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MERCANTILE CHAINS AND CONCEPTUAL CONTRIBUTIONS TO HUMAN GEOGRAPHY

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Abstract

This article proposes that the conceptual parameters of the focus on "Commodity Chains" offer fertile resources for the formulation, exploration, and unraveling of problems in human geography. To this end, an exploratory study was carried out, beginning with a bibliographical, documentary, and data survey followed by a concise case analysis of the productive-commercial system of Brazilian soybean production. The "Geoeconomic Web" concept was formulated to highlight socio-institutional factors in the geopolitical dimension of the economy. It is understood that these conceptual frameworks are suitable to problematize issues about the dynamics of insertion and positioning of substructures in national economies, of these economies in the world economy, and power relations in these spaces.

Keywords: Commodity Chains, Conceptualization, Web Geoeconomic.

Resumo / Resumen

CADEIAS MERCANTIS E CONTRIBUIÇÕES CONCEITUAIS À GEOGRAFIA HUMANA

O presente artigo propõe que os parâmetros conceituais do enfoque em “Cadeias Mercantis” possibilitam férteis recursos de formulação, exploração e desvendamento de problemas na geografia humana. Em seu teor confere um destaque para a articulação entre geografia econômica e a geografia agroalimentar, embora a referida proposta também alcance articulações entre outras subáreas. Com estes fins, se realizou um estudo de natureza exploratória, procedendo um levantamento bibliográfico, documental e de dados e se vale de uma concisa análise de caso do sistema produtivo-comercial da sojicultura brasileira. Formula-se a concepção de “Teia Geoeconômica” para salientar fatores socioinstitucionais na dimensão geopolítica da economia. Chega-se à compreensão de que estes marcos conceituais são propícios para problematizar questões a respeito de dinâmicas de inserção e posicionamento de subestruturas nas economias nacionais, destas economias na economia mundial e das relações de poder nestes espaços.

Palavras-chave: Cadeias Mercantis, Conceitualização, Teia Geoeconômica

CADENAS MERCANTILES Y APORTES CONCEPTUALES A LA GEOGRAFÍA HUMANA

Este artículo propone que los parámetros conceptuales del enfoque de “Cadenas de Mercancías” posibilitan recursos fértiles para la formulación, exploración y desentraño de problemas de la geografía humana. En su contenido, enfatiza la articulación entre geografía económica y geografía agroalimentaria, aunque la propuesta antes mencionada también alcanza articulaciones entre otras subáreas. Para estos efectos, se realizó un estudio exploratorio, procediendo con un relevamiento bibliográfico, documental y de datos y se realizó un conciso análisis de caso del sistema productivo-comercial de la soyicultura brasileña. El concepto de “Telaraña Geoeconómica” se formula para resaltar los factores socioinstitucionales en la dimensión geopolítica de la economía. Se comprende que estos marcos conceptuales son adecuados para problematizar cuestiones sobre la dinámica de inserción y posicionamiento de las subestructuras en las economías nacionales, de estas economías en la economía mundial y de las relaciones de poder en estos espacios.

Palabras-clave: Cadenas de Mercancías, Conceptualización, Teleraña Geoeconómica.

INTRODUCTION

Constructing conceptual frameworks and reviewing the analytical consistency of pre-existing ones enable the structuring of research approaches in scientific areas and sub-areas. This theoretical-methodological exercise provides connections and systematizations of phenomena from interpretative resources through which data is converted into epistemologically fertile information.

Our exploratory study advocates using a sound conceptual field for human geography, notably by articulating economic and agri-food geography. The intention is to contribute to reformulating the focus of problems and uncover analytical perspectives, connecting the issue of "locationality" in economic geography with technical-institutional and socioeconomic reconfigurations in agri-food geography. We discuss the concept of the "Commodity Chain," derived from the Analysis of the Modern World System's perspective, proposing the concept of "Geoeconomic Web" to contemplate its geopolitical dimensions.

The unfolding of the analysis is anchored in bibliographic, documentary, and secondary data focusing on the soybean productive-commercial system, through which the dynamics of insertion and positioning of national economies in the world economy, spatial power relation, discourses, and rhetorical performances will be elucidated. These dynamics are revealed through the articulation between the "Commodity Chain" and the conception of a "Geoeconomic Web."

THE GEOECONOMIC DIMENSION

Since the Italian city-states of the twelfth to the fifteenth century, the emerging structure of the "National State" has played a critical role in driving a form of "phagocytosis" of local commercial spaces (GEERTZ, 1989; NOREL, 2004; SCHWARTZ, 1995), by monetizing territories, integrating communication routes, and articulating with capitalists and corporations. Furthermore, jurisdictional systems were created that formatted national economies from their connection with the broader markets.

Le Goff (2014) points out that capitalism's emergence was marked by international economic networks absorbing local markets, breaking many spiritual and social conventions that guided local behavior and conventions.

Contributing to the specialized economic historiographical debate, Fragoso (1992; 1993) challenged the view that nineteenth-century Brazilian economic dynamics were still marked and controlled by foreign markets. The author postulated that, even in colonial Brazil and until the mid-nineteenth century, there were several significant regional economies whose production was not a response to the demands of the international market but to their own dynamics, such as the commercial relations between what are now called the Southeast and South regions.

