed regions, the existence of different urbanization rates is seen, influenced by the different land structures, demographic densities, and economic structures and activities that these municipalities and regions have. However, in all regions, it is possible to notice that the majority of the population lived in urban areas.

Another aspect that should be highlighted is the total population of these cities in 2022, when eight of them have between 100 thousand and 325 thousand inhabitants, and ten have between 47 thousand and 93 thousand inhabitants. Consequently, the theoretical conviction that it is not just the demographic contingent that matters for the identification of medium-sized cities is reinforced. To this end, regional centrality and urban and regional roles and functions are equally important, such as those exercised by these cities through the state public management in the region and in the urban networks in which they are located/a part of. These conditions are also important to assist the analysis of regional centers, such as Osório, Alegrete, Cruz Alta, Carazinho, and Santiago, which are potential medium-sized cities, as they share with the other cities analyzed (although with lower intensity) the roles of intermediation and polarization in the urban network, and support for territorial cohesion.

Guided by the methodological path outlined above, the level of centrality of public administration that each of the selected medium-sized cities and regional centers exercise (both in relation to federal and state public management) was defined in the context of their respective regional urban networks and functional planning regions. Thus, it is possible to better understand the regional centrality of these cities and identify similarities and differences, and the complementarity on the levels of regional centrality that the cities have.

## **MEDIUM-SIZED CITIES, CENTRALITY, AND FEDERAL TERRITORIAL PUBLIC MANAGEMENT**

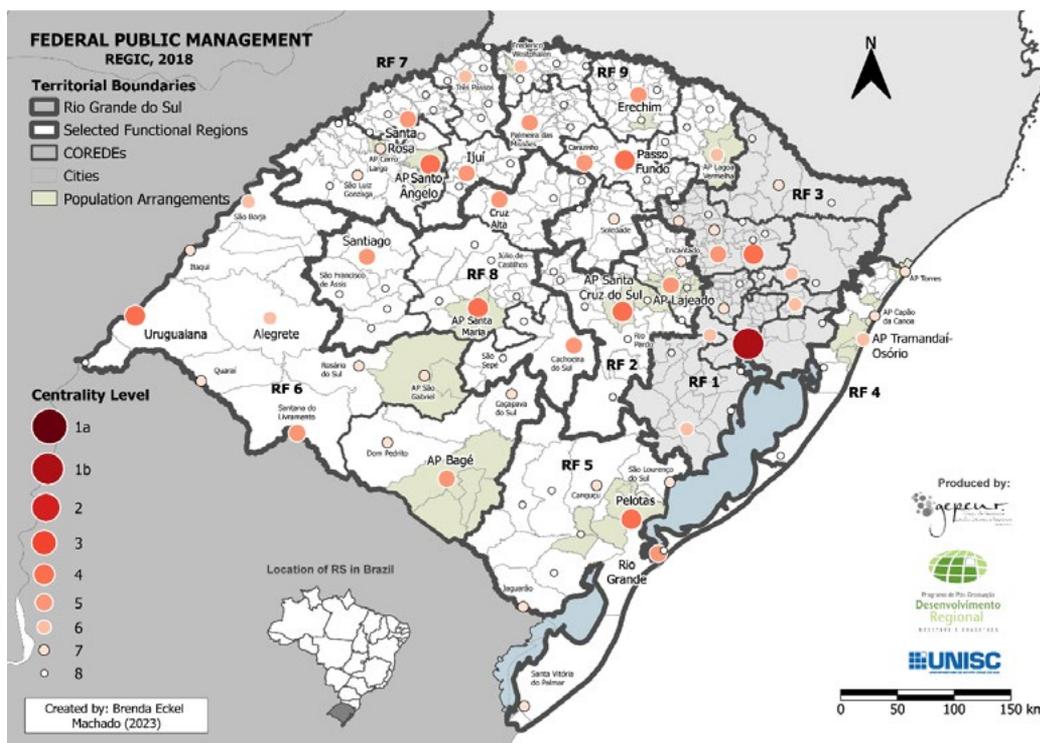
For the analysis of federal public management, it was found that the 2018 REGIC study covered institutions linked to the executive and judiciary powers, namely the INSS, the then Ministry of Labor and Employment, the Federal Revenue Service, the Federal Courts, the Regional Electoral Courts, the Regional Appellate Labor Courts, and the IBGE. As a result, some of the most representative institutions in the country, spatially distributed throughout the territory and with verticalized operations, were considered.



Their location had to be central and comprehensive, with the aim of easily attracting flows into the territory. In this way, the cities and municipalities where the decentralized units of these federal institutions are based become important points of territorial management.

