

Who is Being Left Behind? A Decade of Dropout in Brazilian Undergraduate Programs of Business Administration and Accounting

Abstract

Dropout from public and private institutions of higher education (IHE) is associated with considerable social, academic and economic losses. These losses affect all of society, as citizens directly or indirectly pay for their own education and that of their relatives. The main purpose of this study was to analyze the dropout behavior of students enrolled in undergraduate programs of Business Administration and Accounting at Brazilian IHEs between 2001 and 2010. Dropout rates were investigated per type of IHE and correlated with the percentage of students completing their courses within the ideal time frame. Our hypotheses were tested with ANOVA and the variables were submitted to simple and multiple correspondence analysis. Descriptive statistics showed higher dropout levels for Business Administration than for Accounting, but lower overall levels when compared to the literature. The median ideal-term course completion index was higher for Accounting, though not significantly. Less than a quarter of the students completed their courses within the expected five-year period. In general, our findings indicate that Accounting programs have lower dropout rates in universities and university centers, whereas Business Administration programs have higher dropout rates in colleges, schools, institutes and technological education centers. The results of this study are not intended as a generalization, but represent patterns observed within the classifications adopted in the study.

Key words: Dropout. Brazilian Higher Education. Accounting and Business Administration Courses.

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1. Introduction

Many see college admission as one of the most important rites of passage in a person's academic life. Research on the university process reveals the diversity of situations and challenges students face throughout their education, some of which successful and rewarding of their commitment and effort, others resulting in dissatisfaction, disappointment and frustration. The latter can lead to despondency, poor academic performance, fail and, if persistent, dropout (Mercuri, Ajub, & Bariani, 1998). Growing failure and dropout rates in higher education are evidence of universities' lack of success in responding to these situations.

As shown by Silva Filho, Motejunas, Hipólito and Lobo (2007), student dropout is a common problem in institutions of higher education (IHEs) worldwide, associated with considerable losses for educational systems. Dropout may be defined as a permanent interruption of the study cycle, preventing the student from completing the course and obtaining a degree, as a consequence of failure on the part of both student and institution (Gaioso, 2005). Troelsen and Laursen (2014) studied the phenomenon, comparing Danish universities to other European institutions, and found the risk of dropping out to be influenced primarily by parental educational attainment and socioeconomic status. To compensate for such unfavorable personal circumstances, Danish policies for higher education include an efficient student grant and loan system (Troelsen & Laursen, 2014).

In both public and private institutions, dropout is synonymous with social, academic and economic losses. These losses affect all of society, as citizens directly or indirectly pay for their own education and that of their relatives. Teachers, staff and facilities become under-deployed. Dropout not only affects college students as they fail to obtain a degree, but also the education system and educators who fall short of fulfilling their mission, society (due to social and economic losses), and the students' families, whose long-term projects are thwarted.

The Brazilian Department of Higher Education (SESu) estimates a dropout cost in federal IHEs bordering on BRL 486 million per year, while private IHEs lose approximately 10% of their revenues (Pereira, 2003). It may be argued that college dropouts fill openings that could have yielded a better return on investment if awarded to other applicants. In addition, when dropout is the result of poor academic performance, the student's self-esteem is seriously impacted (Silva Filho *et al.*, 2007; Yepes, Beltrán, Arrubla, Marín, Martínez, Tobón, & Hoyos, 2007; Carmo, & Polydoro, 2010).

College dropout rates vary according to region, course and type of institution but, in general, Brazilian figures do not differ much from figures in international databases. The mean annual dropout rate in all Brazilian IHEs was 22% (public: 12% vs. private: 26%) in the period 2000-2005. In a study by Silva Filho *et al.* (2007), the dropout rate was approximately 25% in the group comprised by Social Sciences, Business and Law (the third highest among the groups analyzed). When comparing dropout rates per geographic region, the lowest rate (16%) was observed for Northern Brazil. The lowest and highest annual rates during the period analyzed were found in Medicine (4%) and Informatics (36%) (Silva Filho *et al.*, 2007). Figures from developed countries are not substantially different: In Switzerland, the dropout rate was 28.1% in 2008, six years after the Bologna reform (Wolter, Diem & Messer, 2014), whereas in Germany the rate rose from 21% to 25% between 2001 and 2008 (Heublein, 2014).

Despite the impressive expansion of higher education in Brazil, including a considerable increase in the number of openings, access to college education remains rather limited. According to SESu, only 11% of Brazilians aged 18-24 years are in college. In Chile, the corresponding percentage is 24% (Brasil, 2003). In addition, college admission in itself does not ensure a successful outcome, in part due to the dramatic leap from secondary education to college level with regard to academic requirements.

In undergraduate business programs, especially in Accounting and Business Administration, the situation is similar. Although no studies were found which specifically focused on Accounting and Administrative Sciences, as mentioned above, the area of Social Sciences, Business and Law, which these courses are a part of, was associated with one of the highest dropout rates in Silva Filho *et al.* (2007).

Many Brazilian accounting and business school students must work for their own upkeep. According to the Anísio Teixeira National Institute for Study and Research (INEP), approximately 40% of applicants sitting for the National Exam for the Assessment of Student Performance (Enade) as part of their application for accounting and business courses have some form of employment (Brasil, 2005). Maintaining a satisfactory performance both at school and on the job and reconciling conflicting schedules can be very demanding and increases the risk of repeating modules, losing motivation and eventually dropping out (Brasil, 1996; Souza, 1999; Hotza, 2000; Santos, & Noronha, 2001; Biazus, 2004; Lins, & Silva, 2005; Gaiosio, 2005). Students may also become discouraged by the stark contrast between their expectations at the outset of college life and the realities of higher education in Brazil.

