

GLOBAL SPATIAL INTERACTIONS FROM MEDIUM- AND SMALL-SIZED CITIES OF THE VALES REGION-RS-BRAZIL

Interações espaciais globais desde as cidades médias e pequenas da Região dos Vales-RS

Interacciones espaciales globales desde las ciudades intermedias y pequeñas de la Región de los Vales-RS



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ABSTRACT

This study intends to analyze global spatial interactions from medium- and small-sized cities through export and import flows. The cities of the Vales Region (RS) and their main productive sectors — tobacco, and chicken and pork meat — are used as a case study. In terms of methodology, this study is based on data from 2018 (before the COVID-19 pandemic) and identifies the main companies in each sector, mapping the destinations of exports and imports, as well as relating them to the urban network and the territorial division of labor. The results reveal that the medium-sized cities of Santa Cruz do Sul and Lajeado are integrated into the globalized economy due to the presence of multinational corporations, establishing spatial interactions triggered by these companies and global markets. On the other hand, in small cities in Vale do Taquari, regional companies and cooperatives play an important role, changing regional dynamics in order to compete with multinationals through a high volume of exports. The role of small cities, such as Westfália, Poço das Antas, and Encantado, stands out, as they export products from slaughterhouses and food factories. In the region, the distribution of companies with the largest quantity of exported products is concentrated in Santa Cruz do Sul and Venâncio Aires in the tobacco sector, while in Vale do Taquari there is a wider distribution of companies, due to the structure of the meat chain, something which directly reflects on the regional urban network and on horizontal and vertical spatial interactions.

Keywords: Spatial interactions; Medium- and small-sized cities; Vales Region (RS); Export and import flows; Multinational corporations.

Article History

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RESUMO

Este estudo objetiva analisar as interações espaciais globais desde cidades médias e pequenas, por meio dos fluxos de exportação e importação. Utiliza-se como estudo de caso as cidades da Região dos Vales-RS e os seus principais setores produtivos - o do tabaco e o da carne de frango e de suínos. Metodologicamente, se baseia em dados de 2018 (antes do período da pandemia de Covid-19) e identifica as principais empresas em cada setor, mapeando os destinos das exportações e importações, bem como relacionando com a rede urbana e a divisão territorial do trabalho. Resultados apontam que as cidades médias de Santa Cruz do Sul e Lajeado estão integradas à economia globalizada por meio da presença de corporações multinacionais, estabelecendo interações espaciais acionadas por essas empresas e pelos mercados globais. Por outro lado, em cidades pequenas do Vale do Taquari, empresas e cooperativas regionais desempenham um papel importante, alterando a dinâmica regional, na busca de competir com as multinacionais, por meio de um alto volume de exportação. Destaca-se o papel de cidades pequenas como Westfália, Poço das Antas e Encantado, que exportam produtos gerados por frigoríficos e fábricas de alimentos. Na região, a disposição das empresas com maior montante exportado é concentrada em Santa Cruz do Sul e Venâncio Aires, para o setor tabaqueiro, enquanto no Vale do Taquari há uma distribuição mais ampla de empresas, devido à estrutura da cadeia da carne, o que reflete diretamente na rede urbana regional e nas interações espaciais horizontais e verticais.

Palavras-chave: Interações espaciais; Cidades médias e pequenas; Região dos Vales-RS; Fluxos de exportações e de importações; Corporações multinacionais.

RESUMEN

Este estudio tiene como objetivo analizar las interacciones espaciales globales desde ciudades medianas y pequeñas, a través de flujos de exportación e importación. Se utilizan como estudio de caso las ciudades de la Región de Vales-RS y sus principales sectores productivos - tabaco, pollo y cerdo. Metodológicamente, se basa en datos de 2018 (antes del período de la pandemia de Covid-19) e identifica las principales empresas de cada sector, mapeando los destinos de las exportaciones e importaciones, así como relacionándolos con la red urbana y la división territorial de mano de obra. Los resultados indican que las ciudades medianas de Santa Cruz do Sul y Lajeado están integradas a la economía globalizada a través de la presencia de corporaciones multinacionales, estableciendo interacciones espaciales desencadenadas por estas empresas y los mercados globales. Por otro lado, en las pequeñas ciudades del Vale de Taquari, las empresas y cooperativas regionales juegan un papel importante, cambiando la dinámica regional, en la búsqueda de competir con las multinacionales, a través de un alto volumen de exportaciones. Se destaca el papel de pequeñas ciudades como Westfália, Poço das Antas y Encantado, que exportan productos generados por mataderos y fábricas de alimentos. En la región, la distribución de las empresas con mayor valor exportado se concentra en Santa Cruz do Sul y Venâncio Aires, para el sector tabacalero, mientras que en Vale do Taquari hay una distribución más amplia de empresas, debido a la estructura de la cadena de la carne, que se refleja directamente en la red urbana regional y en las interacciones espaciales horizontales y verticales.

Palabras clave: Interacciones espaciales; Ciudades intermedias y pequeñas; Región de los Vales-RS; Flujos de exportaciones e importaciones; Corporaciones multinacionales.

1 INTRODUCTION

Research on global spatial interactions has been used in case studies related to the impact of the presence of multinational corporations in regions and, more recently, in the development dynamics of small- and medium-sized cities. This helps to understand the deficit or surplus in product supply between cities and regions, and also helps to understand regional urban networks and interactions between different locations.

The term “spatial interaction” was popularized by American geographer Edward Ullman from his book *Geography as Spatial Interaction*, published in 1980. Since then, several works have been published taking into account the notion of “spatial interaction”, this concept being frequently applied to case studies, whether quantitative works on spatial movements or qualitative works on local/global connections and contexts.

Ullman (1980) proposes three interdependent conditions for the concept of spatial interactions. The first, complementarity, refers to the demand, or deficit, for a product in one location and supply, or surplus, of the same product in another location. The second, transferability, is the possibility of interactions between locations overcoming distance, time, and cost. That is, although there is a complementary supply and demand relationship between locations, if the transfer cost is greater than the benefits derived, no interaction will occur. The third factor refers to the absence or insufficiency of intermediate opportunities between two complementary locations. In this case, the flows that would occur between these locations can be diverted to a third location, if this is a closer complementary alternative with a cheaper overall transportation cost.

In Brazil, geographer Roberto Lobato Corrêa (1997, 2022) has dedicated himself to the subject and encouraged the use of the term and its application in empirical studies, indicating that this topic has renewed importance in a world that is rapidly becoming more complex in its spatial interactions. Corrêa (1997, p. 279) defines spatial interactions as constituents of a “broad and complex set of movements of people, goods, capital, and information over geographic space” and says that they can have variable intensity, frequency, distance, and direction.

In addition, as explained by Catão, Reolon and Miyazaki (2010), the expression “spatial interactions” refers to a reciprocal action of two or more points in space, or also to the interdependence between distinct geographic areas. Furthermore, these interactions can also be characterized in terms of different flows of various items, such as goods, passengers, migrants, capital, and information.

Therefore, this work aims at analyzing the global spatial interactions in which medium and small cities participate through export and import flows. To this end, the starting point is a case study of the Vales Region, in which the main productive sectors of the region are analyzed, notably the tobacco, and chicken and pork meat production sectors.

The aim is to focus on “medium-sized cities” and “small-sized cities” to analyze spatial interactions. In relation to medium-sized cities, it is taken into account that this category does not just represent a demographic indication, but expanded determinations about cities that play a “role of regional command, performing intermediation functions between larger and smaller cities in their urban network” (Sposito, 2014, p. 28). Determinations are defined based on the regional context, including: a) centralization of regional economic activities; b) presence of State public facilities in the territory, considering regionally established networks and flows; c) movement of people and goods through transport and logistics networks; and d) influence on territorial governance (Sposito, 2007).