However, studies that analyzed Fragoso's arguments, such as Mariutti et al. (2001) and Ferline (2009), point out that even seemingly independent economies were linked to imported products and/or export trade. There was a considerable internal demand that raised the production of agricultural supplies and inputs, as well as transportation. At the same time, demand for imported European industrialized products hindered national production.

Thus, Brazil's economy was already organically integrated into international markets by transmission belts of capital surpluses, in a hierarchical configuration made possible by the functionality of commodity production in the national economy for the world economy. In turn, power relations within the national economy pass on these pressures.

Ferreira (2002) surveyed the analytical milestones whereby agrarian geography focused on phenomena with these characteristics, which emerged in the 1980s. The axis was the creation of integrations and transformations in the field driven by the features of given cyclical phases of capitalist reproduction.

However, it is necessary to go further and reflect on the relationships of differentiated social subjects with processes, technologies, flows, signs and discourses, and institutional elements in links and networks of varied social, economic, and political categories. Such analyses should address the actions and articulations between these elements and the broader economic structure.

BY MOUNTAINS AND SQUARES: COMMODITY CHAINS

Immanuel Wallerstein (1974) originated the science of Systems-World Analysis with some central concerns, including how to overcome the rift between two irreconcilable philosophical methods in the social sciences. Namely, nomothetics, which asserts the prominence of the focus on generalizable laws in explanatory searches, and ideography, which affirms the focus on descriptive particularities. In the arena of collective human action, Wallerstein emphasized the existence of an intertwined set of patterns and superpositions in which the various economic, political, social, and cultural structures operate. World-systems analysis would enable the cleavage of "transhistorical generalization x particularist narratives."

In this approach, "society" as a unit of analysis manifests itself from another perspective, that of "historical systems," emphasizing its spatial location and temporal course. Structures form units, with internal reproduction dynamics and crises beginning and possibly ending the system. In such "simultaneously systemic and historical" entities, "the defining boundaries of a historical system are those within which the system and people are regularly reproduced through some type of continuous division of labor" (WALLERSTEIN, 1999, p.459).

The distinctive property of historical systems "is the existence of a division of labor within them" (WALLERSTEIN, 2001, p.74); generating sectors in which elements are allocated, produced, and distributed to meet the reproduction needs of the system in its network of processes. In historical capitalism, the division of labor is more than a functional and occupational structure. It has become geographic par excellence: distributed by the system according to ecological conditions and its social organization of work. Thus, it configures, expands, and deepens the possibilities of economic and sociopolitical hierarchies because of a relentless process of capital accumulation and appropriation of surplus (WALLERSTEIN, 1974, p. 230, 244).

The capitalist historical system emerged at the dawn of the sixteenth century and became the first worldwide system by integrating what was conventionally called "East Asia" into its international division of labor in the nineteenth century, thereby forming the Modern World-System.

For Wallerstein, the driving axis of historical capitalism was its primary dynamics of social activity, the exponential accumulation of capital. Over time, it enhanced the hierarchical prevalence of those agents and institutions more functionally useful for their reproduction. This process stimulated the need for "commodities to be linked in so-called Commodity Chains," the extent of which "determines the boundaries of the division of labor of the world economy" (WALLERSTEIN, 2002, p. 92). The raw materials, logistics and communications technologies, and, in particular, "the degree to which dominant forces of the world capitalist economy have the political power to incorporate new areas" that must be included in the chains influence the spatial breadth of the Commodity Chains (WALLERSTEIN, 2001, p. 92).

> To speak of Mercantile Chains means to speak of an extended social division of labor, which, in the course of the historical development of capitalism, has become more functionally and geographically extensive, and simultaneously more and more hierarchical. This hierarchization of space in the structure of productive processes has led to an increasing polarization between the central and peripheral zones of the world economy, not only in terms of distributional criteria (real income levels, quality of life) but even more importantly in the locus of capital accumulation (WALLERSTEIN, 2001, p.28).

Wallerstein and Hopkins (1977) established the concept of "Commodity Chains" as the networks of work and production processes required to transact a final commodity (WALLERSTEIN; HOPKINS, 1977; 1986, p. 128). "In terms of the structure of the capitalist world-economy, commodity chains may be thought of as the warp and woof of its system of social production." (WALLERSTEIN; HOPKINS, 1994, p. 17). Dougherty (2008) points to crucial distinctions in the study of "Commodity Chains":

> 1) the social underpinnings of the processes by which things acquire value in the global economy, 2) the relational dynamics of economies of distinct scalar levels, 3) the mechanics (how) and logic (why) of the

> global division of labor, 4) the logic of firm organization and behavior and inter-firm relations, 5) the historical and ongoing origins of underdevelopment, and 6) the organization of work in economic production (DOUGHERTY, 2008, p. 1).

The geographic zones where higher proportions of added value are internalized in a relational process with other zones are characterized as central, having more power to socialize negative externalities than peripheral ones. Semi-peripheral zones have central relationships with peripheral zones and peripheral relations with central ones (DUNN, 2005; COSTA LIMA, 2007). Activities in peripheral positions in a given cycle face a more competitive structure among themselves. There are no "central countries" and "peripheral countries," but "geographic structures of economic flows" (central, semi-peripheral, peripheral) in which countries are located (WALLERSTEIN, 2001, p. 28-29). State bureaucracies and regulatory policies, and geopolitics influence the analysis of a Commodity Chain (GELLERT, 2003). This approach rejects employing a basic model in which a market structure, delimited to national economies, progressively evolves to international trade.

