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Analysis of Faculty Hiring Patterns in Chemistry Departments of Brazilian Federal Universities

Análise dos Padrões de Contratação de Docentes nos Departamentos de Química das Universidades Federais Brasileiras

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This study analyzes the hiring patterns of faculty members in Chemistry Departments at Brazilian Federal Universities, focusing on regional retention and academic mobility trends. Using data from the Lattes platform and institutional sources, we examined 299 permanent faculty members hired between 2000 and 2020 from eight federal universities with established doctoral programs. The research explores correlations between the institutions where faculty completed their doctoral studies and their current professional affiliations, shedding light on patterns of academic mobility, institutional loyalty, and geographical retention. The results reveal significant regional trends, with universities such as Universidade Federal de Minas Gerais (UFMG) and Universidade Federal do Rio de Janeiro (UFRJ) retaining a substantial portion of their graduates as faculty members. Furthermore, the analysis underscores a rising trend in international mobility, with a notable number of faculty members obtaining their doctoral degrees abroad, contributing to the internationalization of Brazilian higher education. This study offers insights into faculty hiring practices and their implications for academic development, suggesting that while local retention is strong, the influx of internationally trained faculty enhances diversity and academic collaboration. The findings provide a framework for understanding faculty recruitment dynamics and their broader impact on regional and international academic networks.

Keywords: Faculty distribution; academic mobility; higher education; regional networks.

1. Introduction

Faculty hiring in Brazilian federal universities is governed by the Federal Constitution,[1] which mandates that faculty be selected through public entrance exams (known as *concursos*). *Concursos* require competitive public entrance exams (including tests and Curriculum Vitae (CV) analysis) aiming to ensure meritocracy and academic quality. The Brazilian Federal Constitution grants universities a certain degree of autonomy and discretion in this organization, allowing each institution to arrange its processes according to its internal regulations. Aspects of this administrative discretion include choosing the requirements for applying for specific positions, assigning different weights to various parts of the exam, and selecting themes for candidate evaluation.

Siqueira *et al*.[2] analyzed the norms for effective faculty competitions expressed in the internal regulations of Brazilian Federal Universities. The research indicated that all the universities examined use the following tests for hiring faculty: written test, teaching performance test and CV analysis. In general, the written test assesses the candidates' specific knowledge, and the teaching performance test evaluates their pedagogical skills. Regarding the CV analysis, academic productivity is analyzed with an emphasis on research history, outreach activities and teaching practice. Additionally, some universities also require the presentation of a career achievement portfolio or a research project.

The stages of faculty competitions are carried out in front of an examining board. The requirements for the composition of board members vary among universities, and criteria are generally established to reduce personal favoritism in the evaluations. Siqueira *et al*. revealed that the examining boards are mostly composed of three faculty members, the majority of whom are professors from the institution organizing the competition, but usually with at least one external member. In practice, these processes are structured around written and teaching examinations as well as evaluation of each candidate's academic trajectory, usually verified through the Lattes Platform.

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The Lattes Platform serves as a standardized national database that consolidates researchers' academic and professional histories, including publications, degrees, and participation in research projects. Its use has turned productivity indicators—especially the number and quality of publications—into central components of merit evaluation. This approach reflects an understanding of "academic merit" that privileges quantifiable research performance and institutional prestige.

Recent analyses of CAPES evaluation criteria highlight how this emphasis on productivity reinforces a "productivist" culture and privileges hegemonic forms of scientific recognition, contributing to growing institutional inequalities.[3]

This system of evaluation has contributed to the consolidation of hierarchies among universities. Institutions with greater research output and longer postgraduate traditions tend to attract and retain their own graduates as new faculty members, reproducing academic prestige internally. The phenomenon—often described as institutional endogamy—has been discussed internationally in the sociology of science as a mechanism of academic reproduction.[4]

Comparable hierarchical dynamics have been observed internationally. Large-scale studies demonstrate that self-hiring and limited cross-institutional mobility are widespread across countries and disciplines, reflecting structural inequality in academic labor markets.[5] In the United States, for example, faculty-hiring networks are dominated by a small group of elite universities that train most of the country's professors,[6] while professional and medical schools exhibit similarly high rates of internal recruitment and self-hiring.[7] Analyses in STEM education further confirm the persistence of preferential hiring patterns that favor graduates from elite institutions.[8] In China, hierarchical faculty-hiring systems have also been documented, indicating a "one-way road" of mobility from lower- to higher-ranked universities.[9]

At the same time, studies focusing on the working conditions of professors in public universities have shown that the pressure for productivity and the lack of systematic pedagogical training intensify workload and weaken teaching development, reinforcing the tension between research and instruction.[10]

Given the importance of the selection process and the relevance of academic qualifications, it is interesting to investigate how these qualifications correlate with the academic progression of faculty members. The academic career path of university professors generally includes undergraduate, graduate (MSc and PhD), and often post-doctoral studies. According to data from INEP,[i] as of 2021 Brazil currently has 358,825 active faculty members in higher education. Of this total, 51% are affiliated with private higher education institutions (IES), and 49% with public ones. The proportion of faculty with doctoral degrees has grown over the years in both the public and private sectors, with doctoral degrees being more common for faculty at public universities, while the holding of a master's degree is more prevalent in the private sector.