Regarding small cities, Endlich (2017) points out that reflecting on them leads to the very conceptualization of a city, that is, the threshold of the settlement in question must be taken into consideration, as a city must have a minimum complexity to be understood as such. It is worth remembering that, in Brazil, the seat of a municipality officially corresponds to a city. However, this legal definition, used by the State, does not serve as a qualifier for characterizing small cities (Jurado da Silva; Sposito, 2009). It is possible to understand small cities, according to Corrêa (1999), as those in which there is: a) a population nucleus in which a certain part of the population is engaged in activities linked to the transformation and circulation of goods and the provision of services; b) a nucleus with the seat of the municipal government; c) a local center that exercises centrality in relation to its municipal territory, or its hinterland, which can be better defined in terms of the degree of centrality than in terms of demographic size.

Methodologically, the analysis was based on data referring to the total exported and imported by sector and by municipality, for the year 2018, according to the Brazilian Foreign Trade Statistics (Comex Stat). It is understood that the selected time frame helps to understand the reality of the region prior to the COVID-19 pandemic. Based on the identification of the main companies in each sector, the destinations of exports and imports were mapped, and the most influential companies in each medium and small city in these regions were identified. These companies were identified and located through access to the National Register of Corporate Taxpayers (CNPJ) and the Ministry of Agriculture, Livestock

and Supply (MAPA) databases in July 2020, and they have also been verified during field trips carried out in 2020.

The headquarters and subsidiaries of the selected companies were mapped in order to present the territorial division of labor for each of them. The companies chosen in the tobacco sector were multinationals Philip Morris Brasil S.A., Souza Cruz Ltda. (British American Tobacco — BAT Brasil), Japan Tobacco International — JTI Processadora de Tabaco do Brasil Ltda., Alliance One Brasil Exportadora de Tabacos Ltda., and Universal Leaf Tabacos Ltda. In the chicken and pork meat sector, six companies were identified: Brazilian multinational BRF S.A. (resulting from the consolidation of national companies Sadia and Perdigão), Cooperativa Dália Alimentos, Cooperativa Languiru, Companhia Minuano Alimentos, and Faros Industria de Farinha de Ossos Ltda.

Finally, these data were analyzed using tables, thematic maps, and Microsoft Excel and QGIS software. After identifying the main companies in the productive sector, as well as the destinations of exports and imports, it is possible to assess the influence of these multinational corporations and local companies on regional and global spatial interactions. Furthermore, mapping the companies' headquarters and subsidiaries makes it possible to understand the territorial division of labor of each of them, which helps to understand how these companies are geographically distributed and how they influence regional spatial interactions.

2 CHARACTERIZATION OF THE VALES REGION AND ITS MAIN PRODUCTION ACTIVITIES

The Vales Region is located in the central-eastern zone of Rio Grande do Sul and corresponds to the junction of the sub-regions of the Regional Development Councils (Coredes) of Vale do Rio Pardo and Vale do Taquari. The region has a total population of 785,081 inhabitants, which represents an increase of 5.3% (IBGE, 2022). According to the most recent data available (2010 Census), the region's population is predominantly urban: 68% live in urban areas and 32% in rural areas. Although the urban population predominates in the region, of its 59 municipalities, 35 have more than 50% of the population residing in rural areas (IBGE, 2010). The cities of Santa Cruz do Sul and Lajeado stand out as the main urban centers among the municipalities in the region, with populations of 133,230 and 93,646 inhabitants, respectively (IBGE, 2022).

According to Silveira *et al.* (2019, p. 72), these cities can be called medium-sized due

to the significant population they have in relation to the region in which they are located and their roles in intermediating flows between the surrounding municipalities and the metropolis of Porto Alegre. The authors highlight the roles of the two cities as territorial management centers, given the location of government seats at state and federal level, and head offices and subsidiaries of companies that are relevant in the regional context (such as, for example, the tobacco companies in Santa Cruz do Sul and the poultry slaughterhouses in Lajeado). This definition is in line with what Sposito (2007, 2014) says, linking the definition of a medium-sized city with the economic, demographic and regional flow contexts.

In this sense, Gross Value Added (GVA) is considered an important indicator to analyze the regional economy, as it represents the value of each sector of the economy (agriculture, industry, and services) added to the final value of everything that was produced in the region. There is significant importance of the services sector in most municipalities, since it represents more than 50% of the GVA composition in 28 of the 59 municipalities in the region, with the main demographic centers standing out: Sobradinho (75.8%), Lajeado (74%), Vera Cruz (71%), and Santa Cruz do Sul (69%) (IBGE, 2017).

Regarding the industrial sector, it is a highlight in the two medium-sized cities, but especially in some small cities. However, its high performance in these small cities is often due to one or two large companies established there and which end up concentrating the municipal industrial GVA. This is the case in Muçum, where there is a furniture factory and a tannery; Roca Sales, where there is a Beira Rio shoe factory, a JBS slaughterhouse, and a tannery; Imigrante, where there is a wire drawing factory and a chemical factory; Santa Clara do Sul, where there are footwear and metallurgy companies; and Mato Leitão, where there is a shoe factory. Among them, Arroio do Meio and Teutônia stand out due to the presence of a greater number and more diverse range of factories (IBGE, 2017).

In relation to Agricultural GVA, in 36 of the 59 municipalities in the region — notably in small ones — agricultural activities account for 30% to 59% of municipal GVA, which indicates that this is a sector with great participation in the regional economic dynamics (IBGE, 2017).

Regarding agricultural products, temporary crop production predominates in Vale do Rio Pardo, especially tobacco, whose production is concentrated in the central-northern area of the sub-region. To the south, in the municipalities of Rio Pardo, Pantano Grande, and Encruzilhada do Sul, the agricultural structure is similar to that of the southern half of the state, differing due to its greater concentration of land, and production of rice and beef cattle and dairy cattle in addition to forestry. In relation to the converting industry, the

manufacture of tobacco products predominates, representing 80% of the total. In second place is the manufacturing of food products (7.2%), with emphasis on slaughter and the manufacture of meat products (3.94%). To a lesser extent, there are the metalworking segment and others (such as leather and footwear, rubber products, and plastic material), whose share does not exceed 2% of the total (Rio Grande do Sul, 2015a).

In Vale do Taquari, regarding the agricultural sector, livestock production predominates, with the raising of pigs and dairy cattle (for milk production) and, in particular, the raising of poultry. In the converting industry sector, the food products segment predominates, with a 69% share and with an emphasis on slaughtering activities and manufacturing of meat products (29%), dairy products (16%), and milling, manufacturing of starch and animal feed products (14%). In second place is the leather preparation and manufacturing of leather articles, travel accessories, and footwear segment (13.3%), especially the manufacturing of footwear (9%). Other segments do not reach 5% share in the sector's GVA (Rio Grande do Sul, 2015b).