Students' socioeconomic status can substantially impact the choice of college course and career. Some students apply for courses they are not particularly interested in but which are in low demand and therefore increase chances of admission and allow students to continue employed. This often means taking evening courses, a choice associated with higher undergraduate dropout rates and delayed completion (Brasil, 1996; Souza, 1999; Veloso, & Almeida, 2002; Pereira, 2004; Biazus, 2004; Lins, & Silva, 2005; Gaiosio, 2005).

Aspects related to the prestige of the profession should also be highlighted. According to Rozenstraten (1992), majors such as Engineering, Law and Medicine are prestigious and generate expectations of high salaries and status quo. Others, such as teaching diploma and bachelor programs, do not have the same social prestige, reducing the demand for openings and wage levels on the labor market. Many authors believe that the latter majors are associated with higher dropout rates (Brasil, 1996; Souza, 1999; Santos, & Noronha, 2001; Veloso, & Almeida, 2002; Gaiosio, 2005).

Considering that Accounting and Business Administration programs display many of the characteristics evaluated in national and international studies on college dropout, as well as the need to discuss the issue and find ways to reduce current dropout rates, the following research problem was formulated: **What is the dropout and delayed course completion behavior of Brazilian undergraduate Accounting and Business Administration students?**

Thus, the general purpose of this study was to determine the dropout and delayed course completion behavior of Brazilian undergraduate Accounting and Business Administration students. In addition, dropout rates were determined according to academic organization form (or type of academic institution) and an index was developed to quantify the percentage of students completing their courses within the ideal time frame. This indicator was correlated with the dropout rate.

In addition to the questions discussed above, the present study is directly relevant to issues of economic growth and quality of life. In that sense, several researchers have shown that development and economic return depend on the efficiency of the educational system, especially higher education (Langoni, 1973; Reis, & Barros, 1991; Fernandes, & Menezes-Filho, 2000; Menezes-Filho, 2001; Fernandes, & Narita, 2001; Cunha, 2007).

2. Theoretical Framework

Interruptions in the educational process of undergraduate students can be investigated in different ways and under different aspects, but all must consider the relationship between student and IHE and the circumstances leading to dropout or withdrawal.

While some scholars have focused on the process of abandoning academic programs (Tinto, 1975; Bean, 1980; Astin, 1984), others have been more concerned with the development of models analyzing the characteristics and mutual relations of students and IHEs in search of factors predictive of dropout (Pascarella, Duby & Iverson, 1983; Cabrera, Castañeda, Nora, & Hengstler, 1992; Chapman, & Pascarella, 2005).

Ribeiro (1991) compared school census-based grade transition rates (repetition, promotion and dropout) provided by the Department of Statistics of the Ministry of Education (MEC) to rates obtained

with a mathematical model (Profluxo) using data from the National Household Sample Survey (PNAD) conducted by the Brazilian Institute for Geography and Statistics (IBGE). The comparison revealed that, contrary to MEC data, school dropout rates were very low in the first year of secondary school. According to the author, the common notion that Brazilian children are motivated by the social or cultural order to drop out of school early is unsubstantiated: in reality, families make significant efforts to keep their children in school.

Covering the period 1995-1999, Polydoro (2000) investigated the practice of taking leave of absence and the situation of college students in Campinas (São Paulo, Brazil) upon leaving and returning to school. The author found that a small percentage of students manage to return to the course after leave of absence, disenrollment or dropout.

Noronha, Carvalho and Santos (2001) observed that only 50% of students admitted to the Business Administration program of the School of Economics, Business Administration and Accounting of the University of São Paulo in Ribeirão Preto between 1992 and 1995 actually graduated and that 12.5% of the students enrolled in 1992 were still enrolled in February 2000, while 35% had dropped out. Thus, in addition to high dropout rates, Brazilian IHEs also face problems of delayed course completion.

Covering the period 1984-1997, Leon and Menezes-Filho (2002) performed a descriptive analysis of the factors determining student failure, promotion and failure-related dropout in the fourth and eighth grade of primary school and the third year of secondary school in Brazil. The authors evaluated the determinants of the selection of individuals throughout the school period and the impact of family characteristics on the chance of success. The authors concluded that these effects are stronger in the higher grades, and mainly as determinants of grade promotion, and that the family characteristics lost some of their importance throughout the period covered by the analysis, appointing the universalization of education in the country. In a study involving 456 students enrolled in a Business Administration program at a public IHE, Corrêa and Noronha (2004) evaluated dropout behaviors and observed a proneness to postpone course completion, a practice associated with increased risk of dropout. Among students admitted in the period 1992-2002, 76 (16.67%) dropped out while 39 were prone to drop out (disenrollment and delayed completion), potentially raising the dropout rate to 25.22%. The authors suggested further investigations into the causes of this behavior and alternative solutions.

Silva *et al.* (2007) studied the dropout process in Brazilian higher education between 2000 and 2005 and found dropout rates of 9-15% for public IHEs and 26% for private IHEs. The Brazilian mean annual dropout rate was 22%, compared to 25% in the area of Social Sciences, Business and Law. In the areas of Education and Services, the rates were 18% and 29%, respectively. Out of the 47 courses analyzed in the study, Mathematics presented the highest mean dropout rate (30%) and Medicine the lowest (4%). According to the authors, due to the heterogeneity of the sample, the observed dropout rates cannot be directly compared to those of international studies.

