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OS ALUNOS DE AÇÕES AFIRMATIVAS TÊM MENOR DESEMPENHO ACADÊMICO?

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Abstract

We aim to analyze the academic performance of the subsidized students with affirmative actions and the non-subsidized students. To do so we analyzed data from admission to the course of Business Economics and Controllership of University of São Paulo. We have analyzed approval rates and grades from 5.040 observations of first year students. The analysis of the grades of students and due approvals of the first year of the course, point out that in most courses there is no differentiation between students with and without bonus. This is perceived in few disciplines, mainly in the quantitative methods courses.

Keywords: Affirmative Actions. Academic Performance. Accounting Education. Business Education.

Resumo

O objetivo deste artigo é analisar o desempenho acadêmico dos alunos participantes de programas de ações afirmativas e dos não participantes. Para isso, analisamos os dados de ingresso ao curso de Economia Empresarial e Controladoria da Universidade de São Paulo. Analisamos as taxas e notas de aprovação de 5.040 observações de alunos do primeiro ano. A análise das notas dos alunos e as devidas aprovações do primeiro ano do curso apontam que na maioria dos cursos não há diferenciação entre os alunos com e sem bônus. Isso é percebido em poucas disciplinas, principalmente nos cursos de métodos quantitativos.

Palavras-chave: Ações afirmativas. Desempenho acadêmico. Educação contábil. Educação em Negócios.

Introduction

The Brazilian Federal Constitution in its article 205 from Chapter III's Section I from the which cares about Education, Culture and Sports states that "education, the right of all and the duty of the state shall be promoted and encouraged with the collaboration of society, aiming at the full development of the person for the exercise of citizenship and ones qualification for work.". However, article 208 detailing the State's duty in relation to the offer of free and universal education ensures only basic education as a free and universal right. Thus, the entrance and permanence to Higher Education is obtained through different forms but is not free and universal as the other education levels.

Despite the principle of quality standard guarantee there is a serious quality gap in basic education in Brazil when ones compare private and public education (Castro, 2006), a factor that contributes to possible distortions in the consequent education scenarios. Thus, when faced with the performance of students in the admissions tests to universities, the disparities become even more visible - especially when analyzing the performance by the students of schools in the public school in contrast to the performance of students who attended private school (Sampaio & Guimarães, 2009; Matos, Pimenta, Almeida & Oliveira, 2012; Miranda, Lima & Marinello, 2018;).

In order to reduce such inequalities faced by students in the higher education admissions process the more obvious – yet harder – way is to decrease the quality gap between private and public schools, but to do that it takes many years – decades perhaps. Considering the difficulties to achieve the improvement of public schools the Brazilian Government decided to adopt affirmative actions to decrease these inequalities (Mendes Junior, 2014; Picanço, 2015; Peixoto, Silva & Wolter, 2018). The expression "affirmative action" was used for the first time in US congress in 1935 when the Franklin D. Roosevelt's government promulgated the National Labor Relations Act as a form of preferential policy in the scope of work, although not compulsory (Cabral, 2018).

Nowadays affirmative actions may have many meanings, but we understand it as a way of reducing or eliminating inequalities between social groups, through actions that may benefit the disadvantaged group (Dallabona & Schiefler Filho, 2011). Despite being largely accepted there are many concerns and beliefs around affirmative actions for the Higher Education admissions. Two of these major concerns/beliefs are: the possible loss of the quality of university education since the beneficiated student has a low-quality high school background, so would not follow the development and decrease of the admission of students who would not be beneficiated from affirmative actions (Pinheiro, 2014).

Considering the two concerns presented above, researchers from different areas analyzed the performance of students who were benefited by affirmative actions from different courses and universities (Cardoso, 2008; Matos, Ferreira, Pinheiro & Dalmas, 2010; Dallabona & Schiefler Filho, 2011; Bezerra & Gurgel, 2012; Peixoto, Ribeiro, Bastos & Ramalho, 2013; Mendes Junior, 2014; Golgher, Amaral & Neves, 2014).

Specifically in the context of the University of São Paulo (USP) Nabeshima, Machado, Martins, Coto and Dias (2011) and Miranda, Marinello and Lima (2018) analyzed the performance of students subsidized by the USP Social Inclusion Program (INCLUSP), while Piotto and Nogueira (2013) examined the qualitative university experience of these students and Matos, Pimenta, Almeida and Oliveira (2012) analyzed the participation of students from public education in the university entrance examination.