Brazilian legislation does not require faculty intending to work in higher education to have specific pedagogical training, as is the case at other educational levels. Analyzing Chemistry faculty in higher education institutions, Quadros *et al.*[11] pointed out that the majority are graduates of postgraduate programs in Chemistry, selected for their specialization in a specific area of knowledge in which they will act as educators and researchers. Although teaching activities are a reality for most graduates from *Stricto Sensu*[ii] programs, few pedagogical training actions are carried out in this context. Therefore, these programs produce professionals that are highly qualified for research but not necessarily for teaching. According to the latest evaluation by CAPES—Four-Year Evaluation 2021[iii] —there are currently 75 *Stricto Sensu* graduate programs in chemistry in Brazil, including MSc. and PhD programs. There are 48 academic combined MSc./PhD. programs, 20 academic MSc. programs, 5 professional MSc. programs, and 2 PhD. programs.

However, recent analyses of the spatial distribution of postgraduate programs indicate that despite expansion, academic excellence remains concentrated in the South and Southeast regions, especially in São Paulo and Rio de Janeiro, revealing persistent regional inequalities in Brazil's postgraduate system.[12]

Research by Hunter *et al.*[13] explored the hiring and retention dynamics of university faculty across the United States. The study revealed that a select few universities train the majority of the nation's faculty. It was observed that professors who earned their doctorates from prestigious universities are likely to be employed by institutions of similar repute. In contrast, those graduating from less prestigious universities typically find positions at similarly ranked institutions. Clauset *et al.*[14] analyzed faculty hiring networks, revealing a steep hierarchy where doctoral prestige strongly influences career outcomes.

In the Brazilian context, examining faculty hiring practices at federal universities is pivotal as it offers insights

[i] Instituto Nacional de Estudos e Pesquisas Educacionais Anísio Teixeira (INEP); CENSO DA EDUCAÇÃO SUPERIOR 2021 [Link].

[ii] *Stricto sensu* refers to specialized postgraduate education, including master's and doctoral programs, focused on academic and scientific training in Brazilian higher education. This contrasts with *lato sensu* studies like specializations and MBAs, which are broader and more professionally oriented.

[iii] Brasil. Ministério da Educação. Coordenação de Aperfeiçoamento de Pessoal de Nível Superior (CAPES). Resultado da Avaliação Quadrienal 2017-2020 2022 [Link]

into prevailing employment trends that can inform strategies to enhance the training of future professionals and address labor market needs, thereby improving the alignment between academic training and societal demands.

While the existing literature provides comprehensive insights into the structures and outcomes of faculty hiring processes at Brazilian federal universities, there remains a notable gap in understanding how these processes impact the long-term career trajectories and academic production of faculty members. Studies such as those by Siqueira *et al.*[2] and Quadros *et al.*[11] primarily focus on the procedural aspects of faculty hiring and the immediate qualifications of candidates, rather than the long-term effectiveness of these hiring practices for academic excellence and career advancement. Furthermore, while international comparisons, such as those by Hunter *et al.*,[13] suggest the influence of institutional prestige on career outcomes, similar in-depth analyses are scarce in the Brazilian context. Consequently, this study aims to analyze the academic qualifications of chemistry departments faculty at Brazilian Federal Universities, exploring potential correlations between the institutions where faculty completed their doctoral studies and their current professional affiliations. This analysis is intended to discern patterns that might influence hiring decisions and professional trajectories within the academic landscape.

2. Methodology

2.1. Study design and participants

This is a descriptive and quantitative study that investigates the hiring patterns of permanent faculty members from Chemistry Departments at Brazilian Federal Public Universities. The study focuses on correlations between the institutions where faculty obtained their graduate degrees and their current professional affiliations.

Importantly, the research was designed as an analytical case study, not as a nationwide survey. Its purpose is to analyze the dynamics of hiring within mature and consolidated postgraduate programs that have historically shaped chemistry education and research in Brazil. The intention is therefore to capture the patterns and tendencies that characterize the most established academic centers, which often serve as reference models for other institutions.

This study was approved by the Research Ethics Committee of the Universidade Federal do Triângulo Mineiro (CAAE: 74361823.6.0000.5154, opinion no. 6.419.368).[iv]

2.2. Inclusion and exclusion criteria

Figure 1 presents the sequence of data acquisition used in this study. The research focused on permanent faculty members hired between 2000 and 2020 in Chemistry Departments of federal public universities with doctoral programs that had been in operation for at least 30 years and achieved a CAPES Quadrennial Evaluation[v] score of 5 or higher in 2021. Faculty from state and private universities, as well as those hired outside this period or holding non-permanent positions, were excluded.

To identify eligible programs, data from the 2021 CAPES Quadrennial Evaluation were accessed via the www.gov.br portal under the "Chemistry" area. Out of 75 graduate programs (including academic and professional master's and doctoral programs), only those offering doctoral degrees with a CAPES score ≥ 5 were retained, reducing the pool to 32 programs. A further filter based on at least 30 years of continuous operation narrowed this to 13 programs, of which 8 belonged to federal universities. These eight universities – UFC, UFMG, UFPE, UFRJ, UFSC, UFSCar, UFSM, and UnB – constituted the final institutional sample.

The selection rationale is explicitly analytical rather than representative. The goal was to examine consolidated institutions whose long-term hiring structures reflect how retention and mobility patterns evolve in stable academic environments. The criteria were adopted to ensure data comparability and to focus on mature programs with complete historical records, since newer postgraduate programs often lack consistent data for longitudinal analysis.

It is important to note that the exclusion of younger postgraduate programs, especially those in the North and Center-West regions, represents a recognized limitation of this study. These regions remain underrepresented due to the chosen criteria; however, this methodological decision ensures greater reliability in long-term comparisons. The inclusion of emerging programs from these regions is identified as an important direction for future research.

