Abstract

The inclusion of students with low-income in university is complex and demands financial and psychological support throughout the university life of the student in socioeconomic vulnerability. The policy of student assistance has the purpose of increasing the conditions of access and permanence of these students. The objective of the study is to analyze the academic performance and peculiar difficulties faced by students in socioeconomic vulnerability. The data was obtained from 189 questionnaires answered by students enrolled in the student assistance programs of the University of Brasília - UnB and analyzed through logistic regression. The results did not indicate an inferior academic performance of the socioeconomically vulnerable student neither greater moral harassment nor bullying problems commonly associated with this student profile. However, the results were conclusive in the indication that the hardships due to the necessity to work and the worse training received in secondary education limited the academic performance of the students in socioeconomic vulnerability in UnB.

Keywords: scholarships; evaluation of educational performance; democratization of education.
INTRODUCTION

Initially aimed at a restricted clientele endowed with economic and cultural capital, higher education gradually incorporated new social groups, which until then were marginalized, due to social pressures for democratization. This pressure had almost doubled enrollment in higher education in the four corners of the world, and this growth was only possible because of the expansion of inclusive policies of student financing and assistance (Martins, 2006a).

Specifically in the case of the expansion of higher education, it is expected that it will not only add more students, but will also be sensitive to Brazil's social inequality and quality of education, in order to promote a true democratization of higher education in the country. In other words, society is interested in an inclusive expansion with academic quality (Vargas, 2010).

In Brazil, evasion goes against the democratization of access to higher education, because if, on the one hand, young Brazilians with low income reach the university, on the other hand, they are unable to remain and achieve success in their initial project, putting in check the effectiveness of the democratization policies of higher education.

According to Bardagi and Hutz (2005) among the many aspects pointed out as relevant explanations for evasion, economic and social factors stood out. The authors also pointed out that the presence of relationship problems with colleagues and teachers and low academic performance can increase the dissatisfaction with the academic experience and favor evasion.

According to Neres (2015), many factors influence the student's academic performance, such as aspects related to family, work, teaching methods, lack of career expectations, lack of knowledge of the course, infrastructure, motivation, commitment to the course, among others. According to Marcelino (2015), comprehending the determinants of academic performance is a crucial issue for improving learning and to combat evasion.

Thus, the study seeks to analyze the academic performance of University of Brasilia — UnB students in socioeconomic vulnerability, with the following specific objectives: 1) to evaluate the academic performance and the peculiar hardships of students with this profile; 2) to estimate the impact of these difficulties on the academic performance of students in socioeconomic vulnerability.
THEORETICAL REFERENCES

Socioeconomic vulnerability is a multidimensional concept that refers to the outcome of any accentuated process of exclusion, discrimination or weakening of individuals or groups, caused by factors such as: poverty, economic crisis, poor educational level, precarious geographical location and low levels of social capital, human or cultural, that generates the fragility of the actors in the social environment (Kaztman, 2001).

According to Desjardins, Ahlburg and McCall (2002), a situation of socioeconomic fragility can compromise the academic performance of the student. Tinto (2007) pointed out that the students' necessity to work during graduation compromises their academic performance. According to the author, when students spend more time and effort on their studies, they can increase their academic integration and achieve better results.

Some studies have demonstrated the relationship between university academic performance with evasion as, for example, Sales Junior et al. (2014) and Tinto (2007). According to these authors, the greater the number of failures in disciplines, the greater the chances of evasion. With similar results, Tinto (2007) stated that academic performance is a condition for the student to stay or not in the course.

According to Swisher et al. (1993), the academic performance of students can be affected by social issues and not only by economic factors. The author pointed to a variety of mental disorders, social and behavioral problems as possible causes of decreased academic productivity.

Gisi (2006) corroborates the results of Swisher et al. (1993), arguing that it is difficult for students from low-income backgrounds to remain in higher education, not only because of the lack of financial resources, but also because of the lack of acquisition of “cultural capital” throughout his life trajectory, a feat that is not quickly acquired. This cultural inequality is felt since primary education, when most students begin their studies at a disadvantage compared to others, due to the lack of opportunities for access to knowledge.