Despite constituting an important literature, the studies mentioned above are still a few considering the proportions of the USP and its many students with different backgrounds. In this context, the present study has the purpose to analyze the academic performance of the subsidized students with affirmative actions and the non-subsidized students, admission to the course of Business Economics and Controllership (Economia Empresarial e Controladoria, ECEC) of the School of Economics, Business Administration and Accounting at Ribeirão Preto of the University of São Paulo (FEA-RP/USP).

The paper contributes to extending the discussions about affirmative actions on business schools – which are privileged spaces that reproduce social inequalities (Starkey & Tempest, 2005). By analyzing the ECEC course we contribute to the literature by discussing the students' performance of an interdisciplinary course that integrates business knowledge based on accounting and economics. Finally, the paper contributes by helping to strengthen the previous literature that compares the students' performance in order to address the concerns discussed above, considering that literature still has no consensus about these differences.

In order to achieve the paper's purpose, we have compared the approval rates and the grades of the students who were beneficiated from affirmative actions and students who weren't. Such comparisons were based on fifteen courses during the first year of the undergraduate course, considering the period from 2010 to 2015. The results show some statistical differences on some courses. The remainder of this paper is divided into theoretical references, followed by the presentation of methodological aspects, results and discussion of the results.

Theoretical Framework

As discussed previously the The Brazilian Federal Constitution only provides free and universal right to basic education and the public schools shows poorer performance compared to private ones (Sampaio & Guimarães, 2009). Considering this scenario, we have a clear relation between income and education. It is also known that Brazil is a country permeated by social inequalities arising from its historical constitution and that in this context education can function as a means of changing or perpetuating such inequalities (Almeida & Nogueira, 2002; Batista, 2015).

Many studies have showed that students from public schools usually doesn't have access to the public higher education, especially the most prestigious courses such as medicine, law and engineering (Neves, Raizer & Fachinetto, 2007; Monsa, Souza & Silva, 2013). Franco (2008) states that 50% of people with ages between 18 and 24 with family income above five minimum wages are enrolled in high education institutions, while only 12% of people with family income below three minimum wages are enrolled in high education. Part of the Franco (2008) result may be explained by the Brazilian higher education expansion process. As showed in Table 1, in 2017 there was 3.857.572 places offered for entry into higher education, but despite the large number more than 85% are for private institutions, which means everyone must pay.

Table 1 – Offer of places to enter Higher Education

YEAR	PUBLIC	PRIVATE	TOTAL
2007	329.260	2.494.682	2.823.942
2008	344.038	2.641.099	2.985.137
2009	393.882	2.770.797	3.164.679
2010	445.337	2.674.855	3.120.192
2011	484.943	2.743.728	3.228.671
2012	539.648	2.784.759	3.324.407
2013	525.933	2.903.782	3.429.715
2014	533.018	3.012.276	3.545.294
2015	530.552	3.223.732	3.754.284
2016	529.239	3.407.890	3.937.129
2017	526.169	3.331.403	3.857.572

Fonte: Inep data (2008-2018)

Another factor affected by high ratio of places by private institutions is the candidate / vacancy relationship that is much higher in public institutions than in the private institutions. According to data

from Inep (2012, 2018) in 2011, the candidate / vacancy ratio for public institutions was 10.60, while for private institutions it was 1.5, already in 2017 the indicator for public institutions rose almost 50% reaching the level of 17,4 - being able to reach the level of 115,24[1] depending on the course -, while for private institutions rose to 1.90, an increase of 26%.

With the expansion of the offer of higher education in private universities and the increase of competition in public universities, the distribution of income becomes even more a determining factor, favoring students with sufficient financial conditions to pay for an undergraduate course or students with better conditions to pay for basic and secondary private education. Thus, for a greater democratization of university education and, consequently, better intellectual and productive qualification of the population (Alves, 2005), it was necessary to design affirmative action programs so that all students could be admitted into a higher education institution.