Information on faculty hiring was obtained directly from the selected universities via institutional e-mail contact, and through Fala.BR and e-SIC transparency platforms, resulting in an initial dataset of 301 eligible faculty members. After excluding two individuals (one substitute professor and one without a Lattes Curriculum), the final sample comprised 299 faculty members across the eight universities: Universidade Federal do Ceará (UFC), Universidade Federal de Minas Gerais (UFMG), Universidade Federal de Pernambuco (UFPE), Universidade Federal do Rio de

[iv] UNIVERSIDADE FEDERAL DO TRIÂNGULO MINEIRO. **Comitê de Ética em Pesquisa**. Uberaba: UFTM, 2023. Disponível: https://www.uftm.edu.br/comitesecomissoes/cep.

[v] Postgraduate programs are assessed every 4 years.

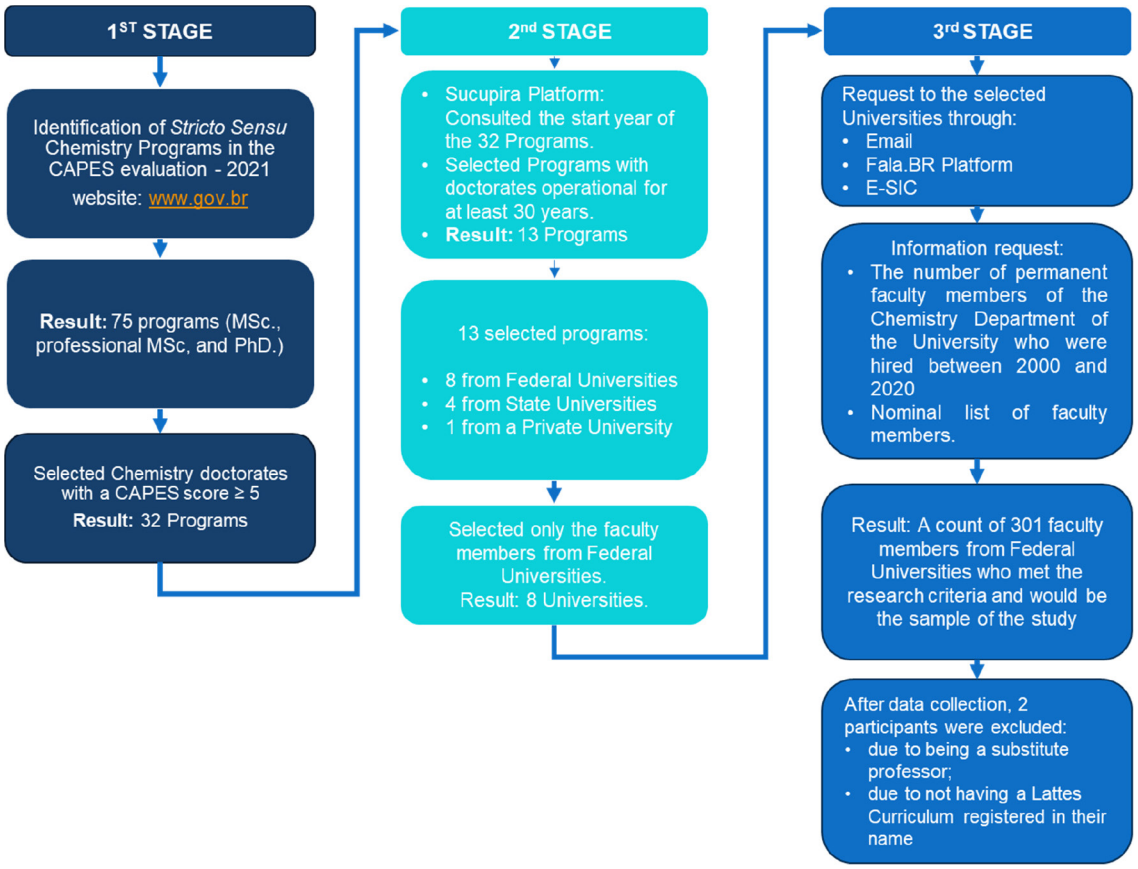


Figure 1. Flowchart of data acquisition, inclusion, and exclusion criteria for the study

Janeiro (UFRJ), Universidade Federal de Santa Catarina (UFSC), Universidade Federal de São Carlos (UFSCar), Universidade Federal de Santa Maria (UFSM), and Universidade de Brasília (UnB).

2.3. Data collection

Data were obtained from two official sources:

1. Institutional transparency portals (Fala.BR and e-SIC) – used to request official lists of permanent faculty and hiring years;
2. Lattes Platform – used to extract academic and professional background information, including undergraduate, master's, and doctoral degrees and their completion years.

All information was cross-checked between institutional sources and the Lattes database to ensure data integrity and accuracy. Collected data were organized in Microsoft Excel and imported into SPSS for Windows (version 22) for statistical treatment.

2.4. Data treatment

Data processing was performed using Python (Pandas and NumPy libraries). The implemented code read the spreadsheet and generated four analytical figures (Figures 4–7) representing:

1. The proportion of faculty who completed their undergraduate, master's, and doctoral degrees at the same university where they are currently employed (Figure 4);
2. The geographical distribution of faculty members according to the state of their undergraduate, master's, and doctoral education (Figures 5–7).

These figures provided the basis for the comparative analysis of retention, mobility, and regional concentration among the institutions under study.

The methodological design thus balances feasibility and interpretive depth, privileging institutions whose maturity allows the observation of long-term patterns. While the sample is not exhaustive, it captures representative dynamics of Brazil's principal centers of chemistry education and research, offering insights applicable to broader discussions of academic mobility and regional development.

3. Results and Discussion

3.1. Initial data

Upon examining the professional affiliations of

the faculty members, it can be observed that there are 299 faculty that meet the selection criteria of the study (Table 1). Three faculty members (1.0%) lacked detailed undergraduate information, such as the institution attended, course, and graduation date and were excluded from the undergraduate sample.

