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ARTICLE

Separate Tables: Thematic and Methodological Divisions in Brazilian Political Science*,†,‡

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This study delves into the thematic and methodological configuration of Brazilian Political Science. Through the study of the relational dynamics between different research agendas and their specific approaches, we identified the centrality of certain themes and the methodological density within Brazilian Political Science. We conducted an analysis of 1,849 PhD theses and Master dissertations completed between 2013 and 2020 in eleven Postgraduate Programs. Our examination encompassed titles, abstracts, and keywords in these works, with data sourced from the CAPES theses and dissertations Catalog. The thematic network showed the emancipation of this academic field, revealing the consolidation of five distinct thematic communities. These communities encompass the major canonical themes of mainstream Political Science: 01. political theory, 02. State, government, and international relations, 03. social actors, participation, and public policies, 04. political institutions and State powers, and 05. parties, elections, and legislative studies. The methodological network revealed a semantic structure that mirrors this thematic division, with each community exhibiting unique styles, research methods, and investigative techniques. These findings are in line with assessments emphasizing the institutionalization of Brazilian Political Science. This institutionalization is manifested in the predominance of research themes intricately linked to politics (and not to the economy, society, etc.) and greater methodological refinement.

Keywords: Political Science; Brazilian Political Science; PhD theses and Master's dissertations; Postgraduate studies; Network analysis.

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In an essay published in the late 1980s on Political Science (PS) in the United States, Gabriel Almond painted a dismayed portrait of the discipline's institutional culture (ALMOND, 1988). According to his pessimistic assessment, North American PS was profoundly fragmented into four insulated 'sects': humanists, neo-institutionalists, econometricians, and critical political theorists (i.e., Marxists). Among these, the latter stood out as the most distant group, as they straddled between the realms of academic teaching and active participation in radical political movements (ALMOND, 1988, pp. 828-829). Despite the substantial increase in research funding and the adoption of rigorous statistical methodologies and mathematical modeling in PS since the mid-1960s, Almond noted a persistent division within this academic community, both from an 'ideological' and 'methodological' standpoint. We could exaggerate this contrast by depicting, on one extreme, the advocates of free-market capitalism and limited state intervention alongside the obstinate anti-communists. At the opposite end, we find thinkers and theorists who exclusively embraced a radical perspective in PS, devoting themselves to the pursuit of socialism. Methodologically, the divide would be between those who favor the traditional exegesis of seminal political philosophy texts and those who align with a more purely scientific approach, focusing on mathematical modeling, statistical analysis, natural experiments, and computer simulations. At the center of this imaginary cafeteria of isolated tables we find a politically progressive ('liberal') and methodologically eclectic group. As per Almond's poignant judgment, since then "[American] Political science has prospered materially, but it is not a happy profession" (ALMOND, 1988, p. 829).

The idea that American PS lacked unity and that this posed a significant problem is a widely acknowledged assessment in the scholarly literature. Regarding the fragmentation of the discipline, Easton noted that from the 1950s onwards, PS "shattered into a multitude of methodological and substantive pieces". As a consequence, there emerged "a deep sense of loss of purpose and direction" (EASTON, 1997, p. 17). Sigelman drew the conclusion "that political science is held together less by intellectual coherence than by institutional inertia" (SIGELMAN, 2006, p. 465).

In this article we describe and analyze both the 'thematic' and 'methodological' landscape of Brazilian PS. However, unlike Almond's approach (1988), we do not delve

into the ideological perspectives of its practitioners. While we demonstrate that the discipline is also divided into 'separate tables', we perceive this phenomenon as positive and suggestive insofar as it reveals the structure and level of development of this scientific community.

Over the last twenty years, PS in Brazil has not only grown institutionally, but has also organized itself into a series of 'invisible colleges' (PRICE and BEAVER, 1966). Postgraduate students and researchers affiliated with different institutions have developed shared interests. These colleges are identifiable less by collaborative authorship among individuals and more by the collective adoption of common concepts, ideas, research methods, and investigative techniques or by sharing empirical objects and theoretical perspectives. This phenomenon has facilitated and fostered the emergence of several domains in the discipline ('tables'), with a significant degree of specialization, since the 2000s.

Our objective is to delineate the relational dynamics between the priority research topics (or 'themes') and the diverse approaches (research 'methodologies') employed in PhD Theses and Master's Dissertations (T&D)[1] within the field of PS in Brazil. To this end, we analyzed a comprehensive dataset comprising 1,849 T&Ds conducted within eleven Postgraduate Programs (PGPs) during the period spanning 2013 to 2020. It is important to highlight that the selected PGPs in our analytical corpus include only institutions that currently offer both master's and doctoral programs and are officially designated as 'Political Science'.

We utilized network analysis as our methodology to access the underlying structure of this scientific field. This analytical approach allows us to determine the importance of specific themes, terminologies, and operational concepts, as well as the influence of authors and schools of thought. Furthermore, it aids in evaluating the centrality of particular issues and measuring the overall density of research in this area, providing

[1]In this paper, we will employ the terms dissertation and thesis to denote the concluding works of master's and doctoral programs, respectively. These terms are utilized interchangeably across various countries, and for the purpose of this study, we are adopting the versions that align more closely with the terminology commonly used in Brazil.

insight into the intricate dynamics of interaction and information flow within this scientific community.

Additionally, it allows us to assess the centrality of particular problematics and gauge the overall density of the research area, thus shedding light on the complex dynamics of interaction and flow of information within this scientific microcosm.

This work is fundamentally exploratory and descriptive in nature. It provides a static (i.e., at a given moment in time) and not a dynamic (historical) representation of the current stage of the discipline's culture. On the other hand, its value lies in its capacity to reveal non-visible patterns, offering us insights into the underlying structure of Brazilian PS, thereby enabling the construction of explanatory hypotheses to elucidate the contributing factors behind the discipline's thematic divisions and methodological hierarchies, i.e., its 'separate tables' to borrow Almond's terminology (1988).

In the subsequent section, we provide an overview of the institutional evolution of Brazilian PS, which forms the foundation for both its thematic structuring and methodological organization. Moving on to the 'Materials and Methods' section, we detail how we defined our study corpus, the data processing techniques employed, the network analysis metrics utilized, and the software applied for mapping this complex landscape. In section 03, we present and discuss our findings from patterns identified within two expansive semantic networks. The first network provides a comprehensive visualization of the distribution of research 'areas', 'themes', 'problems', and 'objects of study' within the T&Ds. It delineates how these components are segmented into highly specific research domains, showcasing their relative sizes and weights in the field, and the extent of their interactions and distinctions. The second network encompasses the most common 'research methods', 'techniques', and 'procedures' employed within these thematic areas, shedding light on the potential level of methodological advancement within the field of PS in Brazil. In our Concluding Remarks, we draw insights from this science mapping exercise to elucidate the current structural arrangement of PS in Brazil and its implications. We also acknowledge the limitations of this article, which stem from the type and volume of data we have analyzed and the relatively short timeframe (only eight years). Lastly, we outline topics of interest that, in our perspective, warrant further exploration.

While Almond's (1988) initial assessment of United States PS began on a notably critical tone, his conclusion is heavily patriotic: "We have good grounds for professional pride in the development of political science in the last decades. And as Americans we have made important contributions to an age-old, world-wide effort to bring the power of knowledge to bear on the tragic dilemmas of the world of politics" (ALMOND, 1988, p. 840). Without explicitly aiming for such an ambitious goal, Brazilian PS appears to have shown signs, especially during the 2010s, of embarking on a gradual journey to overcome one of its longstanding weaknesses or 'Achilles' heel' (SOARES, 2005): methodological shortcomings.

The current status of Brazilian Political Science

As a fully established scientific field, PS in Brazil has developed somewhat belatedly in comparison to its counterparts in the United States, Europe, and even within Latin America itself. It has also lagged behind Brazilian Sociology and Anthropology (MARENCO, 2014). The specific timeline of this historical trajectory varies depending on the perspective. According to Avritzer (2016), the definition of an autonomous research subject – more specifically in the realm of institutional and electoral politics – transpired in the late 1950s. This period also witnessed the formation of a devoted group of professionals specializing in this field and the emergence of a dedicated journal for disseminating the research findings of this burgeoning community. As Avritzer puts it, "In the early 1960s, we witnessed the culmination of the formation process of Brazilian Political Science" (AVRITZER, 2016, p. 171). Limongi, Tavares de Almeida, and Freitas (2016) shift this key moment to the late 1990s, when PS in Brazil finally emancipated itself from the interpretative paradigms and broad generalizations of Political Sociology. The increasing importance of the debate on 'political institutions' during the transition from the military dictatorship to liberal democracy, along with the discipline's need to reconfigure its research agenda (encompassing discussions on presidentialism, governability, and the party system). Played a pivotal role in "redirecting explanations away from social macrostructures", such as cultural values,

social movements, economic structures, and classes, and "towards the institutions that regulate political disputes" (LIMONGI et al., 2016, p. 62).

Between these two diagnoses, the most widely accepted timeframe places the emergence and evolution of Brazilian PS in accordance with certain 'shifts' that occurred "in relation to established academic disciplines and the creation of academic and professional institutions" (MARENCO, 2016, p. 142). As per Marenco's argument, the development of political studies as a notably distinct field from Constitutional Law, Social Philosophy, and Brazilian History only began to emerge in the 1970s, with the doctoral theses by Simon Schwartzman (Regional cleavages and political patrimonialism in Brazil, 1973); Fábio Wanderley Reis (Political Development and Social Class, 1974); José Murilo de Carvalho (Elite and State-Building in Imperial Brazil, 1975); and Wanderley Guilherme dos Santos (The Calculus of Conflict, 1979) (MARENCO, 2016, pp. 145-146). In turn, the institutional milestone in the development of PS in Brazil can be traced back to the 1960s, with the creation of the first master's degree programs at the Federal University of Minas Gerais and at the University Research Institute of Rio de Janeiro in 1969, followed by the creation of similar programs at the Federal University of Rio Grande do Sul, in 1973, and at the State University of Campinas in 1974. In that same year, the University of São Paulo introduced the country's first PhD program in the field (FORJAZ, 1997; KEINERT and SILVA, 2010; MARENCO, 2015; OLIVEIRA et al., 2021).

In contrast to several other Latin American countries where PS expanded as an undergraduate course (BARRIENTOS DEL MONTE, 2015), the development of PS in Brazil primarily occurred in the 1980s and 1990s through PGPs. However, it is worth noting that even within the realm of postgraduate education, PS took a long time to establish itself. Data from the CAPES (Coordination for the Improvement of Higher Education Personnel) reveal that until the year 2000, there were only eight PGPs bearing the name 'Political Science', yet only three offered doctoral degrees: UFRGS, USP, and IUPERJ. Almeida (2005) argues that in the early 2000s the development of national PS remained sluggish. During this period, the budget allocated to the field of PS by the CNPq (National Council for Scientific and Technological Development) between 1998 and 2002 remained

significantly constrained, with a very limited number of available research scholarships[2]. However, during the 2000s and 2010s, there was a significant advancement within the postgraduate system. As of 2022, in the broader field of 'Political Science and International Relations' (PS&IR), there were a total of 29 doctoral programs, including three professional programs[3]. This progress, achieved over the course of a decade, positioned the field as larger than the PGPs in Sociology (52 programs) and Anthropology (37 programs). Furthermore, in 2022, the broader PS&IR CAPES evaluation area comprised a total of 61 PGPs, therein including both master's and doctoral programs in Public Policy and Strategic Studies. The data on the rapid expansion of the postgraduate education system is indeed impressive. According to the 2019 CAPES 'Area Document: Political Science and International Relations'[4], there were only 459 students enrolled in 1998. However, by 2017, this figure had surged to 2,440, representing a growth of more than 400%. In 2020, as reported by GEOCAPES[5], there were 3,921 students and 1,119 faculty members across 62 PGPs, constituting a community of 5,040 individuals. This expansion had a direct impact on academic degrees. In 1998, Political Science and International Relations PGPs conferred degrees to 111 individuals (84 master's degrees and 27 doctoral degrees). In 2019, an impressive total of 215 doctoral theses, 448 master's dissertations in academic programs, and 302 master's dissertations in professional programs were defended, amounting to a grand total of 965 academic works—nearly ten times the amount[6]. In 2022, there were a total of 19 programs specifically labeled as 'Political Science': one in the North, three in the Midwest, three in the South, five in the Northeast, and seven in the Southeast. In Avritzer's assessment this is a highly positive development, asserting that "Political Science in Brazil

[2]This situation has not changed significantly. The distribution of Research Productivity Grants by area in 2022 was as follows: Economics, 238; Sociology, 234; Anthropology, 186; Philosophy, 171; while Political Science had only 160 scholarships. To access this data, see Retrieved on 13 Nov. 2022.

[3]For these official figures, see <https://sucupira.capes.gov.br/sucupira/public/consultas/coleta/programa/quantitativos/quantitativoAreaConhecimento.jsf?areaAvaliacao=39>. Retrieved on July, 13, 2022.

[4]See <https://www.gov.br/capes/pt-br/centrais-de-conteudo/ciencia-politica-rel-internacionais-pdf>. Retrieved on July, 13, 2022.

[5]See <https://geocapes.capes.gov.br/geocapes/>. Retrieved on February, 16, 2022.

[6]The area's annual averages for the 2017-2020 four-year period are as follows: 412 academic master's dissertations, 197 professional master's dissertations, and 180 doctorate theses. See SIAPG-CAPES version 0.3.1 <https://siapg.capes.gov.br/dashboard>. Retrieved on November, 12, 2022.

[...] can only be truly consolidated insofar as it becomes pluralized, both territorially and thematically" (AVRITZER, 2016, p. 167). This shift in the institutional and demographic profile of the field has provided the foundation for the reshaping of its intellectual landscape. In the subsequent sections, we will delve into the configuration of Brazilian PS from 2013 to 2020, the specific timeframe examined in this study.