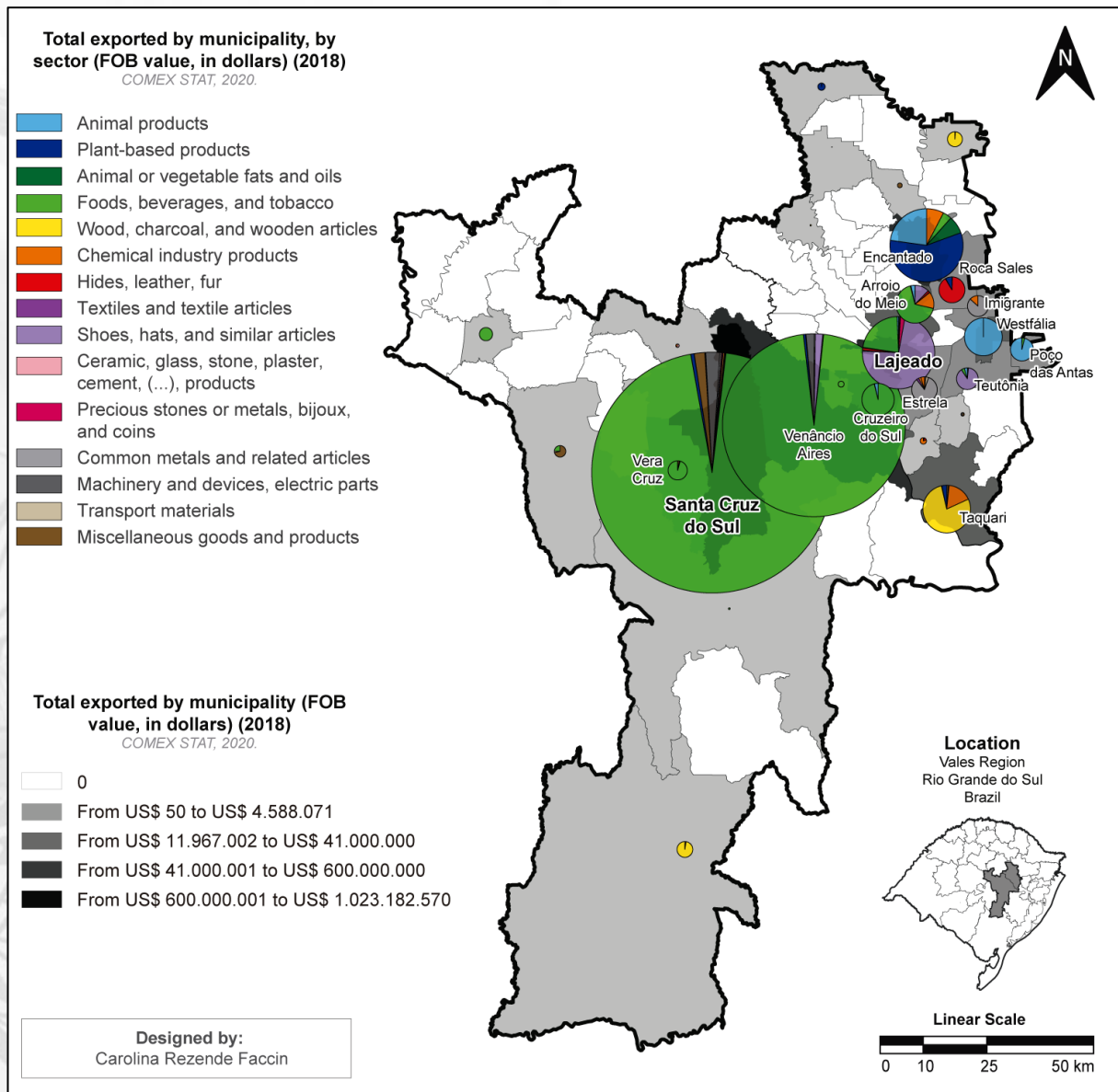
In relation to the sectors with the highest number of formal jobs, the manufacturing of food products (32.4%), leather preparation and manufacturing of leather articles (23.3%), manufacturing of tobacco products (6.6%), and manufacturing of metal products (6.3%) stand out. The lower proportion of employees in the tobacco product manufacturing segment is due to the majority of jobs being temporary, with workers being hired only during the harvest period; therefore, they are not accounted for in the RAIS (*Annual List of Social Information*) data (RAIS, 2018).

In summary, in Vale do Rio Pardo, the economy is predominantly structured around the agro-industrial processing of tobacco, and, in Vale do Taquari, the slaughter and manufacture of chicken and pork products. Furthermore, there is a hegemonic presence of subsidiaries of multinationals linked to these sectors in the region.

3 EXPORT AND IMPORT FLOWS IN THE VALES REGION (RS)

In the Vales Region, tobacco represents 77% of total exports, making it the most exported product in the region. Image 01 shows the total exported by municipality in the region and the percentage by sector in 2018. Santa Cruz do Sul and Venâncio Aires are the municipalities that export the most products, with the majority of this total corresponding to processed tobacco (89.75% of total exports from Santa Cruz do Sul and 90% of total exports from Venâncio Aires).

Image 01 – Total exported by sector in the municipalities of the Vales Region (FOB value, in dollars) — 2018



Source: Created by Carolina Rezende Faccin, based on Comex Stat (2018).

Vale do Rio Pardo exports mostly processed tobacco, and to a lesser extent, machinery, devices, and mechanical instruments, footwear, furniture, seeds and grains, and children’s toys. Vale do Taquari, in turn, has a greater diversity of products that stand out quantitatively in terms of export: parts of footwear, yerba mate, MDF panels, poultry meat and offal, confectionery products, pig meat and offal, and flours, powder and pellets produced from poultry and pig slaughter waste.

Table 01 shows the 15 primary products exported by municipality and the trade names of the main companies exporting each of these products, in 2018, according to data

from Comex Stat and field research. Products from the tobacco sector are marked in green, and products from the poultry and pork meat sector are marked in orange.

Table 01 – Vales Region (RS): 15 primary products exported by municipality and the trade names of the main export companies - 2018

Municipality	Exported products (2018)	FOB (US\$)	%	Trade name
Santa Cruz do Sul	Unmanufactured tobacco	915,016,587	45.6	JTI Processadora de Tabaco do Brasil Ltda.; Philip Morris Brasil S/A; Universal Leaf Tabacos Ltda; Souza Cruz Ltda
Venâncio Aires	Unmanufactured tobacco	545,637,316	27.2	Alliance One Brasil Exportadora de Tabacos Ltda.
Lajeado	Parts of footwear	66,794,197	3.3	Atlas Brasil Calçados Ltda
Encantado	Yerba mate	54,561,724	2.7	Baldo SA Comercio Industria e Exportacao
Santa Cruz do Sul	Other tobacco products and their substitutes, and manufactured products	49,545,780	2.5	JTI Processadora de Tabaco do Brasil Ltda.; Philip Morris Brasil S/A; Universal Leaf Tabacos Ltda, Souza Cruz Ltda
Taquari	Particle boards and similar wood panels	31,482,703	1.6	Duratex S.A.
Westfália	Edible poultry meat and offal	25,413,533	1.3	Cooperativa Languiru Ltda.
Venâncio Aires	Other tobacco products and their substitutes, and manufactured products	24,163,674	1.2	Alliance One Brasil Exportadora de Tabacos Ltda.
Lajeado	Cocoa-free confectionery products	19,223,834	1.0	Docile Alimentos Ltda, Florestal Alimentos S/A
Encantado	Meat from the swine	18,342,783	0.9	Cooperativa Dalia Alimentos Ltda
Cruzeiro do Sul	Flours, powder, and pellets from meat and offal unfit for human consumption	17,741,076	0.9	Faros Industria de Farinha de Ossos Ltda
Muçum	Bovine or equine leather further prepared after tanning	10,720,207	0.5	Curtume Cbr Ltda
Santa Cruz do Sul	Cigars, cigarillos, and tobacco cigarettes or their substitutes	10,219,242	0.5	JTI Processadora de Tabaco do Brasil Ltda.; Philip Morris Brasil S/A
Estrela	Reservoirs, cans, boxes and similar containers made of cast iron, iron or steel	9,874,748	0.5	Brasilata S A Embalagens Metalicas
Arroio do Meio	Sausages and similar products made from meat, offal or blood	8,626,667	0.4	Companhia Minuano de Alimentos
–	Other products	198,331,884	9.9	–
–	Total	2,005,695,955	100	–

Source: Created by the authors, based on Comex Stat (2018).