As demonstrated in Figure 2, of the 296 faculty members, nearly half had obtained a BSc. in Chemistry (145; 49%). Other qualifications were also prevalent, including Industrial Chemistry (43; 14.5%), Chemistry Teaching Degree (26; 8.8%), Pharmacy (17; 5.7%), Chemical Engineering (15; 5.1%), a combined BSc. Chemisty and Teaching degree (12; 4.0%), Chemistry with Technological Applications (10; 3.4%), among others. The predominant undergraduate institutions were the UFMG (31; 10.5%), followed by the UFRJ (29; 9.8%), and the UFSM (28; 9.4%).

Table 1. Distribution of the faculty throughout the universities under study

University	Number of Faculty	Percentage
Universidade Federal de Minas Gerais (UFMG)	64	21.40
Universidade Federal do Rio de Janeiro (UFRJ)	60	20.10
Universidade de Brasília (UnB)	40	13.40
Universidade Federal de Santa Catarina (UFSC)	34	11.40
Universidade Federal de São Carlos (UFSCar)	28	9.40
Universidade Federal do Ceará (UFC)	27	9.00
Universidade Federal de Santa Maria (UFSM)	26	8.70
Universidade Federal de Pernambuco (UFPE)	20	6.70

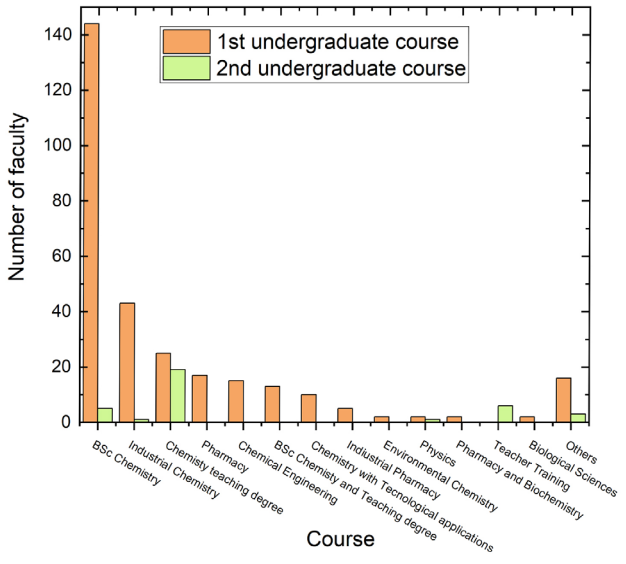


Figure 2. Undergraduate courses of the faculty understudy

Additionally, 36 faculty members held a second degree (Figure 2). The most common was a Chemistry Teaching Degree (19; 52.8%), followed by Teacher Training (06; 16.7%), and BSc. in Chemistry (05; 13.9%), with a few in other fields such as Bromatology, Ecology, Physics, Industrial Chemistry, and Theology. The secondary degrees were primarily obtained from the UFSM (09; 25%), UFRJ (05; 13.9%), and UFSC (04; 11.1%).

3.2. Postgraduate education

Regarding *Stricto Sensu* graduate programs, 47 faculty members (15.7%) did not list an MSc degree in their curriculum, while 252 (84.3%) had completed their MSc, primarily in Chemistry (168; 66.7%). Other less frequent MSc specializations included Inorganic Chemistry (12; 4.8%), Physical Chemistry (09; 3.6%), and Analytical Chemistry (06; 2.4%). The main institutions for these programs were the UFRJ (33; 13.1%), UFMG, and UFSM (27; 10.7%).

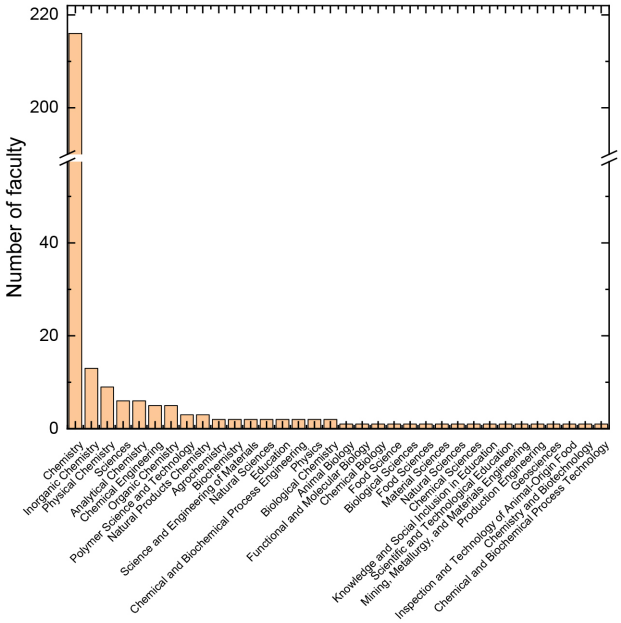


Figure 3. Distribution of PhDs of the 299 faculty understudy

All faculty members (299; 100%) held PhD degrees, with the majority in Chemistry (216; 72.2%). Other PhD fields mirrored those of the MSc. programs, including Inorganic Chemistry (13; 4.3%), Physical Chemistry (09; 3.0%), and Analytical Chemistry and Sciences (06; 2.0%). The most common institutions for PhD studies for the faculty understudy were the Universidade Federal do Rio de Janeiro (47; 15.7%), Universidade Federal de Minas Gerais, and Universidade de São Paulo (32; 10.7%).