Materials and methods

Data collection

Our primary data source for this article is the CAPES Catalog of Theses and Dissertations Version: 1.1.16[7]. Table 01 presents details about the 11 PGPs selected from the 19 categorized as 'Political Science' in 2023, along with the number of T&D examined per Program. We analyzed 1,849 works defended between 2013 and 2020. This time frame spans two four-year evaluation periods by CAPES, providing an up-to-date overview of academic production in the field. Approximately 60% of the total works are master's dissertations, while 40% are doctoral theses. For this analysis, we exclusively considered institutions that offered both master's and doctoral programs. Four universities collectively accounted for nearly half of the works (47%): UFRGS, USP, UFMG, and UERJ/IESP (formerly IUPERJ). These programs also happen to be the oldest in the field.

Table 01. T&D in Political Science analyzed by higher education institution (2013-2020)

University	Nº of theses	Nº of dissertations	Total	% of the total 1.849
UFRGS	145	111	256	13.85%
USP	81	131	212	11.47%
UFMG	85	121	206	11.14%
UERJ/IESP	124	74	198	10.71%
UFPE	74	114	188	10.17%
UNICAMP	82	76	158	8.55%
UnB	52	106	158	8.55%
UFPR	28	117	145	7.84%
UFSCAR	52	86	138	7.46%
UFF	53	65	118	6.38%
UFPEL	2	70	72	3.89%
Total	778	1.071	1.849	100.0%

Source: Elaborated by the authors, based on Catalog of Theses and Dissertations. CAPES.

[7]See <https://catalogodeteses.capes.gov.br/catalogo-teses/#!/>. Retrieved on July, 13, 2022.

The analyses in this study rely solely on the metadata of the T&D. We examined the terms found in the titles, abstracts, and keywords of these works, with a specific focus on the relationships between them. From these terms, we have constructed two networks of words, or 'semantic networks'. It is our assumption that the terms used to construct these networks provide very close approximations of the content found within the T&D.

Data classification

As explained by Lindgren (2016), the study of semantic networks employs network analysis to examine textual content. Because of the extensive textual datasets analyzed in this study, it is essential to employ computational techniques that integrate quantitative methods with interpretative capabilities. In our case, the method utilized was connected concept analysis (CCA) through the 'Textometrica' software (http://textometrica.humlab.umu.se/). This software serves as a kind of programming language interface that integrates a range of tools for implementing the method (Lindgren, 2016).

The initial phase of data processing involved standardizing the metadata of the 1,849 T&D with the use of 'Microsoft Excel'. Subsequently, we performed the formatting and conversion of the textual corpus into UTF-8 format using the Notepad++ software. Next, we imported the metadata into the 'Textometrica' platform, where the second data processing step, known as lemmatization, was carried out and divided into six distinct stages.

After uploading the textual database into the tool, we applied a process called 'exclude words', which involves the removal of generic words or expressions from the analysis (articles, conjunctions, prepositions, etc) even prior to the quantification of terms and concepts. The subsequent step was entirely quantitative. We examined the frequency of words within the database, a process known as tokenization, compiling an inventory of all the terms that appeared in the corpus.

Stage three (selection) represents the first qualitative step in the process. During this stage, we chose the terms of interest and excluded all those deemed irrelevant. During this stage of data processing, it is crucial to establish a minimum frequency threshold to determine which words from the textual corpus are eligible for the selection

stage. In our study, we defined a minimum frequency of 10 occurrences. We applied two distinct criteria based on our research objectives.

The first selection criterion entailed choosing words that represented themes, approaches, and authors in the field of PS. This criterion sought to identify the 'priority themes' within the discipline by considering abstract nouns indicative of 'traditional research topics', 'objects of study', and 'names'. To accomplish this, we conducted a three-step evaluation process in which three separate evaluators were tasked with selecting the words. Subsequently, we compared the lists of chosen words to gauge the degree of consensus among the evaluators[8]. The second criterion involved an additional word selection procedure, where we filtered 'methodological terms', terms related to 'research techniques', and verbs indicating actions, objectives, or procedures, such as 'understand', 'explain', 'respond', 'interpret', and so forth. In this network, we retained the most commonly occurring terms that correspond to subareas of study in Brazilian PS, which had already been identified in the thematic network[9]. Subsequently, we created reference nodes by subarea for the network analysis of methodological terms. The next stage was 'conceptualization', which primarily involved the creation of concepts capable of indicating and grouping similar words and synonyms. This was achieved by combining words with the same root[10], considering variations of plurals and singulars, or the fusion of distinct words that conveyed identical notions or methods[11]. This stage was fundamentally qualitative in nature, requiring the establishment of objective criteria for generating the concepts that will constitute the networks. To accomplish this, it was necessary to examine how terms were employed in titles, abstracts, and keywords within the T&D to group them, while respecting the contexts in which they are used to the greatest extent possible. Stage five, known as connection, involves conducting a co-

[8]The results of the agreement test (Fleiss' kappa) can be accessed in the replication files of this study, available at this link: https://doi.org/10.7910/DVN/9GOKZY.

[9]Namely: State, government, and international (State, government and international relations); institutions, power, federal (Institutions); public, actors, and participation (Social actors, participation, and public policies); parties, politicians, and elections (Parties and elections); theory, democracy, and society (Political theory).

[10]Example: the terms 'eleitor', 'eleitores', 'eleitoras', 'eleitorado' [voter, voters, voting public, electorate in English] were grouped under the term 'eleitorado', as it was the most frequent term in the corpus.

[11]One example are the terms 'process' and 'tracing', counted separately by the software, but grouped together in this process under the term 'process tracing'.

occurrence analysis of related terms and concepts, building upon the lemmatization process carried out in the previous step. We performed this process within 'Textometrica', following the delimiter specified during the database formatting stage. In our case, this entailed combining metadata from each T&D, with each of them serving as a unit of analysis, which subsequently resulted in a list of co-occurrences of words and concepts.

Before we proceed to the final stage of data processing and analysis ('visualization'), we present in Table 02 the data resulting from these initial four steps for building the study corpus.

Table 02. Detail of the lemmatization process in 'Textometrica'

Steps	Network 01 (thematic)		Network 02 (methodologic)	
Tokenization	total words	21.976	total words	21.976
Selection	selected	1.281	selected	686
Conceptualization	concepts created	451	concepts created	182
Connection	final	758	final	267

Source: Elaborated by the authors.

Data visualization

In stage six, data visualization and analysis, we used the Gephi 0.9.7 Social Network Analysis software to build One-mode graphs. This software allows us to control network metrics calculations, apply visualization algorithms, and edit figures for two-dimensional visualization.

The centrality measures of this stage, and their interpretations, are as follows[12]:

01. Modularity class: A measure of the network structure which evaluates the strength of the division within the network into clusters or communities. It detects clusters of significant words based on their structural equivalences and intragroup cohesion, essentially capturing 'subnetworks', i.e., 'thematic domains' within the semantic network. The network partition is performed by identifying 'vulnerable' nodes that serve

[12]Unless otherwise specified, all information regarding the meaning of network statistics was sourced from (DEGENNE and FORSE, 1999; HIGGINS and RIBEIRO, 2018; NEWMAN, 2010).

as ‘cutpoints’: the algorithm successively identifies nodes with high intermediation and segments the graph accordingly. Networks with high modularity exhibit dense connections among cluster nodes and low density among nodes belonging to different communities;

02. Degree centrality (or simply ‘Degree’): In an undirected network, this metric represents the total number of connections that a specific node has with other nodes in the network. It serves as an indicator of a term’s ‘influence’. A word with high degree centrality suggests that it is highly prevalent within the corpus;

03. Betweenness centrality: This metric quantifies how frequently a node lies on the shortest paths (geodesies) connecting other nodes, revealing the most strategic terms within the network. In a semantic network, it identifies ‘bridge’ words (brokers) situated at the boundaries between clusters, represented by different colors. Consequently, it plays a crucial role in understanding the ‘flow’ of academic-scientific ‘information’ within the network;

04. Closeness centrality: This metric calculates the average distance between a node from all other nodes in the network. It serves as a measure of ‘global influence’, indicating how far a node ‘travels’ along the shortest paths of the network. It identifies highly influential words due of its ability to connect with other words in the network considering the shortest distance traveled; the higher the value, the closer a node is to all others in the network;

05. Edge weight*:* In a semantic network, the edges (ties) represent relationships between concepts or terms. The weight measures the intensity of connections between two nodes based on the number of relations between them. The edge weight between two words expresses the strength of the association between the terms;

06. Weighted degree: This metric represents the sum of the weights of the edges connected to a specific node. It is used to identify nodes with high connectivity when considering the weight of the edges. However, it does not necessarily indicate the global influence of a node on the entire network, since a term with high weighted degree centrality may have only ‘local influence’ within a specific cluster (CHERVEN, 2015; CLEMENTE et al., 2022; RECUERO, 2017).

To visualize the networks, we employed the 'Circle Pack Layout' algorithm, which enables us to group (or 'pack') significant terms based on shared attributes, thus illustrating hierarchical relationships. The applied hierarchical attributes were 'modularity' class (to identify thematic domains) and weighted degree (to distinguish the localized influences of terms within specific clusters).

Although we did not conduct a diachronic analysis of the PS field in Brazil, we did create 'dynamic networks' based on our findings. That is, we generated a 'film' of the thematic and methodological networks to observe how they evolved throughout the specified time frame (2013-2020). Our goal was to identify significant changes over time. This was achieved using 'Gephi's Dynamic Network' plugin, which creates a timeline by integrating time interval information into the software's data laboratory. To this end, we inputted the initial and final years in which each term appeared throughout the period, taking into account their presence in the titles and keywords of each T&D[13]. We then recorded these dynamic graphs and uploaded them to the YouTube platform[14].

Lastly, we followed Noyons' recommendations (2001) for two out of the three validation stages in science mappings: 01. 'methodological validation', which refers to the efforts by scientometricians to ensure the research maintains methodological rigor and consistency; 02. 'internal validation', which involves the assessment of the maps by experts in the respective disciplinary fields to ensure interpretative accuracy and representativeness; and 03. 'external validation', which

[13]For the methodological network, we also incorporated the 'abstract' field, as we recognized that to gather more precise information about research techniques, it would be insufficient to solely examine the keywords and titles in the T&D.

[14]As important as it is to understand the 'snapshot' of the analyzed field, it is equally vital to observe its 'film', i.e., its temporal evolution and development. The longitudinal microanalysis conducted for the period 2013-2020 indicates the persistence of the network's structural axes in an almost static manner, with very few variations – which are primarily confined to marginal nodes. This holds true for both the accumulation of terms over the years (cumulative network) and the appearance and disappearance of terms on a year-by-year basis. The core terms remain unchanged. These findings reinforce the thesis of the institutionalization of the field in Brazil (AVRITZER and SANTOS, 2015), portraying a stable national PS in terms of subareas, research agendas, and methods. Links to the thematic network: Cumulative (terms are added as the years pass): <https://youtu.be/eBrqGCQ26IQ>. Non-cumulative (terms appear and disappear year by year): <https://youtu.be/vI6V6ihH7ns>. Links of the methodological network: Cumulative (terms are added as the years pass): <https://youtu.be/fAvPDBXuZdE>. Non-cumulative (terms appear and disappear year by year): <https://youtu.be/t-jsEr9ml3g>.

involves the use of findings from scientific and educational policymakers who rely on the information from these maps as support for their decision-making.

For an internal validation of our results, we conducted interviews between February and April 2023 with eight Brazilian PS researchers who are experts in the respective subareas designated by the clusters we found[15].

The interviews were conducted individually and online. During these interviews, we presented our thematic and methodological maps to the eight collaborating experts and requested their interpretations. This step proved to be essential in elucidating the presence and absence of themes, research problems, and methodologies within the five knowledge domains identified by 'Gephi', significantly enriching our analysis. As for the third stage of the sequence proposed by Noyons (2001), we anticipate that our findings may contribute, to some extent, to the strategic deliberations concerning the future directions of Brazilian PS.

Results and discussion

Two networks, represented in Figure 01 and Figure 02, were created using terms and concepts extracted from the metadata of the T&D. In this section, we will detail our findings and provide insights into how to interpret them, underscoring the importance of each cluster within the present state of the discipline. In the final section, 'Concluding Remarks', we will succinctly recap our general findings and explore their implications for understanding the current structure of Brazilian PS.

First, we performed a 'topological' or global analysis of the networks. This allowed us to gain insights into the overall structure by examining connectivity, clustering patterns, and the centrality of terms (or 'nodes') in these two networks. Subsequently, we performed a 'modularity analysis', examining each cluster individually. The goal was to identify clusters or communities with greater density and connectivity in relation to nodes in other clusters.

[15]We express our gratitude to Professors Dalson Figueiredo, João Feres Júnior, Lígia Mori Madeira, Maria do Socorro Braga, San Romanelli Assumpção, Ramon Blanco de Freitas, and Renato Monseff Perissinotto.

Four major structuring axes of the discipline

Figure 01 shows the 'separate tables' that shape the thematic communities within Brazilian Political Science. This network comprises 761 nodes that represent, through shared words, specific concepts or notions. The edges (represented by the lines in the graph) denote connections among these nodes, regardless of the direction of these connections. In total, the network encompasses 50,000 connections with an average degree of 131.4 connections per node. The modularity metric (M) informs the 'clusterability' structure of the network, identifying subgroups by shared affinities. In accordance with existing literature, M values below 0.2 suggest highly interconnected nodes and overlapping groups. In the present context, the M value of 0.115 indicates that the words within this corpus have a notable cohesion around a specific subject.

As expected, the first network lacks a clear division of topics (PARANYUSHKIN, 2019) given that it represents a single field of knowledge. However, there is a reasonable degree of specialization and well-established organization within the 2013-2020 period, forming five clusters. These clusters are depicted in Figure 01 by different colors. In counterclockwise order: blue, red, green, pink, and orange. These five clusters make up the thematic communities of Brazilian Political Science.