According to Dallabona and Schiefler Filho (2011, p.2) affirmative actions "aim to eliminate or reduce imbalances among social groups, through actions to benefit these groups" and may take different forms that vary according to the purpose of the action. Bezerra and Gurgel (2012) affirm that these actions are based on distributive and compensatory justice, however, they do not only perform compensatory functions. In Guimarães' view (1997, p. 154) affirmative actions may also serve for preventive purposes "since they may prevent persons belonging to groups with a high statistical probability of being discriminated against or individuals from certain risk groups from having their rights alienated".

In the Brazilian university context, according to Bezerra and Gurgel (2012, p.5) these actions aim at:

> [...] first, make it a public place, to which all Brazilians can have access. They also seek to make equality an equal right, in fact equality. It is important to emphasize that quotas need to be an emergency measure, and not as a definitive solution to the problem of exclusion, because its main merit is to bring the issue to the center of the debate regarding inequalities.

The development of affirmative action programs for Brazilian higher education initiated on the Rio de Janeiro's universities in 2002 (Piotto & Nogueira, 2013), however it has been enacted at national level by law 12.711/2012 "which allocates 50% of vacancies at universities and federal institutes to students from public schools, considering criteria such as school origin (public school), family income and race" (Batista, 2015, p. 122). The development of such public inclusion policies highlights the important role played by the state in ensuring welfare and social equality in a neo-liberal society (Cabral, 2018).

The propagation and implementation of neoliberal discourse in Brazil took place mainly from the 1990s onwards and led to profound changes in higher education (Cabral, 2018). It is also important to highlight that the neoliberal discourse defends meritocracy as the only factor for achieving individual success, leaving aside a series of historical and social factors (Dass & Parker, 1999; Castilla & Benard, 2010). In view of this scenario, the development of affirmative action is even more urgent to reduce the inequalities present in Brazilian society and to recognize the differences that influence access to and permanence in public universities.

Affirmative action programs are important because provides access to higher education for the most economically and socially vulnerable, thus allowing the possible economic and social rise of future generations of that family (Batista, 2015). Such programs are also related to the social equation, since "in the opportunities for access to Higher Education, the result of direct or indirect selection that, throughout schooling, weighs with unequal severity on the subjects of different social classes" (Bourdieu, 2003, p. 41). We must also acknowledge that Brazil is permeated by the racial democracy myth (Daflon, Feres Junior & Campos, 2013; Silva, Casa Nova & Carter, 2016), thus affirmative action programs are also a way of is a way to repair the historic debt arising from colonial Brazil's slavery (Santos, Cavalleiro, Barbosa & Ribeiro, 2008).

Affirmative actions and social inclusion: the Brazilian higher education case

Due to the contrast in the opportunities encountered by the student with high socioeconomic conditions and low-income students in access to universities, there seems to a disincentive for the less privileged students to take the entrance exam. According to Bertotti (2013) one of the reasons that can explain this factor is the distance that the public school has from the universities, which ends discouraging students to apply for the test. While in the public-school information about universities is scarce, in private schools this information is part of daily life, since many teaching methods are focused mainly on the selection process of public higher education institutions. The author emphasizes "it is not the intellectual capacity that is distributed in an unequal way in our society, but, mainly, the opportunities" (Bertotti, 2013).

Matos et al. (2012) perceives the distancing of the public school with the vestibular of the FUVEST by analyzing the tendency of decrease in the percentage of enrollment of these students from the public network in the courses of USP. From 2001 to 2010, the last year showed the lowest proportion of the period: of the 113,793 students enrolled in the university entrance examination in 2010, these students accounted for only 26.6% of the total. According to the authors, when the presence in the contest was analyzed, the proportion decreases to 25.62%, due to the absence of 2,876 public school candidates in the first phase of the college entrance examination.

Considering this distance between the low-income students and public universities, governments faced social pressures in order to decrease this distance and as a result the federal government sanctioned in 2012 a law for affirmative actions (Daflon, Feres Junior & Campos, 2013). The Law for affirmative action at higher education is the Law 12.711/12 which sanctioned that half of the enrollments at federal universities should be for reserved for people with family income of 1,5 minimum wage or less, black or indigenous people (PPI) and students who came from the public school. Despite representing an important legal landmark for the affirmative actions this law was not the first one, because there were the Rio de Janeiro state universities with the Law 3.708/01.