3.3. Graduate and postgraduate locations *vs* professional location

Figure 4 presents faculty retention at undergraduate, master's, and doctoral levels. The analysis reveals that, although retention patterns vary among institutions, they

reflect broader dynamics of institutional loyalty, regional concentration of research infrastructure, and structural inequalities within the Brazilian higher-education system.

At the undergraduate level, universities such as UFMG and UFC exhibit comparatively higher retention rates. This pattern can be interpreted not only as a sign of local attractiveness but also as evidence of the concentration of educational opportunities in major urban centers of the Southeast and Northeast. In line with Bourdieu's notion of scientific capital, well-established institutions tend to reproduce their own academic elites, since they possess the symbolic and material resources that sustain their prestige. Consequently, part of this "retention" may represent a process of institutional reproduction, in which graduates remain within the same university ecosystem that legitimized their academic trajectories.

At the master's level, a moderate increase in retention rates is observed, particularly at UFSM (16.9%) and UFC (14.5%). This trend aligns with CAPES and INEP findings emphasizing the regional importance of consolidated graduate programs as local poles of scientific development. In these universities, the permanence of master's graduates as faculty members reflects regional capacity-building, strengthening local human-resource formation and technological development outside the traditional southeastern axis. Other institutions—such as UFSC, UFSCar, UFPE, and UFRJ—also demonstrate relevant retention levels (12.1%, 4.8%, 23.4%, respectively), though the highest retention rates occur at the doctoral level.

At the doctoral level, retention rates surpass those of undergraduate and master's programs in three institutions: UFRJ (28.5%), UFSC (13.2%), and UFPE (5.6%). UFMG also shows notable retention (19.4%), second only to its undergraduate level. In contrast, UFC displays the lowest doctoral-level retention (9%). High PhD retention indicates that these universities provide robust academic communities and research opportunities capable of attracting and retaining their own graduates as faculty members. However, this same pattern may also suggest academic endogamy, characterized by limited circulation of ideas and restricted renewal of scientific culture. While endogamy can enhance institutional stability, it may hinder interdisciplinarity and innovation if not balanced with external recruitment and academic mobility.

Overall, these findings reveal a paradox: the universities that most effectively train researchers are also those that most frequently employ them, reinforcing local hierarchies. Faculty-hiring practices therefore reflect both meritocratic selection and structural dependence on established academic centers. Such concentration strengthens the argument that regional inequalities in postgraduate education contribute to uneven national scientific development.

These retention patterns have important implications. Universities with higher retention rates tend to cultivate institutional loyalty and supportive environments that facilitate graduates' transition into academic careers within the same institution. Conversely, a more balanced mix of internal and external hiring can promote diversity and knowledge exchange. Consequently, the data presented here can inform faculty-recruitment and development policies, encouraging universities to strategically invest in their own graduates while maintaining openness to external academic circulation.

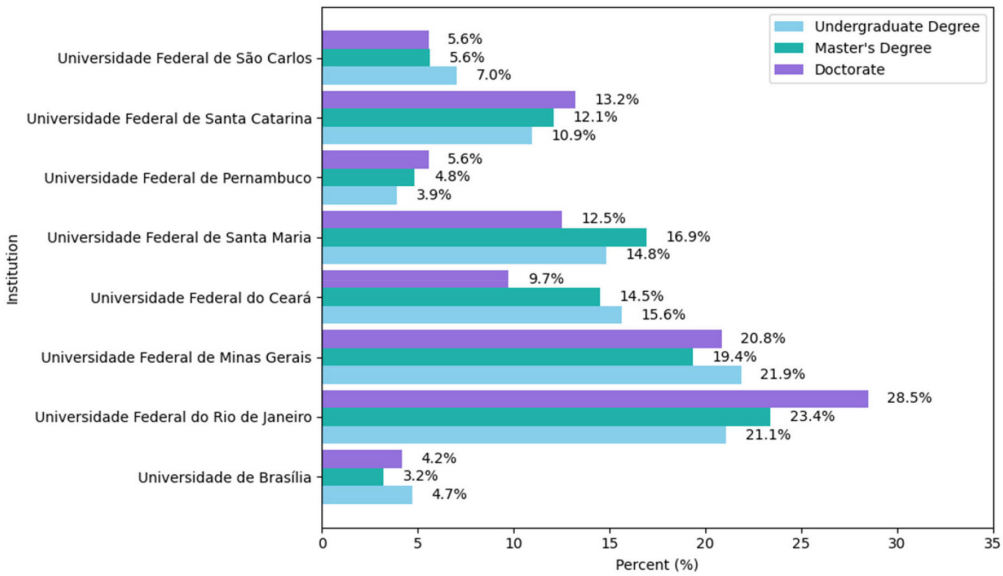


Figure 4. Distribution of faculty members hired at the same institutions where they performed their undergraduate, MSc or PhD programs

3.4. Geographical distribution of faculty members

3.4.1. Undergraduate studies

Figure 5 provides a detailed view of the geographic distribution and retention of faculty members who completed their undergraduate degrees in the same state where they are currently employed. This analysis highlights regional patterns of faculty retention. The data shows that the UFMG and UFRJ have the largest concentrations of locally retained faculty members in terms of absolute. As depicted in Figure 5, UFMG retains 43 out of 64 faculty members (67.2%) who graduated from within the state of Minas Gerais, while UFRJ retains 42 out of 60 faculty members (70%) who completed their undergraduate degrees in the state of Rio de Janeiro.

The UFSM stands out with the highest retention rate by percentage, with 24 out of 26 faculty members (92.3%) having completed their undergraduate education in the same state. This is clearly visible in Figure 5, where UFSM's strong retention is evident in Rio Grande do Sul, reflecting a significant degree of institutional loyalty and possibly fewer geographic mobility options for graduates.