The scope of Commodity Chains includes the set of inputs, processes, and services necessary to reach an item, considering the raw materials, logistics, communication systems, and workforce flow in each of the operations. More recent studies have highlighted the relevance of design, marketing, governance, wholesale, and retail in a process (GEREFFI, 1999; FERNANDES, 2010). Vieira (2012) points out that:

> The commodity chain concept avoids separating what the pursuit of profit and power has united. At the same time, it forces one to situate rulers, traders, consumers, and workers from various political spaces or jurisdictions in the same continuum where the activities involved in the processes of production, commercialization, and consumption of a commodity are located (VIEIRA, 2012, p. 231).

Gereffi (1994; 1995) also indicated the main analysis dimensions of these chains: the input-product matrix; the territory in which it is geographically configured; the governance structure (discerning the processes of data control of chain participants over others and appropriation of value by leading companies - "chain drivers"); the institutional context, or the "rules of the game" of Commodity Chains' operation. Using the concept of "buyer-oriented" Commercial Chains, he emphasized the expansion of the subcontracting system by transnational companies that no longer manufacture products, focusing on the design, project, and sales stage. Focusing on "primary" product chains, Gibbon (2001) suggests that governance focuses on tradings, the transnational middlemen, and not the producers or buyers themselves.

Bair et al. (2013) approach Commodity Chain analysis by calling attention to capitalism's "uneven geographies," whose reproduction causes "dis/articulations," dialectical movements of "[...] conjunctural connections of commodities, people, and places, and complex processes of separation and exclusion, that together constitute circuits of commodity production" (BAIR et al., 2013, p. 2545.). The operation of dis/articulation forces encompasses the gentrification of urban residential areas that result in the exclusion of traditional low-income residents through to the territorial expropriation of peasant land to implement "development projects."

An example of the Merchant Chains' capacity to analyze private goods and elucidate the social relations they incorporate is Clelland's (2014) work, which thoroughly examined the components of Apple's iPad chain. The company is regarded as an emblem of cutting-edge innovative dynamism and brand recognition. Consequently, it topped the ranking of Forbes' "The Most Admired Companies in the World" between 2008 and 2013. Clelland examined how value appropriation was distributed on the iPads' production network nodes and found that Apple outsources the chain's "tangible" activities to independent supplier networks and also some "intangible" actions that provide value aggregations.

By disaggregating the iPad product production's publicly available stages and assembly systems, Clelland analyzed the cost of particular components and identified the supplier companies. He discerned various degrees of Apple's monopsony concerning suppliers and its monopoly of product development and design links, supply chain governance, marketing, and retail. These exercises follow the strategy of:

1. designing innovations that attract a wide share of the global market,

2. controlling intellectual property rights,

3. governing the commodity chain through oligopolistic relations with suppliers,

4. control of product distribution and marketing, and

5. externalization of costs to suppliers (CLELLAND, 2014, p. 91).

Such strategies make it possible to manage the increase between costs and sales price, manage production cost reductions and optimize operating profits.

Clelland articulated the concepts of "bright value," capital surplus whose appropriation and distribution can be measured, albeit imperfectly, and "dark value," " unpaid labor and uncosted externalities that are not transformed into bright value but are incorporated in commodities as value beyond price that benefits consumers" (CLELLAND, 2014, p. 103,). Among the distinctive sources of dark value at the iPad chain nodes are the subcontracting system, which includes firms with headquarters in one jurisdiction and factories in others. In the Chinese hukou domestic registration system, temporary migrant workers are deprived of many civil rights held by residents and thus subjected to precarious and intensive working conditions, such as unpaid work by family members and underpaid domestic work. Environmental costs, like chemical emissions, heavy metal discharges, air pollution, and water degradation, are outsourced.

"Dark value" gives rise to the "consumer surplus" for final buyers, especially from countries in the central zone. "Consumer surplus" is the difference between the price that consumers would be marginally willing to pay for a unit of a good and the price paid in reality. The non-pricing of the "dark value" in retail consumer goods data also applies to the ideological apparatus of given companies' advertising and the "virtues of the market."

Gwynne (1998) analyzed the Commodity Chains of fruit growing in the Guatulume region of Chile, which incorporate family farmers (called "small-scale" by the author), large farmers, and transnational corporations. The study demonstrated the chain's deepening inequality with its integration into international markets. The rising specialization of the production units, structured around the grape as a monoculture, resulted in acute dependence on transnational inputs and technology companies, traders, the financial sector, and retailers[1]. The market was markedly volatile over time. This systemic set of factors led to bankruptcy, especially among family farmers, given that large owners had greater bargaining capacity and contractual options in the face of transnational corporations.