However, these clusters are intersected by four major structuring axes. The data in Table 03 shows these axes, based on three different measures: State, political theory, institutions and public policies. Essentially, these four terms form the backbone and structure of the entire discipline in Brazil. They hold centrality primarily because they represent the most 'popular' themes, i.e., they have the highest number of connections with other themes (degree centrality). Nodes characterized by high degree centrality – indicative of global influence – assume pivotal roles in disseminating information within a network.

This measure should be complemented by two others: 'betweenness centrality' and 'closeness centrality'. 'Betweenness centrality' measures the influence a node wields over the flow of interactions (or information) with other nodes in a community. In our case, these four terms act as 'bridges', connecting other elements within the network, functioning as brokers intermediating the entire system. Without them, certain portions of the network might become isolated or experience reduced communication.

'Closeness centrality' serves as a metric to quantify how closely connected a node is to all other nodes in the network. Metaphorically, closeness centrality reflects how rapidly information can spread from one node to all other nodes within the network.

The data in Table 03 has been arranged in descending order based on the degree centrality of the nodes, with the other metrics following the same distribution.

Table 03. Central nodes of the thematic network and approaches of theses and dissertations in Political Science from eleven selected Postgraduate Programs (2013-2020)

Node	Degree centrality (global influence)	Node	Betweenness centrality (main 'brokers')	Node	Closeness centrality (shortest path)
state	653	state	0.0359	state	0.8765
theory	629	theory	0.0331	theory	0.8529
institutions	627	public policies	0.0278	institutions	0.8510
public policies	624	institutions	0.0260	public policies	0.8482
case	609	case	0.0250	case	0.8342
national	601	democracy	0.0238	national	0.8269
data	581	national	0.0226	data	0.8093
government	580	government	0.0203	government	0.8085
hypothesis	574	data	0.0180	hypothesis	0.8033
democracy	567	politicians	0.0174	democracy	0.7974

Source: Elaborated by the authors.

'State', 'Political Theory', 'Institutions', and 'Public Policies' emerge as the most prominent and frequently occurring axes. That is, these nodes play a crucial role in sustaining Brazilian PS as a disciplinary field, serving as shortcuts that connect various specific themes, singular research problems, and objects of study within the discipline.

The term 'State' stands out as the most significant in this network, reflecting the historical development of PS in Brazil. In general terms, from the 1960s to the 1980s, analyses of the State and institutions primarily adopted a macroscopic approach. Initially, the scholarly literature until the 1980s "primarily focused the macro-characteristics of the Brazilian State. It delved into topics such as its relationships with the business sector, its role in shaping a modern political order, and the development of national capitalism" (MARQUES and SOUZA, 2016, p. 323). However, since the 1990s, there has been a shift

towards a more specific approach, adopting an institutionalist perspective, that views the State apparatus and government institutions as active participants in the formulation of public policies.

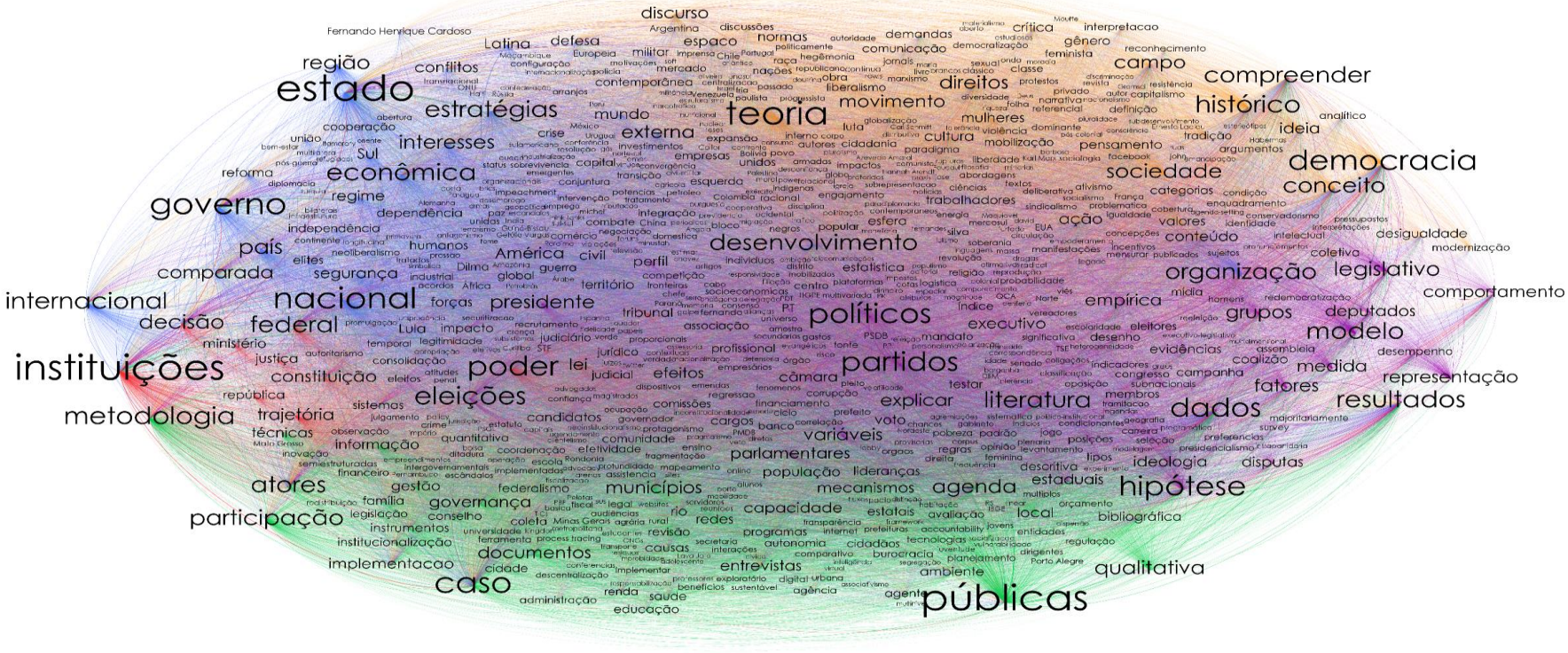
Next, we will discuss how PS in Brazil is structured around five research domains, which are articulated from the four axes outlined above.

Themes, research problems, and agendas in Brazilian Political Science

Figure 01 depicts five communities, providing a more detailed view of the data compared to the previously mentioned four major structuring axes ('State', 'Political Theory', 'Institutions' and 'Public Policies'). Each cluster represents a set of research objects that vary both thematically and, subsequently, methodologically (Figure 02).

The PS network in Brazil is segmented into five clusters. Three of them, 'State, government, and international relations' (blue) situated at the top left, 'political parties and elections' (pink) spanning the center to the right, and 'political theory' (orange) at the top, collectively account for 73.4% of the nodes in this network.

Figure 01. Network of themes and approaches in Brazilian political science theses and dissertations (2013-2020)



Source: Elaborated by the authors.

Note: The graph was created using Gephi's Circle Pack Layout algorithm, organized hierarchically based on modularity class (thematic domains) and weighted degree (the influence of a given term within a specific cluster).

Note: How to interpret the network:Different colors represent different groups ('clusters'). Clusters indicate the existence of a community of themes, research problems, or concepts that are more intensely shared among themselves than with other terms in the network.

The size of each word ('node') reflects its weighted degree, that is, 'its relative importance within a given cluster'. Thus, the larger the word in the network, the greater the 'local influence of the term in a specific cluster'. The 'lines' that form the graph or network are the edges (or links, ties). They establish connections between words. The more lines starting or arriving at a given word, the more intense and frequent the relationship between them.

Table 04 provides a breakdown of this data, showing the relative size of each cluster according to the percentage of nodes and edges and the central research themes of the T&D.

Table 04. Summary of the Brazilian Political Science thematic network (2013-2020) by cluster

Cluster color	Predominant theme	% nodes (N)	% edges (N)	Central terms within the cluster*
Blue	State, government and international relations	25.6% (195)	7.8% (3.914)	state, national, government, economic, strategies
Pink	Parties and elections	24.3% (185)	10% (4.998)	politicians, parties, elections, legislative, president
Orange	Political theory	23.5% (179)	6.7% (3.366)	theory, democracy, historical, society, rights
Green	Social actors, participation and public policies	19.3% (147)	6% (3.027)	public, actors, participation, agenda, municipalities
Red	Institutions	7.2% (55)	0.9% (480)	institutions, power, federal, decision, trajectory

Source: Elaborated by the authors.
Note: *For a comprehensive list of the top 10 terms within each cluster, see Appendix A.

The blue cluster encompasses research on the State, development, government, as well as specific investigations focused on international relations and foreign policy[16]. The strong semantic connection between these terms/themes indicates the endurance of a very traditional topic in Brazilian PS, namely the role of the national State in driving the country's economic development.

Unlike the more traditional association found in Brazilian Political Sociology, which tied 'State' to 'social class' (and consequently to broader processes of social domination), in this context we find an association between 'State' and 'development'.

[16]For a more detailed view of each cluster in Figure 01, see Appendix A. The 'weight of the edges' demonstrates which connections between the nodes have a structural function within the cluster because of the frequency of connections between them. The 'weighted degree' metric allows us to gauge the intensity of the nodes (terms, concepts) that act as concentration points within each cluster, taking into account the weight of the connections (edges) that form the cluster. The data confirms, in addition to visual perception, the themes addressed (see Table 06).

The presence of International Relations (IR) in this cluster encompasses an older and more traditional research agenda, which focuses on foreign policy, foreign trade, international agreements, etc. However, this comes at the expense of newer research themes. Recent developments in IR research in Brazil have shown a greater emphasis on subjects such as migration, race, and decolonial and post-colonial issues (OLIVEIRA and RODRIGUES, 2023). The substantial presence of T&D from institutions such as USP, UERJ/IESP, and UFRGS in our analytical corpus (accounting for 36%) reinforces this 'State-centric' bias. Terms that exemplify this IR agenda include: agreements, bilateral, ministry, security, diplomacy, national, interdependencies, dependence (see Figure 03 of Appendix A). The experts we consulted also noted that these PGPs tend to prioritize more traditional research themes, unlike International Relations PGPs where a new generation of researchers have been reshaping the discipline's agenda.

The pink cluster, located at the center and to the right of the graph, is associated with T&D on 'parties', 'politicians', 'elections', 'legislative'. This community holds significant importance within Brazilian PS, as it accounts for the largest number of publications in journals and citations in the area (LIMONGI et al., 2016). Despite the enduring crisis of political parties as a representational arena, this topic has not been relegated to a secondary study object. The term 'elections', the fourth most relevant term in this cluster according to the weighted degree (refer to Table 07 of Appendix A), symbolizes the weight of research conducted on electoral competition from both institutional and behavioral perspectives, representing a continuation of the research agenda that emerged in the 1970s, pioneered by prominent figures in Brazilian PS (LIMONGI et al., 2016). In turn, the 'legislative' node demarcates the subarea of 'Legislative Studies', which emerged in the 1990s with a focus on the relationships between the Executive and Legislative powers (FIGUEIREDO and SANTOS, 2016). This cluster also includes descriptive studies on the profiles of Brazilian parliamentarians, particularly congressional deputies, which gained further prominence in the 2000s and 2010s (COSTA et al., 2021) (see Figure 04 in Appendix A). International comparisons are notably absent from the T&D devoted to political parties, which remain sporadic and rare within the field (BRAGA and SPECK, 2021). There has been a different trend in research concerning Brazilian political institutions (Executive-Legislative relations, presidential system of government, congressional decision-making, government

coalitions, etc), which involves "moving away from the limitations of country-studies towards analytical and theoretical contributions to the broader understanding of these topics" (INÁCIO and ROCHA, 2021). However, we did not verify this trend based on the data available in the T&D in our analytical corpus.

In the orange community, the preponderant nodes are 'theory' (with a degree centrality of 629) and 'democracy' (567). These nodes establish among themselves one of the main relationships in the cluster with an edge weight of 576, one of the highest in the entire network (see Table 08 in Appendix A). While this group of words represents the field of Political Theory, it also includes feminist theory, political thought, and the history of concepts. The prominence of the 'democracy' node may be a Brazilian particularity. According to the expert interviewed, in Anglo-Saxon countries, many of the studies conducted in Brazil would align more with theories of justice rather than democracy. Furthermore, there is a prevailing prejudice in the community against ahistorical approaches to political theory, and theories of justice and normative theories are ahistorical. Terms like 'premise', 'norms', and 'values' are usually associated with normative theory and analytical approaches, but they had a relatively limited presence (see Figure 05 in Appendix A). The substantial size of this cluster was somewhat unexpected, and it may be attributed to contingent factors: Our selected PGPs have well-established research lines in political theory (USP, IESP (formerly IUPERJ), UFMG, UFRGS[17], in addition to UFPel, and are among the oldest and most traditional PS programs in Brazil. Additionally, research in this subarea often requires minimal funding costs. Given that these institutions account for almost 50% of the total T&D analyzed, we should not overlook this data.

Another notable aspect of this intellectual configuration is the decline of Marxism within the field. As per the expert interviewed, "Marxism has lost battles to critical theory, historians, and post-structuralist theorists. It has also been overshadowed by post-colonial and decolonial theorists, who employ Derridean [reference to French philosopher Jacques Derrida] and Foucauldian anti-universal terminology and also identify as anti-capitalist" (ASSUMPÇÃO, 2023).