Daflon, Feres Junior and Campos (2013) analyzed the federal universities affirmative action policies after the Law 12.711. The authors' results show that the main beneficiaries from the law, considering 70 federal universities, are the students who came from public schools (n= 60) and black people (n= 41). The authors also show that most universities (n=40) adopt as form of identification the self-declaration (n= 33) and really few of them has some commission (n=3). Finally, Daflon, Feres Junior and Campos (2013) argues that is notable that the affirmative actions are strongly attached to traditional model of admission for the Brazilian universities: *vestibulares*.

Despite its merits the creation of affirmative actions has generated a great discussion, mainly around two points, considered as controversial: the possible loss of the quality of teaching and the decrease of the inflow of non-quota holders. According to Pinheiro (2014), the concern about the loss of the quality of university education stems from the fact that the quota student, because of having a low-quality high school, would not follow the development of the non-subsidized students, impairing the general income of the students.

Given the concern about the academic performance of incoming students through affirmative actions, several studies were carried out to analyze the performance of these students. Table 2 summarizes previous studies on the national scene.

Table 2 – Previous literature about affirmative action of Brazilian Higher Education

Authors	Period analyzed	Course	Institution	Main results
Cardoso (2008)	2004 to 2006	All university students	UnB	The results indicated higher performance of non - quota students, but only in the area of sciences were statistically significant.
Matos et al.(2010)	2005 and 2006	First year students of all courses	UEL	In the analysis of the year 2005 there was no statistically significant difference among the students, however, in the year 2006 the group of students composed of black, pardos and indigenous students from public school presented inferior performance.
Dallabona and Schiefler Filho (2011)	2008 to 2010	20 courses offered by the university	UTFPR	Among the 20 analyzed courses, the quota students had a superior performance in 14 of them, and this difference was statistically significant in 4 courses. The authors also emphasize that the scores of non-quota students were higher than all the groups analyzed.
Bezerra and Gurgel (2012)	2005 and 2006	Administration, law, chemical engineering, medicine and pedagogy	UERJ	The shareholder performance is lower, however, there are no statistically significant differences; Quotaholders have less evasion.
Peixoto et al.(2013)	2012	A ll the university students	UFBA	In general, the performance of non-quota holders is higher, however, in the humanities area, the quota holders perform better.
Mendes Junior (2014)	2005 to 2011	43 courses offered by the university	UERJ	Lower performance among quotaters, especially in courses considered more difficult, however, the graduation rate was higher among quotaters and the lower evasion rate.
Golgher, Amaral and Neves (2014)	2009 and 2010	Students from all university courses between the 1st and 4th period of the course	UFMG	The analysis of the students' Global Semi-Annual Income showed that most of the time there are no differences between students who received bonuses for admission to university and those who did not.

Source: Research Data

Based on the results presented in Table 1 it is possible to see that the literature does not yet present a consensus regarding the difference in the performance of subsidized and non-subsidized students by affirmative actions. This lack of consensus may be due to the variation of methodologies, specificities of each area / course, and the specificities of each university studied.

Affirmative actions and the University of São Paulo

The USP's Social Inclusion Program, INCLUSP, was created in 2006 with the aiming to increasing the chances of students from public schools entering the university and has the responsibility of providing aid to those with socioeconomic disadvantages. To participate in the program, it is necessary that the student has attended elementary school and/or has attended or is attending high school also in the public network. The candidate who has the previous specifications and falls in the black or indigenous group of color or race may request an increase in the previously reserved bonus. There is also the possibility of the low-income candidate requesting reduction or exemption of the college entrance fee.

Currently, the INCLUSP focuses on the first phase of the college entrance examination of candidates who have not been eliminated at this stage. Students who have completed elementary school and high school in public schools guarantee a 15% bonus on the first stage. When these students are also black and/or indigenous he/she may apply for the race bonus, which can be a total of 20%. Candidates who have only completed secondary education in public schools receive a 12% bonus on the first phase of the college entrance examination.

Created in 2008, the PASUSP (Serial Evaluation Program of USP), an important part of INCLUSP, focuses at students who are still attending high school in public schools. This program aims to stimulate students to consider joining USP and integrating them into the college entrance examination process, as described on the site itself.