Palharini (2008) examined the dropout profile of language and literature students at Universidade Federal Fluminense (Rio de Janeiro, Brazil) and concluded that students' decision to drop out of the courses was determined not so much by poor academic performance, lack of vocation, family problems and contradicted expectations, but by the cost of college life and the lack of perspective with regard to the job market.

Platt Neto, Cruz and Pfitscher (2008) addressed the problems and risks of using school dropout rates as an indicator in performance assessments of public IHEs. According to the authors, the relative contribution of dropout motivating factors over which the institution has no control needs to be determined before solutions can be proposed.

Moraes and Theóphilo (2010) identified and analyzed factors associated with the dropout of students admitted to the Accounting program at Universidade Estadual de Montes Claros (Minas Gerais, Brazil) between 1993 and 2002. The results showed that most dropouts (63%) were employed while attending college, 21% already had a degree upon admission to the Accounting program, and most had

graduated from private high schools. The main reason for dropout reported by the interviewees was lack of vocation. The authors concluded that dropout is a relevant phenomenon in Accounting programs and that, despite its negative effects on society, little has been done to control it. According to Cislaghi (2008), dropout is a multidimensional process that should be interpreted in the light of the interaction between the individual, the institutional environment (faculty, peers, institution) and the social reality (family, expectations, job market, etc.).

In general, research on college dropout in Brazil should take social factors into account. Unlike students in most developed countries, Brazilian students often fund their own college education and need to reconcile employment and school. Unsurprisingly, therefore, many choose to enroll in evening courses.

In a recent study, Wolter *et al.* (2014, pp. 472-473) looked at topics recurrent in studies on dropout and topics in need of further investigation. The topics are summarized in Figure 1:

Gender	The vast majority of studies finds a high final drop-out risk for male students, but no clear gender differences as regards the probability of changing the subject of study.
Age	Most studies recognize a clear connection between the age on starting university and the risk of dropping out: the older the students, the higher the risk. In most studies, however, the connection is not linear. A distinction must be made between dropping out, i.e. leaving university, and dropping out of the study of a specific subject in order to change to a new one. Younger students appear to be more likely to change their subject of study. The student age effect is associated with the observation that, according to the results of some studies, the time between obtaining the baccalaureate and starting university study has a negative impact on the chances of success at university.
Socioeconomic background	Most studies which consider the students' socio-economic background (parents' profession and educational attainment) refer to the United Kingdom, and it is not clear how these results may apply to other countries. Most studies show a positive link between parental educational attainment and academic success. Somewhat more confusing are the results regarding the connection between parental profession and academic success. This may partly be linked to the fact that the parental profession also has a strong influence on the choice of subjects at university (in medical studies, for instance).
Competencies	The results of the impact of academic achievement prior to entering university are quite clear: the better these results, the smaller the risk of dropping out.
Admission procedures	Few studies have examined the causal impact of the admission procedures on study (e.g. through an aptitude test). One major study, however, found a significant difference in the dropout risk of medical students who were admitted on the basis of a lottery weighted by performance and those who were admitted on the basis of an individual test, even though the groups did not differ with regard to observable characteristics. The study indicates that directly recording cognitive and non-cognitive performance provides a better prediction of success.
Academic performance	Several studies have examined the influence of academic integration on the risk of dropping out. As expected, most have found a negative link between the grades obtained, the number of examinations taken and passed, and other objective factors and the risk of dropping out. Similar effects are also found in the motivation to study and the efforts that students devote to study. In other words, students cannot be expected to drop out randomly, but those whose study behavior already shows a poor integration in the academic process may be more likely to do so.
Study subject	Most studies have found only small differences between the risk of dropping out in different subjects. The higher risk is mostly found in the 'hard sciences' (in our context the exact and natural sciences, medicine and pharmacy, and the technical sciences). A final judgment is not possible on the basis of the available literature though because, as a rule, the composition of the student population in the different subjects and the institutional framework conditions (study structure, forms of examination, staff-student ratios etc.) can differ greatly according to subject.
University resources	Parameters such as staff-student ratios and expenditure per student have almost only been examined in English studies. They show a positive connection between resources and study success, especially with regard to the subjectively perceived staff-student ratios.

Figure 1. Relevant topics in studies on college dropout

Source: Wolter *et al.* (2014, pp. 472-473).

According to Silva Filho *et al.* (2007), while institutions and students often give financial difficulties as the main reason for dropout, studies in the field have shown that this is an oversimplification of the problematic: in reality, students often lose interest due to academic issues, disappointment and difficulties adjusting to the institution.

In addition, the current Brazilian social scenario imposes difficulties on students, making professional inclusion more difficult and reducing possibilities of success for those with an undergraduate degree only. According to Soares (2002), this has produced a general feeling of powerlessness among students freshly graduated from high school, technical/vocational schools or college, who feel unprepared for the job world.

Thus, a scenario of instability and uncertainty about the future emerges, with professionals deeply concerned about their ability to secure appropriate employment that can grant them economic and financial stability (Teixeira, 2002; Bardagi, Lassance, Paradiso & Menezes, 2006; Bardagi, 2007). This concern is conveyed to currently enrolled students or even to those in the process of choosing their major, motivating them to choose courses based on expectations of large financial gains, power and social prestige (Bardagi, 2007) rather than vocation.