The municipalities of Santa Cruz do Sul and Venâncio Aires stand out for their exports of unmanufactured tobacco (representing 45.6% and 27.2%, respectively, of the region's total exports). Regarding the chicken and pork meat production sector, the highlights are:

Westfália, where Languiru's poultry slaughterhouse is located, due to the export of poultry meat (1.3% share of total exports); Encantando, where Cooperativa Dália's pig slaughterhouse is located, due to the export of pig meat (0.9%); Cruzeiro do Sul, where Faros Indústria de Farinha de Ossos Ltda. is located, responsible for animal rendering and export of meat flours (0.9%); and Arroio do Meio, due to the export of meat sausages by Companhia Minuano de Alimentos (0.4%) (Comex Stat, 2018) (Table 01).

In addition to the tobacco and meat sectors, the following companies stand out in the Vales Region: Atlas Brasil Calçados Ltda., in Lajeado, for the exports of footwear parts (3.3% share of the region's total exports); Baldo S.A., in Encantado, for the exports of yerba mate (2.7%); Duratex S.A., in Taquari, for the exports of wood particle panels (1.6%); Curtume CBR Ltda., in Muçum, for the exports of leather (0.5%); and Brasilata S.A., in Estrela, for the exports of iron or steel reservoirs (0.5%) (Comex Stat, 2018) (Table 01).

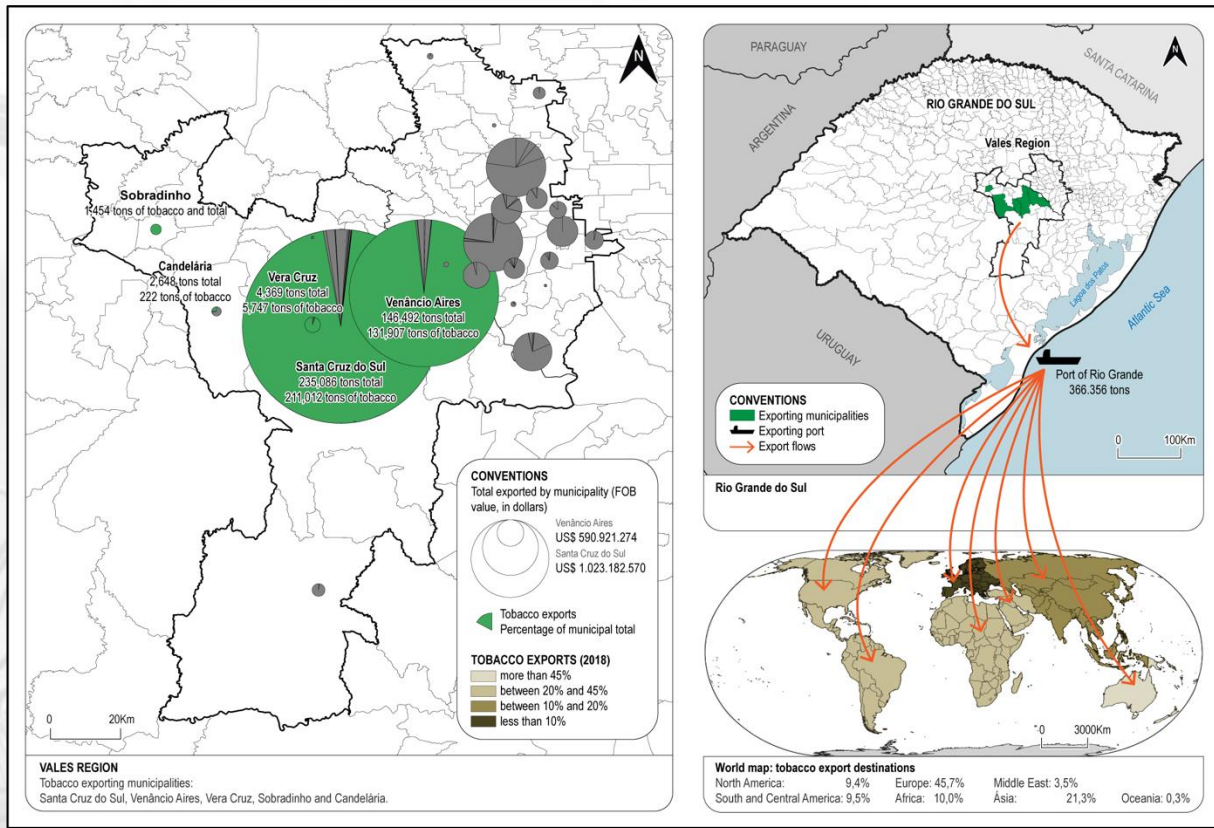
The tobacco industry is also the primary importer of products in the Vales Region. In Santa Cruz do Sul, the following imports are made: tobacco cigarettes (representing 5.9% of the region's total imports); unmanufactured tobacco (2.0%); and machinery and devices for tobacco processing (1.7%). In Venâncio Aires, unmanufactured tobacco is imported (4.9% share) (Comex Stat, 2018). In these municipalities, tobacco imports are recurrent, as the region does not always produce certain varieties of the product that are needed for blends. Different blends mean the combination of different types of tobacco in specific proportions in order to create a final mixture with different characteristics and flavors.

Other imports carried out by municipalities in the Vales Region are also worthy of note: fresh or chilled fish, in the municipality of Teutônia (representing 4.9% of the regional total); heterocyclic nitrogen compounds (4.5% share), sulfonated, nitrated or nitrosated derivatives (2.3%), and heterocyclic oxygen compounds (1.7%) by Adama Brasil S.A., located in Taquari; and flat-rolled iron or steel products (4.2%) by Brasilata S.A, located in Estrela (Comex Stat, 2018).

Image 02 shows the total (in tons) of tobacco exported by municipality in the Vales Region, as well as the destination of exports, which are made via the Port of Rio Grande, through which 366,356 tons of processed tobacco passed in 2018.

Tobacco transportation to the port, according to Silveira (2007, p. 456), "has been carried out basically by road, using trucks with tobacco containers". The destination of 45.7% of exports is the European continent, followed by Asia (21.3%), Africa (10%), South and Central America (9.5%), North America (9.4%), Middle East (3.5%), and Oceania (0.3%) (Comex Stat, 2018; Embrapa, 2019).

Image 02 – Total tobacco exports in the Vales Region and destination of exports - 2018



Source: Created by Carolina Rezende Faccin, based on Comex Stat (2018) and Embrapa (2019).

Cigarettes are also exported by road, which in 2018 totaled 879,905 kg exported to Paraguay (275,400 kg), Chile (227,647 kg), Bolivia (215,124 kg), and Uruguay (161,734 kg) (Comex Stat, 2018).

In Image 04 it is possible to see the total exports related to the chicken meat, pork meat, and animal rendering sectors, including the destination of these exports. These exports are carried out through the Port of Rio Grande, from where 32,776 tons of chicken meat and offal, 39,572 tons of slaughter waste, and 17,275 tons of pork meat and offal come from the municipalities of the Vales Region.

In 2018, exports of chicken meat and offal were predominantly made via three municipalities: Westfália (21.7 thousand tons), Arroio do Meio (9.5 thousand tons), and Lajeado (1.5 thousand tons). The destinations of these exports are mainly the African continent (especially Nigeria and South Africa) and the Middle East (United Arab Emirates, Yemen, and Iraq in particular).

The municipality of Cruzeiro do Sul stands out, in the Vales Region, for its exports of flours, powder, and meat pellets, totaling 39.7 thousand tons exported. The main destinations for these exports are Asia (with the largest exports to Vietnam), South and Central America (especially Chile and Colombia), and Africa (mainly South Africa).

Finally, in 2018, in terms of exports of pork meat and offal, the municipalities of Encantado (12.2 thousand tons exported) and Poço das Antas (6.7 thousand tons) stood out. Among the main destinations for these exports, the Asian continent (mainly Vietnam, Hong Kong, and Singapore) stands out, due to the high consumption of pork there, and, to a lesser extent, South America (Uruguay and Argentina).