In the green cluster, the central node is 'public', with a degree centrality of 624 (refer to Table 03 above). This node represents T&D on public policies, which have a

[17]These institutions are responsible for 47% of the total T&D analyzed in this article.

longstanding prominence in Brazilian PS. Accompanied by the node 'case', with a degree of 607, a common characteristic in this subarea are case studies focusing on specific objects located in a particular time and space in Brazil. The edge weight between these two terms is 628, indicating a strong connection, and the weighted degree is high (see Table 09 in Appendix A). The connected words in this cluster highlight studies on actors and participation, as well as topics related to agendas, governance, management, and the implementation of public policies at the municipal level (see Figure 06 in Appendix A). Following the end of the military dictatorship (1964-1985) and in the wake of the redemocratization process, there has been a notable emphasis on the theme of public policies, particularly concerning citizen participation and the role of social movements as crucial elements in the policy formulation process (ALMEIDA et al., 2015; DAGNINO, 1994).

The cluster reflects the more traditional pattern of public policy studies conducted in Brazilian PS programs. However, it is worth noting that from 2015 onwards, as mentioned by the expert interviewed, there has been a growing emergence of PGPs focused solely on Public Policy in institutions such as USP, UFPE, and UFRGS. This specialization has led to a diversification of research themes and an evolution in the methodological and theoretical debates. However, our study corpus did not yet reflect these novel developments. The absence of specific terminologies from the field, such as 'advocacy coalitions framework' or 'punctuated equilibrium' suggests that these analytical models have not have been fully integrated into the T&D on public policy produced in most PS postgraduate programs.

In the smallest community, represented in red, the node 'institutions' takes center stage and plays a structural role within the network (degree centrality of 627), with significant connections with central nodes in other clusters, as indicated by its betweenness centrality and closeness centrality values (see Table 03 above). This cluster primarily comprises studies on the relationships between different State powers, with a particular emphasis on the Judiciary (see Table 10 of Appendix A). The Federal Supreme Court, in particular, is a prominent subject in this cluster, reflecting the increasing interest in this topic within Brazilian PS (KOERNER and TOMIO, 2021). It is important to clarify that in this context, the term 'power' does not refer to the abstract concept but rather to specific administrative branches of the State (such as the 'Judicial Power', for example). The older and more consolidated research agenda of

Brazilian PS, particularly related to the Legislative branch or the interactions between the Legislative and Executive branches, is situated within the pink cluster dedicated to 'Parties & Elections'.

Lastly, one of the experts we interviewed made a significant general observation: The clusters in the thematic network tend to mirror the division and classification of the five subareas of PS according to the CNPq Classification of Areas of Knowledge[18].

Analysis of methodological and related terms in Brazilian Political Science postgraduate studies

Figure 02 shows the four major methodological communities in postgraduate studies. This network comprises 267 nodes generated from the lemmatization process. These nodes are connected by 25,661 edges, with an average degree above 192 connections per node in the network. The modularity value in this case is M = 0.054, which is lower than the value found in Figure 01. This means a high degree of cohesion in the network as a whole. In this case, it indicates that the network is relatively homogeneous in terms of methodology, showcasing a significant level of shared scientific terms and approaches among researchers in the field.

The terms with the highest centrality in the methodological network align with the major nodes in each cluster of the thematic network (Figure 01): 'State, government and international relations' (State, Gov. & IR), 'Social actors and public policies' (Actors & PP), 'Political theory and institutions' and 'Parties and elections' (Parties & Elections). These nodes act as reference hubs within the methodological network (Figure 2). Essentially, each research topic is directly related to particular approaches and methodologies.

Table 05 offers an overview of the themes that concentrate the connections in each cluster and the primary research methods associated with them.

The orange cluster represents the field of 'Political Theory'. Within this cluster we find terms such as 'understand', 'historical', and 'concept'. This points to a subarea

[18]See <http://lattes.cnpq.br/documents/11871/24930/TabeladeAreasdoConhecimento.pdf/ d192ff6b-3e0a-4074-a74d-c280521bd5f7>. Retrieved on May 5, 2023. They are: Political Theory, State and Government, Political Behavior (including the specialty Electoral Studies and Political Parties), Public Policies, and International Politics.

characterized by an interpretative approach, closely tied to the study of political thought, ideas, concepts, and discourses (refer to Table 11 in Appendix B). As noted by one of the experts we interviewed, within this subarea, theory serves a comprehensive rather than explanatory purpose, which explains the use of terms such as 'understand' and 'discuss' to describe the research procedures commonly employed in this type of study.

Table 05. Metrics of the network of methodological terms in Brazilian Political Science (2013-2020)

Cluster color	Predominant theme	% Node (n)	% Edges (n)	Predominant methodological terms	Frequent verbs
Orange	Political Theory	31.8% (85)	11.4% (2,937)	historical, problem, concept	comprehend, discuss
Pink	Parties & Elections	30.7% (82)	10.6% (2,733)	hypotheses, data, model	explain, compare
Yellow	"Political communication"	22.1% (59)	4.6% (1,187)	qualitative, content, quantitative	interview, collect
Blue	State, Gov. & IR; Actors & PP; Institutions	15.3% (41)	2.6% (677)	case, conditions, economic	analyze, identify

Source: Elaborated by the authors.

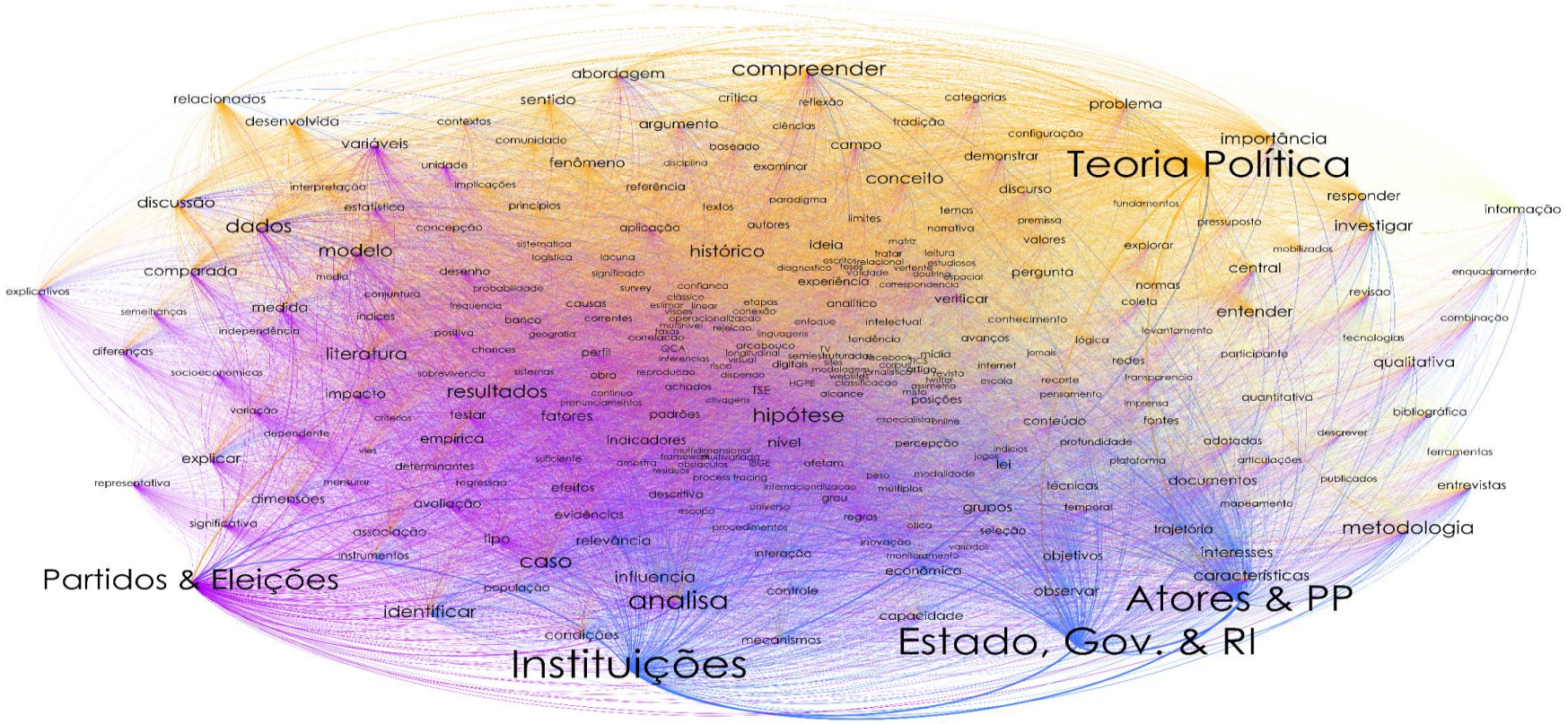
In Figure 02, the pink community represents the theme 'Parties & elections'. Within this community, we find a predominance of empirical-quantitative terms, such as 'model', 'measure', and 'factors' (refer to Table 12 in Appendix B). The term 'factors' here may refer to motives, causes, or reasons. The connections between these nodes indicate a preference for hypothesis testing (the term 'hypothesis' is central in the graph) and research methods that rely on statistics. These methodological preferences are characteristic of this subarea. Among the experts we consulted for our research, there is a consensus regarding the growth of empirical studies in Brazilian PS, particularly since the 1990s. The increased emphasis on empirical rigor in national PS can be attributed, as one interviewee suggested, to institutional incentives. These include a greater focus by PGPs on providing robust methodological training to students, heightened publication requirements in field-specific journals, and

competition for funding from scientific funding agencies, with organizations such as the São Paulo Research Foundation (FAPESP). Placing significant emphasis on methodological rigor when evaluating research proposals.

In the yellow cluster, situated to the right of the graph between the orange and blue clusters (better visualized in Figure 10 of Appendix B), the node with the highest centrality is 'methodology', which connects to the central thematic nodes of the network. The connections between 'methodology' and 'qualitative' and between 'methodology' and 'quantitative' (refer to Table 13 in Appendix B) reflect the academic writing culture within the field. However, as indicated by the experts interviewed, the mere presence of these terms does not guarantee the rigorous or effective application of these techniques in the T&D. According to Soares (2005), there is often indiscriminate and poorly-informed usage of this terminology. Consequently, the expression 'qualitative research' is frequently employed without much rigor. Within this cluster, there is a notable concentration of keywords related to 'political communication' research, particularly studies focusing on digital media. This hints at the possibility of a new 'table' emerging in the future, even though it has not yet accumulated a substantial number of T&D to establish a distinct presence in the thematic network. The relatively young status of the UFPR PGP (constituting only 08% of the T&D in our analyzed corpus), where this research agenda holds importance, serves as evidence of this development.

The blue cluster in the methodological network encompasses three thematic nodes: 'State, Government & IR', 'Actors & PP', and 'Institutions'. All three communities share the same methodological terms. The nodes 'analyze', 'identify', 'case', and 'observe' indicate a preference for predominantly empirical research (refer to Table 14 in Appendix B). According to the experts we interviewed, certain areas, such as International Relations, still tend to rely on descriptive research with small N and a prevalence of case studies (PEREIRA and LOPES, 2021). In State studies, specific terms such as 'mechanism' or 'conditions' are common in techniques such as process tracing. On the other hand, the field of Public Policies, as per the expert's opinion, leans more toward the use of mixed methods.

Figure 02. Network of methodological terms in Brazilian Political Science theses and dissertations (2013-2020)



Source: Elaborated by the authors.
Note: The graph was created using Gephi's Circle Pack Layout algorithm, organized hierarchically based on modularity class (thematic domains) and weighted degree (the influence of a given term within a specific cluster).
Note: How to interpret the network:Different colors represent different groups ('clusters'). Clusters indicate the existence of a community of themes, research problems, or concepts that are more intensely shared among themselves than with other terms in the network.
The size of each word ('node') reflects its weighted degree, that is, 'its relative importance within a given cluster'. Thus, the larger the word in the network, the greater the 'local influence of the term in a specific cluster'. The 'lines' that form the graph or network are the edges (or links, ties). They establish connections between words. The more lines starting or arriving at a given word, the more intense and frequent the relationship between them.

The future challenge for the Brazilian PS community is to increase the number of comparative studies and causal explanations. The fact that empirical-quantitative studies practically only use simple frequencies suggests that there is much room for improvement. However, a thorough examination of the contents of these T&D would be necessary to determine the actual applications of research methodologies and techniques.

Concluding remarks

In this article we conducted a panoramic diagnosis of the disciplinary and methodological identities within the field of Brazilian PS. The characteristics of the T&D can be taken as evidence of both the type and the nature of the research conducted across the eleven PGPs analyzed. Our study's dataset, encompassing 1,849 T&D, offers valuable insights into the conceptual framework of the discipline as a whole. An outline of the present state of Brazilian PS serves the dual purpose of enabling self-reflection within the field and providing a foundation for more precise diagnoses when formulating scientific policies to foster the growth and development of this academic community.

Our study revealed a high level of community organization within Brazilian PS, characterized by discernible patterns and divisions, both in terms of research themes and methodologies. This finding aligns with previous assessments emphasizing the 'institutionalization' of the field (AVRITZER, 2016). It is also consistent with 01. the field's increasing disciplinary autonomy towards greater 'politicism', with research themes primarily linked to politics rather than sociology or economics (LEITE and CODATO, 2013; LEITE and FERES JR., 2021); and 02. the 'empiricism' in the dominant approaches, despite the substantial size of the Political Theory subarea, which is possibly attributed to the fact that 47% of the analyzed works are concentrated in PGPs with a strong tradition in this thematic area (UFRGS, USP, UFMG, UERJ/IESP)

We may now discern the dominant characteristics of the field through the lens of postgraduate research and education. Previous analyses primarily relied on memories or on the institutional and intellectual history of the field (AMORIM NETO and SANTOS, 2015; AVRITZER, 2016; MARENCO, 2016, 2014). Moreover, the available

evidence for more comprehensive studies primarily came from journal papers (AMORIM NETO, 2010; FERES JÚNIOR et al., 2016; MATOS, 2016).