Vieira (2012) addresses the coffee cycle in Brazil from the nineteenth century to the first decades of the twentieth century from the analytical perspective of the Commodity Chain. He emphasizes how insertion in international trade induced socio-economic and socio-spatial structural changes in Brazil, reflecting internal correlations of social forces and the articulation of infrastructure, logistics, and linked service sectors. He also examines the functional positioning of the coffee production-commercial system in Brazil in the Commodity Chain, subordinated to the control of chain nodules by international agents. In particular, the British hegemony in force and the emerging American hegemony acted as intermediary agents in marketing and financing. This is illustrated by the need to import steel from these countries to manufacture machines to produce and prepare coffee for export, as well as for the construction of the railway network that dynamized transportation. The Brazilian sectorial entities' autonomy was relatively more restricted and subject to the government policies of agents positioned in the central zone of the world economy, such as the U.S. inventory policy (VIEIRA, 2012, p. 273-278).

The above shows the potential contribution of this perspective to the geographic research of the Brazilian reality and its usefulness in studies on the agro-industrial, mineral, and energy sectors, among others. This approach shows their interconnections with other worldwide chains, with services, political frameworks, the structure of the division of labor, especially with forms of cost externalization through competition for the appropriation of capital surplus (the core of the locational issue).

COMMODITY CHAINS IN THE CONFIGURATION OF THE WORLD-SYSTEM'S HIERARCHY

Costa Lima's research (2007) identified a stratification of sets of national economies representative of the "center-semiperiphery-periphery" structure, in the period between 1950 and 2003, based on Gross Domestic Product per capita measures - GDPpc. This triadic structure has distinct stable groups, with greater stability in the periphery (about 74 and 75 countries), located close to 10% of the US GDPpc. The author pointed to a set of 30 countries in the semiperiphery. After a hint of approaching the center between 1957 and 1982, they declined to the U.S. 20% GDPpc mark. Brazil has a consolidated average representative of the semiperiphery group (COSTA LIMA, 2007, p. 79).

The author states that using GDP per capita as an indicator can be distortive due to the disparity of populations in the countries. Thus, national economies with strong insertion but a large population are understated whilst countries with smaller populations but a more significant insertion in some chains in the world market are given more importance. He suggests articulating procedures that contemplate the role of Commercial Chains, especially the contribution of technology (COSTA LIMA, 2007, p. 78).

Arend et al. (2017) articulated the concept of Commodity Chains scrutinizing the hierarchy in the interstate system, using methodologies provided by data from the Atlas of Economic Complexity. They verified a positive correlation between economic complexity indexes and countries' per capita income levels. By applying the "productive space" indicator, they evaluated the tri-modal characteristic of the interstate system regarding countries' productive structure.

The "productive space" indicator was developed by Hidalgo et al. (2007; 2014) as a measure of the "distance" between products considering the capacities required for their manufacture. The indicator estimates the connections between items in the productive capacities of two goods with the relative probabilities of synchronous exportation by countries, configuring a productive structure network between exported goods. The more primary the products, the more they tend to be in the network's peripheries, indicating less intersectoral connection. The inverse relationship occurs with technology-intensive products. In this long process,

> Countries with a productive structure and complex export agenda have economic activities with high increasing returns to scale, a high rate of technological innovation, and broad synergies resulting from the division of labor. Countries with complex productive structures generally have economic activities where imperfect competition predominates, markets with oligopolistic structures, and high added value per worker. Also, its productive structures demand a high presence of local suppliers with advanced knowledge. Low-complexity products do not require sophisticated networks of local suppliers and producers (AREND et al., 2017, p.9).

In this manner, the productive capacity of national economies is measured "by their ability to retain, create, modify, organize, distribute and use the capacities embedded in workers" (AREND et al., 2017, p.13). The authors show correlations between countries with a more sophisticated productive structure and greater insertion capacity in the World Economy's Commodity Chains with the central zone. Also, the intermediary's correlation with the semiperiphery and the lower grades of the periphery with the lowest per capita incomes. However, some critical anomalies in representation include high per capita income countries appearing in the semiperiphery (Australia, Canada, Norway) and middle per capita income countries appearing in the center (Slovakia, Slovenia, and the Czech Republic).

Research by Resende and Romero (2017) provides a relevant refinement to this problem. The authors carried out a comparative analysis of the productive structure of Australia, Brazil, and Canada from 1960 on, bearing in mind their export agendas. They highlight that the three countries' Economic Complexity Index is very low, with Canada well below Brazil. However, when considering average income Australia and Canada are high per capita income countries, and Brazil is average.

Primary and manufactured products based on primary products rank very high in the Australian export agenda, above the Brazilian one, while albeit important, they are significantly lower in Canada than the other two countries. The ratio between the number of industrialized products with the total of exported products produces a coefficient called "Revealed Comparative Advantage" (RCA), which

indicates the competitiveness of a national economy provided by "tacit knowledge." The Australian and Canadian economies' RCA is not comparatively significant, considering the ratio of their exported products to total world exports. Thus, their high per capita income distorts the correlation of development with economic complexity.

However, Resende and Romero (2017, p. 109) used the measure to adjust the number of industries in countries with medium and high technology RCA coefficients to the size of national economies.