The hardships faced by students, whether financial or social difficulties, in universities around the world are objects of student assistance attention, as shown in the studies of Loyalka et al. (2013), Bidle et al. (2014), Liu et al. (2011) and Dearden et al. (2014).
According to Alves (2009), the purpose of student assistance is to provide university students with the necessary resources to overcome obstacles that may hinder their academic performance. Thus, student assistance would be related to several sectors of human rights and therefore contemplates, in addition to financial aid for the maintenance of the student during the course, care related to health, food, leisure, among others.

METHODOLOGY

Data

The data of this research was obtained through the application of an electronic questionnaire to the students of the UnB.

UnB is a public university that was inaugurated in 1962 and is located in the city of Brasília. Currently, UnB has 2,445 teaching staff, 2,630 technical-administrative staff, 28,570 undergraduate students and 6,304 postgraduate students. UnB offers 109 graduate courses, of which 31 are night courses and 10 are non-presencial courses. There are still 147 stricto sensu postgraduate courses and 22 latu sensu specializations (UnB, 2016).

The data collection period lasted 45 days, taking place in November and December 2015 and was carried out by sending e-mails to a population of 1,938 students enrolled in the socioeconomic assistance program of UnB. Before the application of the questionnaire, a pre-test was carried out with 10 students from the population according to the guidelines of Malhotra (2004).

In order to increase the sample size, the research was disseminated using social networks frequented by the students, as well as informing students about the importance of participation in the research through direct contact. After the 45 days of data collection, efforts to expand the sample no longer had any effect, leaving the researcher with the responsibility to scale out the limitation of the sample achieved.

The evaluation of the margin of error of the sample was based on the estimation of the population proportion for finite population (Equation 1), admitting a 95% trust level (1.96) in the calculation. This method was chosen because the data was collected on an ordinal scale and because of the fact that the population was not too large and could be considered as finite (Martins, 2006b).

\[
E = 1.96 \sqrt{\frac{0.25}{N-1} \left( \frac{N-n}{N} \right)} \quad [1]
\]

E = Margin of error
n = Number of individuals in the sample
N = Population size
Questionnaire

The applied questionnaire had five closed questions, one that measured the academic performance of the students and the other four related to the main hardships faced by the student in socioeconomic vulnerability. The theoretical references that supported the determination of these difficulties and contributed to the preparation of the questionnaire were the researches of Leal Lobo et al. (2007), Gomes et al. (2010) and Baggi and Lopes (2011) (Chart 1).

Chart 1. Questionnaire applied

1) Your academic performance in undergraduate courses at UnB is:
( ) Among the top 10% best students ( ) Among the top 20% best students
( ) Among the top 50% best students ( ) Among the worst students
( ) Do not know

2) Do you work or practice any paid activity outside the course?
( ) Yes ( ) No

3) Students benefited by student assistance programs suffer above average moral harassment (comments and jokes aimed at denigrating personal image)
Strongly Disagree 1 2 3 4 5 Strongly Agree

4) Student assistance programs are not sufficient to attend the financial necessities of needy students.
Strongly Disagree 1 2 3 4 5 Strongly Agree

5) Students with socioeconomic vulnerability have greater difficulty keeping up with the content of the disciplines at UnB due to a poorer education in high school.
Strongly Disagree 1 2 3 4 5 Strongly Agree

6) Point out other hardships faced by students in socioeconomic vulnerability not addressed above.

_________________________________________________________________________________________

Source: Elaborated by the authors
According to the aforementioned authors, the hardships usually faced by students in socioeconomic vulnerability are: 1) the necessity to work, not allowing exclusive dedication to studies; 2) the insufficiency of student assistance programs in attending the students' needs; 3) the greater difficulty experienced by this student profile to keep up with the disciplines due to deficient formation in high school; 4) possible problems of moral harassment faced by students in socioeconomic vulnerability.

Along with these closed questions, the questionnaire had an open question that addressed the perception of the interviewees about other difficulties faced by students in socioeconomic vulnerability.

Methods
Descriptive Statistics

Descriptive statistics were used to evaluate the academic performance and hardships usually faced by students in socioeconomic vulnerability and also to summarize the content of the answers presented in the open question of the questionnaire, enhancing the peculiar simplicity of this analysis and allowing a quick assimilation of the results.

