

Between retention and the propensity to drop out: mapping profiles of Prouni students during the Covid-19 pandemic

Entre a permanência e a propensão à evasão: mapeando perfis de estudantes do Prouni durante a pandemia de Covid-19

Entre la permanencia y la propensión a la deserción: mapeo de perfiles de estudiantes del Prouni durante la pandemia de Covid-19

Prinhorato, Henrique Augusto ⁽ⁱ⁾

Pires, André ⁽ⁱⁱ⁾

Vieira, André ⁽ⁱⁱⁱ⁾

Pinto, Rafael Ângelo Bunhi ^(iv)

⁽ⁱ⁾ University of Sorocaba (Uniso), Office of the Pro-Rector for Graduate Studies, Research, Extension, and Innovation, Graduate Program in Education, Sorocaba, SP, Brazil. henrique.prinhorato@prof.uniso.br, <https://orcid.org/0009-0006-5944-3860>.

⁽ⁱⁱ⁾ University of Sorocaba (Uniso), Office of the Pro-Rector for Graduate Studies, Research, Extension, and Innovation, Graduate Program in Education, Sorocaba, SP, Brazil. andre.pires@prof.uniso.br, <https://orcid.org/0000-0002-8344-7662>.

⁽ⁱⁱⁱ⁾ Fluminense Federal University (UFF), Institute of Human Sciences and Philosophy, Graduate Program in Sociology, Niterói, RJ, Brazil. andrevieira@id.uff.br, <https://orcid.org/0000-0002-6699-2044>.

^(iv) University of Sorocaba (Uniso), Office of the Pro-Rector for Graduate Studies, Research, Extension, and Innovation, Graduate Program in Education, Sorocaba, SP, Brazil. rafael.pinto@prof.uniso.br, <https://orcid.org/0000-0003-4988-3628>.

Abstract

This article analyzes the profiles of Prouni scholarship students who entered a community university in the interior of the state of São Paulo between 2018 and 2021, focusing on their subjective perception of propensity to drop out or postpone their studies in the context of the Covid-19 pandemic. Based on a survey administered to 219 students, a Multiple Correspondence Analysis was conducted, followed by a Hierarchical Cluster Analysis, in order to identify profiles according to sociodemographic, attitudinal, and academic characteristics. The analysis revealed three groups: (1) older pre-pandemic entrants; (2) pragmatic working students enrolled in evening courses; and (3) young women who entered during the pandemic. The results reinforce the need for retention policies that are sensitive to the diversity of profiles and inequalities faced by students in the private sector.

Keywords: higher education, Brazil, students, social aspects, scholarships, government policy, student assistance programs, Covid-19 pandemic, 2020.

Resumo

Este artigo analisa os perfis de estudantes bolsistas do Prouni ingressantes entre 2018 e 2021 em uma universidade comunitária do interior paulista, com foco na percepção subjetiva de propensão à evasão ou adiamento do curso no contexto da pandemia de Covid-19. Com base em survey aplicado a 219 estudantes, realizou-se uma Análise de Correspondência Múltipla seguida de uma Análise Hierárquica de Cluster, a fim de identificar perfis segundo características sociodemográficas, atitudinais e acadêmicas. A análise revelou três grupos: (1) ingressantes mais velhos pré-pandemia; (2) trabalhadores pragmáticos de cursos noturnos; e (3) mulheres jovens ingressantes na pandemia. Os resultados reforçam a necessidade de políticas de permanência sensíveis à diversidade de perfis e desigualdades enfrentadas por estudantes no setor privado.

Palavras-chave: ensino superior, Brasil, estudantes, aspectos sociais, bolsas de estudo, política governamental, programas de assistência, pandemia Covid-19, 2020.

Resumen

Este artículo analiza los perfiles de estudiantes becarios del Pronuni que ingresaron entre 2018 y 2021 en una universidad comunitaria del interior del estado de São Paulo, con énfasis en la percepción subjetiva de propensión a la deserción o al aplazamiento de los estudios en el contexto de la pandemia de Covid-19. Con base en una encuesta aplicada a 219 estudiantes, se realizó un Análisis de Correspondencias Múltiples, seguido de un Análisis Jerárquico de Conglomerados, con el fin de identificar perfiles según características sociodemográficas, actitudinales y académicas. El análisis reveló tres grupos: (1) ingresantes de mayor edad antes de la pandemia; (2) estudiantes trabajadores pragmáticos matriculados en cursos nocturnos; y (3) mujeres jóvenes ingresantes durante la pandemia. Los resultados refuerzan la necesidad de políticas de permanencia sensibles a la diversidad de perfiles y a las desigualdades enfrentadas por los estudiantes del sector privado.

Palabras clave: educación superior, Brasil, estudiantes, aspectos sociales, becas de estudio, política gubernamental, programas de asistencia estudiantil, pandemia de Covid-19, 2020.

Introduction

The expansion of higher education systems across different regions of the world has been accompanied by challenges and demands related to serving an increasingly diverse student population. Among these challenges, course withdrawal or dropout stands out, particularly affecting socially disadvantaged groups and placing pressure on education systems with regard to their capacity to ensure equitable opportunities for retention and completion (Aina et al., 2022). In OECD member and partner countries, the share of students who do not complete bachelor's or equivalent programs within three years after the expected completion time ranges from less than 20% in countries such as the United Kingdom, Switzerland, and Ireland to more than 40% in Brazil, Chile, Italy, and Estonia (Aina et al., 2022). In Brazil, as in other South American countries, undergraduate dropout is one of the main issues on the public agenda for higher education, and not without reason: in 2023, approximately six out of ten undergraduate students who had entered higher education in 2014 had left their program before completing it, a percentage that increased during the pandemic. However, despite advances in the academic literature and in higher education public policy, there remains considerable room for further

understanding of the factors involved in course dropout, particularly in private institutions¹, which account for the majority of enrollments in the country.

Despite evidence pointing to an “inclusive expansion” of access to the Brazilian system since the mid-2000s (Salata, 2018; Carvalhaes & Ribeiro, 2019; Mello, 2022; Senkevics, 2021), retention and completion of undergraduate programs remain markedly unequal across different social groups, fields of knowledge, and institutional types (Carvalhaes & Ribeiro, 2019; Knop & Collares, 2019). The national and international literature has emphasized the multidimensionality of dropout, including different explanatory mechanisms that encompass academic, socioeconomic, subjective, cultural, and institutional factors that cut across the student experience (Aina et al., 2022; Pinheiro, Ribeiro & Fernandes, 2023; Borges, Gouvêa & Barbosa, 2023; Heringer, 2023). In this context, public policies for student retention, assistance, and financing gain relevance – both at the macro (systemic) level and at the meso (institutional) level – as they seek to mitigate the effects of structural inequalities on academic trajectories.

Although the 2024 Higher Education Census (Inep, 2025) indicates that nearly 80% of undergraduate enrollments are concentrated in the private sector, most studies on retention and dropout have focused on the public sector (Santos Junior & Real, 2019; Honorato & Borges, 2023; Heringer, 2023), with emphasis on the National Student Assistance Program (Pnaes) and affirmative action policies. While the latter articulates policies aimed at both inclusion and retention, the private sector has largely been limited to policies focused on expanding access, such as the University for All Program (Prouni) and the Student Financing Fund (Fies), lacking structured mechanisms to support the continuity of studies (Pires, Ribeiro & Prinhato, 2023). This gap in the national literature on dropout is particularly relevant, considering that this is the sector that: (1) concentrates the majority of enrollments and new entrants, and is therefore the main driver of the system’s recent expansion; (2) constitutes the subsystem with the greatest institutional heterogeneity, according to different classification metrics (Vieira, Rodrigues & Barbosa, 2025); and (3) includes the largest contingent – both in absolute and proportional terms – of working students, especially women and individuals in socioeconomic disadvantage.

¹Law No. 13,868, of September 3, 2019, amended Article 19 of Law No. 9,394, of December 20, 1996, and began to include community institutions as a third administrative category, alongside public and private institutions. However, the definition of community institutions had been established about six years earlier, through Law No. 12,881, of November 12, 2013. For the sake of simplification, and due to the similarity in terms of tuition fees, whenever we use expressions such as “private segment”, “private sector”, or “private institutions”, we will be referring to institutions from both administrative categories: private and community.

Beyond the relevance of investigating student retention and dropout in the private sector of higher education, it becomes essential to understand how students' academic trajectories were affected by the exogenous shock represented by the Covid-19 pandemic. The health and humanitarian crisis caused by the pandemic systemically affected the functioning of higher education on a global scale and, consequently, all factors traditionally associated with academic success and the continuity of studies. In view of the adoption of different institutional strategies in response to social isolation, the literature has examined the effects of the various forms of remote teaching adopted during this period on outcomes such as academic and social integration, academic performance, and dropout (Iglesias-Pradas et al., 2021; Resch, Alnahdi & Schwab, 2023; Sampaio, Pires & Carneiro, 2022). In Brazil, the first phase of the response to the pandemic was characterized by the adoption, especially by private institutions, of remote teaching and assessment (Castioni et al., 2021). However, despite the centrality of these transformations to the student experience, studies investigating how remote teaching was related to the trajectories of undergraduate students remain scarce, especially those involving beneficiaries of inclusion policies aimed at this sector (Prinhorato, 2024).

Through a case study at a community university in the interior of the state of São Paulo, this study investigates whether, among scholarship students who remained enrolled in their programs during remote teaching, there are groups with different degrees of perceived propensity to drop out or postpone their studies, according to sociodemographic, attitudinal, and academic characteristics.

The data analyzed come from a sample of 219 students, obtained through an online survey administered to Prouni scholarship students who entered between 2018 and 2021 and were regularly enrolled in 2022. The analysis was conducted in two stages: first, Multiple Correspondence Analysis (MCA) was applied in order to identify latent structures in the relationships among the variables. Subsequently, Hierarchical Cluster Analysis (HCA) was used to delimit student profiles based on these structures.