PASUSP further extends the bonus, with the current data of: i) 15% bonus for students in the last year of high school who have completed basic education, until enrollment, in public schools. When these students have completed in the second year of high school the college entrance examination and scored twenty-seven or more, they are entitled to a 5% increase on the bonus already received; ii) 5% bonus for students in the second year of high school who have completed basic education, up to the time of enrollment, in public schools; iii) an additional bonus of 5% to the candidates belonging to the PPI group. In this way, the student that meets the requirements i) and iii) can reach a bonus ceiling of 25% on the grade of the first phase of the college entrance exam, if not eliminated at this stage.

According to Pinheiro (2014), the debate about quotas is very controversial and an argument against this policy would be the compromise of the quality of higher education since students could enter unprepared due to poor public education or poor-quality averages reduce the level of cut. Thus, as in other universities, the performance of INCLUSP-subsidized students was also compared to that of non-subsidized students, Table 3 presents a summary of studies in this sense.

Table 3 – Previous literature about INCLUSP

Authors	Period analyzed	Course	Main results
Nabeshima et al. (2011)	2007 to 2010	Dentistry - full and night shift	The performance of the biased and non-subsidized students is similar, however, in the full-time course analysis the subsidized students present superior performance in the specific disciplines
Matos et al. (2012)	2001 to 2010	High school students paying the entrance exam for entering university	The authors point out that the participation of students from public school in the university entrance examination has decreased in the period from 2001 to 2010. It should be noted that the average of the students subsidized by INCLUSP is slightly higher than the other students.
Piotto e Nogueira (2013)	-	Six students subsidized by INCLUSP	Interviewees report that the main difficulty after admission is the relationship with classmates from different social classes. It is also worth noting that the interviewees saw the entrance in the USP as impossible, demonstrating the dream vision impossible to enter the university.
Miranda, Marinello and Lima (2018)	2010 to 2014	Accounting students	The results indicate that in the individual analysis by disciplines there is no difference between subsidized students and non-subsidized students, however, when analyzing the set of courses, the subsidized students present superior performance.

Source: Research Data

Again there is no consensus on the performance of students, however, it is noticed that the volume of papers analyzing INCLUSP is still low, thus, it is perceived the need for further studies to consolidate the line of research and the results found by the various researchers.

The course of business economics and controllership

The course of Business Economics and Controllership has been offered jointly by the Accounting and Economics departments of FEA-RP / USP since 2006. According to its Political Educational Project (FEARP, 2017) the objective of the course is:

> provide practical and theoretical multidisciplinary knowledge, differentiated from existing courses in Economic Sciences and Accounting Sciences, in the formation of Bachelor's in

> Business Economics and Controllership, with contemporary skills and abilities demanded by the branch of academic and professional activity globalized.

The course was designed to meet the need for multidisciplinary demanded by the market and is organized into two blocks of knowledge: the common training core - with courses related to economics, accounting, finance, quantitative methods, law, social sciences and administration - and the specific habilitation chosen by the student, being able to be in accounting or in economics. There are 70 places available for admission to the course every year and, according to the university's own website, of the 1368 undergraduate students, 339 are enrolled in the course.

Based on the data obtained through the socio-economic questionnaire of the University Foundation for the Vestibular (FUVEST) [2] will be presented the student profile of the course so that it can serve as the background of the statistical analyzes.

Regarding the gender of the students analyzed, from 2010 to 2015, 59.3% are male and 40.7% female, and their ethnicity is predominantly white, representing - on average - 87.5% of the students. About his elementary education 21% did it entirely or most of it in public schools and 70.5% did some preparatory course for the entrance exam. The family income of 65.83% of the students is more than five minimum wages, 88% never performed paid activity and 93% of the incoming students are up to 21 years old. It is noteworthy that only 2.3% declared themselves opting for PASUSP and 13.8% of INCLUSP.

Methodological Procedures

Considering the research purpose this paper may be classified, according to Beuren (2006), as as descriptive regarding the objectives, since it describes the behavior of the researched sample. Regarding the research problem approach is a quantitative research for using statistical instruments for data analysis.

In order to achieve the research purpose, the approval rates and the students' grades who were enrolled in fifteen courses that compose the first year of the analyzed undergraduate course, from 2010 to 2015, were compared. Table 4 presents the courses analyzed in this paper.