The numerous exports of chicken meat to the Middle East are justified by the tradition of Brazilian slaughterhouses in the Halal production process. Muslim countries in the Middle East, and some on the African continent, require the preparation of food within Islamic precepts of Halal production.

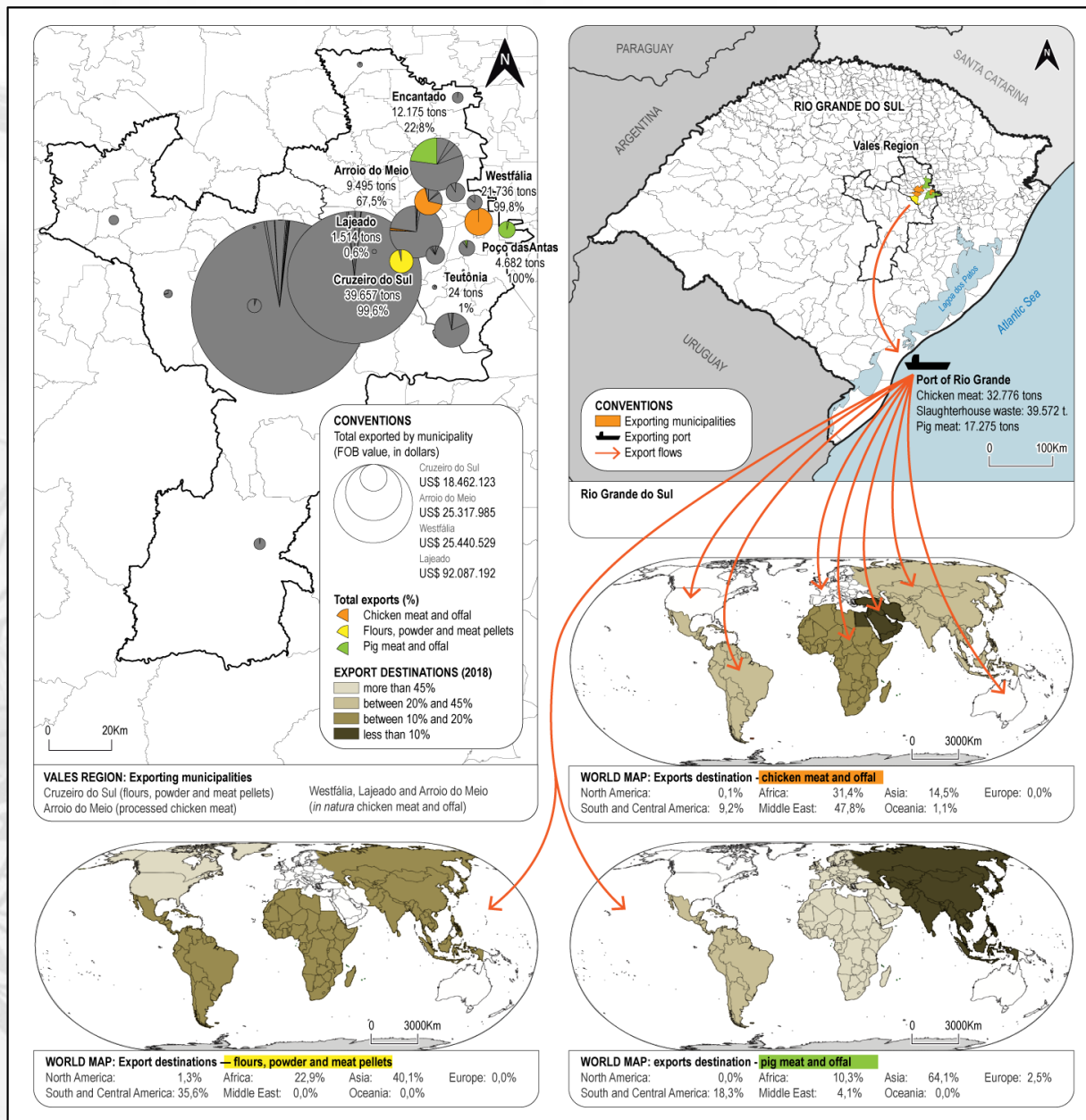
It is worth mentioning that poultry exports use essentially national inputs and labor, since the main inputs in the production chain (such as corn and soy, used in animal feed production) are products found in abundance in Brazil (UBABEF, 2011).

Empirical data reveal that, in the current international economic and financial scenario, globalization has been responsible for a growing increase in interactions between cities, with the aim of making territories more competitive and complementary. Tobacco, being the most exported product from Vale do Rio Pardo, as well as chicken and pork meat, exported from Vale do Taquari, illustrate how medium and small cities are inserted in global production and trade networks, increasing their competitiveness.

According to Catelan (2013, p. 68): "Flows reveal and determine fluidity, porosity, centrality, and spatial and economic concentration, and spatial interactions are important elements that, in analysis, can show the complexity that exists in geographic networks, beyond the rigid structure of hierarchical levels."

Observing the flows, it is possible to understand both the space and the movement that differentiates and connects it in the process of capital reproduction. Even more so, given the current globalization context, which obeys, among some aspects, a logic specific to multinational corporations, which establish networks of interactions and global flows. In this sense, in the following topic, the presence and the distribution of these corporations in the territory will be addressed.

Image 03 – Total exports of chicken meat, pork meat, and animal rendering in the Vales Region, and destination of exports — 2018



Source: Created by Carolina Rezende Faccin, based on Comex Stat (2018) and Embrapa (2019).

4 CORPORATIONS AND COMPANIES IN THE TOBACCO AND MEAT PRODUCTION SECTORS

Corrêa (2006, p. 255) characterizes corporations “among other aspects, by the wide scale of operations, the diversity of their activities, the segmentation of their units, and the multiple locations of directly or indirectly controlled production units”.

It is possible to complement this definition, also in the words of Corrêa (1991, p. 62):