In contrast, UnB and UFPE demonstrate much lower retention rates within their local regions. At UnB, only 6 out of 40 faculty members (15%) completed their undergraduate studies in the Federal District, and UFPE retains just 6 out of 20 faculty members (30%) from Pernambuco. This suggests that these institutions attract a more geographically diverse pool of academics, potentially fostering a broader range of academic experiences and research collaborations.

When considering percentages, UFSCar presents a notable local retention rate, with 21 out of 28 faculty members (75%) retained from the state of São Paulo. The UFC also stands out with 20 out of 27 faculty members (74%) retained from its undergraduate programs in Ceará. This is visible in Figure 5, where Ceará and São Paulo has a significant proportion of faculty who remained in their regions.

The UFSC shows a moderate retention rate, with 14 out of 34 faculty members (41.2%) remaining in Santa Catarina. These retention levels suggest that UFSC balance between recruiting locally trained faculty and attracting talent from other regions, enhancing academic diversity within this institution.

Overall, Figure 5 reveals important patterns in faculty retention across Brazil's regions. Institutions with high local retention rates, such as UFMG, UFRJ, UFSM, UFSCar, and UFC, indicate a central role in developing and employing local talent. While this may enhance their regional impact, it could also limit the diversity of academic perspectives. Conversely, universities like UnB and UFPE, with lower local retention rates, benefit from a more geographically diverse faculty, potentially enriching their academic experiences and research capabilities.

Figure 5 reveals that institutions such as UFMG and UFRJ retain a high proportion of faculty trained within the same state, while UnB and UFPE display lower local retention. The strong local concentration in Minas Gerais, Rio de Janeiro, and Rio Grande do Sul reflects the historical consolidation of scientific infrastructure in these regions.

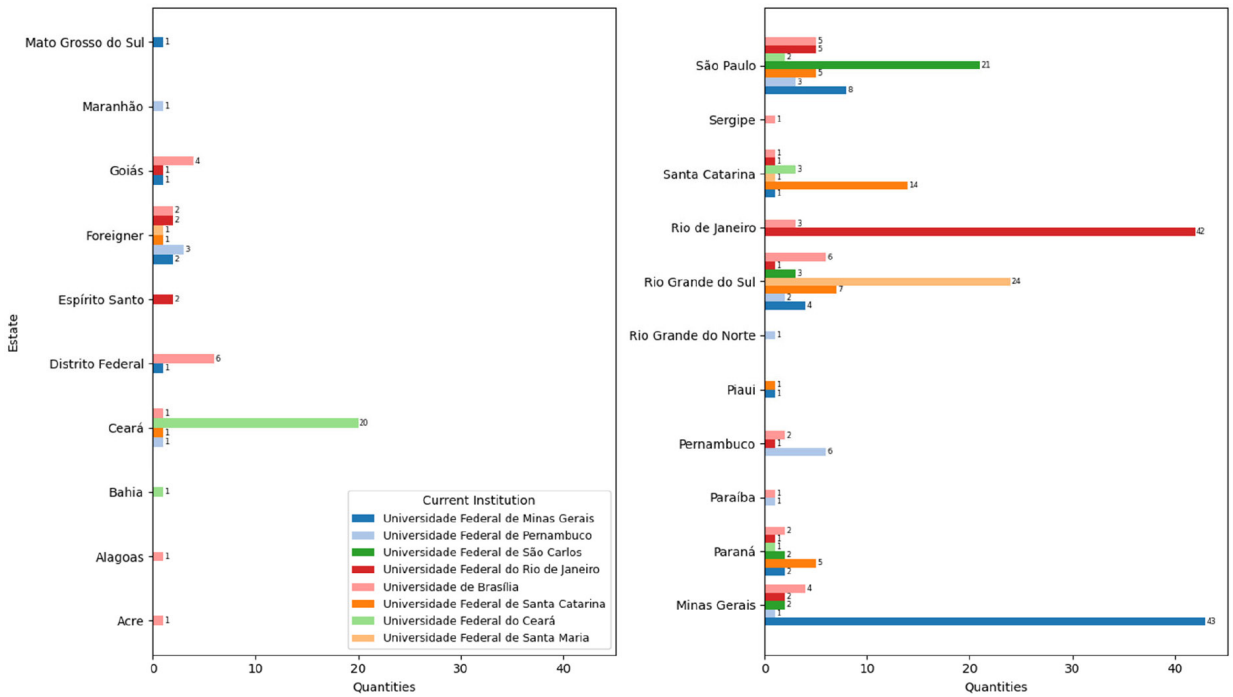


Figure 5. Geographical Distribution of Faculty Members in the universities understudy, considering undergraduate study

The opposite pattern in UnB and UFPE, which attract professors trained elsewhere, indicates the formation of inter-regional academic networks, a phenomenon essential to the circulation of knowledge within a federative system marked by inequality.

From a policy perspective, high retention rates in certain states can also be interpreted through the lens of path dependency—the historical accumulation of resources, laboratories, and graduate programs that perpetuate local hiring advantages. Conversely, the lower retention observed in northern and central regions reflects limited local capacity for postgraduate education, as shown by CAPES evaluations. Thus, our data indirectly expose the geographic asymmetry of investment in Brazilian higher education.

3.4.2. MSc studies

The geographical distribution of faculty members in the universities under study, based on the state where they completed their MSc, reveals significant regional patterns and academic mobility trends.

Firstly, states such as Rio de Janeiro and Minas Gerais show the highest concentrations of faculty members who completed their MSc studies locally, with 37 and 33 individuals, respectively. This suggests that these states are key hubs for advanced academic training, particularly at the master's level, with local institutions playing a significant role in retaining talent within the region. For instance, both the UFRJ and the UFMG exhibit a strong alignment between the location of MSc study and current faculty affiliation.