This situation conflicts with students' expectations of personal accomplishment through the exercise of a profession compatible with their vocation. Students' lack of knowledge about the profession, the respective education process and their own aptitudes often lead to frustration during the course when there is little or no convergence between their aptitudes and the competences required in the learning process (Nassar, Ohira, Cislighi, & Rodrigues, 2008).

Research on college dropout is socially relevant because plenty of financial resources are wasted when a student relinquishes an opening at an IHE, while another potentially qualified student is deprived of an opportunity. Taken together, the large number of dropouts and the number of openings that remain unfilled due to terminated enrollment reveal a scenario of escalating social losses, with many unused opportunities and considerable losses of public and private resources every year.

3. Methods

In view of the research objectives, the present study may be considered descriptive, in that the characteristics of a certain population or phenomenon were analyzed and described and the associations between the study variables were evaluated (Sampieri, Collado, & Lucio, 2006). The methodological approach was theoretical-empirical with regard to the limitations of the scientific criteria and the collection of evidence, which permits advances in the field of study and inferences in the light of the theoretical framework (Gall, Gall, & Borg, 2003; Martins, & Theóphilo, 2009).

A set of techniques was employed to collect, register, compile and analyze data for quantitative interpretation. The quantitative approach made it possible to evaluate the dropout process while the review of the literature provided a foundation to contextualize the interpretation of the findings.

3.1 Study design

To meet the study objectives and determine the dropout rates in undergraduate Accounting and Business Administration programs, a database was set up with data retrieved from INEP reports (*Simopses do Ensino Superior*) covering the period 2001-2010.

The sample consisted of Brazilian IHEs offering Accounting and Business Administration programs during the study period.

The retrieved information was organized in figures and tables in order to determine the annual dropout rate according to the model proposed by Silva Filho *et al.* (2007), verify relationships and make comparisons. In that model, the dropout percentage for a given year (n) is calculated as follows:

$$E_{(n)} = 1 - \frac{M_{(n)} - I_{(n)}}{M_{(n-1)} - C_{(n-1)}} \quad [1]$$

Where,

E = dropout

M = number of enrolled students

C = number of graduates

I = number of new students

n = year under analysis

$n - 1$ = previous year

After calculating the dropout rate of each Accounting and Business Administration program, rates were calculated for the entire group of IHEs and according to the academic organization form. The dropout rate was then compared to the ideal-term course completion index derived from the available data using the following formula:

$$ITCCI = \frac{C_{t+5}}{M_t} \quad [2]$$

Where,

$ITCCI$ = ideal-term course completion index

M_t = number of students enrolled in period t

C_{t+5} = number of graduates in period $t+5$

As a premise, a five-year period was considered the ideal time to complete either program. Conversely, the post-ideal-term course completion index would correspond to $1 - ITCCI$.

Brazilian IHEs are classified in four basic types in accordance with MEC Normative Decree #40 (issued 12 December 2007): a) Universities: multicurricular institutions of higher education for professional practice, research, outreach and the advancement and dissemination of knowledge; b) University Centers: multicurricular institutions of higher education characterized by the excellence of the education offered, the qualification of the faculty and the availability of research facilities; c) Colleges: institutions of higher education accredited by MEC; some eventually develop into universities or university centers provided they are operating regularly and with satisfactory quality standards; and d) Schools, Institutes and Technological Education Centers: multicurricular, multicampus institutions of higher education offering vocational/commercial/technological education under different teaching regimens, performing applied research and supporting the development of new technology, products and services.

For the purpose of this study, the IHEs were classified in three types of institution: i) universities, ii) university centers, and iii) colleges, schools, institutes and technological education centers.

3.2 Hypotheses

Discussions on the phenomenon of dropout in undergraduate Accounting and Business Administration programs at Brazilian IHEs benefit education directly by providing academic subsidies for improvement. According to Wolter *et al.* (2014), research on dropout encompasses a wide range of topics, which may be organized under the following headings: gender, age, socioeconomic background, compe-

tencies, admission procedures, academic performance, study subject, and university resources. In contrast, the purpose of the present study was to evaluate the dropout rates in two important areas of Social Sciences (Accounting and Business Administration) while taking into account the characteristics of each academic organization form. Thus, based on the theories expounded in the theoretical framework and in the literature reviewed, and considering the characteristics inherent to each course and type of academic institution (or academic organization form), the following hypotheses were formulated:

Hypothesis 1: no statistically significant difference exists between dropout rates in Business Administration and Accounting programs;

Hypothesis 2: no statistically significant difference exists between the ideal-time course completion index (ITCCI) of Business Administration and Accounting programs;

Hypothesis 3: a statistically significant difference exists between dropout rates in the different academic organization forms analyzed;

Hypothesis 4: no statistically significant difference exists between the ideal-time course completion index (ITCCI) in the different academic organization forms analyzed.

The collected data were entered in an electronic worksheet (collection instrument) and processed using the software SPSS® (Statistical Package for Social Sciences). Dropout rates and ITCCI were calculated and mean values were compared to identify possible differences between variables related to undergraduate programs in Accounting and Business Administration. The data were also submitted to simple and multivariate correspondence analysis (HOMALS), with the time variable incorporated in the analysis.

4. Analysis

The data analyzed consisted of records of dropouts in Business Administration and Accounting programs offered at Brazilian IHEs in the period 2001-2010. The data were obtained from online INEP reports (2012). To homogenize certain divisions/characteristics modified in the time series, the institutions were segregated into three types: i) universities; ii) university centers; and iii) colleges, schools, institutes and technological education centers.