Image 1, based on the centrality index, shows the Population Arrangement of Porto Alegre at level 1b — the highest centrality level in the state (level 1a belongs to the city of Brasília, in the context of the Brazilian urban network). At level 4, among the cities selected for analysis, there are the population arrangements polarized by the medium-sized cities of Santa Cruz do Sul, Santo Ângelo, Pelotas, and Santa Maria, and the medium-sized cities of Passo Fundo and Uruguaiiana. These medium-sized cities have the second highest level of centrality of federal public management in the state. Spatially more comprehensive, the level of centrality of these medium-sized cities arises from the existence in them of decentralized federal administrative units which, for the most part, have administrative levels of management 2 and 1 (see Figure 1), being intermediate instances of control, decision-making, and regulation or being responsible for carrying out administrative activities and providing more specialized public services to the population and urban and rural companies, not only in these municipalities, but also in the region.

**Image 1** | Cities and Centrality Levels of Federal Public Management in Rio Grande do Sul



Creation: the Authors, 2023.

The urban and rural economic structure and the socio-spatial dynamics existing in these regions based on activities of family farming, export agribusiness, and the food and metalworking industries and on a diversified sector of trade and specialized services and transport and logistics condition and stimulate the spatial relationships and interactions that these cities exercise through federal management. In some cases, the territorial management of these cities meets the demand of both the population and companies in municipalities located in neighboring functional regions, given the specificity of the services and the management hierarchy of the federal bodies that are headquartered in the medium-sized cities, as in the cases of Santa Maria and Passo Fundo.

Level 5 covers the population arrangements of Lajeado and Bagé, and the medium-sized cities of Rio Grande, Erechim, Santa Rosa, and Ijuí, in addition to the regional centers of Carazinho, Santiago, and Cruz Alta. Although they have a lower centrality index compared to previous cities, these cities also play an important role in federal public management in their regions, providing services through administrative units with management level 1, for the most part. The medium-sized cities of Bagé, Erechim, and Santa Rosa stand out; due to their location in international border regions or in regions bordering the state of Santa Catarina, they exercise their centrality within the scope of territorial management meeting demands related to flows of people, products, and cross-border services.

Level 6 is the slightly lower level of centrality covering cities such as Alegrete and the population arrangement of Tramandaí–Osório, which exercise federal territorial management in spatially less comprehensive areas within their respective RFs. Finally, the following centrality levels, 7 and 8, are exercised only by small cities through basic levels of federal management, in the context of the respective RFs and regional urban networks.

## **MEDIUM-SIZED CITIES, CENTRALITY, AND THE STATE TERRITORIAL PUBLIC MANAGEMENT**

In this topic, the centrality of medium-sized cities is analyzed in relation to state public management — in a complementary way to the approach carried out previously — based on data collected by IBGE through the 2018 REGIC. To this end, in the data analysis, the position of the medium-sized cities in the urban network and their location in the territory of the state of Rio Grande do Sul were taken as a reference.