Secondly, Figure 6 indicates that some states, such as Rio Grande do Sul and Ceará, have a notable number of faculty members who completed their MSc studies locally, which suggests the presence of strong regional academic networks. This is particularly evident in Ceará, where 18 faculty members pursued their MSc within the state, and all are currently affiliated with the local institution (Universidade Federal do Ceará).

The concentration of MSc graduates employed in Rio de Janeiro and Minas Gerais highlights how these states function as scientific cores within Brazil's higher-education landscape. Their strong graduate programs attract students from across the country, reinforcing a center–periphery dynamic typical of unequal academic systems. At the same time, Ceará and Rio Grande do Sul demonstrate the emergence of regional academic poles capable of retaining their own master's graduates, suggesting partial decentralization of postgraduate education. Such trends resonate with federal policies encouraging interiorization of science and technology, yet the persistence of concentration in the Southeast underscores the limited reach of these initiatives.

Interestingly, there is also evidence of significant interstate academic mobility. For instance, faculty members from states like São Paulo and Santa Catarina are distributed across various institutions, suggesting a diffusion of academic expertise beyond state borders. This might reflect the broader academic appeal of certain institutions and the ability of these universities to attract talent from other regions. The presence of interstate academic mobility underscores the interconnected nature of Brazil's higher education system,

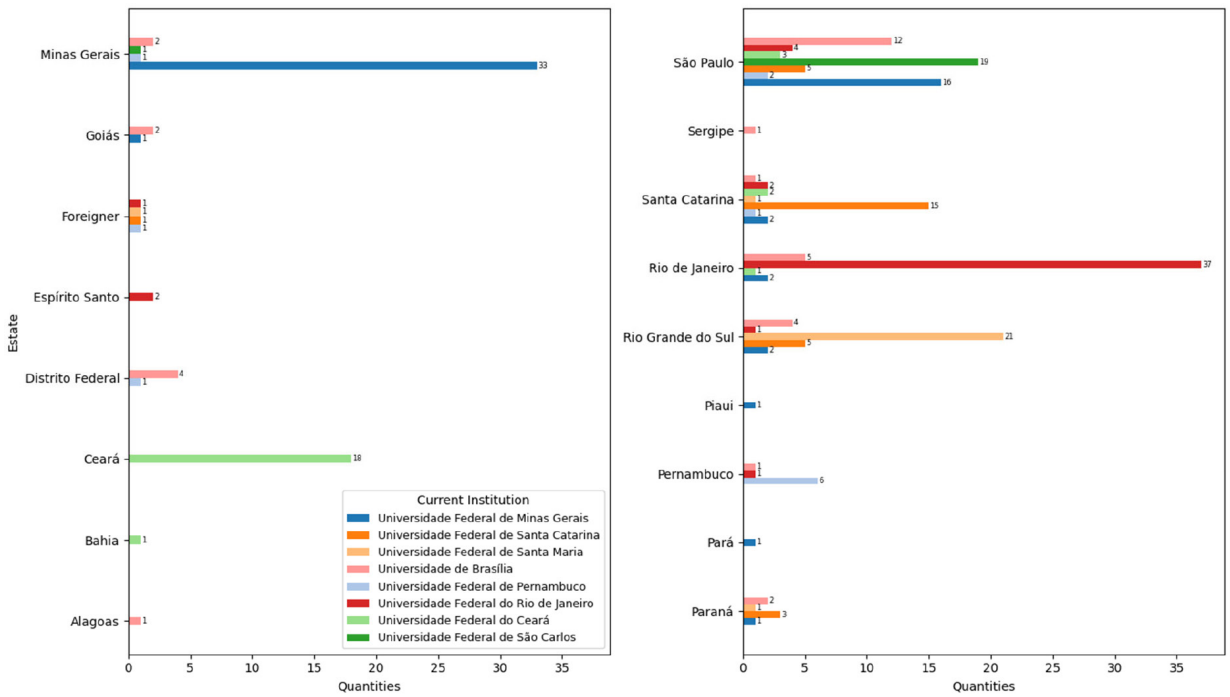


Figure 6. Geographical Distribution of Faculty Members in the universities understudy, considering state of MSc study

where faculty movement across state lines contributes to a dynamic exchange of knowledge and expertise.

3.4.3. PhD studies

The geographical distribution of faculty members, based on where they completed their PhD studies, provides insights into regional academic influence and the role of international education in shaping the academic workforce in Brazil. As seen in Figure 7, São Paulo, Rio de Janeiro, and Minas Gerais remain the dominant producers of doctorates in chemistry. This pattern reflects the hierarchical structure of the Brazilian scientific system, in which historical universities accumulate symbolic capital, funding, and research capacity. The recruitment of faculty with foreign PhDs (26 individuals) marks an important counter-trend. Internationally trained professors contribute to academic diversification, inject new epistemic perspectives, and enhance Brazil's integration into global research networks. Their presence also aligns with CAPES' strategy for internationalization (*internacionalização*) and with governmental initiatives that aim to globalize graduate education.

Nevertheless, the relatively low proportion of internationally trained faculty reveals structural barriers to international mobility, including limited funding and bureaucratic constraints for recognizing foreign degrees. Expanding these opportunities is crucial for reducing academic isolation and promoting epistemic exchange beyond regional and national boundaries.

Next comes Minas Gerais, with 37 PhD graduates in the state, with 34 now working at UFMG, further indicating a strong tradition of local doctoral training and retention within the state. Rio Grande do Sul also plays a significant role, having produced 32 PhDs, with 18 now working at UFSM. Santa Catarina produced 27 PhD graduates, of which 19 are currently employed at UFSC, reflecting the regional strength in doctoral education and professional retention in these states.