Dropout rates and ITCCI were calculated using the formulas presented in Section 3.1, the first of which was proposed by Silva Filho *et al.* (2007).

Descriptive statistics for dropout data per course are displayed in Table 1, after excluding five outliers (two from Business Administration programs offered by colleges, schools, institutes and technological education centers in 2001 and 2010; two from Business Administration programs offered by universities in 2009 and 2010; and one from an Accounting program offered by a university center in 2004).

Table 1

Descriptive statistics of dropout rates per course, considering missing values

Course	Mean	Median	Standard deviation	Variation coefficient
Administration	16.24%	14.58%	7.69%	47.35%
Accounting	12.45%	9.69%	6.72%	53.97%

Source: the authors.

As shown in the analysis, the mean dropout rate was higher for Business Administration programs (16.24%) than for Accounting programs (12.45%). These rates are lower than the rates reported by Silva *et al.* (2007) for the area of Social Sciences, Business and Law, and the rates reported by Noronha *et al.* (2001) and Corrêa and Noronha (2004) for Business Administration programs. The median was somewhat lower than the mean (14.58% vs. 16.24% in Business Administration, and 9.69% vs. 12.45% in Accounting). The high (>30%) variation coefficient (i.e., variation between standard deviation and mean) revealed a considerable year-to-year variation in the data. The median also indicates that dropout rates were higher in Business Administration programs than in Accounting programs. To determine whether the difference in dropout rates was significant, we tested for differences between means. After testing for normality with the Shapiro-Wilk test (Business Administration $p=0.569$; Accounting $p=0.078$) and Levene's homoscedasticity test ($p=0.678$), Student's t test for independent means was considered to be the best option ($p=0.057$). Thus, Hypothesis 1 ("no statistically significant difference exists between dropout rates in Business Administration and Accounting programs") was not rejected. In other words, despite the higher mean dropout rates observed for Business Administration programs, the difference was not statistically significant at the 95% confidence level. This can happen because the students enrolled in the two courses have similar characteristics (majority employed and/or taking evening courses).

Figure 2 shows the mean annual dropout rate according to course.

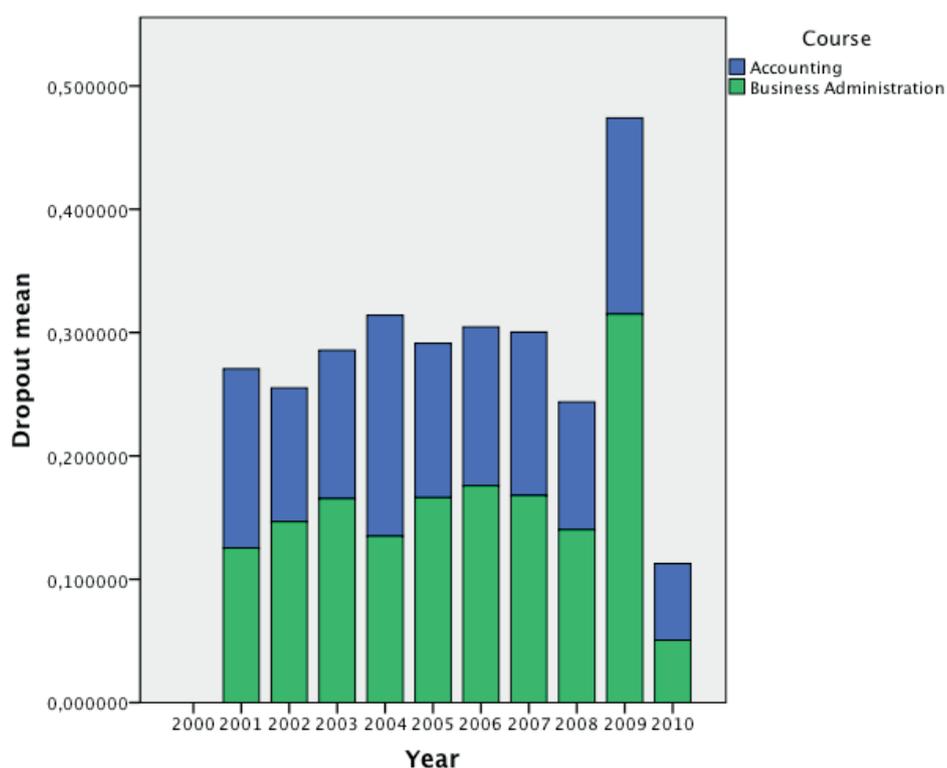


Figure 2. Time series of mean dropout rates according to course (Accounting vs. Business Administration)

The mean dropout rate was higher in Business Administration programs than in Accounting programs throughout the study period. The highest mean dropout rate in Business Administration was observed in 2009. The highest mean dropout rate in Accounting occurred in 2004.

In Table 2, the dropout rates have been organized according to the academic organization forms (or types of academic institution).