In addition to this introduction, this article is structured into four sections. The first discusses issues related to students' academic trajectories, with emphasis on their relationship with access policies, such as Prouni, and the context of the pandemic. The second addresses the method and procedures of the investigation, establishing the dimensions of the analysis and

outlining the groups. The following section analyzes the main results and, finally, presents some concluding remarks.

Students' Trajectories in Undergraduate Education, Institutional Factors, and the Context of the Covid-19 Pandemic

Although its roots lie in the last quarter of the twentieth century, notably in Vincent Tinto's theories of integration (1975) and Alain Coulon's theory of affiliation (1980), the debate on student retention gained specific contours in the context of the expansion and diversification of Brazilian higher education from the 2000s onward, as pointed out by Pinheiro, Ribeiro and Fernandes (2023). In this context, public policies such as Law No. 12,711, of August 29, 2012, known as the Quota Law, were decisive in increasing the visibility of this issue in Brazil (Heringer, 2023).

Systematic reviews of Brazilian academic production map the evolution of research in this field. Studies such as those by Lima and Zago (2018) and Santos Junior and Real (2019) demonstrate a significant increase in the volume of theses and dissertations in the 2010s compared with the previous decade, with a predominance of studies focused on public institutions. In addition, Lima and Zago (2018) also outline the recurring profile of the student most susceptible to dropout, marked by low economic and cultural capital, female gender, and enrollment in evening or distance education programs. Honorato and Borges (2023) reveal a thematic bias in national academic production, with a predominance of studies focused on associations between social markers and dropout rates, leaving crucial pedagogical and institutional dimensions in the background, such as curricular flexibility and didactic support, in addition to not addressing the use of assessments (internal and external) as a tool for planning retention policies.

Beyond the mapping of academic production, the very conceptual delimitation of "retention" constitutes a central axis of the debate, directly influencing the scope of research in the field. In this sense, the definition proposed by Vargas and Heringer (2016) stands out, differentiating student retention from student assistance: the former has a broad and universal approach, encompassing all students, and includes actions such as undergraduate research, tutoring, pedagogical and emotional support, and participation in events. The latter is

understood as a subset of the former, with a focus on needs such as housing, food, and transportation for specific groups. This definition is analogous to the perspective adopted by the Higher Education Census, which classifies actions into “social support” (corresponding to assistance) and “extracurricular activities” (associated with retention) (Heringer, 2023).

This conceptual distinction becomes particularly important when analyzing student trajectories in the private sector, especially with regard to access policies such as Prouni. Created by Law No. 11,096, of January 13, 2005, Prouni offers scholarships in undergraduate programs based on socioeconomic criteria: up to 1.5 minimum wages for full scholarships and up to 3 minimum wages for partial scholarships, in addition to adopting affirmative actions for people with disabilities and for self-declared Black, Brown, or Indigenous people. Funded through tax waivers, the program had benefited nearly three million people by 2020, going through a phase of expansion (2005-2015) and another of contraction (2016-2020). These phases, as Oliveira (2019) points out, reflect the country’s economic situation, a logic that became even more evident during the Covid-19 pandemic, when the granting of scholarships regressed to 2011 levels.

Prouni has been the object of extensive academic production which, according to Pires and Ribeiro (2020), can be systematized into four axes: (1) the design of the program; (2) the profile of entrants; (3) retention; and (4) graduates. In its early years, the program was, in general, the target of criticism regarding the commodification of education and the transfer of public resources to private institutions (Catani, Hey & Gilioli, 2006; Carvalho, 2006). As it matured, research began to recognize its role in the inclusion of historically excluded groups (Carvalho, 2011; Mello Neto, Medeiros & Catani, 2019) and to explore the objective challenges (such as the need to reconcile study and work) and subjective challenges (such as discrimination) faced by scholarship students in their trajectories (Pires & Ribeiro, 2020).

Despite the success of Prouni as an inclusion policy, the literature is consensual in pointing out its weaknesses regarding the retention of scholarship students. Pires, Ribeiro and Prinhato (2023) reinforce this by comparing retention initiatives aimed at Prouni scholarship students in private for-profit and non-profit universities, revealing significant inequalities in access to social support and extracurricular activities. Of the 212,322 scholarship students in 2019, only 10,664 (5.02%) benefited from some type of social support. Non-profit universities offer greater support, with around 10% of full scholarship students receiving some type of

support, compared with only 0.4% in for-profit universities. A similar situation was observed in relation to participation in extracurricular activities, with 45.3% of full scholarship students in non-profit institutions involved in these activities, compared with 10.4% in for-profit institutions.

The Covid-19 pandemic reconfigured the challenges related to student retention on a global scale. The literature quickly pointed to the worsening of issues such as digital exclusion and students' mental health (Sampaio, Pires & Carneiro, 2022). A study by Freires et al. (2023) identified specific stressors associated with the abrupt transition to remote teaching – such as pedagogical and learning difficulties –, which mostly affected students who maintained their activities remotely, a predominant profile in the private sector. Thus, it is considered that the combination of the difficulties already reported in the literature on Prouni scholarship students with the stressors resulting from the pandemic may have influenced the perception of the propensity to drop out or postpone the course among this specific group of students.

Research Methods and Procedures

The data analyzed in this study come from a cross-sectional survey administered to a population of 1,227 Prouni scholarship students, who entered between 2018 and 2021 and were regularly enrolled in 2022 at a community university located in the interior of the state of São Paulo. According to the 2024 Higher Education Census (Inep, 2025a), the student body of the institution analyzed is predominantly young, with half of the students being up to 21 years old and a mean age of 23 years. Women (61.2%) and White students (79%) predominate. As it is a tuition-charging university, there is a strong dependence on financial aid among students: in 2023, almost two thirds (62.6%) of enrolled students received scholarships or financing. Among them, slightly more than one quarter were Prouni beneficiaries (28.2%) (Inep, 2025b). Between 2005 and 2022, 5,836 full scholarships were awarded through the program, the vast majority of which (91.8%) were granted to students from the local metropolitan region. From 2020 onward, the Covid-19 pandemic imposed an emergency transition to remote teaching, which brought additional barriers to student retention, especially among scholarship students. In addition, internal institutional data reveal that, in 2021, there was a sharp decrease (57.5%) in the number of scholarships awarded compared with the previous year.

Data collection took place between November 4, 2022, and January 10, 2023, through an online form with 47 questions, distributed across three thematic sections: (1) personal and family information; (2) academic trajectory and admission; and (3) experience with remote teaching and future perspectives. The first two sections were adapted from the socioeconomic questionnaire of Enade 2021, while the third was developed based on the literature on student retention. Contact with students was established by e-mail, whose information was provided by the institution's social assistance sector, upon approval of the research project by the Research Ethics Committee (CEP), under opinion No. 5,702,898.

The administration of the survey resulted in 219 responses (17.8% of the target population). The treatment of the database – conducted, as was the analysis, in RStudio software (version 2025.05.1+513) – involved the selection of 28 variables (listed in Tables 2 and 3), and of 217 respondents, after the exclusion of two cases with missing values in specific variables. To ensure minimum criteria of representativeness, data collection was controlled so that the composition of the sample approximated that of the reference population in seven key variables: age, sex, color/race, region, shift, period of admission, and field of study. The distribution of these variables is presented in Table 1.

Table 1
Comparison of the distribution of the population and sample of students admitted between 2018 and 2021

Category	Universe N. (%)	Sample N. (%)
Age group		
18 to 24 years old	68.60% (n=842)	77.00% (n=167)
25 years or older	31.40% (n=385)	23.00% (n=50)
Sex		
Female	60.70% (n=745)	65.00% (n=141)
Male	39.30% (n=482)	35.00% (n=76)
Color/race		
Non BBI	90.71% (n=1113)	75.16% (n=163)
BBI	9.29% (n=114)	24.88% (n=54)
Region		
Of the HEI	66.91% (n=821)	52.07% (n=113)
Other	33.09% (n=406)	47.93% (n=104)
Course shift		
Full-time or morning	22.82% (n=280)	20.74% (n=45)
Evening	77.18% (n=947)	79.26% (n=172)
Admission period		
Before remote teaching	53.79% (n=660)	57.14% (n=124)
During remote teaching	46.21% (n=567)	42.86% (n=93)

Field of study

Computing and Natural Sciences	8.15% (n=100)	6.92% (n=15)
Education	13.53% (n=166)	11.06% (n=24)
Engineering	18.26% (n=224)	14.29% (n=31)
Veterinary Medicine	4.24% (n=52)	6.91% (n=15)
Business	26.32% (n=323)	23.04% (n=50)
Health Sciences (excluding Medical School)	16.38% (n=201)	20.74% (n=45)
Social Sciences and Communication	13.12% (n=161)	17.05% (n=37)

Note: BBI stands for Black, Brown, and Indigenous people. Totals are presented in parentheses.

Analytical Strategy

Our approach does not aim to explain dropout based on data on actual withdrawals from programs or through predictive statistical models, but rather to identify, among scholarship students who remained enrolled during remote teaching, profiles of students with sociodemographic, academic, and attitudinal characteristics associated with different perceived (self-reported) levels of propensity to drop out or postpone their studies. To this end, we used the question “Did you think about dropping out or postponing your studies because of remote teaching?”, with the responses “Yes, thought about dropping out or postponing” and “No, did not think about dropping out or postponing”, to construct a variable of perceived propensity to drop out or postpone the academic trajectory. It is, therefore, an exploratory model. Although this subjective dimension of perception does not directly correspond to actual dropout, we have reasons to believe that it expresses tensions that affect students’ trajectories in contexts of crisis and institutional discontinuity. That said, our strategy was divided into two stages.

In the first, to analyze latent structures of relationships among the variables in our data, we used Multiple Correspondence Analysis (MCA). In the second, to identify profiles of Prouni scholarship students based on these latent structures, we used Hierarchical Cluster Analysis (HCA).