An essential aspect of this figure is the presence of faculty members who obtained their PhDs abroad. The number of foreign PhDs is particularly notable in UFMG and UFPE, with UFMG hosting 7 foreign-trained PhDs and UFPE having 5, showing the increasing trend of international academic mobility. The graph shows a total of 26 faculty members who earned their PhDs in other countries.

In summary, São Paulo as the leading state in producing PhDs, followed by Rio de Janeiro, Minas Gerais, Rio Grande do Sul, and Santa Catarina. The data emphasize both the regional strength of doctoral programs and the rising international academic mobility among faculty members in Brazil. This trend towards international PhD training is significant for the broader discussion of internationalization in Brazilian higher education. The recruitment of faculty members with international PhDs points to an effort to bring global perspectives and expertise into Brazilian universities. This enhances the quality of research and teaching by integrating international best practices, fostering academic collaborations across borders, and exposing students to a diverse range of ideas and methodologies. Moreover, the return of scholars with international experience helps to globalize the academic landscape within Brazil and

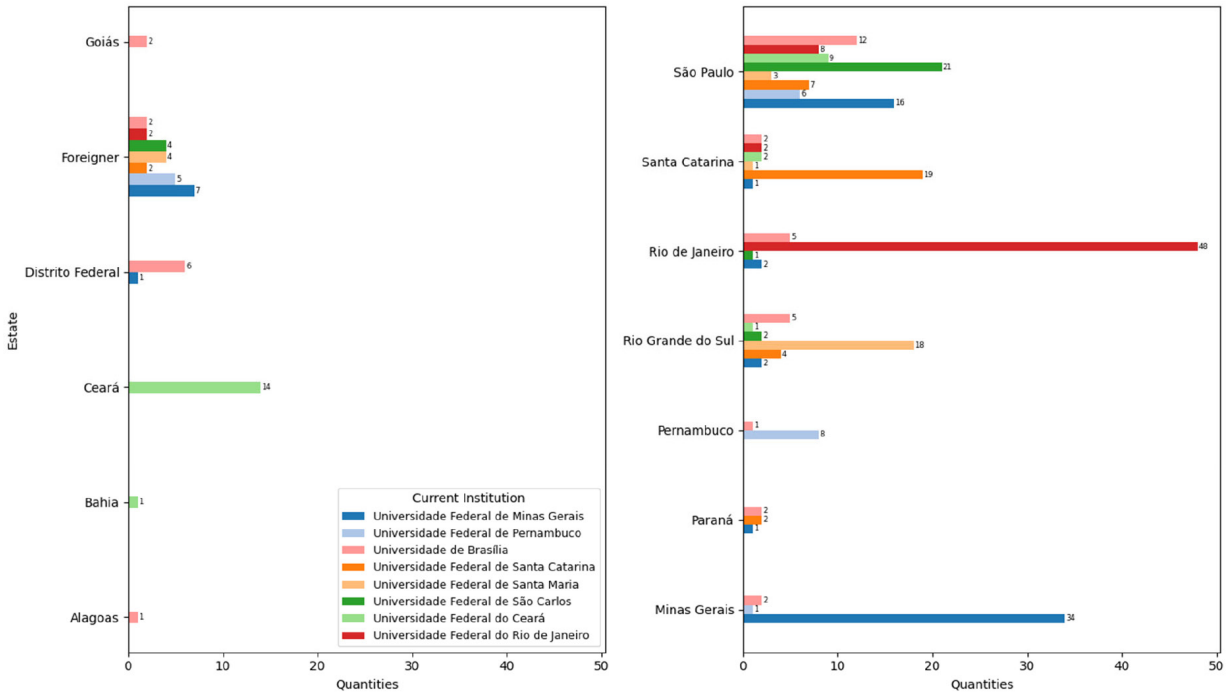


Figure 7. Geographical Distribution of Faculty Members in the universities understudy, considering state of PhD study

increases the potential for partnerships and research networks with foreign institutions.

4. Conclusion

This study contributes to understanding how historical, institutional, and geographical factors shape faculty-hiring dynamics in Brazilian federal universities. The analysis demonstrates that while strong local retention exists—especially in long-established universities—this phenomenon is inseparable from broader issues of regional inequality, endogamy, and limited academic circulation.

High retention within certain states does not necessarily indicate strategic investment in local talent; rather, it may result from structural concentration of resources. Conversely, universities that attract faculty from multiple regions play an essential role in fostering national integration and knowledge exchange. The combination of locally retained and internationally trained faculty thus forms a hybrid system that balances stability with innovation.

From the perspective of science and higher-education policy, these results suggest that:

- The Regime Jurídico Único and public-exam (concurso público) system guarantees transparency but limits institutional flexibility to pursue diversity in hiring.
- The geographic concentration of CAPES-rated programs perpetuates academic hierarchies and requires targeted investment in emerging institutions, particularly in the North and Center-West.
- Internationalization policies should be maintained and expanded to reduce epistemic dependence on dominant regions and encourage global collaboration.

Future research should include qualitative analyses—such as interviews with faculty and administrators—to capture the social and affective dimensions influencing career decisions. Expanding the sample to include universities with lower CAPES scores and newer programs will also provide a more comprehensive picture of national hiring patterns.

In summary, Brazil's academic landscape is characterized by both continuity and transformation: continuity through regional academic cores that retain their graduates, and transformation through growing international mobility and diversification of faculty trajectories. Recognizing and managing this balance is essential for promoting equity, excellence, and innovation in Brazilian higher education.

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