> Put another way, from the perspective of the development of the productive structure, for Canada, in 2009, around 21 medium-tech and seven high-tech industries with VCR seem to have been sufficient to generate a per capita GDP of $42,157.93. Meanwhile, in Brazil, 26 mid-tech and one high-tech industry with VCR could not generate a sufficiently significant structural change, generating a per capita GDP of $8,553.38 in the same year. In Australia, on the other hand, seven medium technology industries and one medium technology industry were able to generate a per capita GDP of $49,927.82 in 2009 (RESENDE; ROMERO, 2017, p. 109, emphasis added).

Next, they employ a methodology to weigh the quantity of medium and high technology industries with RCA per million inhabitants. An indicator called the Structural Development Index (SDI) determined the generation of per capita GDP levels provided by the productive structure. There is an inversion in the numbers for the countries. Between 1962 and 2009, the SDI in Australia and Canada reached 0.41 and 0.83, respectively. Brazil scored 0.14, placing it next to lower-income countries, while Canada had the highest income strata per capita.

When considering quality indices, Australia also rises significantly in exported industrial products with favorable net export prices and more distant markets. In 2009, the average quality of Australian exports was 11.25; Canada scored 8.38, and Brazil totaled 6.10. Brazil only had companies with above-average quality in the primary goods sector, unlike the other two countries, whose profile of high-quality industries is distributed among several sectors. Brazil ranked 39th globally, Australia was 13th, and Canada 15th. The FDI and quality indexes parameters indicate that "RCAs seem to be more related to quality gains than gains in productive efficiency via costs, as commonly interpreted" (RESENDE; ROMERO, 2017, p. 115).

Commodity Chains analysis indicates that in the dynamics of the evolution of the world economy, the arrangement of the Brazilian productive structure emerged as a reflection of a "peripheralization" of sectors that were previously integrated into the chains of central activities.

BRAZIL AND SOYBEAN AS A COMMODITY CHAIN

From the point of view of economic complexity, a better calculation of Brazil's insertion in the world economy's productive space can be obtained by examining the soybean productive-commercial system.

In the 2018-2019 harvest, the country became the world's largest oilseed producer, surpassing the United States, although it was still the second in export terms (GOVERNO DO BRASIL, 2018). Soy represented 14% of Brazilian export revenues in 2018, 12% in 2019, and 17.5% in 2020. In the latter, it was established as the main product of the export excise[2].

From January to December 2020 (COMEX STAT) in Brazil, soy exports increased by 12% compared to 2019, 73% of which went to China. Then, much less significantly, were exports to the Netherlands, with almost 4%, and Spain, Thailand, and Turkey with just over 3% each. It was the second-highest recorded soy exportation in the historical series, but there was also the most outstanding record of soy imports in 17 years. The country imported almost 83 million tons, an expansion of 470% compared to 2019. Nevertheless, in revenue, the year-to-date result was 2.5 billion dollars lower than in 2019. Spending was 503% more than the previous year, an average of almost $333 per tonne of soy imported, while receipts were an average of $344 per ton exported. In the final months of the year, the balance declined. About $402 was paid per ton of imported soybeans in November, while about $387 was received. In December, about $387 per ton of imported soybeans were paid, while about $378 per

ton of exported soybeans were received.

Soy is the 50th most commercialized product in the world economy. China is the leading importer, with Mexico, the Netherlands, and Japan ranking on a considerably lesser scale, with a value of around 1.6-1.45 billion dollars. The Economic Complexity Index (ECI) ranks 1,238 products, with soy occupying the 129th position. It considers the specific capacities required to produce a good and then scales the degree of presence of its production in the countries of the world economy, assigning a value called the "Product Complexity Index" - PCI. Soybeans' PCI is -1.56, the 1.129th product in the complexity ranking. Soybean oil has a PCI of -1.164, occupying the 311th position, 818 above soybean grain. Soybean meal has a PCI of -1.131, ranked 1.038th, 89 ahead of the soybean grain.

