The Impact of Higher Education in Transition Students-Graduates in Socio Economic Level and Employment: Colombian Case

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Abstract –The objective of this article is to examine how higher education contributes to students' employment rates and socioeconomic standing once they graduate. A literature review has been conducted, looking to identify the main particularities that exist in the study of higher education's impact in the employment and social status. For the empirical application this study uses a unique primary dataset that includes information about their employment status and socioeconomic standing at the start and at the end of their studies between 2016 and 2021 for 5400 students at Universidad de la Costa. This study employs a multinomial logit model, the result shows that the transition of student-graduates' increases (from 12.4% to 44.4%) the number of persons who are employed when they obtain their degrees. In contrast with the evidence showing significant changes in socio-economic level, there are no significant differences between men and women regarding employment status. The findings of this paper offer relevant information to government and education policymaker to design strategies that promote the higher education in Colombia.

Keywords – Education, socioeconomic, employment, higher education, gender.

1. Introduction

A nation's social, cultural, and economic advancement is significantly influenced by higher education [1], [2]. Its impact can be seen in the comprehensive training provided by academic institutions for professionals and in how observing their work performance leads to social changes. One of the goals of higher education institutions (HEIs) is to equip graduates with the knowledge and skills they need to join the workforce and positively contribute to society. HEIs can assess the success of their institutions by understanding the opinions and job satisfaction of their graduates. In terms of social and professional experiences as a performance component of satisfaction, graduate education helps individuals achieve their life objectives [1], [3], [4].

Several studies have assessed graduates' overall program satisfaction, providing insight into the elements that influence both favorable and unfavorable opinions of their educational experiences. Notably, [5], [6] and [7] have made significant contributions in this field by offering a thorough summary of graduates' satisfaction across various disciplines and geographical areas. For instance, [6] study on the satisfaction of Australian psychology graduates found that course content and the social experiences students had while pursuing their education were crucial in determining their positive satisfaction levels. These results highlight the value of a well-designed curriculum that supports students' academic and professional goals while also fostering a sense of belonging and community among them.

On the other hand, [5] reported satisfaction scores for graduates from eight academic disciplines and eleven European nations in a study that serves as trustworthy evidence that social experience and course content determined graduates' happiness, while facility constraints, research project participation, and teaching opportunities were important factors determining graduates' dissatisfaction.

This implies that for students to feel fully prepared for their professional roles, they need real-world, hands-on experiences. According to the same authors, providing students with more opportunities to engage in research and teaching might help them become more proficient in the real world and feel more satisfied with their academic programs overall.

Several studies have also examined graduates' employment and overall well-being. For example, [8] provided a basic framework for employability, highlighting the significance of personal flexibility and the dynamic nature of the labor market. More recently, [9] examined how societal and institutional frameworks affect graduates' perceptions of their employability and career prospects, reviewing the social construction of the graduate labor market in the UK and the Netherlands. Lastly, [10] looked at various employability factors, such as human capital, personal flexibility, social capital, and professional identity. They discovered that human capital, such as educational background and job-related skills, is essential for securing employment. Despite the wealth of information available, no research has been conducted in different environments outside of Europe.

Therefore, researching graduates' contentment offers a pertinent opportunity to expand this field's body of literature. The primary goal of this research is to ascertain how higher education affects graduates' transition to a better socioeconomic standing and employment situation in Colombia. Additionally, this study examined whether a student's gender influenced changes in their employment status and socioeconomic status from the beginning of their studies until graduation.

Considering the previously mentioned points, this study contributes to the body of literature in several ways. First, it considers the socioeconomic level and employment status of students during their studies as factors to quantify the impact of the student-to-graduate transition. Second, from a theoretical standpoint, it advances knowledge of the specific characteristics and work experiences that are critical to enhancing the performance and satisfaction of recent university graduates. Third, the study evaluates how graduate satisfaction is influenced by gender. Finally, the results of this study provide fresh insights into how gender affects graduates' satisfaction in Colombia and Latin America. The study will offer empirical data to improve understanding of the conceptual models of graduate satisfaction and their relevance to the phenomena being studied.

The remainder of the paper is organized as follows. Section 2 presents the research design and methodology of this study. Section 3 presents the data analysis and results.