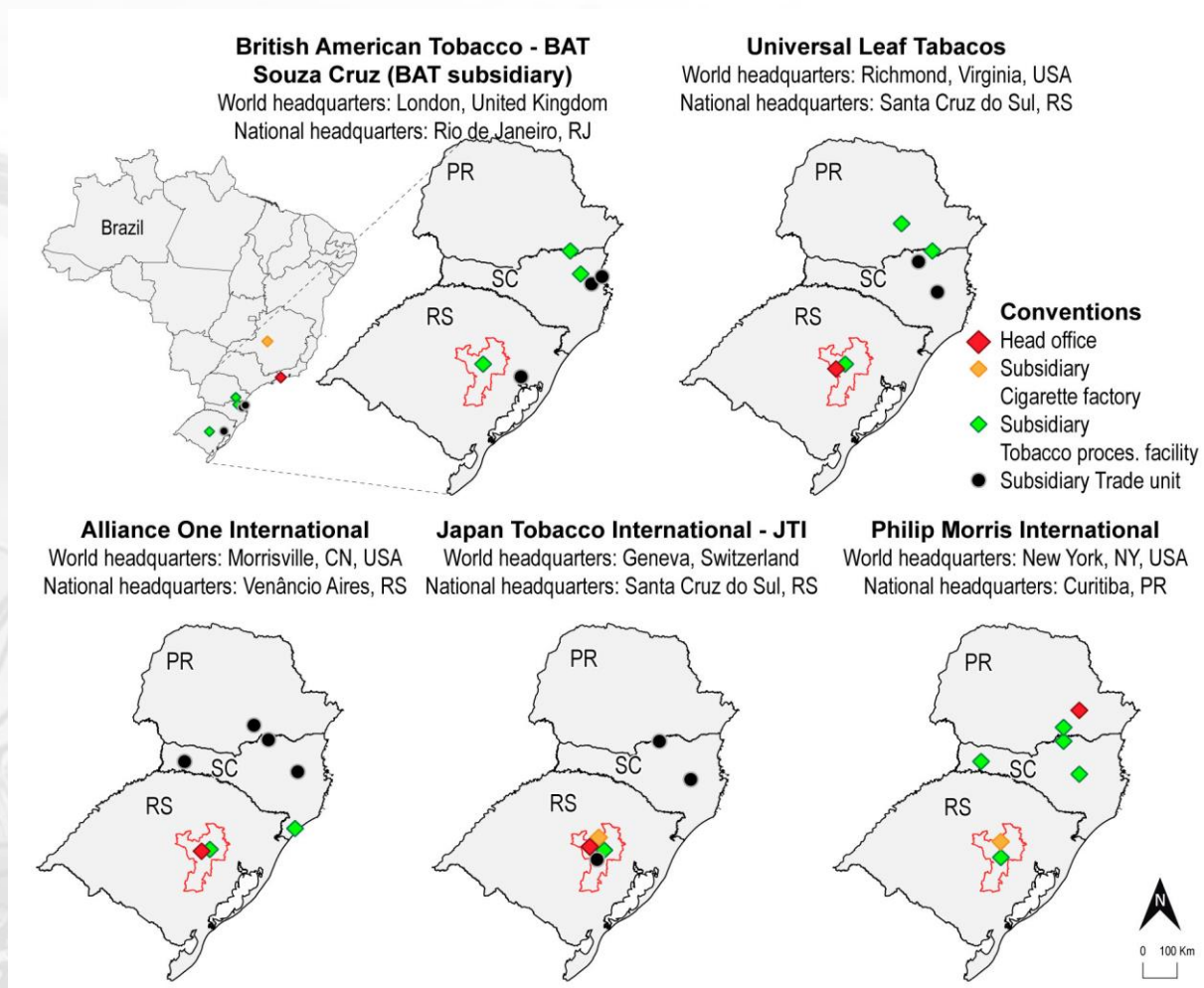
A large multifunctional and multi-located corporation has, in terms of its spatiality, not only diverse locations, but also intense and complex spatial interactions, involving, on the one hand, its own locations and, on the other, numerous companies and groups. In other words, a large corporation's operating space is broad, making up a vital means for its existence and expanded reproduction. This space is, on the other hand, subject to the action of the corporation, being differentially altered in its dimensions and social and economic contents.

Image 04 shows the location of purchasing stations and industrial tobacco processing and cigarette manufacturing units of multinational tobacco companies in Brazil, notably Souza Cruz (a subsidiary of British American Tobacco — BAT), Universal Leaf Tabacos, Alliance One International, Philip Morris International, and Japan Tobacco International (JTI). With the exception of Souza Cruz and Philip Morris, whose head offices are in Rio de Janeiro and Curitiba, respectively, all others have their national headquarters located in Santa Cruz do Sul and Venâncio Aires.

Souza Cruz was founded in 1903 and acquired by Anglo-American group British American Tobacco (BAT) in 1914. The company has its national headquarters located in Rio de Janeiro (RJ) and its international headquarters in London, England. In 1917, it opened its first processing plant in Santa Cruz do Sul and, from 1927, its cigarette manufacturing operations were expanded to other states in Brazil (Buainain; Souza Filho, 2009). Currently, the company has a cigarette factory in Uberlândia (MG), a distribution center in Cachoeirinha (RS), and three processing plants in Rio Negro (PR), Timbó (SC), and Santa Cruz do Sul (RS).

Universal Leaf Tabacos and Alliance One deal with tobacco processing, and their activities consist of selection, purchase, processing, packaging, and storage of tobacco leaves. They are processing companies that, according to Buainain and Souza Filho (2009, p. 128), “operate as intermediaries between tobacco producers, who make decisions related to the supply of raw materials, and cigarette companies, who make decisions related to demand of processed tobacco”.

Universal Leaf Tabacos was established in Brazil in 1970, with national headquarters in Santa Cruz do Sul and international headquarters in Richmond, United States. In Santa Cruz do Sul, in addition to the head office, there is also a leaf tobacco processing unit. In addition to this unit, the company also has two others, in Rio Negro and Imbituva (Paraná).

Image 04 – Territorial division of labor of tobacco multinationals in Brazil - 2020

Source: Created by Carolina Rezende Faccin, based on the Federal Revenue Office (2020) and research data.

Alliance One emerged in 2004, after the consolidation of Dimon Incorporate and Standard Commercial Corporation, both USA multinationals. Dimon had been present in Vale do Rio Pardo since 1996, following the purchase of pre-existing production units in Santa Cruz do Sul, Venâncio Aires, and Vera Cruz (Silveira, 2007, p. 414). Currently, its national headquarters are located in Venâncio Aires, and it has tobacco processing units in Venâncio Aires (RS) and Araranguá (SC). Its international headquarters are located in Morrisville (USA).

Japan Tobacco International (JTI), with international headquarters in Geneva, Switzerland, and national headquarters in Santa Cruz do Sul, was established in Brazil in 2000, through a business office in Rio de Janeiro. In 2009, following the acquisition of companies KBH&C and Kannenberg & Cia Ltda., in Santa Cruz do Sul, industrial tobacco processing began. To this day, the Santa Cruz do Sul unit remains the company's only

processing unit in Brazil. In 2018, a JTI cigarette factory was also established in Santa Cruz do Sul. In addition to the industrial tobacco processing and cigarette manufacturing units, the company has research and distribution centers in the city (Kist *et al.*, 2018; Nascimento, 2020; Porto; Nascimento, 2018).

Finally, Philip Morris Brasil (PMB), a subsidiary of Philip Morris International (PMI), has operated in Brazil since 1973, and its activities focus on the production of cigarettes. Currently, the company has its national headquarters and a cigarette factory located in Santa Cruz do Sul, in addition to having two tobacco processing units and five stations for purchasing tobacco from farmers in the South of Brazil, according to data from the Federal Revenue Office (2020) and Dornelles (2016). Its international headquarters are located in Lausanne, Switzerland.

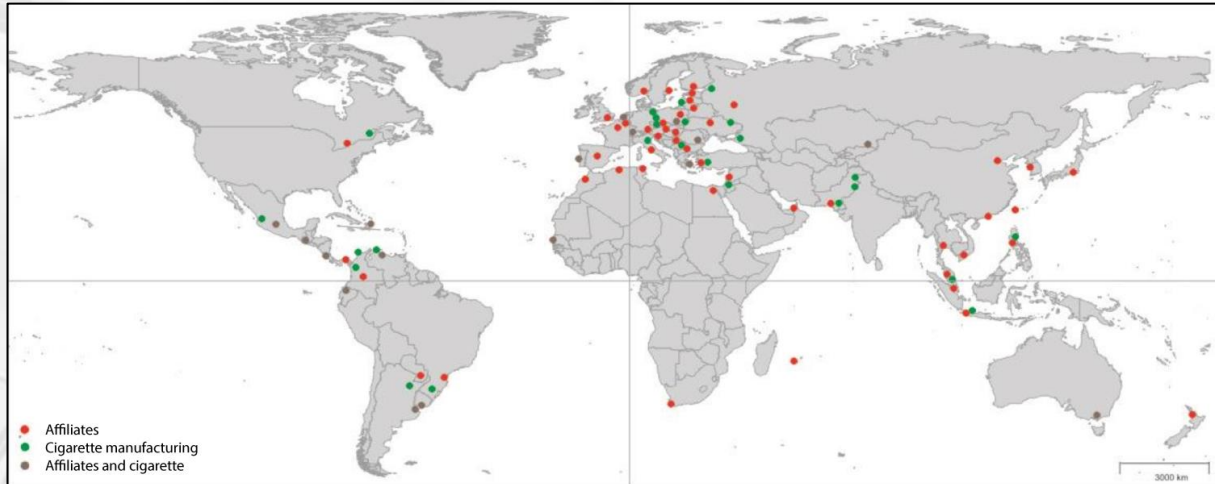
In short, the tobacco processing plants and purchasing units of these companies, which receive and process tobacco produced in Rio Grande do Sul, are located in Santa Cruz do Sul and Venâncio Aires. Furthermore, two of the three cigarette factories owned by these corporations are located in Santa Cruz do Sul (the exception is the Souza Cruz factory, which is located in Uberlândia, MG). In other municipalities in the states of Paraná and Santa Catarina, the five companies also have other tobacco processing plants or purchase stations in areas close to where there is a large production of leaf tobacco.