We may draw three positive conclusions from the intellectual landscape of the discipline. The data indicates a community that is 01. 'thematically organized'; 02. 'methodologically coherent', and 03. 'scientifically diverse' (or 'pluralistic'), albeit with some important limitations.

'Thematically organized'*:* there are five relatively distinct 'tables' (ALMOND, 1988): 01. elections and parties; 02. political theory/democratic theory; 03. State and government; 04. actors and public policies, and 05. institutions and powers (Figure 01). This indicates that the underlying structure of the field reflects very specialized scientific communities. In other words, there are research domains (ideas, concepts, research problems) that are typical to each 'table'. This stands in contrast to what might have been observed 20 or 30 years ago when the field could have shown either excessive undifferentiation, organized into one or two overly broad themes (such as the study of the 'State'). Or the dominance of a single theoretical model, possibly represented by one or, at most, two large clusters, resulting in very low modularity. Alternatively, the network could have shown a countless variety of very exclusive interests, with numerous clusters having low connections (i.e., a very high level of modularity). However, this is not the case here. The co-words in the network reflect a structured arrangement of mainstream theoretical concepts and methodological approaches, rather than generic 'intellectual traditions' or 'lines of thought'.

'Methodologically coherent'*:* The more pessimistic assessments from the early 21st century, which criticized this academic field due to its lack of 'scientificity', absence of any discernible methodology (whether qualitative or quantitative), and the dearth of specific research skills no longer hold true. The network of terms related to techniques, methods, and research approaches (Figure 02), derived from the titles, abstracts, and keywords of the T&D, indicates, at the very least, an adoption of standard 'scientific terminology' (data, measurement, variables, indices, etc.) and a deliberate 'methodological attitude' reflected in the diverse approaches employed to investigate myriad political phenomena. However, further research is needed to confirm whether the methods and techniques mentioned in the metadata of the T&D have indeed been implemented.

In summary, each of the five thematic communities in Brazilian PS exhibits a preference for a specific type of approach, further highlighting their distinct 'separate tables'. This is evident, for instance, in the connection between the terms 'explain/model/hypothesis' in the purple cluster referring to Parties & Elections (Figure 02). In the blue cluster, terms like 'identify/analyze/case' are associated with studies on 'Institutions, Actors and Public Policies', and 'State and Government'. This stands in sharp contrast to the Political Theory cluster (in orange), where the central terms are 'understand/concept/sense/historical'.

Lastly, 'scientifically diversified'. Various research topics span the entire canon of PS without any single scientific domain taking precedence. The study of democratic electoral competition (represented by the pink cluster on 'parties and elections'), along with the more traditional research agenda on 'State, government, and international relations', form the largest structures within the network. However, these communities are not significantly larger than those focusing on 'democratic political theory' and 'actors, participation, and public policy' (Figure 01).

On the other hand, the consolidation of the disciplinary identity of 'Political Science' has resulted in the marginalization of themes that are more characteristic of political sociology, often relegating them to discussions within the domain of normative models of political theory. Therefore, these networks can be analyzed not only for what they explicitly convey but also for what they may omit or give less prominence to, such as gender-related issues in politics, the social determinants of voting behavior, and the study of the intersection between politics and race, among other topics.

This intellectual landscape also allows us to identify certain shortcomings: the International Relations agenda appears to overlook emerging themes; the study of public policies has not incorporated more specific analytical models of the subarea, and across all clusters there is a notable absence of comparative studies.

There are limitations to our investigation. First, its descriptive and exploratory nature. This is both a weakness and a strength of Network Analysis. Nevertheless, concept visualization networks are not an end in themselves; rather, they serve as a means to decipher the culture of the discipline and the interconnections among authors, journals, and research agendas within a scientific microcosm.

This article offers insights into several areas that warrant further investigation in the future. Considering the research landscape within the discipline, its disparities, and divisions, we must delve deeper into the factors shaping this particular configuration, generate hypotheses about the discipline's historical development, evaluate the extent and nature of its institutionalization over time, and draw comparisons with PS in other countries. To be more specific, a diachronic approach would enable us to identify emerging and waning methodologies and themes over time, a task that the relatively short timeframe covered in this study (2013-2020) does not permit. A 'qualitative approach' could examine the bibliographic references in these 1,849 T&D through co-citation studies of authors, revealing dominant schools of thought as well as the most influential theoretical models. A typological categorization of this disciplinary field could help estimate differences and distances between empirical-quantitative, empirical-non-quantitative, theoretical-historical, and theoretical-normative communities. Lastly, a 'quantitative approach', utilizing the 'scientificity index' proposed by Leite and Feres Jr. (2021), could establish symbolic hierarchies of prestige among competing areas, methodologies, and so on.

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References

ALMEIDA, Carla; CAYRES, Domitila Costa, and TATAGIBA, Luciana (2015), Balanço dos estudos sobre os conselhos de políticas públicas na última década. *Lua Nova: Revista de Cultura e Política*. Vol. 94, pp. 255–294.

ALMEIDA, Maria Hermínia Tavares de (2005), Ciência Política no Brasil: avanços e desafios. In: *Para onde vai a pós-graduação em Ciências Sociais no Brasil*. Edited by MARTINS, Carlos Benedito. Bauru: Edusc. pp. 105-121.

ALMOND, Gabriel A. (1988), Separate tables: schools and sects in Political Science. *PS: Political Science and Politics*. Vol. 21, Nº 04, pp. 828–842.

AMORIM NETO, Octavio (2010), A Política Comparada no Brasil: a política dos outros. In: *Horizontes das ciências sociais no Brasil*: Ciência Política. Edited by MARTINS, Carlos Benedito;LESSA, Renato and FIGUEIREDO, Argelina Maria Cheibub. São Paulo: ANPOCS. pp. 321-340.

AMORIM NETO, Octavio and SANTOS, Fabiano (2015), La ciencia política en Brasil en la última década: la nacionalización y la lenta superación del parroquialismo. *Revista de Ciencia Política*. Vol. 35, Nº 01, pp. 19–31.

ASSUMPÇÃO, San Romanelli (2023), Entrevista concedida a Nilton Sainz, Adriano Codato, Rodrigo da Silva e Augusto Clemente. 04 de Abril de 2023. Curitiba.

AVRITZER, Leonardo (2016), O papel do pluralismo na formação e consolidação da ciência política no Brasil. In: *A ciência política no Brasil: 1960-2015*. Edited by AVRITZER, Leonardo; MILANI, Carlos R. S., and BRAGA, Maria do Socorro. Rio de Janeiro: FGV Editora. pp. 165-183.

BARRIENTOS DEL MONTE, Fernando (2015), Crecimiento e institucionalización de la ciencia política en México. *Revista de Ciencia Política*. Vol. 35, Nº 01, pp. 95–120.

BRAGA, Maria do Socorro Souza, and SPECK, Bruno Wilhelm (2021), Lentes teóricas dos estudos sobre o sistema de representação política brasileiro. In: *As teorias e o caso*. Edited by BATISTA, Mariana; RIBEIRO, Ednaldo, and ARANTES, Rogério. Santo André: EdUFABC. pp. 59-97.

CHERVEN, Kenneth (2015), *Mastering gephi network visualization*. Birmingham: Editora Packt. 378 pp..

CLEMENTE, Augusto Júnior; OLIVEIRA, Mirella Fonte Ricartes; HOROCHOVSKI, Rodrigo Rossi; JUNCKES, Ivan Jairo, and AZEVEDO, Natália Tavares de (2022), Campo de Públicas: uma cientometria a partir de Projetos Pedagógicos de Curso. *Revista de Sociologia e Politica*. Vol. 30, Nº 06, pp. 01-24.

COSTA, Luiz Domingos; CODATO, Adriana; PERISSINOTTO, Renato, and MASSIMO, Lucas (2021), Sociologia Política, Sociologia da Política e Ciência Política: três abordagens sobre as elites parlamentares brasileiras. In: *As teorias e o caso*. Edited by BATISTA, Mariana; RIBEIRO, Ednaldo, and ARANTES, Rogério. Santo André: EdUFABC. pp. 99-142.

DAGNINO, Evelina (ed) (1994), *Os anos 90. Politica e sociedade no Brasil*. São Paulo: Ed. Brasiliense. 172 pp..

DEGENNE, A., and FORSE, Michel (1999), *Introducing Social Networks*. London: Sage Publications. 256 pp..

EASTON, David (1997), The future of the postbehavioral phase in Political Science. In: *Contemporary Empirical Political Theory*. Edited by MONROE, Kristen R. Berkeley: University of California Press. pp. 13–46.

FERES JÚNIOR, João; CAMPOS, Luiz Augusto, and ASSUMPÇÃO, San Romanelli (2016), Teoria política normativa. In: *A ciência política no Brasil: 1960-2015*. Edited by AVRITZER, Leonardo; MILANI, Carlos R. S., and BRAGA, Maria do Socorro. Rio de Janeiro: FGV Editora. pp. 217-274.

FIGUEIREDO, Argelina Maria Cheibub, and SANTOS, Fabiano Guilherme Mendes (2016), Estudos legislativos no Brasil. In: *A ciência política no Brasil: 1960-2015*. Edited by AVRITZER, Leonardo; MILANI, Carlos R. S., and BRAGA, Maria do Socorro. Rio de Janeiro: FGV Editora. pp. 187-216

FORJAZ, Maria Cecília Spina (1997), A emergência da Ciência Política acadêmica no Brasil: aspectos institucionais. *Revista Brasileira de Ciências Sociais*. Vol. 12, Nº 35, pp. 01-22.

HIGGINS, Silvio Salej and RIBEIRO, Antonio Carlos (2018), *Análise de Redes em Ciências Sociais*. Brasília: ENAP. 229 pp..

INÁCIO, Magna and ROCHA, Marta Mendes da (2021), Instituições políticas no Brasil: de caso a teoria. In: *As teorias e o caso*. Edited by BATISTA, Mariana; RIBEIRO, Ednaldo, and ARANTES, Rogério. Santo André: EdUFABC. pp. 501–538.

KEINERT, Fabio Cardoso and SILVA, Dimitri Pinheiro (2010), A gênese da Ciência Po lítica brasileira. *Tempo Social*. Vol. 22, Nº 01, pp. 79–98.

KOERNER, Andrei and TOMIO, Fabricio Ricardo de Lima (2021), Política e Direito no STF: resultados de pesquisa e problemas para a análise sobre a jurisdição constitucional no Brasil. In: *As teorias e o caso*. Edited by BATISTA, Mariana; RIBEIRO, Ednaldo, and ARANTES, Rogério. Santo André: EdUFABC. pp. 191–238.

LEITE, Fernando and CODATO, Adriano (2013), Autonomização e institucionalização da Ciência Política brasileira: o papel do sistema Qualis-Capes. *Agenda Política*. Vol. 01, Nº 01, pp. 01–21.

LEITE, Fernando and FERES JÚNIOR, João (2021), A Ciência na Ciência Política brasileira. *Revista Brasileira de Ciência Política*. Vol. 34, pp. 01–53.

LIMONGI, Fernando; ALMEIDA, Maria Hermínia Tavares de, and FREITAS, Andrea (2016), Da sociologia política ao (neo) institucionalismo: trinta anos que mudaram a Ciência Política no Brasil. In: *A ciência política no Brasil: 1960-2015*. Edited by AVRITZER, Leonardo; MILANI, Carlos R. S., and BRAGA, Maria do Socorro. Rio de Janeiro: FGV Editora. pp. 61–91.

LINDGREN, Simon (2016), Introducing connected concept analysis: a network approach to big text datasets. *Text and Talk*. Vol. 36, Nº 03, pp. 341–362.

MARENCO, André (2016), Cinco décadas de Ciência Política no Brasil: institucionalização e pluralismo. In: *A ciência política no Brasil: 1960-2015*. Edited by AVRITZER, Leonardo; MILANI, Carlos R. S., and BRAGA, Maria do Socorro. Rio de Janeiro: FGV Editora. pp. 141–163.

MARENCO, André (2015), When institutions matter: CAPES and Political Science in Brazil. *Revista de Ciência Política*. Vol. 35, Nº 01, pp. 33–46.

MARENCO, André (2014), The 'Three Achilles' heels of Brazilian Political Science. *Brazilian Political Science Review*. Vol. 08, Nº 03, pp. 03–38.

MARQUES, Eduardo and SOUZA, Celina (2016), Políticas públicas no Brasil: avanços recentes e agenda para o futuro. In: *A ciência política no Brasil: 1960-2015*. Edited by AVRITZER, Leonardo; MILANI, Carlos R. S., and BRAGA, Maria do Socorro. Rio de Janeiro: FGV Editora. pp. 321–345.

MATOS, Marlise (2016), A institucionalização acadêmica dos estudos de gênero e feministas na ciência política brasileira. In: *A ciência política no Brasil: 1960-2015*. Edited by AVRITZER, Leonardo; MILANI, Carlos R. S., and BRAGA, Maria do Socorro. Rio de Janeiro: FGV Editora. pp. 347–391.

NEWMAN, Mark E. J. (2010), *Networks: an introduction*. Oxford: Oxford University Press. 772 pp..

NOYONS, Ed (2001), Bibliometric mapping of science in a science policy context. *Scientometrics*. Vol. 50, Nº 01, pp. 83–98.

OLIVEIRA, Amurabi; ENGERROFF, Ana Martina Baron; SILVA, Camila Ferreira da, and SANTOS, Beatriz Melchioretto Claudino dos (2021), A trajetória da Ciência Política no Brasil e a sua autonomização: uma análise a partir dos programas de pós-graduação. *Pro-Posições*. Vol. 32, Nº 05, pp. 01-25.

OLIVEIRA, Lucy and RODRIGUES, Cristiano (2023), Por uma perspectiva Sul-Sul para a Ciência Política no Brasil: entrevista com Luciana Ballestrin. *Teoria & Pesquisa Revista De Ciência Política.* Vol. 32, pp. 01-14.