Table 4 – Courses analyzed

First Semester	Second Semester
Differential and Integral Calculus I	Probability and Statistics I
Introductory Accounting I	Differential and Integral Calculus II
Administration Theory	Leadership Seminars
Financial math	Introductory Accounting II
Institutions of Applied Law	Cost Accounting
Introduction to economy	Applied Company Law
Social Accounting	Introduction to Macroeconomics
Introduction to Social Sciences	

Source: Research Data

Comparisons of approval rate and grading were done using the Mann-Whitney and Chi-square tests. The Mann-Whitney test, or the U Test, as it is also called, will be used to analyze if there is comparability between the averages of the students in and out of the INCLUSP. The chi-square test, in turn, will be used to verify whether there is comparability in the pass or fail rates among the students who are good or not, in the fifteen courses analyzed in this paper.

Concerning the sample, we analyzed 5.040 observations during the period of 2010 and 2015. The sample was composed by 57,14% men and 42,86% women; and 11,52% of students who were benefitted by the affirmative action programs and 88,48% of students who didn't participate in any affirmative actions – as shown in Table 5.

Table 5 – Research Sample

Year	Observations	Men	Women	Affirmative Action	Non-Affirmative Action
2010	855	476	379	43	812
2011	785	538	247	92	693
2012	976	487	489	116	860
2013	760	397	363	76	684
2014	820	499	321	140	680
2015	844	483	361	114	730
TOTAL	**5.040**	**2.880**	**2.160**	**581**	**4.459**

Source: Research Data

Results and Discussions

To carry out the analysis it was found that the analysis of the courses for each year of the period studied, was not feasible due to the low number of data and because of that the analysis is given on the basis of data from all available years (2010 to 2015). The first analysis of averages was made for each of the 15 courses taken by students in the first year. The data in table 1 show that in none of the disciplines analyzed, a statistically significant difference was found, however, when analyzing the dirty average, it is clear that students not included in Inclusp have higher performance 11 out of 15 courses, presenting similar results with those found by Bezerra and Gurgel (2012), Peixoto et al. (2013) and Mendes Junior (2014).

Table 6 – Grading analysis

Course	Grading without fails		Difference	Grading with fails		Difference
	Affirmative Action	Non-Affirmative Action	Mann	Affirmative Action	Non-Affirmative Action	Mann
Differential and Integral Calculus I	6,11	6,04	0,851	3,05	3,62	0,129
Administration Theory	8,02	7,91	0,317	7,71	7,69	0,405
Introductory Accounting I	7,22	6,98	0,300	6,98	6,34	0,586
Financial math	7,29	7,01	0,260	5,89	6,34	0,558
Institutions of Applied Law	7,01	7,32	0,066	6,73	7,05	0,079
Introduction to economy	6,14	6,18	0,553	5,71	5,78	0,476
Social Accounting	6,22	6,12	0,689	6,12	5,56	0,369
Introduction to Social Sciences	6,54	6,32	0,201	5,27	5,42	0,812
Introduction to Probability and Statistics I	6,41	6,80	0,433	5,92	6,31	0,525
Differential and Integral Calculus II	6,90	6,27	0,238	4,14	5,39	0,230
Leadership Seminars	6,45	6,53	0,705	6,25	6,38	0,569
Introductory Accounting II	6,52	6,22	0,252	5,61	5,61	0,943
Cost Accounting	6,72	6,83	0,549	6,24	6,62	0,352
Applied Company Law	7,93	8,09	0,839	7,62	7,98	0,673
Introduction to Macroeconomics	6,40	6,31	0,970	5,50	5,65	0,620

Source: Research Data

We also observed that in the mathematical courses - Differential and Integral Calculus I, Financial Mathematics, Introduction to Probability and Statistics II and Differential and Integral Calculus II - non-subsidized students have superior results. In the general analysis of the group of quantitative methods disciplines these differences are even clearer, according to data presented in tables 6 and 7.

Table 7 – Students' grades on quantitative methods courses

	Type	Grading
Affirmative Action	Grading without fails	6,38
	Grading with fails	3,85
Non- Affirmative Action	Grading without fails	6,37
	Grading with fails	4,73

Source: Research Data

The difference in the level of approval in mathematics-based courses – or simply quantitative methods courses – may be explained based on the quality of Brazilian education, since according to data from the Program for International Student Assesment (PISA) 70.25% of Brazilian students had lower than expected mathematical proficiency. in the 2015 exam. Another possible explanation relies upon the phenomena of mathophobia that is described as an irrational and impeditive fear over mathematics (Lazarus, 1974). Such phenomenon was analyzed by Bittar-Godinho (2019) in a Brazilian university and the authoress found evidence of mathophobia on business students taking an accounting course.