Through the visualization of groupings of social categories in a two-dimensional geometric space, MCA makes it possible to represent a relational social space of differentiation, in which correlated categories tend to be positioned close to one another on the generated map, while dissimilar categories appear farther apart from each other (Le Roux & Rouanet, 2010; Husson & Josse, 2014). In addition to estimating the social space, the technique opens up the possibility of analyzing the so-called structuring factors of the oppositions and affinities found,

through the overlaying of additional categories of variables that do not participate in the construction of the space. In technical terms, the variables used to compose the space are called active variables, while those added subsequently, only for interpretation purposes, are called supplementary variables.

In MCA, the matrix formed by the active variables is converted into a binary indicator matrix, in which the original categories are transformed into separate variables (with values 1 and 0), allowing the application of principal component decomposition. This decomposition results in a set of eigenvalues (referred to as variance in the results section) and their respective eigenvectors (referred to as axes or dimensions). The eigenvalues represent synthetic quantitative variables that summarize the categorical variables (Husson & Josse, 2014). To interpret them, the contribution of each category to each eigenvalue is calculated. The chi-square distances between active categories are interpreted as Euclidean distances and represented in the geometric space formed by the eigenvectors. By allowing the selection of characteristic combinations that retain as much information as possible, usually through two or three dimensions, MCA functions as a dimensionality reduction method (Bertoncello, 2022).

In this study, we considered as active the variables related to students' social, academic, and attitudinal characteristics, totaling 14 variables and 34 categories, as detailed in Table 2.

Table 2
Active variables: social, academic, and attitudinal characteristics

Variables and categories	Coding	Freq. N. (%)
Age Group		
18 to 24 years old	idade_18_24	76.96% (n=167)
25 years or older	25+	23.04% (n=50)
Sex		
Female	sexo_fem	64.98% (n=141)
Male	sexo_masc	35.02% (n=76)
Color/Race		
White and Asian/Yellow	cor_branca_amarela	75.12% (n=163)
Black (Black and Brown)	cor_negra	24.88% (n=54)
Region of Birth		
Metropolitan Region of the HEI	regiao_rm	52.07% (n=113)
Outside the MR	regiao_n_rm	47.93% (n=104)
Parents' Educational Attainment		
Low educational attainment	pais_pouca_inst	31.78% (n=69)
Secondary Education	pais_ens_med	43.32% (n=94)
Higher Education	pais_ens_sup	24.88% (n=54)

Academic Degree

Bachelor's Degree	bacharelado	81.11% (n=176)
Teaching Degree	licenciatura	8.75% (n=19)
Technical Education	tecnologico	10.14% (n=22)

Course Shift

Morning/Full-time	mat_int	20.74% (n=45)
Evening	noturno	79.26% (n=172)

Year of Admission

Admission before remote teaching	ing_antes_ens_rem	57.14% (n=124)
Admission during remote teaching	ing_durante_ens_rem	42.86% (n=93)

Reason for Choosing the Program

Vocation	mot_curso_vocacao	56.22% (n=122)
Returns (professional/financial)	mot_curso_retornos	34.56% (n=75)
Influence or Convenience	mot_curso_influ_conve n	9.21% (n=20)

Reason for Choosing the HEI

Location and Ease of Access	local_acesso	19.82% (n=43)
Possibility of Scholarship or Approval	bolsa_aprovacao	45.62% (n=99)
Quality and Reputation	quali_rep	34.56% (n=75)

Thought About Dropping Out or

Postponing

Did not think about dropping out or postponing	nao_des_adi	49.77% (n=108)
Yes, thought about dropping out or postponing	sim_des_adi	50.23% (n=109)

Financial Independence

With work and income	com_trabalho_renda	42.40% (n=92)
Without work and income	sem_trabalho_renda	24.88% (n=54)
With partial work and income	parcial_trabalho_renda	32.72% (n=71)

Access to Remote Teaching

Good or excellent access	acesso_bo_ex	59.45% (n=129)
Poor or very poor access	acesso_ru_pe	6.91% (n=15)
Fair access	acesso_reg	33.64% (n=73)

Evaluation of Remote Teaching²

Fair/Poor	aval_reg_ruim	71.43% (n=155)
Good/Excellent	aval_boa_otima	28.57% (n=62)

The group of supplementary variables included those related to the retention difficulties faced by students at the university during the pandemic and the fields of the undergraduate programs, totaling 14 variables and 33 categories. The fields of the programs were constructed based on the International Standard Classification of Education Adapted for Undergraduate

² This variable was created from the mean of two variables, based on the questions (1) "remote teaching negatively affected the quality of your academic education" and (2) "rate your experience with remote teaching". Both questions had three possible response options: 1, 2, and 3, with 3 being, respectively, more negative ("strongly agree" and "poor or very poor") and 1 more positive ("disagree" and "good or excellent"). If the result of this new variable ("evaluation of remote teaching") is equal to or greater than 2, the category is "aval_reg_ruim" (fair or poor evaluation); otherwise, the category is "aval_boa_otima" (good or excellent evaluation).

Programs (Cine Brasil), as shown in Appendix A. The frequency distributions are detailed in Table 3.

Table 3

Supplementary variables: retention difficulties and fields of undergraduate programs

Variables and categories	Coding	Freq. N. (%)
Housing Difficulties		
Yes	moradia_sim	4.61% (n=10)
No	moradia_nao	95.39% (n=207)
Financial Difficulties		
Yes	financeiro_sim	33.64% (n=73)
No	financeiro_nao	66.36% (n=144)
Psychological Difficulties		
Yes	psicologicos_sim	58.99% (n=128)
No	psicologicos_nao	41.01% (n=89)
Difficulties with Time to Study		
Yes	tempo_sim	23.96% (n=52)
No	tempo_nao	76.04% (n=165)
No Difficulties		
Yes	nenhuma_sim	94.01% (n=204)
No	nenhuma_nao	5.99% (n=13)
Transportation Difficulties		
Yes	transporte_sim	3.23% (n=7)
No	transporte_nao	96.77% (n=210)
Study Material Difficulties		
Yes	material_sim	28.11% (n=61)
No	material_nao	71.89% (n=156)
Family Relationship Difficulties		
Yes	rel_fam_sim	22.12% (n=48)
No	rel_fam_nao	77.88% (n=169)
Fatigue Difficulties		
Yes	cansaco_sim	32.26% (n=70)
No	cansaco_nao	67.74% (n=147)
Pedagogical Difficulties		
Yes	pedagogicos_sim	48.39% (n=105)
No	pedagogicos_nao	51.61% (n=112)
Food Difficulties		
Yes	alimentacao_sim	5.99% (n=13)
No	alimentacao_nao	94.01% (n=204)
Difficulties in Relationships with Peers		
Yes	rel_col_sim	28.57% (n=62)
No	rel_col_nao	71.43% (n=155)
Difficulties Accessing Digital Platforms		
Yes	acesso_plat_sim	37.33% (n=81)
No	acesso_plat_nao	62.67% (n=136)
Field of Undergraduate Program		
Education	curso_edu	11.06% (n=24)
Veterinary Medicine	curso_med_vet	6.92% (n=15)

Computing and Natural Sciences	curso_comp_nat	6.92% (n=15)
Health Sciences (excluding Medicine)	curso_saude	20.74% (n=45)
Social Sciences and Communication	curso_soc_comu	17.06% (n=37)
Business and Services	curso_neg_serv	23.04% (n=50)
Engineering	curso_eng	14.29% (n=31)

The distinction between the sets of variables followed a dual criterion, both conceptual and technical. The active variables were defined as those that represent the students' objective and attitudinal conditions (that is, social, academic, and trajectory profile), structuring the relational space. In turn, the supplementary variables, which include the difficulties faced during the pandemic and the fields of study, were selected to qualify and interpret this space. The inclusion of the variable "field of study" in this second group, in particular, met a technical requirement of MCA: to ensure balance in the data structure, preventing variables with many categories from disproportionately influencing the construction of the dimensions.

In the second stage of the analysis, the factorial coordinates of the individuals in the sample estimated by MCA were used in HCA. This approach aims to identify subgroups (clusters) that are internally homogeneous and externally heterogeneous. To this end, the distance matrix was constructed based on the Euclidean metric, and Ward's agglomeration method was applied, as recommended by Bertoncello (2022), which seeks to minimize intra-group variance at each step of the iteration.

The definition of the ideal number of groups was based on an analysis of the partition quality indicators (Bertoncello, 2022). The three-group partition proved to be the most appropriate (Appendices B1 and B2), as it showed a substantial gain in the explanation of variance compared with the division into two groups and a significant loss compared with divisions into more than three groups.

Results: Dimensions of Differentiation and Student Profiles

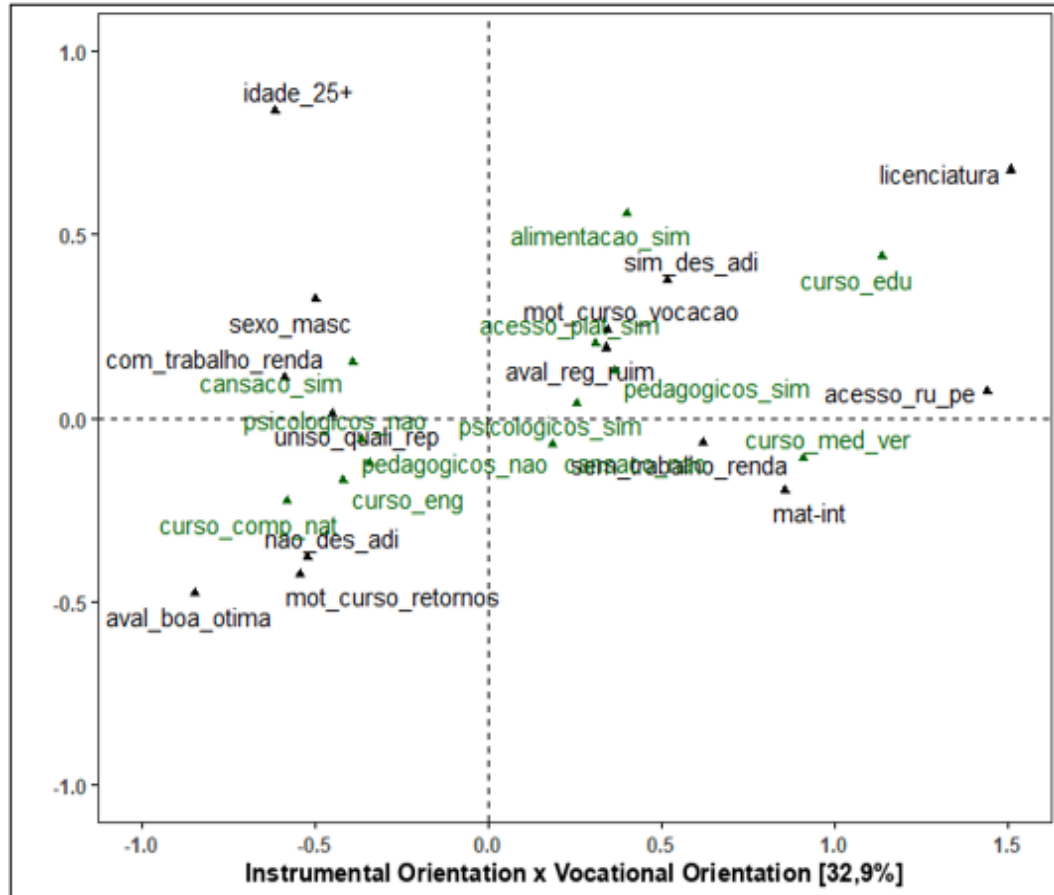
The results of the MCA revealed two main dimensions of differentiation, which together explain 50.1% of the variance in the data. Each of them is detailed below.