Logistic Regression Analysis

The objective of the logistic regression analysis was to evaluate the impact of possible hardships faced by students in socioeconomic vulnerability on their academic performance. Logistic regression was chosen due to simplicity and ability to assess the relationship between a dichotomous dependent variable with several explanatory variables measured with ordinal and/or nominal scales (Hair et al. 2005).

The dependent variable considered two groups, named: 1) underperforming students and 2) high performing students. The underperforming students were those who responded to be between the 50% best students or declared to be among the worst performers at question 1 of the questionnaire. Students with superior performance were those who considered to be within the group of the 20% best students (aggregate of the answers of the first two items of question 1).
Cases where the student stated he did not know his relative academic performance were excluded of the analysis. The conversion of an ordinal scale into a categorical dichotomous one is in accordance with Pallant (2005).

Thus, according to Equation 2, the model considered the academic performance of students in socioeconomic vulnerability as a dependent variable and the main hardships that these students face due to their condition of socioeconomic vulnerability as explanatory variables. Along with Equation 2 the codifications used to tabulate the data are presented to facilitate the understanding of the results.

\[
\hat{DA} = \frac{1}{1 + e^{-(\beta_1 + \beta_2 SA + \beta_3 IPAE + \beta_4 FIAD + \beta_5 SAM + \varepsilon)}} \quad [2]
\]

\( \hat{DA} \) = Academic Performance ("0" underperforming students (among the worst students + among the top 50% best students) and "1" high performing students (among the top 20% best students + among the top 10% best students)

SA = Present Situation (“0” Not Working and “1” Working)

IPAE = Insufficiency of student assistance programs (“1” strongly disagree, “2” disagree, “3” indifferent, “4” agree and “5” strongly agree)

FIAD = Insufficient training in secondary education to keep up with the courses (“1” strongly disagree, “2” disagree, “3” indifferent, “4” agree and “5” strongly agree)

SAM = Suffering from moral harassment (“1” strongly disagree, “2” disagree, “3” indifferent, “4” agree and “5” agree completely)

\( \varepsilon \) = Stochastic error

Equation 2 was estimated by the Maximum Likelihood method and the hypotheses are that students that are working or the student assistance is not sufficient, as well as those who are victims of bullying or who have had deficient training in high school, tend to belong to the underperforming group. Therefore, in accordance with the adopted encodings, the expected directions of the coefficients signs are: \( \beta_2, \beta_3, \beta_4 < 0 \) and \( \beta_5 > 0 \).

All hypotheses were evaluated by Wald test one-tailed, assuming a 5% significance level. The assessment of the degree of adjustment of the model was made using the \( R^2 \) Nagelkerk
All hypotheses were evaluated by Wald test one-tailed, assuming a 5% significance level. The assessment of the degree of adjustment of the model was made using the $R^2$ Nagelkerk measure. The evaluation of the estimates occurred through the residues dispersion graph (Hair et al. 2005).

RESULTS AND DISCUSSIONS

Evaluation of the data sample

The sample was composed of 189 (one hundred and eighty-nine) completed questionnaires, corresponding to approximately 10% of the student population enrolled on the UnB socioeconomic assistance program until the second half of 2014. The relationship between sample size and population was in agreement with the suggestions of Nazareth (1999). According to the author, the representativity of the study sample must be guaranteed by at least 10% of the total number of the target population.

The margin of error calculated for the sample corresponded to 6.7% for more or less and was lower than that accepted in the survey conducted by Lira (2008), Almeida (2010), Neres (2015) and Cancian (2016).

Performance and hardships of students in socioeconomic vulnerability

The results did not indicate a worse academic performance of students in socioeconomic vulnerability. According to the interviewees' perception, more than half of the students with socioeconomic vulnerability stated that they were at least among 20% of the best student performances of UnB, and only 16% reported being among the worst performers in their respective courses (Figure 1).