Table 8 – Approval rate by course

Course	Approval		Difference
	Affirmative	Non-Affirmative	Qui
Differential and Integral Calculus I	34,2%	50,0%	0,190
Administration Theory	96,1%	97,1%	0,487
Introductory Accounting I	72,5%	77,4%	0,001
Financial math	74,0%	87,4%	0,032
Institutions of Applied Law	96,1%	96,0%	0,932
Introduction to economy	86,3%	90,0%	0,065
Social Accounting	74,5%	84,6%	0,178
Introduction to Social Sciences	76,5%	82,1%	0,617
Introduction to Probability and Statistics I	92,3%	89,7%	0,891
Differential and Integral Calculus II	42,9%	72,2%	0,145
Leadership Seminars	84,2%	96,8%	0,002
Introductory Accounting II	73,0%	82,9%	0,383
Cost Accounting	92,5%	95,5%	0,564
Applied Company Law	96,0%	97,5%	0,491
Introduction to Macroeconomics	76,9%	81,4%	0,888

Source: Research Data

In order to better understand student performance, table 8 shows the approval ratings for each subject for both student groups. Based on the data shown in table 8, it is clear that the Introductory Accounting I, Financial Mathematics and Leadership Seminar disciplines presented statistically significant differences. Although the disciplines Differential and Integral Calculus I and Differential and Integral Calculus II did not present statistical significance, there is a considerable difference in the approval rate between the bonus students and the non-bonus students, especially in the second one.

Finally, the data were grouped and analyzed in general by year of entry, as shown in Table 9. As shown in Table 4, in 2014 and 2015 and in the overall analysis, non-rewarded students outperformed with statistically significant differences in the analysis of the dirty average and the pass rate in courses. In the grouped analysis of periods the disciplines of the quantitative methods group also present significant difference.

Table 9 – Yearly based analysis

	Grading without fails		Diff.	Grading without fails		Diff	Approval rate		Diff.
	Affirmative Actions	Others	Mann	Affirmative Actions	Others	Mann	Affirmative Actions	Others	Qui
2011	7,12	6,92	0,183	6,98	6,55	0,069	93,50%	91,80%	0,001
2012	6,72	7	0,064	6,16	6,33	0,159	87,10%	87,10%	0,726
2013	6,77	6,51	0,226	5,97	5,65	0,233	82,90%	80,70%	0,747
2014	6,67	6,63	0,976	5,07	5,75	0,01	68,60%	81,60%	0,001
2015	6,39	6,55	0,315	4,78	5,66	0,001	66,70%	81,00%	0,002
Geral	6,86	6,8	0,486	5,83	6,12	0,045	78,80%	86,00%	0,00
Quantitative Methods	6,38	6,37	0,9	3,85	4,73	0,018	47,70%	65,70%	0,00

Source: Research Data

Considering the literature that argues that exists differences between men and women academic performance in accounting courses (Ravenscroft & Buckless, 1992; Santos, 2012; Nasu, 2019) we have performed some analysis to discuss it. Table 10 presents data comparing men and women's performance by year. During five of the six years we analyzed women perform higher and with statistical significance.

Table 10 – Yearly based analysis considering the student's sex

Year	Men	Women	Mann
2010	6,44	6,93	0,001 ***
2011	6,49	6,78	0,009 ***
2012	5,81	6,75	0,000 ***
2013	5,67	5,64	0,88
2014	5,44	5,88	0,057 *
2015	5,02	6,02	0,000 ***

Source: Research Data

In order to have a greater understanding about the sex-based difference we also performed the statistical tests between different groups: considering the whole sample, only the quantitative methods and the non-quantitative courses, as presented in Table 11 and 12. In the three cases women perform higher and the difference presents statistical significance.