Dimension 1 (horizontal): vocational orientation versus instrumental orientation

The first dimension, responsible for 32.9% of the total variance, expresses, on the horizontal axis, the opposition between two student profiles, as illustrated in Figure 1. On the left pole, the categories indicating a more instrumental trajectory are grouped together: students over 25 years old, male students, those who work and have income, and those motivated by financial and professional returns. Also projected onto this same pole are programs in fields whose training is more clearly oriented toward the labor market, such as Business, Engineering, and Computing, as well as fatigue resulting from work overload as the main difficulty faced by students during the pandemic. In opposition, on the right pole, there are categories that point to a vocational trajectory, such as: absence of work or income, teaching degree programs, and vocation as the reason for choosing the undergraduate program. We also observe the association between these academic and socioeconomic characteristics and the experience of multiple difficulties during the pandemic, including pedagogical, psychological, food-related, and digital platform access difficulties.

Figure 1

Instrumental Orientation versus Vocational Orientation



Description: Multiple Correspondence Analysis graph. The horizontal axis is labeled “Instrumental Orientation X Vocational Orientation [32.9%]”, with values ranging from -1.0 to 1.5. The vertical axis is not labeled and has values ranging from -1.0 to 1.0. Two types of markers appear: black triangles (active categories) and green triangles (supplementary categories). On the left side, the following active categories are concentrated: idade_25+, sexo_masc, com_trabalho_renda, uniso_quali_rep, nao_des_adi, mot_curso_retornos, and aval_boa_otima. In green are the following supplementary categories: cansaco_sim; psicologicos_nao, pedagogicos_nao, curso_eng, and curso_comp_nat. On the right side, the following active categories are concentrated: licenciatura, sim_des_adi, mot_curso_vocacao, aval_reg_ruim, acesso_ru_pe, sem_trabalho_renda, and mat-int. In green are the following supplementary categories: alimentacao_sim, acesso_pla_sim, pedagogicos_sim, psicologicos_sim, curso_edu, curso_med_vet, and cansaco_nao.

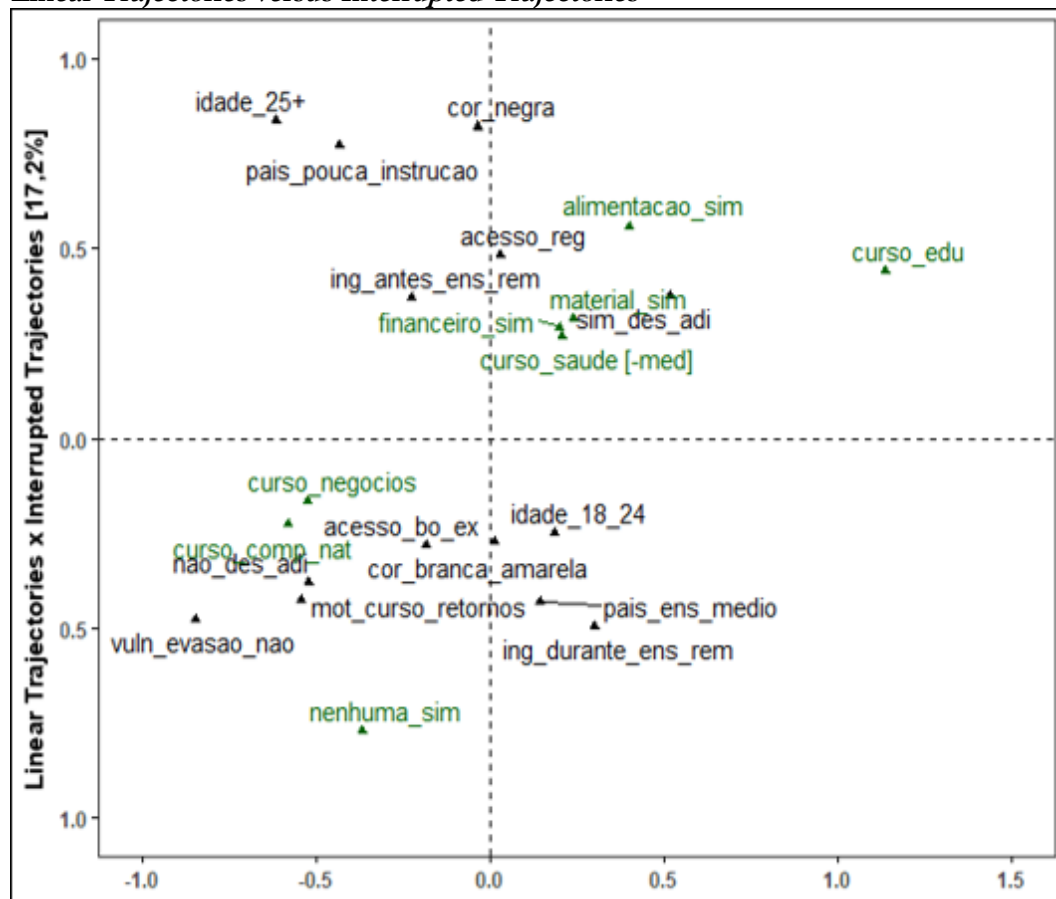
Dimension 2 (vertical): interrupted trajectories versus linear trajectories

The second dimension, represented on the vertical axis of Figure 2, explains 17.2% of the total variance. This dimension highlights educational inequalities related to students’ social origins and educational trajectories. At the upper pole of the space, categories associated with greater social vulnerability can be observed, characterized by students aged 25 years or older, Black students, children of parents with low educational attainment, and admission prior to the

pandemic. This interpretation is reinforced by greater material vulnerability, expressed in difficulties related to food, financial conditions, and access to study materials. In contrast, at the lower pole, categories associated with greater educational continuity are found: younger students, admitted during the pandemic, with better digital access conditions and no reported difficulties. This positioning suggests a more linear transition with fewer barriers between basic education and higher education.

Figure 2

Linear Trajectories versus Interrupted Trajectories



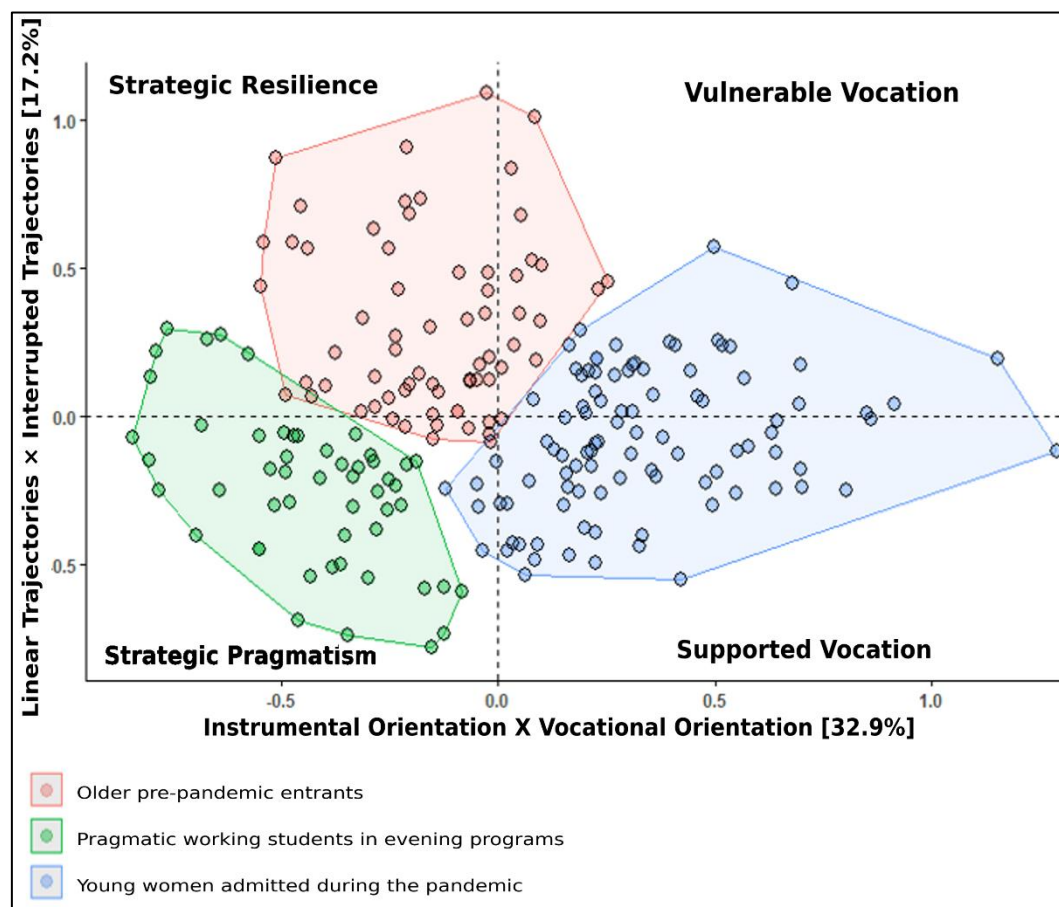
Description: Multiple Correspondence Analysis graph. The vertical axis is labeled “Linear Trajectories x Interrupted Trajectories [17.2%]”, with values ranging from -1.0 to 1.0. The horizontal axis is not labeled and has values ranging from -1.0 to 1.5. Two types of markers appear: black triangles (active categories) and green triangles (supplementary categories). In the upper part, the following active categories are concentrated: idade_25+, cor_negra, pais_pouca_instrucao, acesso_reg, ing_antes_ens_rem, and sim_des_adi. In green are the following supplementary categories: alimentacao_sim; curso_edu, material_sim, financeiro_sim, and curso_saude [-med]. In the lower part, the following active categories are concentrated: idade_18_24, acesso_bo_ex, cor_branca_amarela, mot_curso_retornos, pais_ens_medio, vuln_evasao_nao, and ing_durante_ens_rem. In green are the following supplementary categories: curso_negocios, curso_comp_nat, and nenhuma_sim.