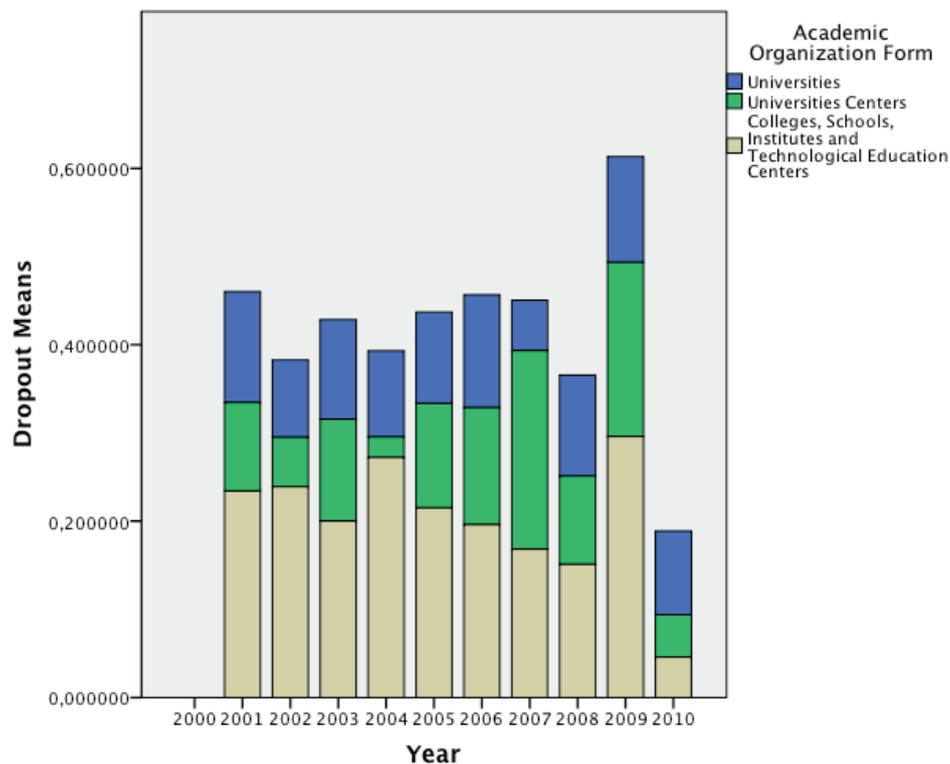
Table 2

Descriptive statistics of dropout rates according to academic organization form

Academic organization form	Mean	Median	Standard deviation	Variation coefficient
Universities	10.38%	9.99%	2.79%	26.87%
University centers	11.63%	10.40%	6.94%	59.67%
Colleges, schools, institutes and technological education centers	20.86%	21.44%	6.65%	31.87%

Source: the authors.

Mean and median dropout rates were lowest in the university group. The variation coefficient was high in all groups. Median and mean values suggested the same pattern within each type of academic institution. Colleges, schools, institutes and technological education centers differed from the other two groups, displaying rates closer to those reported by Silva *et al.* (2007) for the area of Social Sciences, Business and Law. Figure 3 shows the time series of mean dropout rates according to academic organization form, and the differences were analyzed using ANOVA.


Figure 3. Time series of mean dropout rates according to academic organization form

The time series of the University group was nearly constant, with the lowest mean dropout rate in 2007. The time series of university centers was less homogeneous, with the lowest rate in 2004. The highest rates were observed for colleges, schools, institutes and technological education centers (particularly in 2009).

Private schools tend to have higher dropout rates than public institutions, mainly because of financial difficulties. Brazilian student loan programs such as FIES (*Fundo de Financiamento Estudantil*) and PROUNI (*Programa Universidade para Todos*) may help to change this scenario. According to Wolter *et al.* (2014), unfavorable socioeconomic conditions are a major cause of dropout in many countries, especially in the UK. In Brazil, public universities are larger than private universities and have a greater potential for retaining students.

After verifying the normality and homoscedasticity of the data, the samples were compared using the ANOVA test, resulting in a p -value of 0.000, indicating that at least one type of academic institution differed from the others. Finally, Tukey's post-hoc test was used to confirm the results of the descriptive statistics and ANOVA. The test revealed that mean dropout rates were similar for university centers and universities, and that these two groups differed significantly from colleges, schools, institutes and technological education centers (Table 3).

Table 3
Paired Tukey test for equality of means

	Totals	Subset for alpha = 0.05	
		1	2
Tukey HSD ^a	University centers	0.1164	
	Universities	0.1038	
	Colleges, schools, institutes and technological education centers		0.2086
	Sig.	0.789	1.000

Source: the authors.

The test results evidence that dropout rates were significantly higher for colleges, schools, institutes and technological education centers than for the other types of academic institutions analyzed. In other words, Hypothesis 3 (“a statistically significant difference exists between dropout rates in the different types of academic institution analyzed”) was not rejected.

Table 4 shows how large a percentage of students completed their courses within the ideal time frame, expressed as the ideal-term course completion index (ITCCI). The formula used to calculate the index is described in Section 3.1.

Table 4
Descriptive statistics of ITCCI according to course

Course	Mean	Median	Standard deviation	Variation coefficient
Business Administration	23.88%	19.26%	17.19%	71.98%
Accounting	22.70%	20.94%	6.96%	30.66%

Source: the authors.

The mean ITCCI was slightly higher for Business Administration programs (23.88%) than for Accounting programs (22.70%), despite the high variation coefficient (71.98%). However, when analyzing the median values (not influenced by extremes), the opposite was true: the percentage was higher for Accounting programs (20.94%) than for Business Administration programs (19.26%).

A comparison of the indexes of the two courses using the Mann-Whitney test yielded a p -value of 0.178, indicating that the differences between the courses were statistically non-significant in the period covered by the study. It should be pointed out that the samples were homoscedastic, despite the lack of normality in ITCCI distribution. Therefore, the ITCCI of the two courses cannot be said to be different, and Hypothesis 2 (“no statistically significant difference exists between the ITCCI of Business Administration and Accounting programs”) was not rejected. In other words, less than 24% of students enrolling in undergraduate Accounting and Business Administration programs completed their courses within the established five-year period. Again, this may be explained by the fact that most students were employed during their college years.