Figure 1. Academic performance of students in socioeconomic vulnerability

Among 50% of the best student performances
Among 20% of the best student performances
Among 10% of the best student performances
Among the worst performers

Source: Elaborated by the authors
Research results for Dallanona and Schielfer (2011) corroborated the results found. These authors sought to compare performance among low-income students that entered the university via a quota system with the performance of non-quota students at the Federal University of Paraná (UTFPR). The results indicated that the differences between the performance of quota-holders and non-quota holders were very low, with quota holders possessing a small advantage in undergraduate courses and a somewhat lower average in baccalaureate and technology.

With results similar to those of Dallamona and Schielfer (2011), Queiroz and Santos (2006) identified that quota-holder students obtained performance coefficients equal or better than that of non-quota holder students in eleven of eighteen courses of higher competition evaluated at the Federal University of Bahia (UFBA).

Only a minority of students in socioeconomic vulnerability reported engaging in some paid activity outside of the course (Figure 2). These results can be interpreted in two ways: 1) they suggest difficulty for students to find work and to reconcile it with studies; or 2) student assistance in pecuniary form minimizes students' financial problems in socioeconomic vulnerability.

About 80% of the students interviewed attend a course during the day and therefore have greater difficulty entering the labor market. However, it is possible that some of their financial problems are minimized as a result of obtaining resources through scientific initiation projects, extension projects or paid academic internships.

At UnB, if a student is able to participate in a project of scientific initiation or paid extension he receives a R$ 400,00 scholarship. In addition to the possibility of these resources, the student in socioeconomic vulnerability receives the socioeconomic aid of R$ 465,00 and if they have no family in Brasilia, he/she holds the right to occupy UnB accommodation or receive a R$ 530,00 housing assistance. Student income in socioeconomic vulnerability cannot exceed the total of one and a half times the minimum legal wage which in 2015 represented R$ 1.182. Given the gratuity of the University Restaurant for this student profile, their main costs are with telephone, student material, leisure and transportation.

Although student assistance may reach values higher than the Brazilian minimum wage, according to the majority of students with socioeconomic vulnerability, student assistance programs are not sufficient to cover their needs: only 17% of the students disagreed with this assertion (Figure 2). If we consider that almost half of the Brazilian population survives with a minimum wage...
(R$ 788,00 in 2015) and does not have the benefit of free food (IBGE, 2016), it is not fair to speak of sacrifice to survive with the student assistance programs and other opportunities provided by UnB.

Figure 2. Possible difficulties faced by students in socioeconomic vulnerability

Note: Questions 3, 4 and 5 of the Questionnaire, the answers in items 1 and 2 were aggregated and named as "Disagree", the answers in item 3 named as "Indifferent" and the answers in items 4 and 5 aggregated and named as "Agree".

Almost half of the respondents stated that insufficient training in high school proves a hindrance to keeping up with course work and only 19% of respondents agreed that problems of bullying and moral harassment are comparatively higher with students in socio-economic vulnerability.
In addition, the median and dispersion of responses in questions 3, 4 and 5 indicated that, among the difficulties faced by students in socioeconomic vulnerability, the main one is the insufficiency of student assistance programs followed by low quality in secondary education. Problems of bullying were reported less frequently (Figure 3).

Figure 3. Median and dispersion of responses in questions 3, 4 and 5

Note: Boxplot chart information: median, minimum and maximum values, 50% of the central observations inside the box.

**Impact of the difficulties faced by students in socioeconomic vulnerability on their academic performance**

The impact of the hardships faced by students in socioeconomic vulnerability on their academic performance and the statistical indicators of the adjusted logistic regression model are presented in Table 1.

Table 1. Estimates of the logistic model parameters

<table>
<thead>
<tr>
<th></th>
<th>Logistic coefficient</th>
<th>Standard error</th>
<th>Wald statistics</th>
<th>One-tailed p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>1,37</td>
<td>0,67</td>
<td>4,16</td>
<td>0,02</td>
</tr>
<tr>
<td>SA</td>
<td>-0,85</td>
<td>0,44</td>
<td>3,75</td>
<td>0,03</td>
</tr>
<tr>
<td>IPAES</td>
<td>-0,14</td>
<td>0,16</td>
<td>0,82</td>
<td>0,18</td>
</tr>
<tr>
<td>FIAD</td>
<td>-0,22</td>
<td>0,13</td>
<td>2,66</td>
<td>0,05</td>
</tr>
<tr>
<td>SAM</td>
<td>0,01</td>
<td>0,14</td>
<td>0,01</td>
<td>0,99</td>
</tr>
</tbody>
</table>