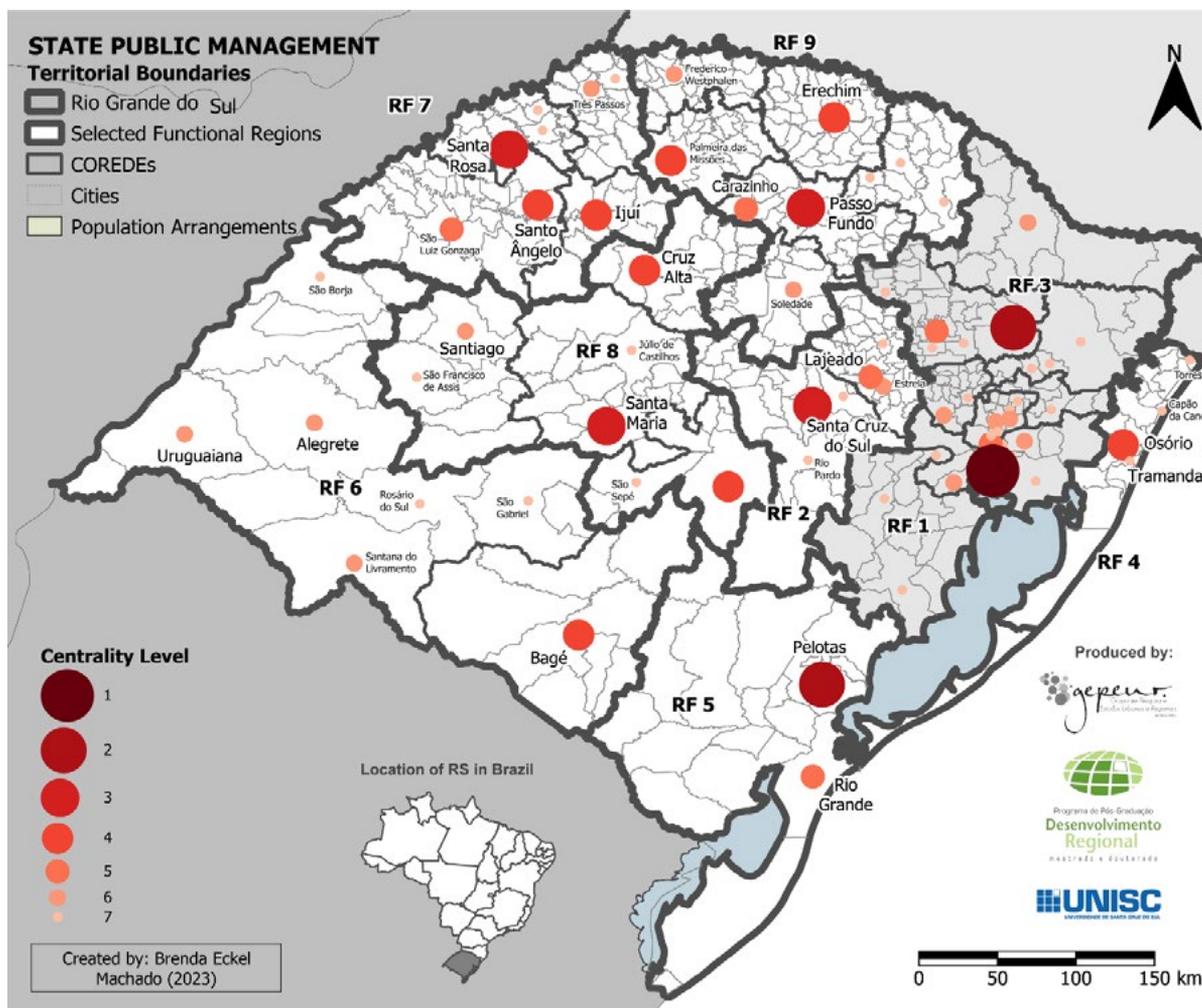
As a result of the methodology used, the various indices and levels of centrality are shown in Table 2 and Image 2.

**Table 2** | Index and level of centrality of state public management exercised by cities in Rio Grande do Sul

Cities	Functional Region	Index	Centrality Level
Porto Alegre	RF 1	76	1
Caxias do Sul	RF 3	29	2
Pelotas	RF 5	29	2
Passo Fundo	RF 9	26	3
Santa Maria	RF 8	25	3
Santa Cruz do Sul	RF 2	23	3
Santa Rosa	RF 7	23	3
Ijuí	RF 7	22	4
Bagé	RF 6	21	4
Erechim	RF 9	21	4
Santo Angelo	RF 7	20	4
Osório	RF 4	19	4
Cruz Alta	RF 8	19	4
Cachoeira do Sul	RF 8	19	4
Palmeira das Missões	RF 9	19	4

Creation: the Authors, 2023.

**Image 2** | Cities and centrality levels of state public management in Rio Grande do Sul



Creation: the Authors, 2023.

It is possible to see that the city of Porto Alegre has the highest level of centrality of state public management (level 1), as it — precisely because it is the seat of the state government — contains the central administrative units and offices of the state public institutions responsible for the highest hierarchical level that the state capital exerts on the state urban network.

Next are the medium-sized cities of Caxias do Sul and Pelotas, which have centrality level 2 in state public management. Second and fourth largest cities in the state in demographic terms, with respectively 463,338 inhabitants and 325,689 inhabitants (IBGE, 2022), these two cities are regional hubs, each with almost three dozen units and decentralized departments of state public management, which include different public sectors and administrative bodies of the government of Rio Grande do Sul. The medium-sized city of Pelotas exercises strong centrality in state public management, serving not only the population and companies located in the municipalities of Functional Region 5, but also some municipalities located in the southeast zone of Functional Region 6.

The centrality index of the medium-sized cities of Passo Fundo, Santa Cruz do Sul, Santa Rosa, and Santa Maria was at level 3. The city of Passo Fundo stands out as a regional hub for having 15 state public management department units, followed by Santa Maria, with 14 units, and Santa Cruz do Sul and Santa Rosa, with 12 units distributed across regional headquarters and offices. Passo Fundo stands out in the health sector, with 4 units, which makes it a reference for Functional Region 9, but also for municipalities in Functional Regions 8 and 7, in addition to also serving municipalities in the southwest of Santa Catarina.

Level 4 includes the medium-sized cities of Ijuí, Bagé, Erechim, and Santo Ângelo, the regional centers of Osório and Cruz Alta, and the cities of Cachoeira do Sul and Palmeira das Missões. At level 5, it is possible to see that 10 cities have this level of centrality. Among them, we have the medium-sized cities of Lajeado and Rio Grande, as well as Carazinho, a regional center. At these two levels of centrality, the cities analyzed have a number of regional headquarters or units of state public bodies that provide basic and specialized public services not only to their resident population, but also to the regional community.