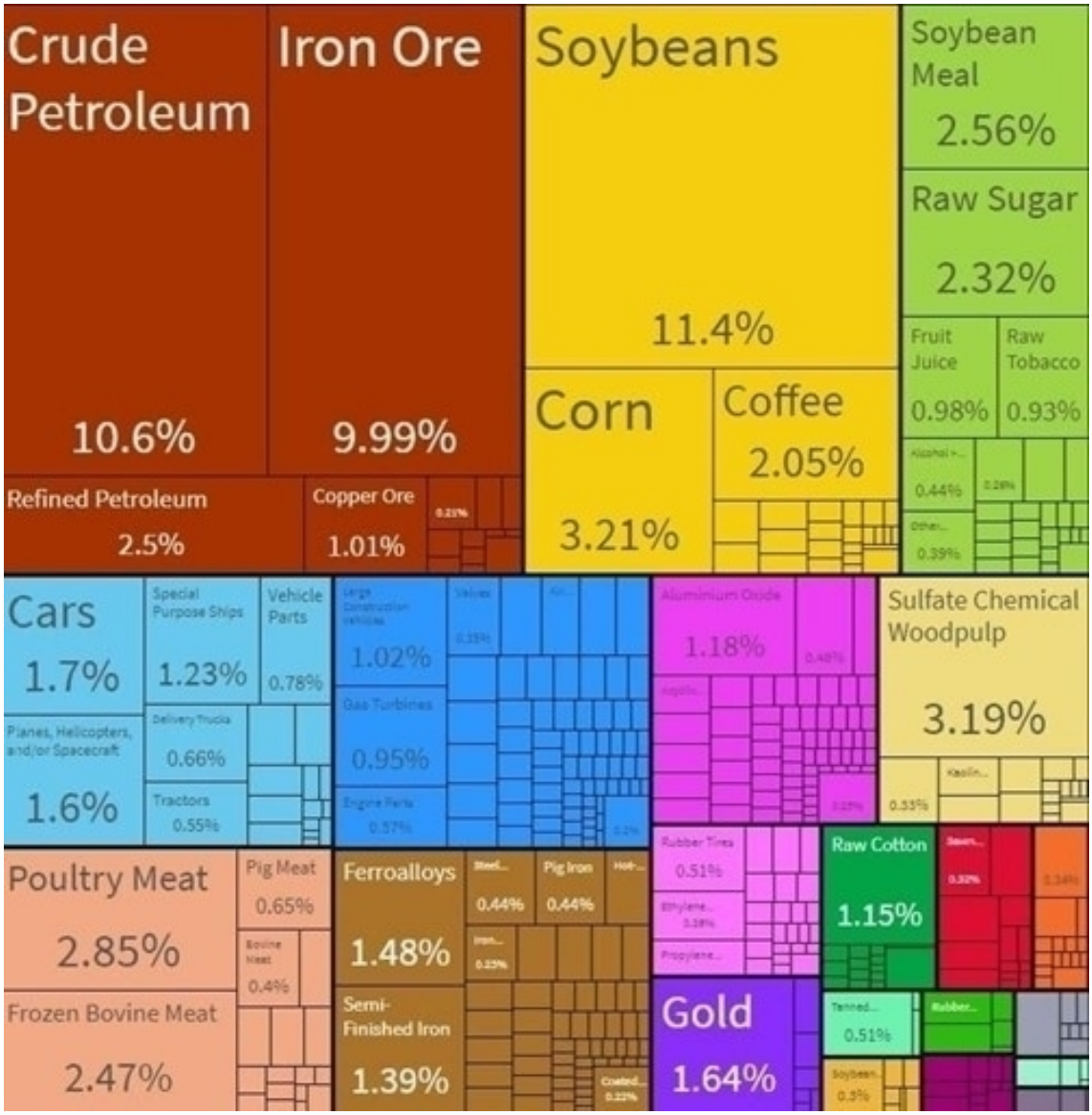

Figure 01 - Representative scope of soybeans in Brazilian exports (2019).Source: The Observatory of Economic Complexity,

Characterizing some of the main inputs for soybean production systems, Brazil is the second-largest importer of potassium fertilizers and the largest of mixed chemical-mineral fertilizers in general; China is the biggest exporter. Brazil is also the largest importer of pesticides, with China and Germany topping the ranking of pesticide exporters, followed by the USA. Germany leads the export of agricultural tractors, along with the Netherlands, which has a population of about 8% of the total Brazilian population.