PARANYUSHKIN, Dmitry (2019), InfraNodus: generating insight using text network analysis. *Paper* presented at The Web Conference 2019 - Proceedings of the World Wide Web Conference.

PEREIRA, Alexsandro Eugenio and LOPES, Dawisson Belém (2021), Segurança e instituições internacionais: o Brasil em perspectiva (2008-2018). In: *As teorias e o caso*. Edited by BATISTA, Mariana; RIBEIRO, Ednaldo, and ARANTES, Rogério. Santo André: EdUFABC. pp. 349–382.

PRICE, Derek. J. de Solla and BEAVER, Donald De B. (1966), Collaboration in an invisible college. *American Psychologist*. Vol. 21, Nº 11, pp. 1011–1018.

RECUERO, Raquel (2017), *Introdução à análise de redes sociais online*. Santo André: EDUFBA. 82 pp..

SIGELMAN, Lee (2006), The coevolution of American Political Science and the American Political Science Review. *American Political Science Review*. Vol. 100, Nº 04, pp. 463–478.

SOARES, Gláucio Ary Dillon (2005), O calcanhar metodológico da ciência política no Brasil. *Sociologia Problemas e Práticas*. Vol. 48, pp. 27–52.

Appendix A

Tables 06 to 10. Metrics of the 10 (ten) main nodes in each cluster of the thematic network (Figure 01).

Figures 03 to 07. Graphs of each cluster comprising the thematic network (Figure 01).

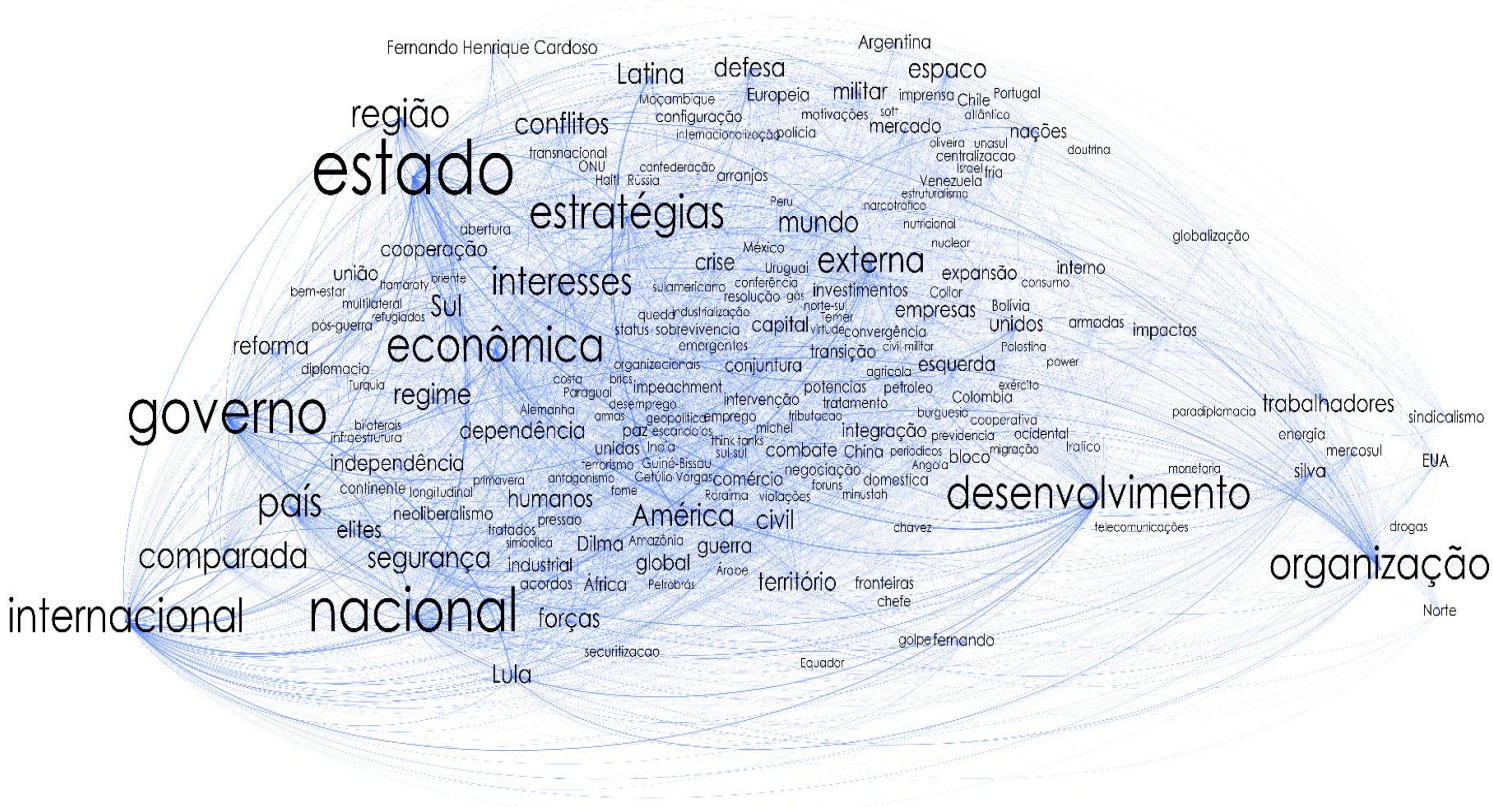
Note: In Tables 06 to 14 (Appendix A and B), we present two important ARS measures: the 10 (ten) nodes with the highest 'weighted degree' and the 10 (ten) main nodes based on 'edge weights' per cluster (and not the entire network). The 'weighted degree' metric allows us to assess the intensity of the nodes (terms, concepts) that serve as focal points within each cluster, taking into account the weight of the connections (edges) that form a given cluster. It is a measure of 'influence', albeit 'localized'. In turn, the 'edge weights' demonstrate which connections between nodes have a structural function in the cluster through the frequency of connections between them. It expresses the 'strength of semantic relationships' between two particular terms within that cluster.

Table 06. ARS metrics of the 10 main nodes in the blue cluster ('state, government and international relations') and edge weights between terms in this subnetwork of the thematic network of Political Science theses and dissertations

Rank	Node	Weighted degree (regional influence)	Origin node	Destination node	Edge weight (strength of the semantic relationship)
01	state	53132	america	latina	728
02	government	41728	state	government	648
03	national	39500	government	lula	624
04	economic	28868	state	national	552
05	international	28124	development	state	544
06	development	26868	externa	international	540
07	strategies	26672	development	economic	528
08	organization	24656	state	international	524
09	country	22704	government	national	492
10	region	20356	economic	state	488

Source: Elaborated by the authors.

Figure 03. Graph of the blue cluster ('State, government, and international relations') in the thematic network of Political Science theses and dissertations



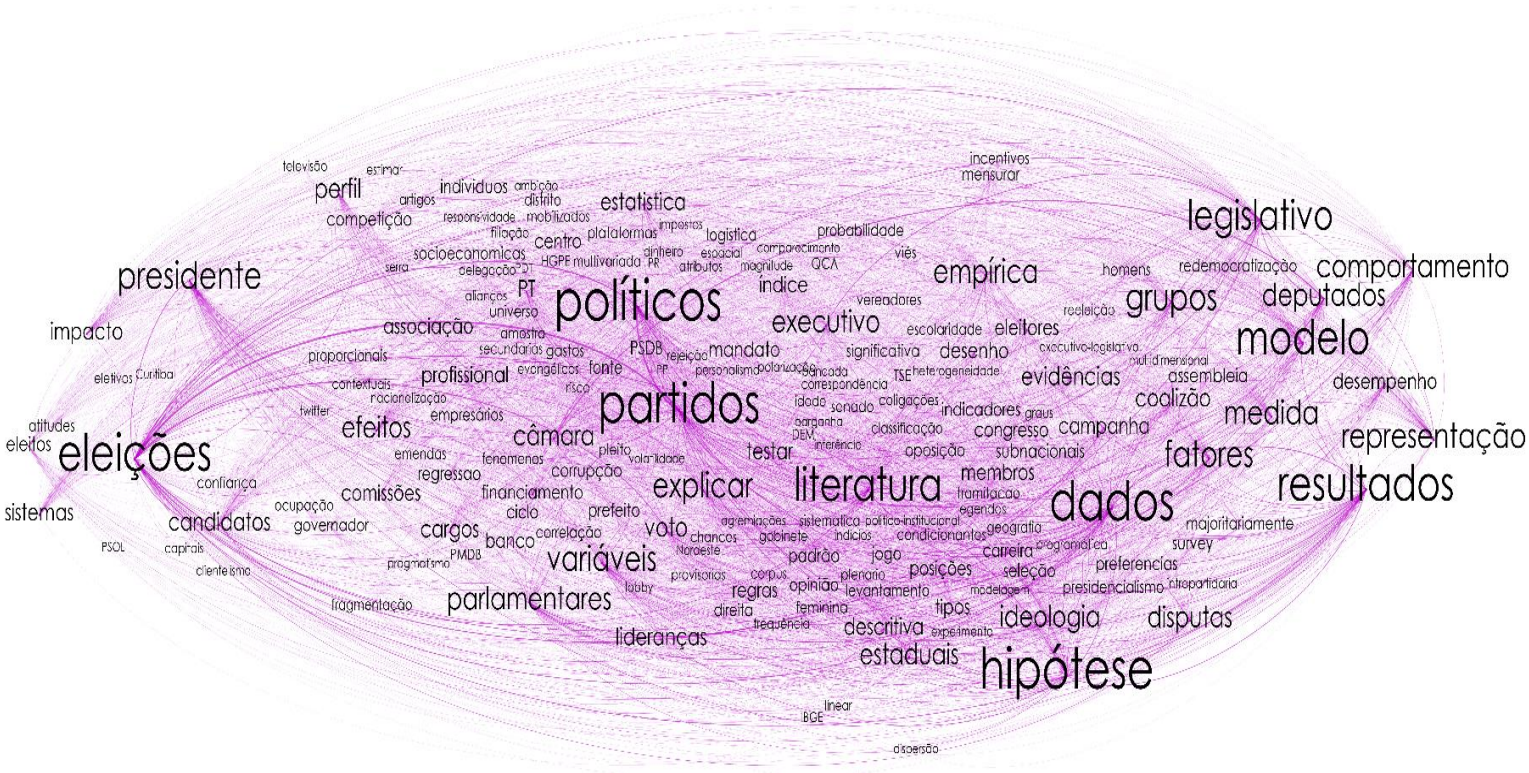
Source: Elaborated by the authors.

Table 07. ARS metrics of the 10 main nodes in the pink cluster ('parties and elections') and edge weights between terms in this subnetwork of the thematic network of political science theses and dissertations

Rank	Node	Weighted degree (regional influence)	Origin node	Destination node	Edge weight (strength of the semantic relationship)
01	parties	37500	parties	politicians	1040
02	politicians	36244	elections	parties	1036
03	hypothesis	34940	chamber	deputies	556
04	elections	34280	elections	politicians	548
05	dados	32144	elections	vote	504
06	results	28976	dados	results	480
07	model	27772	elections	president	468
08	literature	26480	deputies	legislative	460
09	legislative	23924	campaign	elections	448
10	president	19796	candidates	elections	444

Source: Elaborated by the authors.

Figure 04. Graph of the Pink Cluster ('Parties and Elections') in the Thematic Network of Political Science theses and dissertations



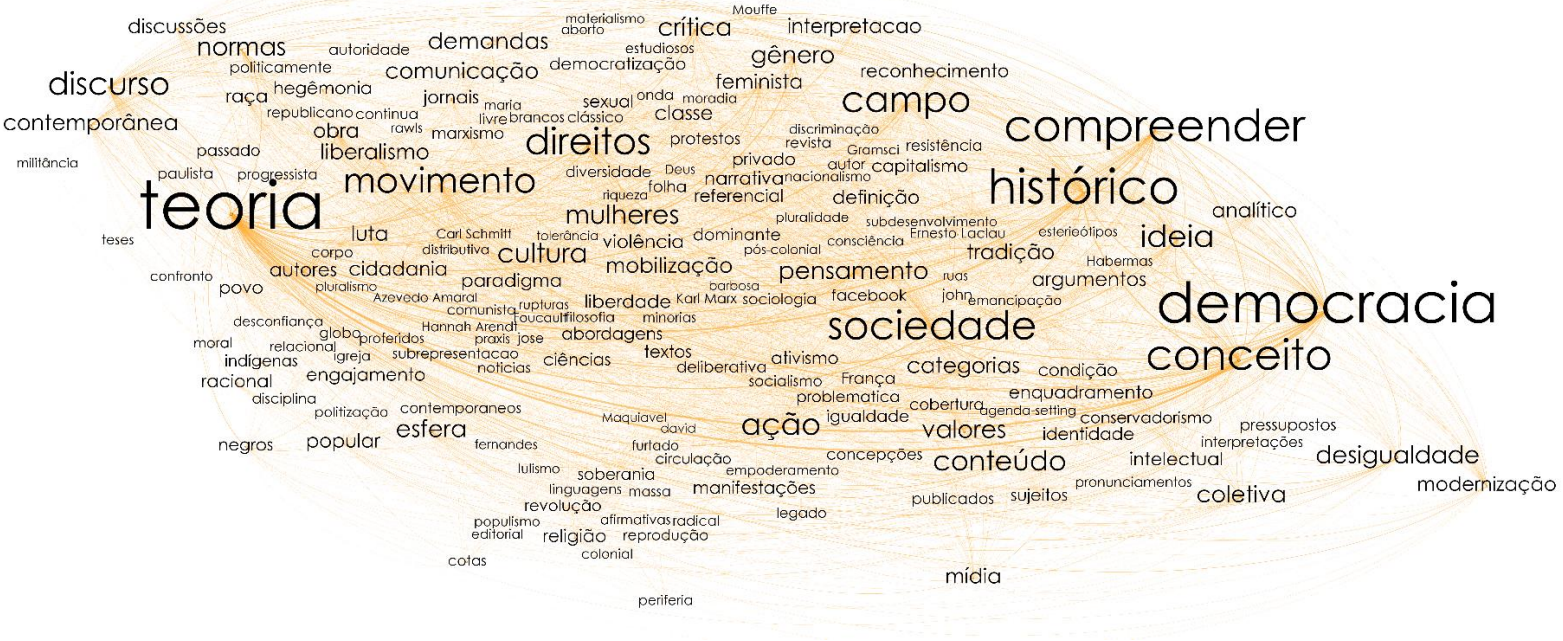
Source: Elaborated by the authors.