Profiles of Prouni Beneficiary Students: cluster analysis

With the dimensions defined by the MCA, it is possible to project the clusters onto the factorial plane and observe their distribution in the relational space. The dimensions employed are the same as those previously discussed, and the quadrants result from the intersection between the two axes. The partition identified by the analysis consisted of three groups of students, whose distribution in the factorial space reveals distinct patterns of social and academic positioning. Based on the configuration observed in this space and the proximity of the categories in each quadrant, we propose three analytical categories to describe the relational patterns identified: resilience, pragmatism, and vocation, the latter being distinguished between supported and vulnerable forms. Figure 3 illustrates this arrangement and suggests interpretive approximations between the clusters and the defined quadrants. To ensure a description anchored in the structure of the factorial space and in the indicators derived from the MCA, an analysis of the significant associations between categories and groups was conducted, based on four indicators: (1) the v-test value; (2) the associated p-value; (3) the proportion of individuals in the group who present a given category; and (4) the proportion of individuals with the category who belong to the group (Appendices C1, C2, and C3).

Figure 3

Projection of the Groups



Description: cluster analysis graph. The horizontal axis is labeled “Instrumental Orientation X Vocational Orientation [32.9%]”, with values ranging from -1.0 to 1.5. The vertical axis is labeled “Linear Trajectories × Interrupted Trajectories [17.2%]”, with values ranging from -1.0 to 1.0. The upper left quadrant is named “Strategic Resilience”. The upper right quadrant is named “Vulnerable Vocation”. The lower left quadrant is named “Strategic Pragmatism”. The lower right quadrant is named “Supported Vocation”. Three groups are distributed across the quadrants according to the legend in the lower left corner: the pink/salmon group represents “Older pre-pandemic entrants”, predominant in the “Strategic Resilience” region. The green group represents “Pragmatic working students in evening programs”, predominant in “Strategic Pragmatism”. The blue group represents “Young women admitted during the pandemic”, divided between the “Vulnerable Vocation” and “Supported Vocation” quadrants.

Group 1, named “Older pre-pandemic entrants”, is marked by characteristics of social origin and educational trajectory that combine objective challenges and strategies of overcoming them. It consists mostly of students aged 25 years or older, Black, children of parents with low educational attainment, and whose admission occurred before the implementation of remote teaching. There is also a predominance of men, of students born outside the metropolitan region where the institution is located, and of students who chose the university based on its

geographical proximity or institutional reputation. The position of this group in the first quadrant of the factorial plane – with positive scores on the vertical axis, associated with the opposition between linear trajectories and interrupted trajectories, and negative scores on the horizontal axis, related to the polarity between instrumental orientation and vocational orientation – suggests non-linear trajectories, possibly marked by interruptions, but guided by pragmatic criteria. The interpretation points to profiles that, despite relevant structural obstacles and late entry into undergraduate education, mobilize strategies oriented toward the continuity of studies and social mobility, even if this entails high subjective investment and personal effort.

Group 2, named “Pragmatic working students in evening programs”, concentrates students with more linear educational trajectories, although equally marked by decisions guided by instrumental criteria. They are mostly students enrolled in evening programs, White or Asian/Yellow, financially independent, and who mainly attend Business and Engineering programs. The choice of programs was motivated by the expected financial and social returns of their education, while the choice of institution was guided mainly by its reputation and perceived quality. This group shows low rates of material vulnerability, lower perceived propensity to drop out or postpone studies during remote teaching, and better conditions of digital access. The location of this group in the lower left quadrant of the factorial space (with negative values in both dimensions) suggests low idealization of academic education and more continuous educational trajectories. This is a profile oriented by the instrumentality of the degree, with decisions based on concerns about employability and financial stability after graduation, and which views higher education as a means of economic mobility rather than as vocational or symbolic fulfillment, a characteristic reinforced by the strong negative association with motivation by vocation (Appendix C2).

Group 3, named “Young women admitted during the pandemic”, presents an ambivalent profile. The students in this group are mostly young people aged 18 to 24 years, female, without work or income, and who entered the university during remote teaching. They showed a high perceived propensity to drop out or postpone their studies during this period, facing pedagogical, psychological, and digital platform access difficulties. The most recurrent motivation for choosing the program was vocation, and the selection of the institution occurred mainly because of the possibility of obtaining scholarships or the lack of other admission alternatives. The conditions of remote access were predominantly poor or very poor, and the

most frequent fields of study include Education and Veterinary Medicine. In terms of family capital, parents generally have secondary or higher education.

The distribution of this group in the upper and lower right quadrants of the social space denotes a combination of idealization of the educational trajectory with different levels of social protection. Those located in the lower part of the factorial plane showed greater family support – the “Supported Vocation” quadrant – while those in the upper part – the “Vulnerable Vocation” quadrant – faced greater socioeconomic and academic fragility. Overall, this group represents students who, despite a social origin closer to the middle class, do not have sufficient resources to neutralize the effects of inequalities intensified during the pandemic. The configuration of this group highlights the limitations of symbolic mobilization, such as vocation, when disconnected from effective material support structures.

Discussion

Understanding the factors associated with retention and dropout in the private sector – responsible for most enrollments in Brazilian higher education – is crucial to the debate on educational inequalities. In this context, this study sought to investigate how the academic trajectories of scholarship students were affected by the exogenous shock represented by the Covid-19 pandemic, with emphasis on the different levels of perceived propensity to drop out or postpone the course because of remote teaching among the profiles analyzed. To this end, we used a combination of two complementary statistical techniques, MCA and HCA.

Indeed, the possibility of dropping out of the course or postponing it was present in the trajectories of a significant share of students. As shown in Table 2, approximately half of the respondents reported having considered this possibility during remote teaching. In addition, 71.43% expressed a negative evaluation of this experience, classifying it as poor or very poor and reporting adverse impacts on the quality of their education. However, the results show that the propensity to drop out of the course or postpone it cannot be treated homogeneously, but rather by considering the articulation between a diversity of experiences and socioeconomic and academic attributes. The combination of factors such as age, color/race, income, type of program, and conditions for remote teaching are articulated in the construction of these perceptions, shaping the ways in which students experience and interpret their retention in higher education in contexts of crisis.

The typology outlined, composed of the three groups of students, made it possible to understand more specifically the characteristics of those with greater and lesser perceived disposition to drop out or postpone the course. In summary, the results indicate a gradient of perceived propensity to drop out or postpone the course: Group 2, composed of pragmatic working students in evening programs, is the least prone; Group 1, composed of older pre-pandemic entrants, occupies an intermediate position; and Group 3, composed of young women who entered during the pandemic, presents the highest levels.

The most resilient group (Group 2) has, as its main distinguishing characteristic in relation to the others, the presence of work and income, students enrolled in evening programs in the fields of Engineering and Business, White students, and good conditions for access to remote teaching. These are students who chose their programs because of economic and social returns and, perhaps because of this pragmatic orientation, continued their studies during the pandemic without thinking about dropping out. On the other hand, sex, age, and admission before or after the pandemic seem to be the attributes that establish the main distinctions between the profiles with intermediate (Group 1) and high (Group 3) propensity. Having entered before the pandemic and, therefore, being closer to completing the course, being older, and having parents with low educational attainment seem to provide the necessary motivation for a large share of students in the first group not to have thought about dropping out. On the other hand, being younger, female, having entered during the pandemic and in less prestigious programs, without income, and with poor conditions of access to digital platforms substantially increases the subjective disposition of the third group toward dropping out or postponing the course. Table 4 summarizes this information.

Table 4
Comparison of the categories most associated with each group

Group 1	Group 2	Group 3
Older students (25 years or older)	-	Younger students (18 to 24 years old)
Predominantly male	-	Predominantly female
Born outside the metropolitan region of the HEI	-	-
Predominantly Black	Predominantly White or Asian/Yellow	-
Parents with low educational attainment	-	Parents with secondary or higher education
-	Students in evening programs	Students in morning or full-time programs

Admitted before the pandemic	-	Admitted during the pandemic
-	Chose the program because of economic and social returns	Chose the program for vocational reasons
Chose the HEI because of ease of admission, proximity to residence, and quality/reputation	Chose the HEI because of quality/reputation	Chose the HEI because of the possibility of obtaining a scholarship or because it was the only one to which they were admitted
-	High financial independence	Low financial independence
Fair conditions of access to remote classes	Good or excellent conditions of access to remote classes	Poor or very poor conditions of access to remote classes
Intermediate perceived propensity to drop out	Low perceived propensity to drop out	High perceived propensity to drop out
-	Presence of fatigue-related difficulty	Presence of pedagogical, psychological, and digital platform access difficulties
-	Absence of difficulties related to study materials, finances, psychological issues, pedagogical issues, and access to digital platforms	Absence of fatigue-related difficulties
-	Programs in the fields of Business and Engineering	Programs in the fields of Education and Veterinary Medicine

Concluding Remarks

The results of this research highlight the need for private-sector Higher Education Institutions to gain a deeper understanding of their students' profiles, as well as their specific demands. This recognition is fundamental for the formulation or revision of institutional retention policies that are sensitive to the heterogeneity of the student body. Although there are public policies for access to higher education, such as Prouni and Fies, as well as institutional initiatives, such as scholarships and internal financing mechanisms, these measures have proven insufficient to ensure the continuity of studies, especially in view of the multiple difficulties faced by some students throughout their undergraduate programs.