Note: SA - Current Situation (working or not); IPAES - insufficient student assistance programs; FIAD - insufficient training in secondary education to keep up with the disciplines; SAM - suffering from bullying.
According to Table 1 all coefficients representing the difficulties faced by students in socioeconomic vulnerability in 2015 obtained the expected signs and, except for the influence of moral harassment and insufficiency of student assistance programs, all other relationships were statistically significant at the 5% level. The results suggest that student assistance programs or bullying problems have little effect on students' academic performance, which is mainly influenced by the poor formation in secondary education and limitations to an exclusive dedication to university.

Student assistance at UnB does not require academic counterpart, in accordance with Kowalski (2012) and contributing to explain why this variable did not contribute to discriminate between higher and lower performance groups. Although the relationship between student assistance and academic performance is not evident, the effectiveness of student assistance in reducing dropout is confirmed by Neres (2015).

According to the Santos (2009), for a qualified permanence at the university, there are material conditions that permits his/her subsistence. It takes money to buy books, to have lunch, to eat snacks, to pay for transportation, etc. But pedagogical support is also necessary, the valorization of self-esteem, teacher references, among others. Coulon (2008) also agreed on the breadth of factors that may influence a student's academic performance. The author reflected on the various ruptures that occurred in the life of the student, in the passage of time from elementary and middle school to university, implying the detachment of family and friends and demanding an effort to adapt to a new world and the assimilation of new codes and standards.

The R² Nagelkerke of the model indicated that only 7% of the variance of the academic performance of the socioeconomically vulnerable was explained by the independent variables. The low value R² Nagelkerke reached was expected, since the objective of the model is to evaluate the influence of the student's peculiar difficulties in socioeconomic vulnerability and not to maximize the prediction of academic performance (Gujarati, 2000). However, this result suggests that there are other variables that can affect the academic performance of low-income students beyond the ones employed so far. In line with Gujarati (2000), for Goldberger (1991) a high R2 is no evidence in favor of the model and a low R2 is no evidence against it.
The sample size reached the ratio of nearly 50 cases for each explanatory variable, i.e. well above the minimum for application of multiple regression of 20 cases per explanatory variable, as suggested by Hair et al. (2005). The absence of a pattern in the residues suggests that they are random and normal, according to the premises of the logistic model (Figure 4).

![Figure 4. Dispersion of regression residues](image)

Complementing the results of the regression analyzes, the respondents indicated other difficulties faced by the student in socioeconomic vulnerability that can affect their academic performance. Because the comments were open, many responses only corroborated or helped to understand the results achieved in the regression analysis. The analysis of all these comments allowed us to summarize the content of the answers in seven dimensions, according to Figure 5.

![Figure 5. Difficulties faced by students in socioeconomic vulnerability](image)

Lack of psychological support for personal problems due to family distance, lack of leisure, and so on.

Difficulty acquisition or unavailability in the material library to accompany the course.

Difficulty accompanying the course due to having to work or insufficient assistance.

Difficulties with displacement to the university, including student transportation.

Unprepared of the DDS attendance, bureaucracy in selection and renewal of the student aid processes.

Difficulty in following the course due to poor high school.

Others.

Source: Elaborated by the authors
Note: 57 is the total number of comments regarding the difficulties experienced by students in socioeconomic vulnerability

The results of Figure 5 suggest that the variable psychological support, not directly contemplated among the variables of the regression model, could help to explain the low academic performance of the student in socioeconomic vulnerability. The importance of psychological support for the effectiveness of student assistance policies was corroborated by Costa (2010) and Magalhães (2013), highlighting the urgency for qualified human resources for the development of actions of various orders, both pedagogical and psychological.