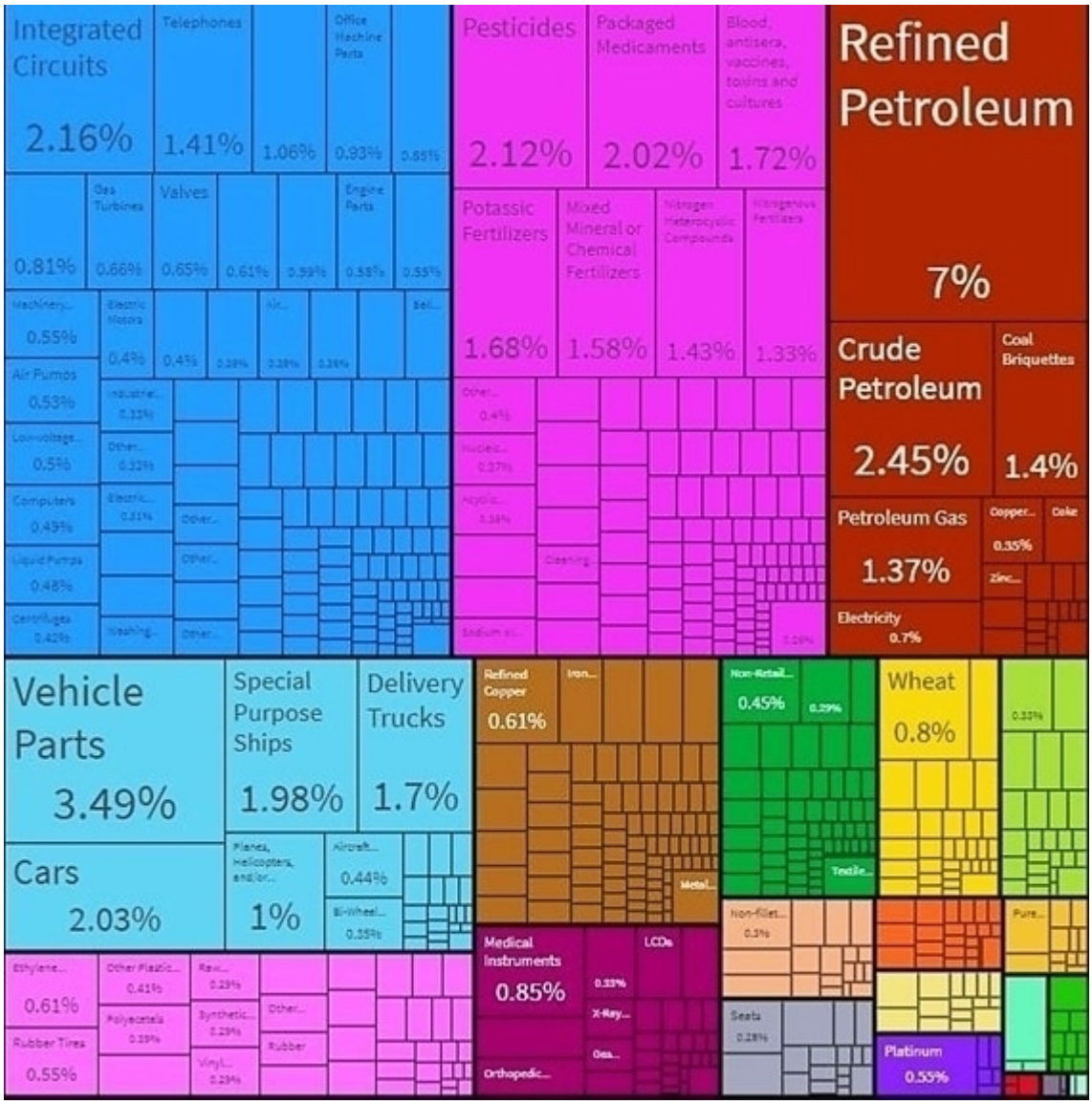

Figure 2 – Representativeness of products of Brazilian imports (2019). Source: The Observatory of Economic Complexity.

Pesticides and fertilizers dominate the list of Brazilian imports. Potassium fertilizers have a PCI value of -0.846, 950th in the PCI ranking, 179 positions ahead of soybeans. Mixed chemical-mineral fertilizers have a PCI of -0.808, 797 positions (166th) above soybeans. Pesticides have PCI 0.0154, 611th in the complexity index - 518 places above soybeans. Agricultural tractors have a PCI of 0.861, a score that will rise given their increasing sophistication with the incorporation of digital and photosensory technologies. Occupying 876 positions above soy, they are 253rd in the PCI ranking.

Thus, a picture has emerged of a Commercial Chain in which Brazil spends resources on importing complex products to export a non-complex product, a relationship that occurs, in large part, directly with other countries[3]. Contemporary studies such as Delgado (2012; 2020) and Lamoso (2020) have circumscribed this phenomenon to the process of reprimarization and deindustrialization of the economy: "The evolution of the relative participation of exports of basic products exceeded the participation of manufactured and semi-manufactured products in 2010" (LAMOSO, 2020, s/p).

As Lamoso (2020) points out, the values expressed in the higher relative export of primary products in relation to industrialized products reversed the levels the country reached in the 1970s, when Brazil had already reached a robust level of exports of manufactured products, higher than primary goods. For Delgado (2020), the commodities "boom" in the first decade of 2000, extending until 2013 in Brazil (and part of Latin America), driven by agricultural and mineral exports, propels the linking of

public policies to economic growth anchored in reprimarization, sometimes resulting in the deindustrialization of some units of the federation, as presented in the study by Lamoso (2020).

GEOECONOMIC WEBS

Filomento's (2012) research reveals that, amid strategic hegemonic positioning actions by the USA, the imposition of institutional intellectual property frameworks on the South American soybean production system began in the early 1980s, strengthening the relative power of companies offering technological packages for production and increasing the dependence of soybean growers. This was especially the case for non-replicable seeds and the consequent need to purchase seeds each harvest. The process took place in the wake of competition in soy agribusiness between Argentina, Brazil, and Paraguay in international markets, during a deep foreign debt crisis that forced countries to seek export revenues.

Given that U.S. courts granted favorable jurisprudence to patent holders, the American State bargained and articulated international regulatory restructurings, orchestrating the blackmail – including trade sanctions – of countries that refused to conform to legal instruments, broadening the scope of the corresponding intellectual property rights. Brazil suffered sanctions against exports until signing terms related to the "Agreement on Aspects of Intellectual Property Rights Related to Trade" in 1994, reinforced in 1996 with the Industrial Property Law.

The analytical dimension of the socio-institutional and sociopolitical forces acting in the Commodity Chain engenders the concept of the "Geoeconomic Web," which broadens the focus of the analysis in terms of the " the broader political-economic environment in which chains operate, including the institutional and systemic factors that shape commodity chains and condition the outcomes associated with them" (BAIR, 2005, p. 154). The fundamental intention is to highlight the considerable concern with resource distribution within the web links.