Table 5 displays a comparison of ITCCI values according to academic organization forms.

Table 5

Descriptive statistics of ITCCI according to academic organization form

Academic organization form	Mean	Median	Standard deviation	Variation coefficient
University	18.17%	18.13%	1.55%	8.53%
University Centers	25.13%	22.16%	8.50%	33.82%
Colleges, Schools, Institutes and Technological Education Centers	26.57%	21.37%	20.30%	38.76%

Source: the authors.

An increase in mean ITCCI values was observed from the first group (universities) to the second (university centers) and third group (colleges, schools, institutes and technological education centers).

To determine whether the difference between the types of academic institution was significant, the values were submitted to the ANOVA test after testing for normality and homoscedasticity. The test yielded a p -value of 0.189; thus Hypothesis 4 (“no statistically significant difference exists between the ITCCI in the different types of academic institution analyzed”) was not rejected.

In addition to the hypothesis tests, the variables were submitted to simple and multiple correspondence analysis with the purpose of identifying associations between variables in a map. This type of multivariate analysis requires variables to be qualitative. Thus, no change was required for the variables “year”, “course” and “academic organization form”. However, the variable “dropout” was transformed as follows: a) quartiles of the dropout variable were calculated; and b) observations in the first quartile were classified as “excellent” (lowest dropout rate), observations between the first and second quartile as “good”, observations between the second and third quartile as “fair”, and observations between the third and fourth quartile as “poor” (highest dropout rate).

After this transformation, the variables “dropout” and “academic organization form” were submitted to simple correspondence analysis. The chi-square test was significant, indicating a distinction between the variables analyzed. Figure 4 is a graphic representation of the association between the variables.

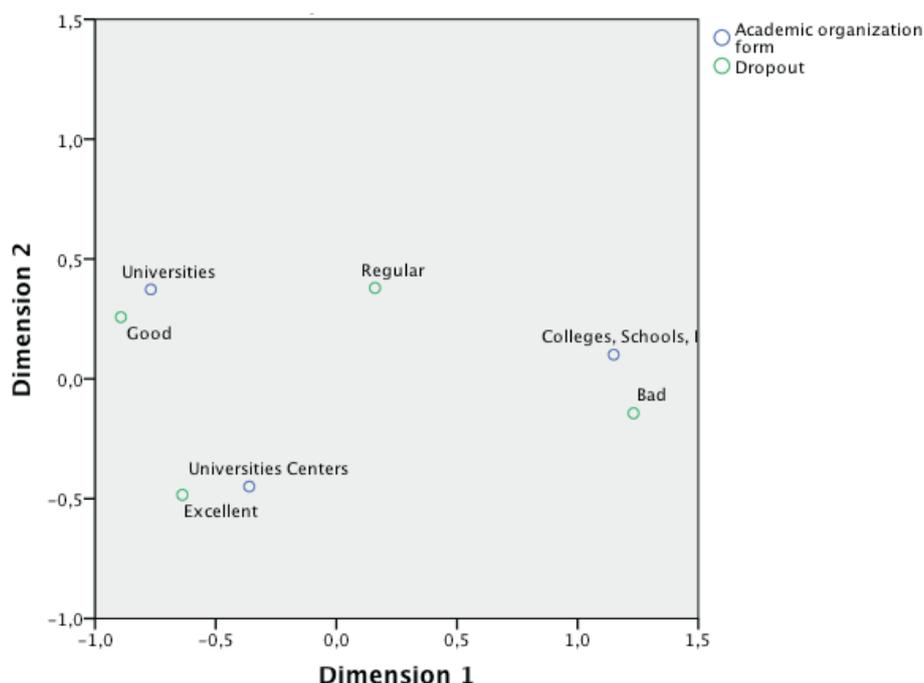


Figure 4. Dispersion of the variables “dropout” and “academic organization form”

Based on the analysis of Figure 4, although the observation “fair” occurred in all three types of academic institution, it was not a prominent characteristic in any of them. University centers displayed the lowest dropout rates, followed by universities and colleges, schools, institutes and technological education centers.

When the variables “year” and “dropout” were submitted to correspondence analysis, the result of the chi-square test was non-significant, indicating no significant variation in dropout rates between years.

The variable “course” only had two specifications (Business Administration and Accounting) and was therefore not submitted to correspondence analysis. This type of multivariate analysis requires variables to have more than two specifications. Nevertheless, multiple correspondence analysis (for which no such restriction exists, except the requirement that variables be qualitative) was performed for all the variables.

Cronbach’s Alpha corresponded to 0.526 for all the variables combined. This may be considered low and possibly results from a lack of distinction in the time series (very stable, few changes) and a small distinction between the courses.

Figure 5 displays a dispersion map showing the results of the multiple correspondence analysis of the variables “year”, “course”, “academic organization form” and “dropout”.