Despite the relevance of the results found, this research has some limitations. The study focused on a single university, with emphasis on Prouni beneficiaries and on the context of the Covid-19 pandemic, which limits the external validation of the results and their applicability to other institutions, sectors, and educational contexts. In addition, the analysis was based exclusively on quantitative data. Although this approach made it possible to obtain important results, future investigations could broaden understanding through qualitative or mixed

methods, allowing for a more in-depth exploration of the subjective and contextual dimensions of the research problem.

References

- Aina, C., Baici, E., Casalone, G., & Pastore, F. (2022). The determinants of university dropout: A review of the socio-economic literature. *Socio-Economic Planning Sciences*, 79, 101102. <https://doi.org/10.1016/j.seps.2021.101102>
- Bertoncello, E. (2022). *Construindo espaços relacionais com a análise de correspondências: aplicações nas ciências sociais*. Enap. <https://repositorio.enap.gov.br/handle/1/7253>
- Borges, E. H. N., Gouvêa, A. P., & Barbosa, M. L. de O. (2022). Entre crises e dilemas persistentes: Uma análise dos programas de permanência estudantil nas universidades federais brasileiras. *Plural, Revista do Programa de Pós-Graduação em Sociologia da USP*, 29(1), 60–79. <https://doi.org/10.11606/issn.2176-8099.pcs.2022.192974>
- Brasil. Lei nº 9.394, de 20 de dezembro de 1996. Estabelece as diretrizes e bases da educação nacional. Presidência da República. https://www.planalto.gov.br/ccivil_03/leis/19394.htm
- Brasil. Lei nº 11.096, de 13 de janeiro de 2005. Institui o Programa Universidade para Todos - PROUNI, regula a atuação de entidades beneficentes de assistência social no ensino superior; altera a Lei nº 10.891, de 9 de julho de 2004, e dá outras providências. Presidência da República. https://www.planalto.gov.br/ccivil_03/_ato2004-2006/2005/lei/111096.htm
- Brasil. Lei nº 12.711, de 29 de agosto de 2012. Planalto. Dispõe sobre o ingresso nas universidades federais e nas instituições federais de ensino técnico de nível médio e dá outras providências. Presidência da República. https://www.planalto.gov.br/ccivil_03/_ato2011-2014/2012/lei/112711.htm

Brasil. Lei nº 12.881, de 12 de novembro de 2013. Dispõe sobre a definição, qualificação, prerrogativas e finalidades das Instituições Comunitárias de Educação Superior - ICES, disciplina o Termo de Parceria e dá outras providências. Presidência da República. https://www.planalto.gov.br/ccivil_03/_ato2011-2014/2013/lei/112881.htm

Brasil. Lei nº 13.868 de 3 de setembro de 2019. Altera as Leis nos 4.024, de 20 de dezembro de 1961, e 9.394, de 20 de dezembro de 1996, para incluir disposições relativas às universidades comunitárias. Presidência da República.
https://www.planalto.gov.br/ccivil_03/_ato2019-2022/2019/lei/113868.htm

Brasil. Ministério da Educação. (2022). *Portal de dados abertos do Ministério da Educação*. MEC.
<https://dadosabertos.mec.gov.br/prouni>

Carvalhoes, F., & Ribeiro, C. A. C. (2019). Estratificação horizontal da educação superior no Brasil: Desigualdades de classe, gênero e raça em um contexto de expansão educacional. *Tempo Social, Revista de Sociologia da USP*, 31(1), 195–233.
<https://doi.org/10.11606/0103-2070.TS.2019.135035>

Carvalho, C. H. A. (2006). O Prouni no governo Lula e o jogo político em torno do acesso ao ensino superior. *Educação & Sociedade*, 27(96), 979–1000.
<https://doi.org/10.1590/S0101-73302006000300016>

Carvalho, C. H. A. (2011). Uma análise crítica do financiamento do Prouni: Instrumento de estímulo à iniciativa privada e/ou democratização do acesso à educação superior? In *Reunião Anual da Associação Nacional de Pós-Graduação e Pesquisa em Educação (ANPEd)*, 34, Natal. Rio de Janeiro: Anped.
<http://34reuniao.anped.org.br/images/trabalhos/GT11/GT11-935%20int.pdf>

Castioni, R., Melo, A. A. S. de, Nascimento, P. M., & Ramos, D. L. (2021). *Universidades federais na pandemia da Covid-19: A falta de acesso à internet interdita mesmo o ensino?* Ipea.
<https://repositorio.ipea.gov.br/handle/11058/10526>

Catani, A. M., Hey, A. P., & Gilioli, R. de S. P. (2006). Prouni: Democratização do acesso às instituições de ensino superior? *Educar*, (28), 125–140. <https://doi.org/10.1590/S0104-40602006000200009>

- Freires, L. A., Fernandes, S. C. S., Castro, A. M. F. M., Oliveira, L. C., Torres, L. F. F., & Santos, E. F. (2023). Estresse em universitários: Conhecendo o efeito das atividades remotas no cotidiano pandêmico. *Revista Brasileira de Educação*, 28, 01–19.
<https://doi.org/10.1590/S1413-24782023280006>
- Heringer, R. (2023). Permanência estudantil no ensino superior público brasileiro. *Cadernos de Estudos Sociais*, 37(2), 55–76. [https://doi.org/10.33148/CES\(2143\)](https://doi.org/10.33148/CES(2143))
- Honorato, G. de S., & Borges, E. H. N. (2023). Permanência na educação superior brasileira: Contribuições de Vincent Tinto. *Linhas Críticas*, 29, e46400.
<https://doi.org/10.26512/lc29202346400>
- Husson, F., & Josse, J. (2014). Multiple correspondence analysis. In M. Bendixen (Org.), *Visualization and verbalization of data* (pp. 163–181). French Higher Education Institution in Agriculture, Food, Horticultural and Landscape Sciences.
- Iglesias-Pradas, S., Hernández-García, Á., Chaparro-Peláez, J., & Prieto, J. L. (2021). Emergency remote teaching and students' academic performance in higher education during the COVID-19 pandemic: A case study. *Computers in Human Behavior*, 119, 106713. <https://doi.org/10.1016/j.chb.2021.106713>
- Instituto Nacional de Estudos e Pesquisas Educacionais Anísio Teixeira (Inep). (2025a). *Censo da Educação Superior 2024: Painel do Censo da Educação Superior*. Inep.
<https://app.powerbi.com/view?r=eyJrIjoiaMGJiMmNiNTAtOTY1OC00ZjUzLTg2OGU0MjAzYzNiYTA5YjliIiwidCI6IjI2ZjczODk3LWM4YWMTNGIxZS05NzhmLWVhNGMwNzc0MzRiZiJ9&pageName=ReportSection4036c90b8a27b5f58f54>
- Instituto Nacional de Estudos e Pesquisas Educacionais Anísio Teixeira (Inep). (2025b). *Censo da Educação Superior 2024: Notas estatísticas*. Inep.
https://download.inep.gov.br/publicacoes/institucionais/estatisticas_e_indicadores/notas_estatisticas_censo_escolar_da_educacao_superior_2024.pdf
- Knop, M., & Collares, A. C. M. (2019). A influência da origem social na probabilidade de concluir os diferentes cursos de ensino superior. *Revista Sociedade e Estado*, 34(2), 351–380. <https://doi.org/10.1590/s0102-6992-201934020001>
- Le Roux, B., & Rouanet, H. (2010). *Multiple correspondence analysis* (alk. paper). SAGE Publications.

- Lima, F. S., & Zago, N. (2018). Evasão na educação superior: tendências e resultados de pesquisa. *Movimento-Revista de Educação*, 5(9), 131–164.
<https://doi.org/10.22409/mov.v0i9.481>
- Mello, U. (2022). Centralized Admissions, Affirmative Action, and Access of Low-Income Students to Higher Education. *American Economic Journal: Economic Policy*, 14(3), 166–197. <https://doi.org/10.1257/pol.20190639>
- Mello Neto, R. de D., Medeiros, H. A. V., & Catani, A. M. (2019). Prouni e retornos de capitais para instituições privadas de ensino superior: Uma leitura para além dos benefícios diretos com o financiamento público. *Revista Internacional de Educação Superior*, 6, 1–23. <https://doi.org/10.20396/riesup.v6i0.8655907>
- Oliveira, A. L. M. (2019). *Educação superior brasileira no início do século XXI: Inclusão interrompida?* [Tese de doutorado, Universidade Estadual de Campinas]. Repositório da Unicamp. <https://repositorio.unicamp.br/Acervo/Detalhe/1088834>
- Pinheiro, C. B., Ribeiro, J. L. L. de S., & Fernandes, S. A. F. (2023). Modelos teóricos da evasão no ensino superior e notas sobre o contexto nacional. *Avaliação: Revista da Avaliação da Educação Superior*, 28, e023015. <https://doi.org/10.1590/S1414-40772023000100022>
- Pires, A., & Ribeiro, M. de O. (2020). Produções bibliográficas sobre o programa universidade para todos (Prouni) entre 2005 e 2018: Desenho do programa; perfil dos ingressantes; permanência e egressos. *Revista HISTDBR On-line*, 20, 1–22.
<https://doi.org/10.20396/rho.v20i0.8657166>
- Pires, A., Ribeiro, M. de O., & Prinhorato, H. A. (2023). A permanência estudantil em universidades privadas para alunos do Programa Universidade para Todos (ProUni). *Educação & Emancipação*, 16(2), 275–301. <https://doi.org/10.18764/2358-4319v16n2.2023.31>
- Prinhorato, H. A. (2024). *Fatores acadêmicos e socioeconômicos na permanência estudantil dos bolsistas do Prouni: Comparação entre os períodos pré-pandemia de Covid-19 e durante o ensino remoto* [Dissertação de mestrado, Universidade de Sorocaba]. Uniso. <https://uniso.br/mestrado-doutorado/educacao/dissertacoes/2024/henrique-augusto.pdf>