The Geoeconomic Web does not exist independently of the Commodity Chain, but it is not restricted to it. It is interrelated with intrastate, interstate, and parastate spheres (see the case mentioned in the study by Filomento (2012)). The levels of ramifications express the modus operandi of what Braudel (1970, Tomo II) indicated as the eminently capitalist extra-market sphere, hierarchies of unequal exchanges that circumvent competitive economic constraints. In "agribusiness," entities composing the Geoeconomic Web operate in a manner that involves the chains of Brazilian agricultural commodities and their interconnections. Some examples are the entanglement of threads between mining corporations and the commercialization of fertilizers, the divestment of assets from Petrobrás' fertilizer industry, investment to increase the import of Russian fertilizers, the opportunity to escalate the war in Ukraine, and sanctions against Russia. These are used to attack legislation safeguarding indigenous territorial rights under the pretext of providing fertilizer inputs for national agribusiness, thus favoring institutional frameworks for land speculation given the escalation of land prices and the inflation of agricultural commodities.

The constituent actors of the Geoeconomic Web of agro-industrial Commodity Chains operate mechanisms to ensure hegemonic positions in the economy and society[4]. This process occurs with formal political action in the executive and legislative power spheres and direct and indirect influence and participation in judicial posts. They are also manifested through the influence and co-optation of teaching, promotion, research, and regulatory bodies. Investment in symbolic capital by orchestrating ties of dependence and downstream and upstream hegemony in market structures ensures territorial control.

In historical and geographical processes, asymmetric power relations reflect asymmetric potentialities in balancing externalizations/internalizations of costs and impacts. Within Commodity Chains, the search for advantageous positioning modulates the power manifested in the Geoeconomic Web, according to the games of interest between actors that can sometimes be linked, sometimes antagonistic. Understanding these power relations in the interactions between input corporations, traders, and large agricultural producers is the Geoeconomic Web's primary attribute as an analytical tool.

Therefore, it is possible to consider approaches that analyze capitalist relations by supposing behaviors are strictly directed by the market logic simplistic as if socio-political and symbolic

institutionality were exogenous factors. Even amid the high circles of large corporations and speculators in the Commodity Chain, strategies unfold to overcome market constraints. The market is a means. According to the Geoeconomic Web, it is evident that, in the capitalist spheres, there are opportunistic tactics and political and socio-institutional engineering to avoid submitting to the restrictions of the "perfect competition" mechanisms, which is vital for the scale of expanded capital accumulation that moves the world economy in the current historical system.

While respective social sciences have tools to analyze specific dimensions of these relationships, geography has the distinct power to analyze their intertwined manifestations. The geographic analysis includes incidence and locational positioning, spatial movement, and articulation, in addition to investigating the causal forces and mechanisms that form the phenomena underlying the manifestations. Research on Economic Webs is multidisciplinary and interdisciplinary by nature, but geography has a prominent role, as in representational schemes, it can link the macro, meso, and micro scales of the axes, flows, nodules, and installations. This multi-scale approach is essential for the exercise of spatial totality.

CONCLUSION

The analysis of the "Commodity Chains," formulated in the "Systems-World Analysis" framework, intensifies the unraveling of the plots of structural relations formed by national economies' insertions in the world economy. The particularities of their conceptual and analytical emphases, such as the "axial division of labor," the power relations related to the "unequal appropriation of economic surplus," in addition to the "world economy" and the "interstate systems of periphery-semiperiphery-center structure," make their syntheses valuable for research on industrially and financially integrated productive and commercial agricultural systems.

The Brazilian soybean production-commercial system fits into the framework of the national economy's insertion in the macro-structures of economic and institutional networks in which companies operate in the capitalist world economy and the competition processes within the tripartite hierarchy of the interstate system. This competition's most potent manifestations are how actors seek to capture and internalize more capital surpluses among the sectors and niches and externalize additional costs to other spatialities.

The Soybean Commodity Chain has become a primary axis to insert the Brazilian economy into the World System. However, this axis is not very dynamic concerning economic complexity and its role in opening up chances to improve the positioning in the system's unequal structure.

The Geoeconomic Web unveils the power relations of multiple institutional arrangements, which hegemonize the actions of the Brazilian State, subjecting the national economy to a subordinate insertion in the world system based on commodity chain exports and following the rhetoric of the "commodity consensus" highlighted by Maristela Svampa. The most emblematic result of this "Brazilian option" is the preservation of land concentration, the progressive withdrawal of the social rights that had been conquered in the 1988 Federal Constitution, the deepening predation of biodiversity, and the consolidation of a development path that traces a path of difficult return: the reprimarization and deindustrialization of Brazil.

NOTES

1- Trading companies regulate the marketing and distribution of agricultural commodity chains, orchestrating business risk management and some services to producers in the financial system. Among the most powerful are ADM, Bunge, Cargill, Louis Dreyfus, Noble Group, Wilmar, Vitol, and Cofco (MEDEIROS, 2014).

2- That said, it is important to note that the share of exportation of goods and services as a percentage of GDP in Brazil exceeded just over 15%. The country's gross domestic product is driven by the domestic market.

3- Significantly, in the context of the global Covid-19 pandemic, China's exports of masks

exceeded, in dollars, the amount of Brazilian exports of soybeans and derivatives, beef and sugarcane (UOL, 2020).

4- See the article "Agribusiness and the financial market advance, hand in hand", by O Joio e o Trigo (2021), which points out that financial speculation corporations inserted in the concomitant commodity economy strengthen their power of institutional influence in the sphere of the political lobby of agribusiness.

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