In relation to the two lowest levels of centrality of state public management, it is seen that, among the eighteen cities at level 6, there is the medium-sized city of Uruguaiiana and the regional centers of Santiago, Alegrete, Santana do Livramento, and Frederico Westphalen. In relation to level 7, there are 28 municipalities in the state with this centrality index, with Tramandaí being the only medium-sized city



among those selected in the research. The remaining cities at this level are, for the most part, small cities. At these two levels, these cities have a smaller number of regional and decentralized units of state public bodies and a lower diversity of public services they provide. This contributes to their lower centrality in the territory, with regard to state public management.

As expected, in both spheres of public management, the city of Porto Alegre, as capital of the state of Rio Grande do Sul, has the highest centrality index as it hosts state institutions of higher hierarchical level, as well as for hosting the regional headquarters and offices of federal government bodies. Its centrality is not restricted to Functional Region 1 and covers the entire state territory.

As a result of the analysis, it was also possible to notice the existence of a better distribution in the regional territory of state and federal public management functions between medium-sized cities and regional centers that centralize the provision of these public services in some regions. These are the cases of the medium-sized cities of Santa Cruz do Sul and Lajeado, in Functional Region 2; the medium-sized cities of Passo Fundo and Erechim, and regional centers of Carazinho and Palmeira das Missões in Functional Region 9; and the medium-sized cities of Ijuí, Santo Ângelo, and Santa Rosa, in Functional Region 7.

In other regions of the state, it was seen that federal and state public management functions are less distributed between cities, with a greater concentration of decentralized state and federal public management establishments and bodies in some cities, increasing their centrality in the regional urban network. These are the cases of the medium-sized cities of Pelotas, in Functional Region 5, and Santa Maria, in Functional Region 8.

Another important aspect observed is the particular position that certain medium-sized cities and regional centers have in relation to centrality in federal and state public management, due to their economic functions and spatial location. The medium-sized city of Pelotas has a centrality index of 4 in federal management and higher centrality — at 2 — in state management. Likewise, the medium-sized cities of Santa Cruz do Sul, Santa Rosa, Passo Fundo, and Santa Maria have a centrality index of 5 in federal management and higher centrality (index 3) in state management. This also occurs with the regional centers of Osório and Cruz Alta, which respectively have centrality indexes of 6 and 5 in federal management and 4 in state management. These cities concentrate



most of the decentralized supply of state public services, exercising great centrality for their respective functional regions.

Another relevant aspect is the case of the medium-sized city of Uruguaiana, which, due to its location next to the border with Argentina, has a centrality index of 4 for federal management and lower centrality (index of 6) for state management. This result is due, on the one hand, to the greater concentration of federal security, control, and sanitary inspection, cargo and people services, and, on the other hand, the smaller supply of state services, whose distribution in Functional Region 6 is shared with the cities of Bagé, Alegrete, and Santana do Livramento.

## FINAL CONSIDERATIONS

The importance of reflection and analysis regarding the centrality and public management function that medium-sized cities exercise in territories is emphasized, so that it is possible to identify and better understand their contribution to the development processes of the regions and to the good functioning of the urban network and territorial cohesion, both in the context of regions and the state territory.

In the current context of expansion of neoliberalism, widening of socio-spatial inequalities, and increasing privatization of public services, it is necessary to highlight the importance of the role of the State, through its federal and state levels of government and through its decentralized administrative structures, in implementing public policies and in meeting the social, economic and infrastructural demands existing in cities and regions throughout the Brazilian territory.

It was possible to see how much medium-sized cities have an active participation in implementing these public policies, as they host various decentralized government bodies and units, whose area of coverage and functional and specialized activity involves local and regional spheres.

Based on this analysis, the particularities of each region and their territorial dynamics were observed in relation to the decentralized structures of federal and state public management existing in the Functional Regions, which, in turn, reinforce the centrality of medium-sized cities, their functional integration, and the socio-spatial relations that they mediate throughout the territory of Rio Grande do Sul.



It is worth highlighting the centrality that cities identified as regional centers exercise in relation to state public management in their regions, and it is important to continue the research, expanding the analysis in relation to their roles and intermediation functions, as well as their position and interrelations in the regional urban networks, in order to better examine the condition that they may also be identified as medium-sized cities in the regional and state contexts.

Finally, it is also necessary to note the importance of the data collected by IBGE and the new methodological research efforts to cover other public management levels, such as those organized at the scale of the states of the federation. This proves to be essential, given the particularity and importance of Brazilian federalism, due to the constitutional provisions regarding sharing and complementarity in the execution of public policies, and in the provision of basic and specialized public services to support social reproduction and socioeconomic development of municipalities and regions.

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