Table 08. ARS metrics of the 10 main nodes in the orange cluster ('Political Theory') and edge weights between terms in this subnetwork of the thematic network of political science theses and dissertations

Rank	Node	Weighted degree (regional influence)	Origin node	Destination node	Edge weight (strength of the semantic relationship)
01	theory	44760	concept	theory	584
02	democracy	36676	democracy	theory	576
03	historical	28340	historical	theory	444
04	comprehended	25192	concept	historical	328
05	concept	22984	comprehended	theory	328
06	society	21272	society	theory	324
07	rights	19584	gender	women	324
08	campo	17052	democracy	society	300
09	movement	16640	concept	democracy	292
10	discourse	13984	campo	theory	284

Source: Elaborated by the authors.

Figure 05. Graph of the orange cluster ('Political Theory') in the thematic network of Political Science theses and dissertations



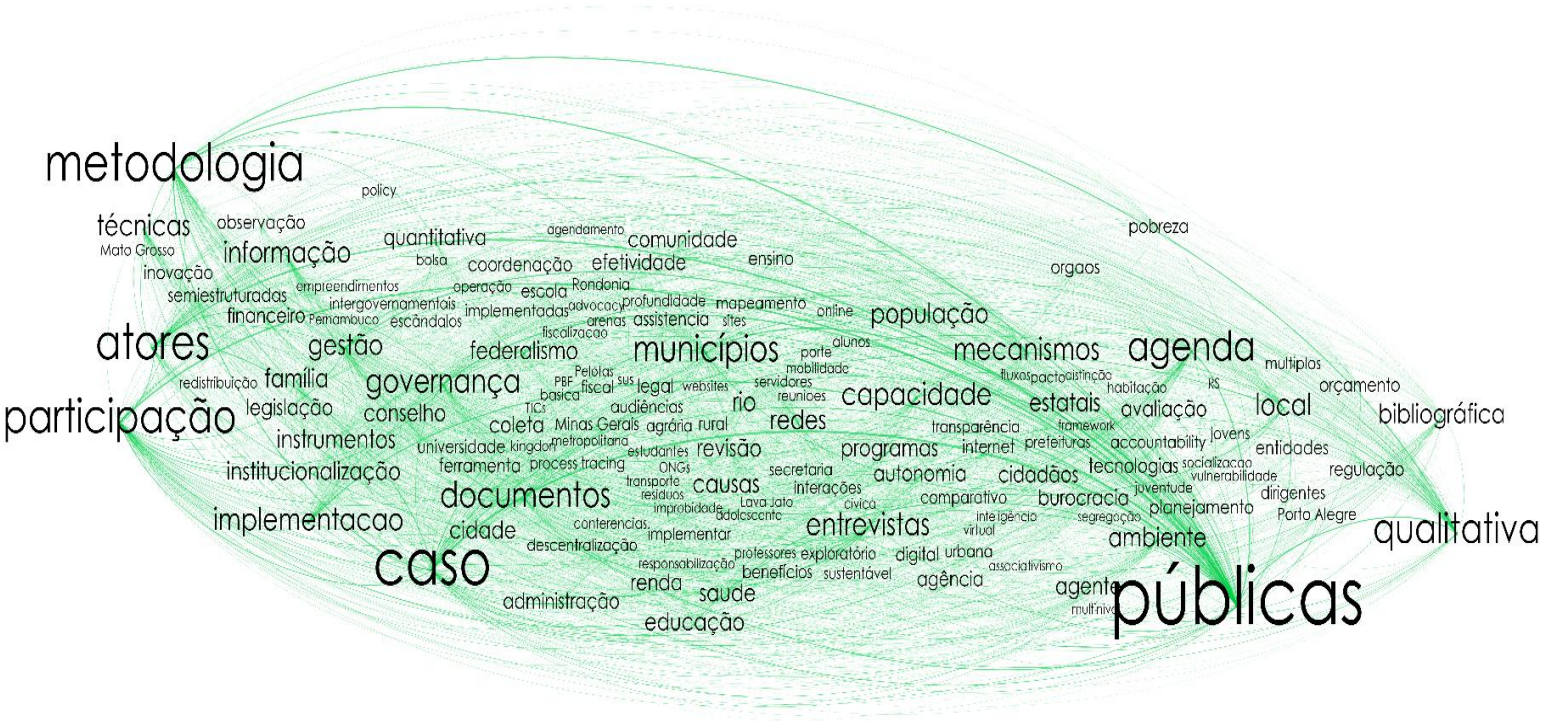
Source: Elaborated by the authors.

Table 09. ARS metrics of the 10 main nodes in the green cluster ('Social actors, participation and public policies') and edge weights between terms in this subnetwork of the thematic network of Political Science theses and dissertations

Rank	Node	Weighted degree (regional influence)	Origin node	Destination node	Edge weight (strength of the semantic relationship)
01	public	55332	case	public	628.0
02	case	37944	participation	public	500.0
03	methodology	29008	actors	public	476.0
04	actors	26188	municipalities	public	412.0
05	participation	26060	implementation	public	408.0
06	qualitative	19748	methodology	public	388.0
07	agenda	19596	agenda	public	388.0
08	municipalities	18640	governance	public	380.0
09	documents	15356	methodology	qualitative	356.0
10	governance	13940	case	methodology	348.0

Source: Elaborated by the authors.

Figure 06. Graph of the green cluster ('Social actors, participation and public policies') in the thematic network of Political Science theses and dissertations



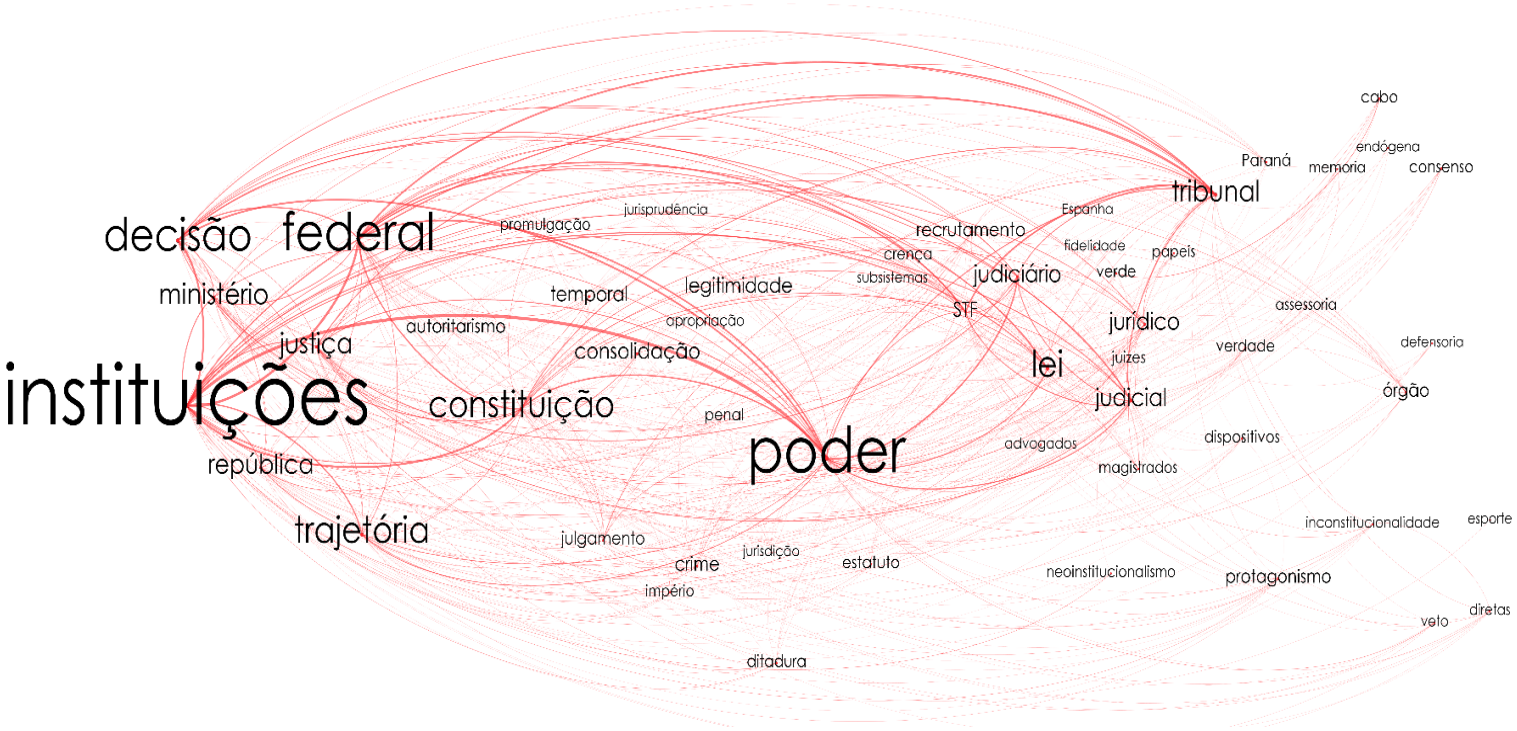
Source: Elaborated by the authors.

Table 10. ARS metrics of the 10 main nodes in the red cluster ('Institutions') and edge weights between terms in this subnetwork of the thematic network of Political Science theses and dissertations

Rank	Node	Weighted degree (regional influence)	Origin vertex	Destination node	Edge weight (strength of the semantic relationship)
1	institutions	53568	institutions	power	580
2	power	35924	federal	institutions	480
3	federal	27560	decision	institutions	392
4	decision	22364	constitution	institutions	360
5	constitution	15652	decision	power	340
6	lei	14512	federal	tribunal	328
7	trajectory	14360	stf	tribunal	320
8	tribunal	9896	federal	power	312
9	justice	9440	judiciary	power	308
10	ministry	9232	federal	stf	292

Source: Elaborated by the authors.

Figure 07. Graph of the red cluster ('Institutions') in the thematic network of Political Science theses and dissertations



Source: Elaborated by the authors.

Appendix B

Tables 11 to 14. Metrics of the 10 (ten) main nodes in each cluster of the methodological network (Figure 02).

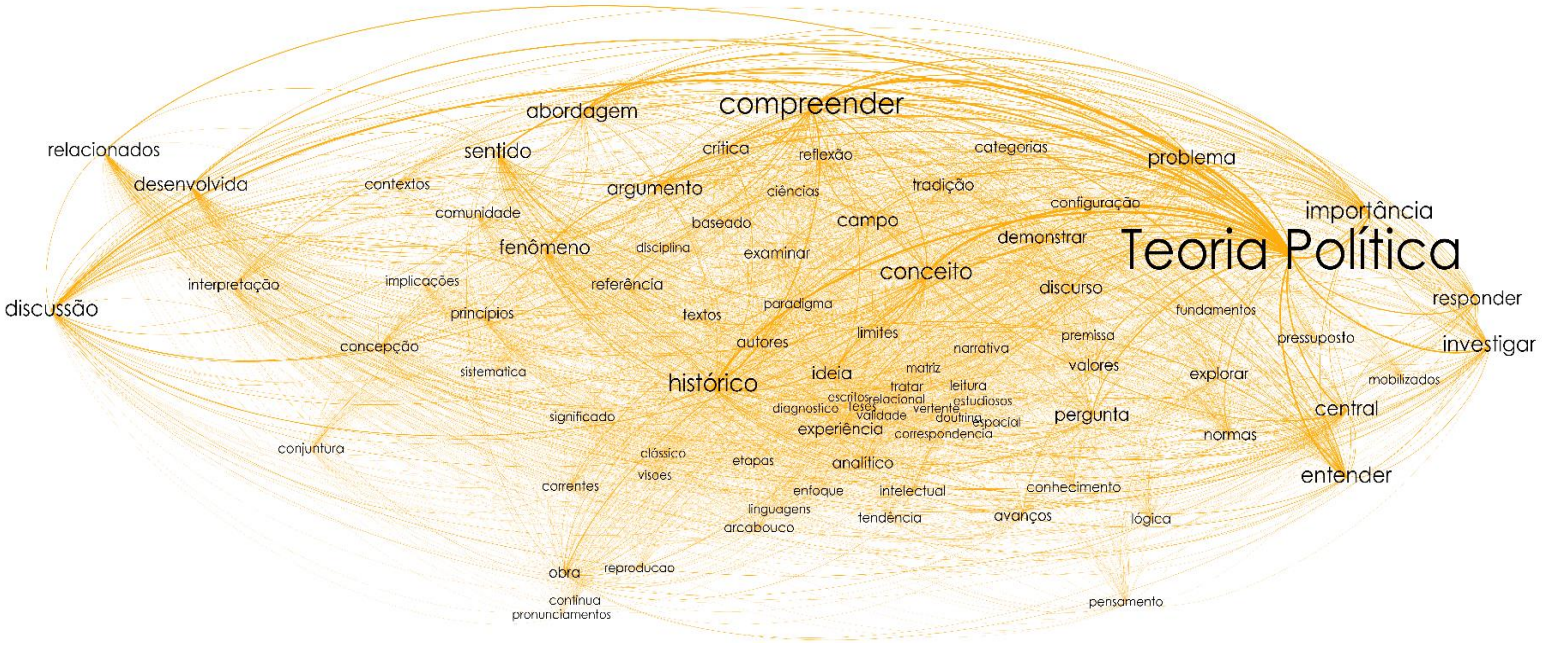
Figures 08 to 11. Graphs of each cluster comprising the methodological network (Figure 02).