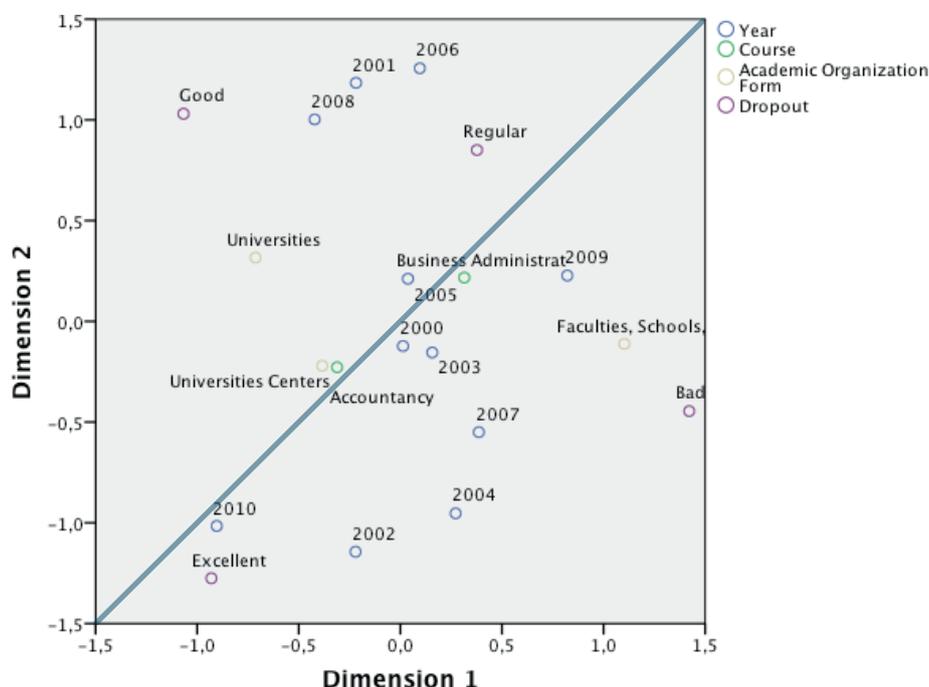


Figure 5. Dispersion map of multivariate correspondence analysis (HOMALS) of the variables “year”, “course”, “academic organization form” and “dropout”

A diagonal line across Figure 5 reveals lower dropout rates for Accounting programs, mainly in 2002, 2003, 2004, 2007 and 2010. This pattern was most evident for universities and university centers, where dropout rates were lower.

Dropout rates were higher for Business Administration programs, mainly in 2001, 2005, 2006, 2008 and 2009. This pattern was most evident for colleges, schools, institutes and technological education centers.

These results should not be interpreted as a generalization, but represent patterns observed within the classifications adopted in the study.

5. Conclusion

In this study, we analyzed the dropout behavior of students enrolled in undergraduate programs of Business Administration and Accounting in Brazilian IHEs between 2001 and 2010, based on official data published by INEP in 2012. The main purpose of the study was to determine the profile of dropout and delayed course completion in these courses.

Our descriptive statistics showed higher dropout levels for Business Administration than for Accounting courses, with lower overall levels if compared to the findings of Silva *et al.* (2007) for the area of Social Sciences, Business and Law, and the findings of Noronha *et al.* (2001) and Correa and Noronha (2004) for Business Administration programs. Median values also revealed a higher dropout rate for Business Administration than for Accounting. The difference was not statistically significant at the 95% confidence level though, thereby confirming Hypothesis 1. This may be explained in part by similarities between the students' profile in the two courses, such as full-time employment and enrollment in evening classes.

In the period covered by the study, dropout levels were higher in Business Administration than in Accounting, with the highest rates in 2009 (Business Administration) and 2004 (Accounting). The Tukey test revealed that mean dropout rates were similar for universities and university centers (in this study considered two different types of academic institution), and that these two groups differed significantly from the group represented by colleges, schools, institutes and technological education centers. The statistical analysis also showed that dropout rates were higher in the latter group than in universities and university centers (Hypothesis 3).

The median ideal-term course completion index (ITCCI) was higher for Accounting, though not significantly ($p=0.178$); thus, Hypothesis 2 was not rejected. With regard to Hypothesis 4, our data show that less than a quarter of students completed their courses within the expected five-year period, regardless of the type of institution. It may be considered that, because delayed completion postpones dropout, dropout rates appeared to be lower in Accounting programs. This result may have been influenced by similarities in the students' profile in the two courses (full-time employment and enrollment in evening classes).

In addition to hypothesis testing, we performed correspondence analysis to verify possible associations between the variables. The results of the chi-square test were significant for the variables "academic organization form" and "dropout" (indicating distinction) but non-significant for the variables "year" and "dropout" (no significant variation in dropout from year to year).

In general, our findings indicate that Accounting programs displayed lower dropout rates in universities and university centers, whereas Business Administration programs featured higher dropout rates in colleges, schools, institutes and technological education centers. It should be stressed, however, that these results are not intended as a generalization, but represent patterns observed within the classifications adopted in the study.

The alarming dropout rates observed in this study and their association with different types of academic institutions give rise to important considerations. To reduce current dropout rates, policies are needed which are capable of raising the quality of higher education in Brazil. The issue of dropout has mostly been treated in a cross-sectional manner, in terms of patterns, while few scholars have addressed the role of the quality of the education offered.

We also discussed the academic, social and economic costs of dropout, regardless of type of academic institution. In addition to personal frustration, dropout is associated with significant social and economic losses. The actors involved in this process, especially IHE managers and faculty, are advised to develop strategies ensuring study success (i.e., course completion within the expected time frame) without loss of quality of education. The latter is essential for acceptance of graduates in the job market.

Future studies could explore the dropout phenomenon from the point of view of funding of higher education (private vs. public), or look into the relationship between dropout rates and specific program and student characteristics, such as evening vs. day programs and the impact of employment on student behavior, or the influence of educational trends and societal demands on students' choices.

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