It should also be remembered that, in terms of spatial location, the facilities of multinational companies present in the Vales Region have production units spread across the world. As an example, we have the case of Philip Morris: Image 05 shows the company's global spatial distribution for the year 2014. Dornelles (2016, p. 96) indicates that the company has "56 production centers in 33 countries and produces more than 860 billion cigarettes annually, without operating in the USA and Chinese markets. It also has 64 affiliated units around the world: 13 in America, 6 in Africa, 2 in Oceania, 16 in Asia, and 27 in Europe."

On the global scale on which multinational agribusinesses operate, the establishment of these technical systems and objects in the regional territory represents the rationality and scenario necessary for the expansion of capital. Their locational decisions and new investments are related to the different behavior of the price of tobacco produced and exported by the main exporting countries and the three types of leaf tobacco grown in different geographic zones of the Earth's surface. Each producing area presents a particular combination of climatic characteristics and types of soil and relief that provide specific environmental conditions for the production of tobacco varieties. In addition, each of these

specific places has different production costs that affect the final marketing and export price (Buainain; Souza Filho, 2009; Silveira, 2007).

Image 05 – Philip Morris spatial distribution around the world - 2014



Source: Dornelles (2016).

Because these large companies operate worldwide, their headquarters can regulate and guide the tobacco production of their subsidiaries according to the different price dynamics and the types of tobacco necessary for the production of blends. This creates comparative advantages, which end up reinforcing their hegemonic positions in the global leaf tobacco market. This is also why all large multinational tobacco companies seek to be present, directly or indirectly, in the different tobacco producing areas (Silveira, 2007).

In the chicken and pork meat production sector, the following stand out as the main exporters: Cooperativa Languiru (whose exports of poultry meat represent a 1.3% share of total exports from the Vales Region, and pork meat, 0.7%); Cooperativa Dália (0.9% share); Faros Indústria de Farinha de Ossos (0.9%); Companhia Minuano de Alimentos (0.4%), and BRF (0.03%) (Comex Stat, 2018) (Table 01).

Cooperativa Dália (formerly called Cosuel — Cooperativa dos Suinocultores de Encantado Ltda.) was founded by 387 small family farmers on June 15, 1947. Initially, the cooperative focused on the needs of industrialization and commercialization of lard. In 1963, the animal feed factory was opened in the same location.

In the 1950s, the main activity of farmers in the municipalities of Vale do Taquari was crop cultivation and raising pigs, complemented by raising poultry and dairy cattle. At the beginning of the 1960s, farmers in the region also turned their activities to the production of dairy products and poultry meat (activities until then considered secondary) to overcome

crises in the pork products market (Mallmann, 2017).

Thus, since 1965, Cooperativa Dália has chosen the municipality of Arroio do Meio to establish new industrial plants. That year, it opened its first dairy products unit in the municipality, through a public-private partnership with the Executive and Legislative Branches. Since then, the partnership with the municipality of Arroio do Meio has been maintained, which explains the formation of the Dairy Complex (opened in 2014) and the Poultry Complex (opened in 2019) in the district of Palmas, alongside ERS-130 (Dália Alimentos, 2020a; 2020b).

Cooperativa Languiru was founded in 1955, in Teutônia, by 147 farmers. The activities began in 1956, in a small warehouse that provided basic supplies and agricultural inputs. In return, the establishment received the production of members of the cooperative (Languiru, 2020).

In Teutônia, Languiru has its head office, a dairy factory, four supermarkets in different neighborhoods of the city, three agricenters, and two poultry hatcheries. In Estrela, it has its animal feed factory, opened in 1976. In Westfália, it has its poultry slaughtering plant, opened in 1979; in this city there is also the industrial plant for the manufacture of meat sausages, in operation since 2008. Finally, in Poço das Antas, there is a new pig slaughterhouse, opened in 2012. In other municipalities in the Vales Region, there are supermarkets and agricenters that also belong to the company.

Between 2019 and 2020, Languiru expanded the poultry slaughter capacity of its slaughterhouse in Westfália, increasing from 100,000 to 160,000 birds per day. This reformulation allows the company to export to China and other more demanding markets, increasing the total poultry production destined for export (up to 65%, in May 2020, taking advantage of the rise in the dollar at that time) (Silva, 2020).

Finally, it is worth highlighting that, through these recent changes in the operations of Dália and Languiru cooperatives in Vale do Taquari, it is possible to see the strength of verticality, whether due to the rise in the dollar in 2020 (favoring the export of products), the greater meat consumption at a global level, the increase in Brazilian exports of chicken meat, the greater demand for meat from China or even the demands imposed by Muslim countries for Halal meat. Both cooperatives operate in the national and international markets; therefore, they are affected by the impositions, tensions and power of these markets. Even though cooperatives have solidarity principles, they are influenced by the market, especially with regard to the global market. The market makes no distinctions between negotiating with a multinational company or a cooperative.

In third place in terms of largest exports from the meat production sector in Vale do Taquari, is Faros Indústria de Farinha de Ossos Ltda., representing 0.9% of the regional total. Faros, founded in 1983, has its only industrial plant and head office in the municipality of Cruzeiro do Sul and deals with animal rendering. Exports are made to Latin America, Asia, and South Africa, with emphasis on Chile, Argentina, Colombia, Vietnam, and Bangladesh.

Companhia Minuano de Alimentos, based in Lajeado, has its territorial division of labor concentrated in Vale do Taquari. The industrial establishments related to this company are located in Lajeado (a poultry slaughterhouse, with 2,011 workers) and Arroio do Meio (a sausage factory and an animal feed factory). The company also has three breeding plants (where fertile eggs are produced), in Bom Retiro do Sul, Cruzeiro do Sul, and Estrela, and a hatchery (where eggs are hatched) in Estrela, municipalities located in Vale do Taquari.

Finally, in the chicken and pork meat production sector in Vale do Taquari, it is also worth mentioning BRF. Even though its exports represent only 0.03% of the regional total, it is one of the largest companies in the chicken and pork meat sector in Brazil and has a large number of employees at its industrial plant located in Lajeado. Its spatial configuration is shown in Image 06, which includes the location of slaughterhouses, animal feed factories, and meat product processing units, according to data from MAPA (2020) and the Federal Revenue Office (2020).