Table 11. ARS metrics of the 10 main nodes in the orange cluster and edge weights between terms of this subnetwork in the methodological network of Political Science theses and dissertations

Rank	Node	Weighted degree (regional influence)	Origin node	Destination node	Edge weight (strength of the semantic relationship)
01	comprehended	6338	comprehended	historical	103
02	historical	4683	comprehended	concept	90
03	importance	4316	comprehended	understand	84
04	concept	4203	concept	historical	82
05	discussion	3918	comprehended	importance	80
06	understand	3896	central	comprehended	66
07	investigate	3855	comprehended	investigate	66
08	meaning	3412	comprehended	meaning	65
09	approach	3316	historical	understand	60
10	central	3272	concept	discussion	60

Source: Elaborated by the authors.

Figure 08. Graph of the orange cluster in the methodological network of Political Science theses and dissertations



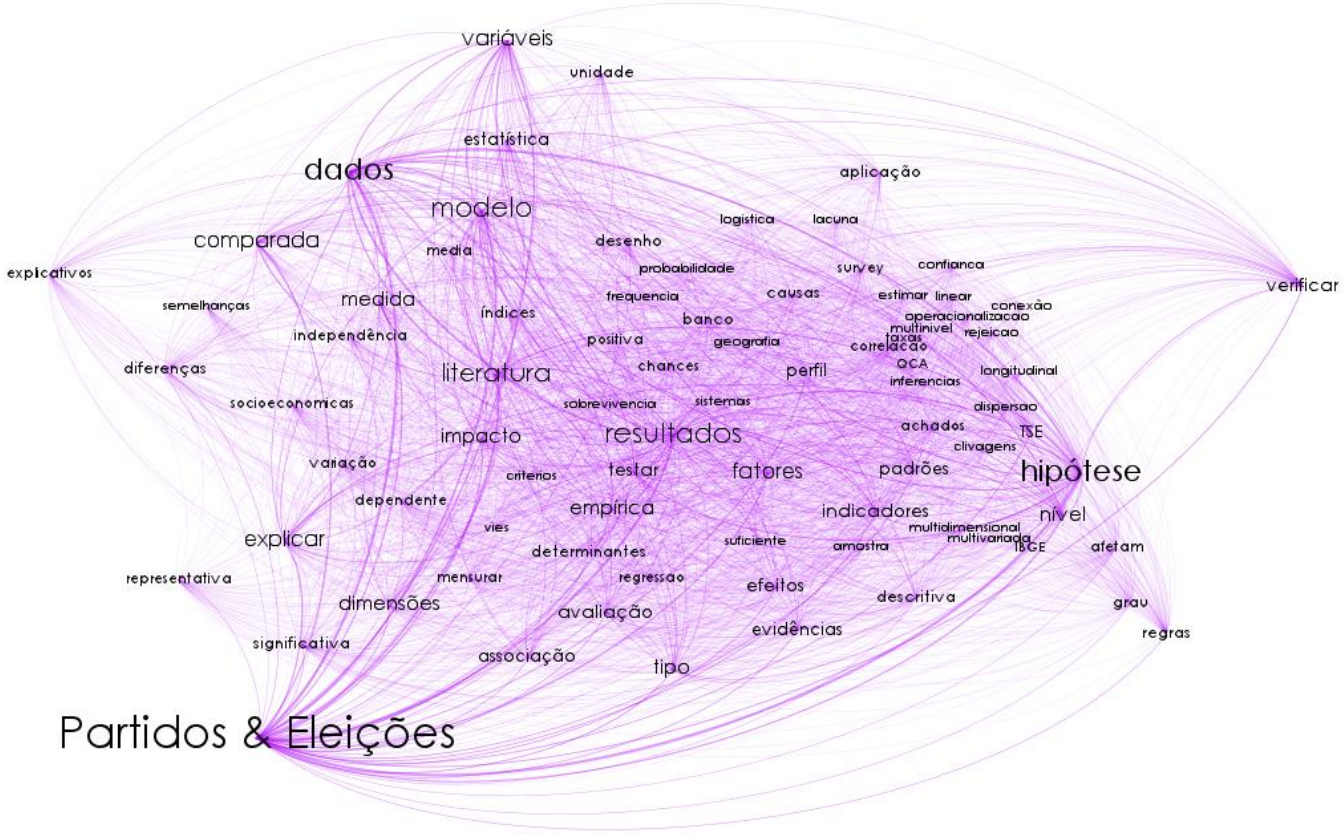
Source: Elaborated by the authors.

Table 12. ARS metrics of the 10 main nodes in the pink cluster and edge weights between terms of this subnetwork in the methodological network of Political Science theses and dissertations

Rank	Node	Weighted degree (regional influence)	Origin node	Destination node	Edge weight (strength of the semantic relationship)
01	hypothesis	6011	results	dados	120
02	dados	5875	dados	hypothesis	98
03	results	5421	literature	dados	88
04	model	5068	results	hypothesis	87
05	literature	4815	literature	hypothesis	83
06	comparative	3463	hypothesis	model	81
07	variable	3421	hypothesis	test	79
08	factors	3324	results	model	77
09	explain	3171	literature	results	76
10	level	2991	results	variable	75

Source: Elaborated by the authors.

Figure 09. Graph of the pink cluster in the methodological network of Political Science theses and dissertations



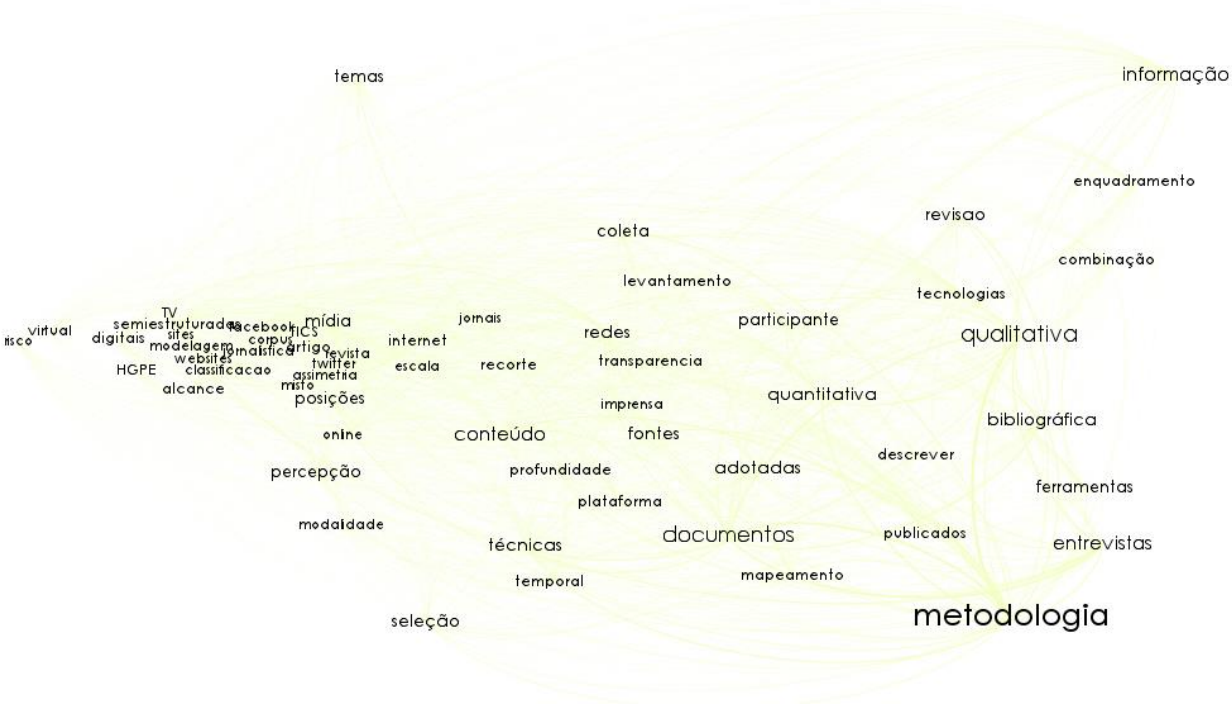
Source: Elaborated by the authors.

Table 13. ARS metrics of the 10 main nodes in the yellow cluster and edge weights between terms of this subnetwork in the methodological network of Political Science theses and dissertations

Rank	Node	Weighted degree (regional influence)	Origin node	Destination node	Edge weight (strength of the semantic relationship)
01	methodology	5555	methodology	qualitative	83.0
02	qualitative	3422	documents	methodology	58.0
03	documents	2764	interviews	documents	54.0
04	interviews	2226	documents	qualitative	47.0
05	information	2205	methodology	quantitative	42.0
06	content	2095	interviews	qualitative	39.0
07	techniques	1798	content	methodology	38.0
08	adopted	1660	bibliographical	documents	37.0
09	bibliographical	1655	methodology	techniques	36.0
10	redes	1617	revision	bibliographical	35.0

Source: Elaborated by the authors.

Figure 10. Graph of the yellow cluster in the methodological network of Political Science theses and dissertations



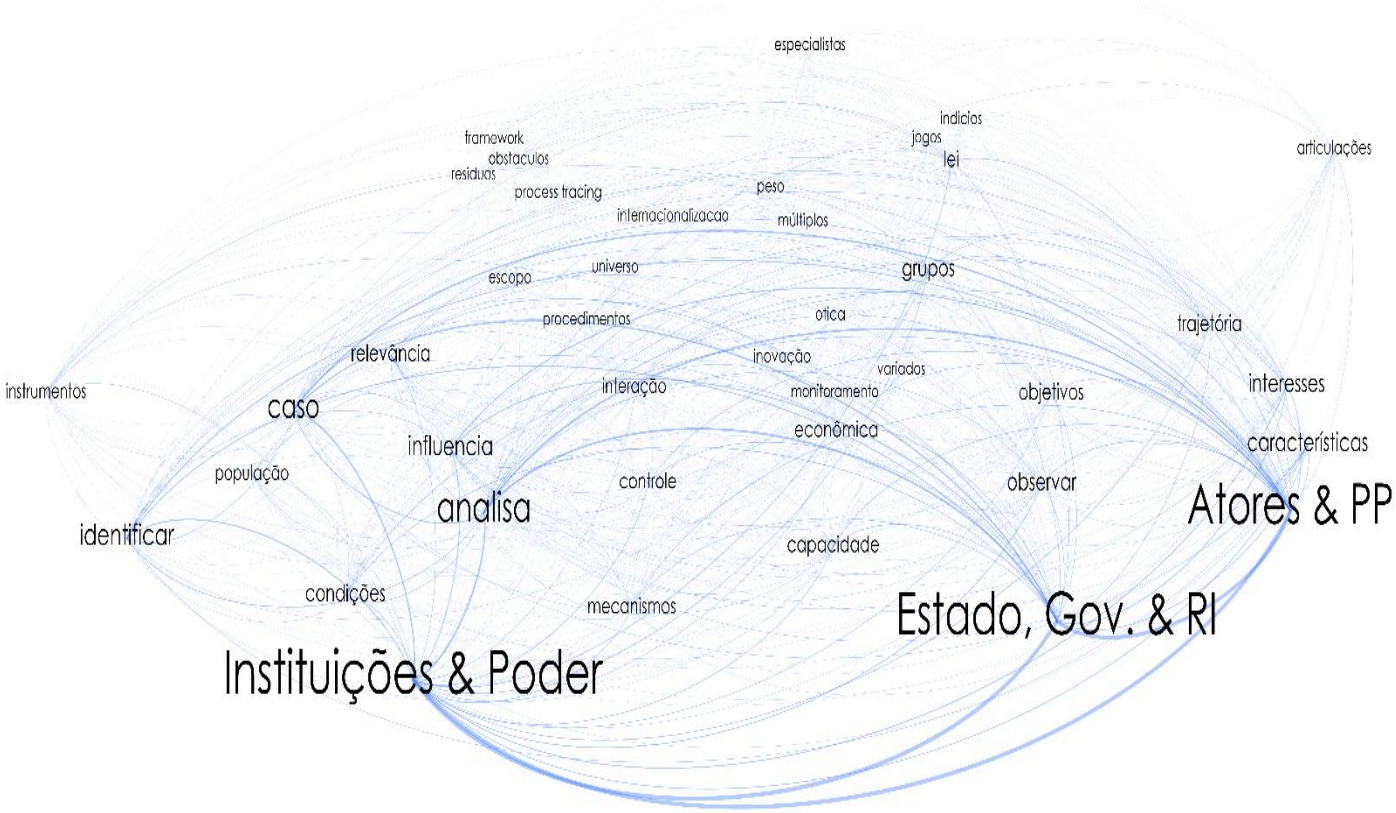
Source: Elaborated by the authors.

Table 14. ARS metrics of the 10 main nodes in the blue cluster and edge weights between terms of this subnetwork in the methodological network of Political Science theses and dissertations

Rank	Node	Weighted degree (regional influence)	Origin node	Destination node	Edge weight (strength of the semantic relationship)
01	analyze	8665	analyze	case	129
02	case	6214	analyze	identify	104
03	identify	4820	analyze	influence	80
04	influence	3979	analyze	characteristics	77
05	characteristics	3576	case	identify	75
06	interesses	3397	groups	interesses	72
07	observe	3198	analyze	groups	71
08	groups	3009	analyze	observe	71
09	conditions	2744	analyze	conditions	66
10	relevance	2605	analyze	interesses	66

Source: Elaborated by the authors.

Figura 11. Graph of the blue cluster in the methodological network of Political Science theses and dissertations



Source: Elaborated by the authors.