- Resch, K., Alnahdi, G., & Schwab, S. (2023). Exploring the effects of the COVID-19 emergency remote education on students' social and academic integration in higher education in Austria. *Higher Education Research & Development*, 42(1), 215–229. <https://doi.org/10.1080/07294360.2022.2040446>
- Salata, A. (2018). Ensino Superior no Brasil das últimas décadas: Redução nas desigualdades de acesso? *Tempo Social, Revista de Sociologia da USP*, 30(2), 219–253. <https://doi.org/10.11606/0103-2070.ts.2018.125482>
- Sampaio, H., Pires, A., & Carneiro, A. M. (2022). De volta ao futuro? A pandemia de Covid-19 como catalisadora de mudanças no ensino superior. *Humanidades e Inovação*, 9(2), 53–56. <https://revista.unitins.br/index.php/humanidadesinovacao/article/view/7268>
- Santos Junior, J. da S., & Real, G. C. M. (2019). Fator institucional para a evasão na educação superior: Análise da produção acadêmica no Brasil. *Revista Internacional de Educação Superior*, 6, 01–22. <https://doi.org/10.20396/riesup.v6i0.8656028>
- Senkevics, A. S. (2021). *O acesso, ao inverso: Desigualdades à sombra da expansão do ensino superior brasileiro, 1991 – 2020* [Tese de doutorado, Universidade de São Paulo]. Repositório da USP. <https://doi.org/10.11606/T.48.2021.tde-11012022-103758>
- Vargas, H. M., & Heringer, R. R. (2016). Políticas de permanência e assistência estudantil nas universidades federais brasileiras: Uma análise a partir dos websites. In G. T. do Carmo (Org.), *Sentidos da permanência na educação: O anúncio de uma construção coletiva* (pp. 175–198). Tempo Brasileiro.
- Vieira, A., Rodrigues, L., & Barbosa, M. L. (2025). Measuring Change in Institutional Diversity in Higher Education in Brazil. *Higher Education Quarterly*, 79(2), 670022. <https://doi.org/10.1111/hequ.70022>

Appendix A

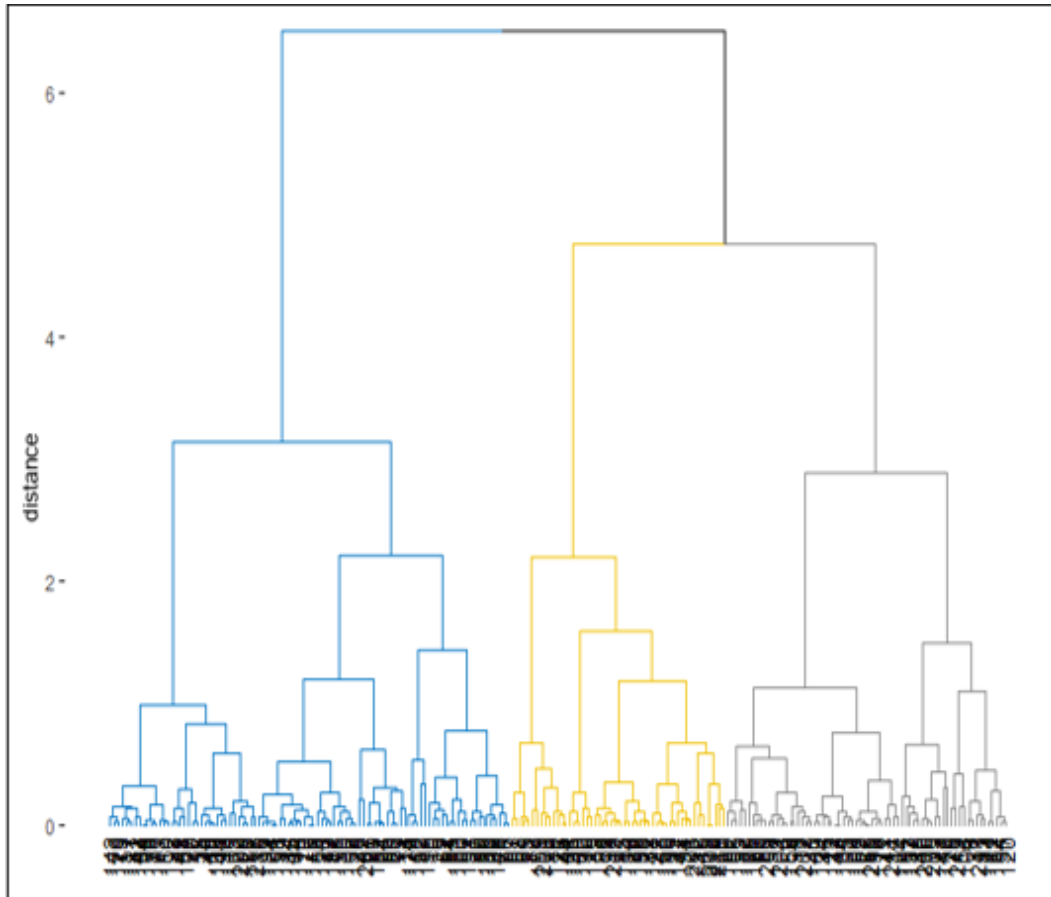
Categorization of programs based on the “International Standard Classification of Education Adapted for Undergraduate and Sequential Programs of Specific Training” (Cine Brasil)

1. Education: Visual Arts, Dance, Fashion, Theater, Music, Biological Sciences (Teaching Degree), Portuguese/English Language and Literature, Chemistry (Teaching Degree), Philosophy, History, Pedagogy, and Design;
2. Computing and Natural Sciences: Systems Analysis and Development, Computer Science, Digital Games, Industrial Chemistry, Biological Sciences Bachelor's Degree, and Information Systems;
3. Health: Biomedicine, Nursing, Pharmacy, Physiotherapy, Speech-Language Pathology and Audiology, Nutrition, Dentistry, Occupational Therapy, and Physical Education Bachelor's Degree. The institution does not offer a Medicine program;
4. Social Sciences and Communication: Psychology, Economics, Journalism, International Relations, and Public Relations;
5. Business and Services: Business Administration, Accounting, Law, Commercial Management, Quality Management, Financial Management, Logistics, Marketing, Managerial Processes, Advertising, Aesthetics and Cosmetics, and Gastronomy;
6. Engineering: Architecture and Urbanism, Environmental Engineering, Civil Engineering, Computer Engineering, Food Engineering, Bioprocess and Biotechnology Engineering, Control and Automation Engineering, Production Engineering, Chemical Engineering, and Mechanical Engineering;
7. Veterinary Medicine: constituted a separate category.

Appendix B

B1.

Dendrogram



Description: dendrogram with the vertical axis labeled “distance”, with values ranging from 0 to approximately 6. The horizontal axis shows the observations, with individual identifiers arranged compactly and difficult to read. The dendrogram displays three main clusters, differentiated by color. The left cluster is represented in blue, the central cluster is represented in yellow, and the right cluster is represented in gray.

B2

η^2 values, between- and within-class variations, and group distribution

Partition Quality					Size (%) by group				
<i>N</i>	η^2	η^2 Gain	Between-class	Within-class	Group 1	Group 2	Group 3	Group 4	Group 5
2	0.36	-	21.11	36.80	55.30%	44.7%	-	-	-
3	0.56	0.19	32.40	25.50	31.30%	24.00%	44.7%	-	-
4	0.64	0.08	37.38	20.50	31.30%	24.00%	28.10%	16.60%	-
5	0.71	0.07	41.50	16.30	19.40%	24.00%	28.10%	16.60%	12.00%

Appendix C

C1

Group 1: older pre-pandemic entrants

Variable	Category	Cla/Mod	Mod/Cla	Global	p.value	v.test
educacao_pais	pais_pouca_instrucao	60.87	61.76	31.80	0.00	6.25
cor_raca	cor_negra	57.41	45.59	24.88	0.00	4.59
ano_ingresso	ing_antes_ens_rem	42.74	77.94	57.14	0.00	4.23
faixa_etaria	idade_25+	56.00	41.18	23.04	0.00	4.12
condicoes_acesso	acesso_reg	47.95	51.47	33.64	0.00	3.67
sexo	sexo_masc	47.37	52.94	35.02	0.00	3.66
regiao_nasc	regiao_n_rms	40.38	61.76	47.93	0.01	2.73
motivo_uniso	uniso_local_acesso	48.84	30.88	19.82	0.01	2.66
motivo_uniso	uniso_quali_rep	42.67	47.06	34.56	0.01	2.56
aval_ens_rem	aval_reg_ruim	35.48	80.88	71.43	0.04	2.09
aval_ens_rem	aval_boa_otima	20.97	19.12	28.57	0.04	-2.09
educacao_pais	pais_ens_superior	16.67	13.24	24.88	0.01	-2.73
regiao_nasc	regiao_rms	23.01	38.24	52.07	0.01	-2.73
condicoes_acesso	acesso_bo_ex	24.03	45.59	59.45	0.01	-2.77
sexo	sexo_fem	22.70	47.06	64.98	0.00	-3.66
educacao_pais	pais_ens_medio	18.09	25.00	43.32	0.00	-3.70
faixa_etaria	idade_18_24	23.95	58.82	76.96	0.00	-4.12
ano_ingresso	ing_durante_ens_rem	16.13	22.06	42.86	0.00	-4.23
cor_raca	cor_branca_amarela	22.70	54.41	75.12	0.00	-4.59
motivo_uniso	uniso_bolsa_aprovacao	15.15	22.06	45.62	0.00	-4.76