In addition to the psychological support, two other important variables, also disregarded in the regression model, were related to the hindrance of moving to the UnB campus and selection problems for students who have the right to be attended by the student assistance, as reported in an outburst of one of the respondents:

The worst thing isn’t to be bullied by a rich snob student who lives in the Plano Piloto (noble area of Brasília), the worst thing is to see that some teachers do not give a damn about my situation. They don’t even consider the possibility of having someone in the class who is not rich (in my course most of them are rich anyway, nothing against them) but hey, there are rare cases of people who were not born in a gold cradle, but even so some teachers still charge expensive materials that must be bought even though I don’t have enough money for transport. I wear the same shoes for 3 straight semesters. And then there is a guy who wears branded and expensive clothes, a resident of Guara and who possesses a car commenting that he had to LIE A LOT to get socioeconomic help and I stop receiving even though I was sincere. It is an absurd. And you know why I wrote so much? Because there is no one out there to vent my feelings. No one cares about you anyway.

CONCLUSIONS

Most students stated that student assistance is not enough to cover their needs and ensure their permanence in UnB; and only a minority declared that they worked or engaged in some paid activity outside the course. Only a minority of the respondents stated that students with socioeconomic vulnerability go through problems of moral harassment above normal levels, suggesting that this is not a recurring problem at UnB, however, they criticized the quality of the psychological support offered related to hardships that stem from family distance and lack of leisure.

Regarding academic performance, the results did not suggest a worse performance of
Regarding academic performance, the results did not suggest a worse performance of students in socioeconomic vulnerability. However, there was a direct relationship between the difficulties that comes from deficient formation in secondary education and the less amount of dedication due to the necessity to work. In general, the majority of students who declared to work or perceived difficulties with a poor education in high school are part of the students group who responded they had relatively inferior academic performance.

The information analyzed in this study is essentially corroborated by studies about student assistance and can contribute to the construction of policies that mitigate the negative effects that socioeconomic vulnerability brings to the process of social development in higher education, allowing quality training and minimizing problems of social inequality in the long run.

REFERENCES


**ACADEMIC PERFORMANCE AND HARDSHIPS OF STUDENTS IN SOCIOECONOMIC VULNERABILITY**

**ABSTRACT**

The inclusion of students with low-income in university is complex and demands financial and psychological support throughout the university life of the student in socioeconomic vulnerability. The policy of student assistance has the purpose of increasing the conditions of access and permanence of these students. The objective of the study is to analyze the academic performance and peculiar difficulties faced by students in socioeconomic vulnerability. The data was obtained from 189 questionnaires answered by students enrolled in the student assistance programs of the University of Brasília - UnB and analyzed through logistic regression. The results did not indicate an inferior academic performance of the socioeconomically vulnerable student neither greater moral harassment nor bullying problems commonly associated with this student profile. However, the results were conclusive in the indication that the hardships due to the necessity to work and the worse training received in secondary education limited the academic performance of the students in socioeconomic vulnerability in UnB.

**Keywords**: scholarships, evaluation of educational performance, democratization of education.
DESEMPEÑO ACADÉMICO Y LAS DIFICULTADES DE LOS ESTUDIANTES EN VULNERABILIDAD SOCIOECONÓMICA

RESUMEN

La inclusión de alumnos con bajos ingresos en la universidad es compleja y demanda apoyo financiero y psicológico a lo largo de la vida universitaria del estudiante en vulnerabilidad socioeconómica. La política de asistencia estudiantil tiene como objetivo ampliar las condiciones de acceso y permanencia de estos estudiantes. El objetivo del trabajo es analizar el desempeño académico y las dificultades peculiares de los estudiantes en vulnerabilidad socioeconómica. Los datos fueron obtenidos de 189 cuestionarios respondidos por alumnos registrados en los programas de asistencia estudiantil de la Universidad de Brasilia - UnB y analizados por medio de la regresión logística. Los resultados no indicaron un desempeño académico inferior del estudiante en vulnerabilidad socioeconómica y ni mayores problemas de acoso moral con ese perfil de estudiante. Sin embargo, los resultados fueron concluyentes en el indicativo de que las dificultades derivadas de la necesidad de trabajar y de la peor formación en la enseñanza media limitaron el desempeño académico del estudiante en vulnerabilidad socioeconómica en la UnB.

Palabras clave: becas de estudio. evaluación del rendimiento de la educación. democratización de la educación.

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