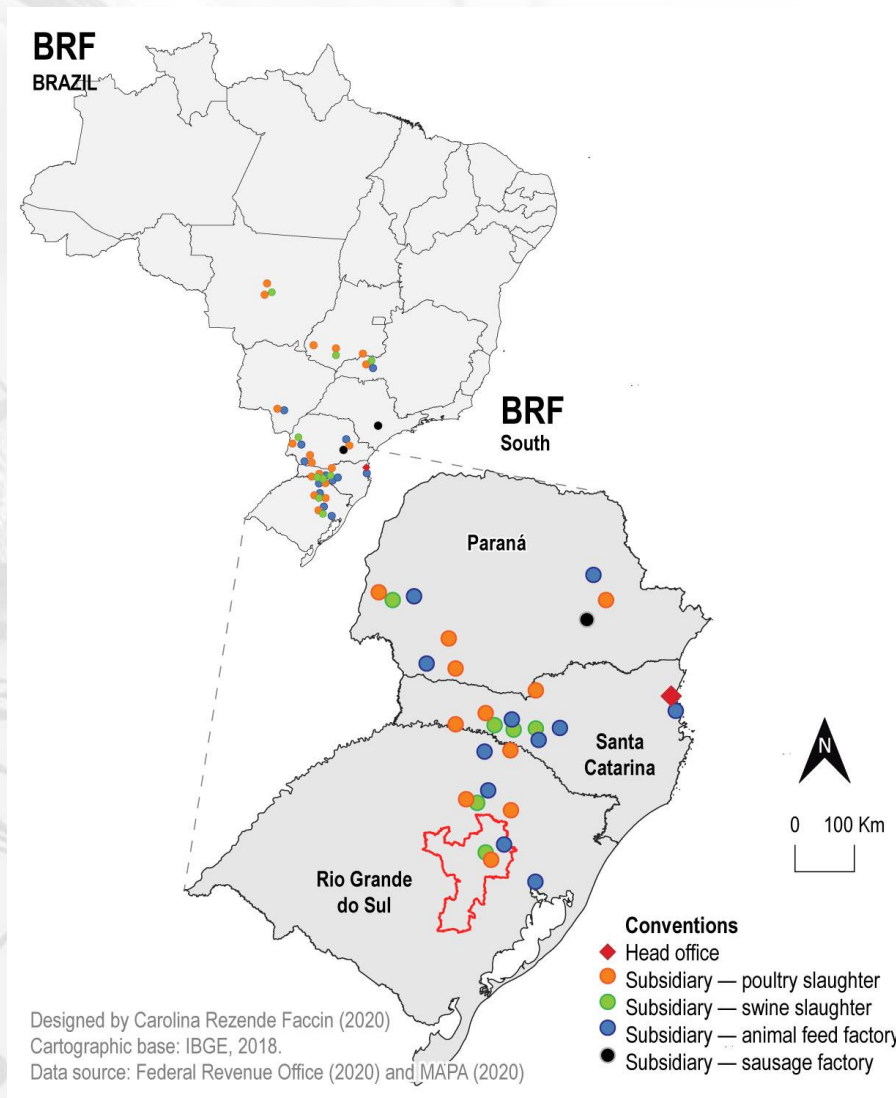
BRF's territorial division of labor is strongly related to Vale do Taquari, as it has a poultry and pig slaughtering plant in Lajeado (with 2,904 employees) and an animal feed factory in Arroio do Meio. In Rio Grande do Sul, the company has slaughter units in Serafina Corrêa (1,528 employees), a slaughter and sausage unit in Marau (2,618 employees), an animal feed factory in Marau, and one in Porto Alegre (RAIS, 2018). BRF also has production units in other states: Santa Catarina, Paraná, Mato Grosso do Sul, São Paulo, Goiás, Minas Gerais, and Mato Grosso.

It is possible to identify a greater distribution of industrial plants in the chicken and pork meat sector in different municipalities, whether in the medium-sized city of Lajeado or in the small-sized cities of Encantado, Arroio do Meio, Poço das Antas or Westfália.

In the case of the chicken meat production chain, a factor that influences this greater distribution of industrial plants among different municipalities is precisely the greater control that companies have over the chain. Since the birds are the property of the slaughtering companies, these companies are responsible for various egg production facilities (chicken coops, breeding plants, hatcheries), in addition to manufacturing the feed (animal feed

factory) and for the slaughter of birds (slaughterhouse). Each of these stages can be carried out in a different establishment and in a different city, depending on where it is more advantageous for the company in terms of capital reproduction.

Image 06 – Territorial division of labor in the chicken meat production sector at BRF, in Brazil - 2020



Source: Created by the authors, based on MAPA (2020), Receita Federal (2020) and research data.

In the case of multinational corporations, what can be observed is the existence of higher-level operations management flows, occurring in large global cities or cities with the highest hierarchy in the urban network. The flows of raw materials, intermediate goods, and products, that is, the flows that represent the company's daily operations, are dispersed in centers at a lower level. Therefore, the companies make strictly rational, selective and

conditioning use of the territory, to the extent that it must serve their interests. However, the same does not occur in the regional cooperatives present in Vale do Taquari, where both business management and raw materials flows occur within the region.

In this context, multinational corporations stand out for seeking to achieve this “maximum advantage over technical structures” on a global scale. Furthermore, the expansion of operations by multinationals, entering foreign markets, represents the maximum expression of the expansion of the spatial horizons of these companies’ operations. When entering other countries, it agrees with the context of capitalism and the expansionist tendency, common among large companies (Oliveira, 2018).

This is related to the origin of the complex spatial fabric of multinational corporations, which, according to Oliveira (2018, p. 165), “result from the rationality that seeks the integration of their diffuse units and the fruitful effort that aims to achieve the maximum advantage over the available technical structures”. Thus, “their management practices contribute to altering the pre-existing spatial order” (Oliveira, 2018, p. 165).

According to Catão, Reolon and Miyazaki (2010, p. 237), this ends up encompassing a “discussion about inequalities, since the actions and strategies of large companies (...) occur selectively”. This is how the organization and flows and interactions of these companies in the territory, on the one hand, reflect pre-existing conditions, and, on the other hand, end up conditioning the dynamics between the cities in which they are located.

5 FINAL CONSIDERATIONS

Based on the data analyzed, it was possible to observe, in the context of the Vales Region and its respective production and export/import chain, two distinct sub-regions: on the one hand, Vale do Rio Pardo as a region that primarily exports processed tobacco, from the cities of Santa Cruz do Sul and Venâncio Aires; on the other, the Vale do Taquari region, with a greater diversity of exported products, such as footwear parts, yerba mate, MDF panels, poultry and pork meat and offal, confectionery products, and flours, powder and meat pellets, from several municipalities, such as Lajeado, Arroio do Meio, Encantado, Poço das Antas, Westfália, Taquari, and Estrela.

The medium-sized cities of Santa Cruz do Sul and Lajeado stand out for being home to multinationals and, therefore, being vertically integrated into the globalized economy through the actions and regulations carried out by them within the scope of the world market.

This characteristic also allows these medium-sized cities, through the business management of such companies, to establish global spatial interactions, driven by the multinationals and the global markets for their products. Regional companies and cooperatives in Vale do Taquari are also worthy of mention, as they play an important role in the region and, through the large amount of exports, have found ways to compete with multinationals in the sector. It is also possible to mention the role of small-sized cities in Vale do Taquari where these cooperatives are located, given the large amount exported. This is the case of Westfália, Poço das Antas, and Encantado, where poultry and pig slaughterhouses are located, and Arroio do Meio, where animal feed and sausage factories are located.

Thus, in the case of tobacco business (in Vale do Rio Pardo), the distribution of companies in the regional territory is concentrated in the municipalities of Santa Cruz do Sul and Venâncio Aires. In the case of Vale do Taquari, there is, comparatively, a greater distribution of production units in the municipalities of the region, due to the way the meat chain is structured.

Based on this study, the intention is to contribute, within the scope of regional studies, to the analysis of global spatial interactions in regions of medium- and small-sized cities based on export and import flows, with emphasis on the tobacco and chicken and pork meat production sectors in the Vales Region. This study aims to understand spatial interactions at different spatial scales, taking into account the role of these cities in global trade.

Some points in the literature still require further discussion, such as the implications of these global spatial interactions on the development dynamics of medium- and small-sized cities. Or also what was the impact of the COVID-19 pandemic on the global spatial interactions of smaller cities. Addressing these points would make it possible to provide a more comprehensive analysis of the topic, contributing to the understanding of economic development and spatial relations in these areas.

Furthermore, it is important to emphasize that the use of mapping and data analysis methodologies allows for a more precise and visual approach to the territorial division of labor of the companies studied, which enriches the understanding of trade flows and their connections with the cities involved.

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