C2

Group 2: pragmatic working students in evening programs

Variable	Category	Cla/Mod	Mod/Cla	Global	p.value	v.test
des_adiar	nao_des_adi	46.30	96.15	49.77	0.00	8.21
aval_ens_rem	aval_boa_otima	61.29	73.08	28.57	0.00	7.80
condicoes_acesso	acesso_bo_ex	35.66	88.46	59.45	0.00	5.11
turno	noturno	30.23	100.00	79.26	0.00	4.94
motivo_curso	mot_curso_retornos	44.00	63.46	34.56	0.00	4.88
independ_fin	com_trabalho_renda	40.22	71.15	42.40	0.00	4.76
durante_acesso_plat	acesso_plat_nao	32.35	84.62	62.67	0.00	3.87
durante_pedagogicas	pedagogicos_nao	33.93	73.08	51.61	0.00	3.56
tipo_de_curso	tecnologico	54.55	23.08	10.14	0.00	3.22
durante_psicologicos	psicologicos_nao	34.83	59.62	41.01	0.00	3.07
cor_raca	cor_branca_amarela	28.83	90.38	75.12	0.00	3.05
motivo_uniso	uniso_quali_rep	36.00	51.92	34.56	0.00	2.94
area_curso	curso_negocios	40.00	38.46	23.04	0.00	2.89
durante_financeiro	financeiro_nao	29.17	80.77	66.36	0.01	2.56
durante_cansaco	cansaco_sim	34.29	46.15	32.26	0.02	2.39
durante_material	material_nao	28.21	84.62	71.89	0.02	2.38
area_curso	curso_eng	41.94	25.00	14.29	0.02	2.38
durante_nenhuma	nenhuma_sim	53.85	13.46	5.99	0.02	2.34
motivo_uniso	uniso_local_acesso	11.63	9.62	19.82	0.03	-2.17
durante_nenhuma	nenhuma_nao	22.06	86.54	94.01	0.02	-2.34

durante_material	material_sim	13.11	15.38	28.11	0.02	-2.38
durante_cansaco	cansaco_nao	19.05	53.85	67.74	0.02	-2.39
condicoes_acesso	acesso_ru_pe	0.00	0.00	6.91	0.01	-2.46
area_curso	curso_med_ver	0.00	0.00	6.91	0.01	-2.46
durante_financeiro	financeiro_sim	13.70	19.23	33.64	0.01	-2.56
area_curso	curso_edu	4.17	1.92	11.06	0.01	-2.59
independ_fin	sem_trabalho_renda	11.11	11.54	24.88	0.01	-2.63
independ_fin	parcial_trabalho_renda	12.68	17.31	32.72	0.01	-2.77
area_curso	curso_saude [-med]	8.89	7.69	20.74	0.01	-2.78
tipo_de_curso	licenciatura	0.00	0.00	8.76	0.00	-2.86
cor_raca	cor_negra	9.26	9.62	24.88	0.00	-3.05
durante_psicologicos	psicologicos_sim	16.41	40.38	58.99	0.00	-3.07
durante_pedagogicas	pedagogicos_sim	13.33	26.92	48.39	0.00	-3.56
durante_acesso_plat	acesso_plat_sim	9.88	15.38	37.33	0.00	-3.87
condicoes_acesso	acesso_reg	8.22	11.54	33.64	0.00	-4.04
motivo_curso	mot_curso_vocacao	13.11	30.77	56.22	0.00	-4.20
turno	mat-int	0.00	0.00	20.74	0.00	-4.94
aval_ens_rem	aval_reg_ruim	9.03	26.92	71.43	0.00	-7.80
des_adiar	sim_des_adi	1.83	3.85	50.23	0.00	-8.21

C3

Group 3: young women admitted during the pandemic

Variable	Category	Cla/Mod	Mod/Cla	Global	p.value	v.test
des_adiar	sim_des_adi	63.30	71.13	50.23	0.00	5.56
motivo_uniso	uniso_bolsa_aprovacao	64.65	65.98	45.62	0.00	5.42
turno	mat-int	80.00	37.11	20.74	0.00	5.36
aval_ens_rem	aval_reg_ruim	55.48	88.66	71.43	0.00	5.16
faixa_etaria	idade_18_24	53.89	92.78	76.96	0.00	5.14
sexo	sexo_fem	56.74	82.47	64.98	0.00	4.91
ano_ingresso	ing_durante_ens_rem	61.29	58.76	42.86	0.00	4.24
durante_cansaco	cansaco_nao	53.74	81.44	67.74	0.00	3.90
independ_fin	sem_trabalho_renda	66.67	37.11	24.88	0.00	3.71
motivo_curso	mot_curso_vocacao	55.74	70.10	56.22	0.00	3.70
tipo_de_curso	Licenciatura	84.21	16.49	8.76	0.00	3.61
area_curso	curso_edu	79.17	19.59	11.06	0.00	3.57
condicoes_acesso	acesso_ru_pe	86.67	13.40	6.91	0.00	3.36
area_curso	curso_med_ver	86.67	13.40	6.91	0.00	3.36
durante_pedagogicas	pedagogicos_sim	56.19	60.82	48.39	0.00	3.28
educacao_pais	pais_ens_medio	56.38	54.64	43.32	0.00	3.00
durante_psicologicos	psicologicos_sim	53.12	70.10	58.99	0.00	2.98
educacao_pais	pais_ens_superior	61.11	34.02	24.88	0.01	2.76
independ_fin	parcial_trabalho_renda	56.34	41.24	32.72	0.02	2.38
durante_acesso_plat	acesso_plat_sim	54.32	45.36	37.33	0.03	2.18
durante_acesso_plat	acesso_plat_nao	38.97	54.64	62.67	0.03	-2.18
durante_psicologicos	psicologicos_nao	32.58	29.90	41.01	0.00	-2.98
tipo_de_curso	tecnologico	13.64	3.09	10.14	0.00	-3.16
durante_pedagogicas	pedagogicos_nao	33.93	39.18	51.61	0.00	-3.28
area_curso	curso_negocios	24.00	12.37	23.04	0.00	-3.38
motivo_curso	mot_curso_retornos	28.00	21.65	34.56	0.00	-3.60
durante_cansaco	cansaco_sim	25.71	18.56	32.26	0.00	-3.90
ano_ingresso	ing_antes_ens_rem	32.26	41.24	57.14	0.00	-4.24

sexo	sexo_masc	22.37	17.53	35.02	0.00	-4.91
motivo_uniso	uniso_quali_rep	21.33	16.49	34.56	0.00	-5.10
faixa_etaria	idade_25+	14.00	7.22	23.04	0.00	-5.14
aval_ens_rem	aval_boa_otima	17.74	11.34	28.57	0.00	-5.16
turno	noturno	35.47	62.89	79.26	0.00	-5.36
des_adiar	nao_des_adi	25.93	28.87	49.77	0.00	-5.56
independ_fin	com_trabalho_renda	22.83	21.65	42.40	0.00	-5.61
educacao_pais	pais_pouca_instrucao	15.94	11.34	31.80	0.00	-5.97

Notes

Submission data:

Submitted for review on August 11, 2025; revised on October 20, 2025; approved for publication on May 18, 2026.

Corresponding author:

Henrique Augusto Prinhato - Rod. Raposo Tavares, km 92,5 - Vila Artura, Sorocaba, SP, Brasil, 18023-000.

Authorship contributions:

Henrique Augusto Prinhato - Conceptualization: Equal; Data Curation: Lead; Formal Analysis: Lead; Funding Acquisition: Supporting; Investigation: Lead; Methodology: Lead; Project Administration: Lead; Resources: Lead; Software: Lead; Supervision: Equal; Validation: Equal; Visualization: Lead; Writing – original draft: Equal; Writing – review and editing: Equal.

André Pires - Conceptualization: Equal; Data Curation: Supporting; Formal Analysis: Supporting; Funding Acquisition: Lead; Investigation: Lead; Methodology: Supporting; Project Administration: Lead; Resources: Lead; Software: Supporting; Supervision: Equal; Validation: Equal; Visualization: Supporting; Writing – original draft: Equal; Writing – review and editing: Equal.

André Vieira - Conceptualization: Equal; Data Curation: Lead; Formal Analysis: Lead; Funding Acquisition: Supporting; Investigation: Supporting; Methodology: Lead; Project Administration: Supporting; Resources: Supporting; Software: Lead; Supervision: Equal; Validation: Equal; Visualization: Supporting; Writing – original draft: Equal; Writing – review and editing: Equal.

Rafael Ângelo Bunhi Pinto - Conceptualization: Equal; Data Curation: Supporting; Formal Analysis: Supporting; Funding Acquisition: Supporting; Investigation: Supporting; Methodology: Supporting; Project Administration: Supporting; Resources: Supporting; Software: Supporting; Supervision: Equal; Validation: Equal; Visualization: Supporting; Writing – original draft: Equal; Writing – review and editing: Equal.

Support and funding:

National Council for Scientific and Technological Development (CNPq), grant No. 306880/2022-9.

Data availability:

The authors make the research data available upon request.

Research ethics:

The research was submitted to and approved by the Research Ethics Committee of the University of Sorocaba (Uniso), according to Opinion No. 5,702,898.

Use of AI:

During the preparation of the article, in the research methods and procedures, from June 1, 2025, to October 10, 2025, the authors declare that they used the ChatGPT tool for the purpose of optimizing codes in RStudio software and for proofreading. They further declare that they reviewed, validated, edited, and supervised the final text, ensuring its originality, accuracy, and ethical integrity, and assuming full responsibility for the content of the publication.

Proofreading:

Bibliographic standardization (APA 7th ed.), preparation, and textual revision in Portuguese: Vilma Franzoni <vilma.franzoni@uniso.br> and Paula Rafael Gonzalez Valelongo <paulargvalelongo@hotmail.com>.

English version and proofreading: Isabel Codá de Simas <isabel.coda@gmail.com>.

Responsible editor:

Helena Sampaio <<https://orcid.org/0000-0002-1759-4875>>.