Table 11 – Sex-based analysis

	General Performance			Quantitative Methods			Non-quantitative Courses		
	Men	Women	Mann	Men	Women	Mann	Men	Women	Mann
Average	5,82	6,35	0,000 **	4,23	4,82	0,014 **	6,01	6,56	0,000 **
Standard Deviation	2,38	2,05		2,86	2,55		2,25	1,87	

Source: Research Data

Lastly, we have performed the statistical analysis to understand the impact of affirmative actions by sex. As shown in Table 11 the women who were benefited by the affirmative actions perform higher the those who didn't. On the other hand, men who we were not benefited by the affirmative actions perform higher than those who were benefited.

Table 12 – Sex-based analysis of the affirmative actions

	Women			Men		
	Affirmative Actions	**Non-Affirmative**		**Affirmative Actions**	**Non-Affirmative**	**Mann**
Average	6,48	6,33	0,095 *	5,27	5,91	0,000 **
Standard Deviation	2,17	2,03		2,71	2,32	

Source: Research Data

The sex-based results are corroborated by previous literature in many areas (Pomerantz, Altermatt & Saxon, 2002; Trusty, Robinson, Plata & Ng, 2000; Sheard, 2009; , however, is on the contrary of Santos (2012) who found that men in accounting courses perform better than women. The difference between Santos (2012) and the current results may be explained by: (i) the different courses analyzed; (ii) how the analysis were conducted; (iii) the different samples. The higher performance of women – especially the benefited by affirmative actions – may be explained by commitment as shown by Sheard (2009).

Final Remarks

The scenario of expansion of private educational institutions in higher education and the increasing competition in public institutions has made income a decisive factor for the entry and permanence of students in universities, thus excluding the most disadvantaged sections of society. Given this, there is a movement of creation and expansion of affirmative actions for the entrance and permanence of students from public education and with low family income. In this context, the present work analyzed the performance of students with and without bonuses by INCLUSP / PASUSP in the Business Economics and Controlling course at FEA-RP / USP.

According to the data collected in the FUVEST socioeconomic questionnaire, ECEC students presented a profile of incoming students up to 21 years old, with a high rate of elementary education in private schools. They are students with family income above five minimum wages and with low adherence to USP's bonus programs.

As the fifteen ECEC disciplines were analyzed, only Introductory Accounting I, Financial Mathematics and Leadership Seminars showed relevant associations by the chi-square method, referring to the approval rate of students with or without the INCLUSP. It was noticed that INCLUSP students obtained a lower than non-subsidized pass rate of approximately five percentage points (5%) in the Introductory Accounting I course, 13.4 in the Financial Mathematics course and 12.6 in the Seminars of Leadership. According to the Mann-Whitney test, there is no significant difference in the students' dirty and clean averages when analyzing the courses.

As for the total annual analyzes of FEARP students, the chi-square test also allows us relevant associations. Bonus students have an average failure rate of 19.6%, while for non-students, this percentage is lower by 6.1 percentage points. This time, Test U also allows us to establish relevance between the disparities in the dirty averages of these student groups. While students without bonus have a failure rate very close to the average of the Unit, still slightly above, students with a bonus 0.26 lower. As for the averages without failures, there were no relevant disparities. In this analysis, the approval rate of students with bonus from INCLUSP is leveraged mainly due to recent years, in which these students perform better. Note that the averages observed are also higher for students without bonus.

The paper contributes to extending the discussions about affirmative actions on business schools – which are privileged spaces that reproduce social inequalities (Starkey & Tempest, 2005). By analyzing the ECEC course we contribute to the literature by discussing the students' performance of an interdisciplinary course that integrates business knowledge based on accounting and economics. The paper contributes by helping to strengthen the previous literature that compares the students'

performance in order to address the concerns discussed above, considering that literature still has no consensus about these differences.

In addition to the theoretical contributions highlighted this paper may help to deconstruct the myth that student from public school has lower academic performance and may decrease the universities quality (Souza, 2019). We also highlight the social impact of affirmative action on the lives of students who only had access to university after their adoption and who changed their families' lives through school success (Montenegro & Silva, 2018).

For future research, we encourage qualitative studies to analyze the main difficulties faced by students with INCLUSP bonus regarding not only admission, but also permanence, as done by Piotto and Nogueira (2011). It is also suggested quantitative analyzes separating students by gender to verify if the result found by Dallabona and Schiefler Filho (2011) is repeated in other contexts. Lastly, it's important to advance the debate about affirmative action programs related to permanence of the students.

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