Section 4 discusses the managerial implications, and Section 5 provides the concluding remarks.

2. Methodology Section

The research combines primary data captured by a survey conducted in two periods (2016-2021). The first survey was administered when the students began their studies, and the second was conducted when the students completed their studies to obtain their degrees. The instrument collected personal information, socio-economic level, and employment status to identify changes in these variables over time. A total of 5,400 students who graduated complied with these conditions.

The variables used in the research are as follows: gender, socio-economic level, employment status, and area of studies. Gender was measured as a binary variable, with one (1) indicating men and zero (0) indicating women. Socio-economic level was measured on a scale from 0 to 6, where 0 represents "low socio-economic level" and 6 represents "high socio-economic level." Employment status was measured as a binary variable, with one (1) signifying that the graduate is employed and zero (0) otherwise [11]. Time of studies was measured as the duration from the start of their studies until they obtained their degrees. Finally, the area of studies was measured as a dummy variable classified into five categories: Architecture, Business Studies, Social Sciences, Law, and Engineering [12], [23].

3. Results

To test the research questions, a sample of graduates from Universidad de la Costa, who began and finished their studies between 2016 and 2021, was used. The university collected this sample to obtain detailed information about university graduates' profiles, socio-economic levels, and employment situations to identify changes during the period of study. The sample consisted of 5,400 graduates.

Table 1 presents the summary statistics of the variables used in the analysis of the 5,400 university students who graduated between 2016 and 2021. Table 1 shows that 49.3% of the graduates were men, their average socio-economic level was 2.195, and 12.4% were employed at the beginning of their studies. Additionally, the results indicate that by the end of their studies, the average socio-economic level decreased to 1.981, while the employment rate increased to 44.4%. Regarding the study areas, 46.5% of the graduates were from engineering, 25.7% from business studies, 14.8% from social sciences, 6.4% from law, and 6.3% from architecture.

Table 1. Descriptive statistics

Variables	Mean	s.d.
N:5400		
Gender (men=1)	0.493	0.499
Time of studies (years)	4.903	1.120
Socio-economic level at start	2.195	1.001
Socio-economic level at the end	1.981	1.064
Employment situation		
With employment at the beginning of studies.	0.124	0.4436
With employment at the end of studies.	0.444	0.4926
Labour transition 0: Without employment at the beginning and without employment at the end of the studies.	0.508	0.499
Labour transition 1: Without employment at the beginning and with employment at the end of studies.	0.367	0.482
Labour transition 2: With employment at the beginning and with employment at the end of studies.	0.077	0.267
Labour transition 3: With employment at the beginning and without employment at the end of studies.	0.046	0.210
Area of Studies		
Architecture	0.063	0.243
Business Studies	0.257	0.438
Social sciences	0.148	0.356
Law	0.064	0.246
Engineering	0.465	0.498

On the other hand, Table 2 presents the results of the Wilcoxon and Kolmogorov-Smirnov tests. The Wilcoxon test checks whether the mean values of two dependent groups differ significantly from each other, while the Kolmogorov-Smirnov test determines whether there is evidence that the same variable is distributed differently between two groups or if two variables are distributed differently [13]. The results in Table 2 show that the transition of student-graduates decreases (from 2.915 to 1.981) towards lower socio-economic levels upon completion of their studies.

These results are significant, indicating that the distribution by socio-economic level of men and women is the same, both at the beginning and at the end of the studies (Figure 1). This implies that changes in socio-economic level at the end of the degree are not associated with gender factors (Figure 2). Furthermore, the transition of student-graduates increases (from 12.4% to 44.4%) the number of persons who are employed when they obtain their degrees. In contrast with the evidence showing significant changes in socio-economic level, there are no significant differences between men and women regarding employment status.

Table 2. Results of Wilcoxon and Kolmogorov-Smirnov test (comparison: beginning of studies versus end of studies)

	Z-Wilcoxon	Sig.
Total Sample (N=5400)		
A) Socio-economic level: Value	-15.635	$p = 0.0000$
Changes (descriptive value)		Positive changes: 811 Negative changes: 1578 Without change: 3011
B) Employment situation (employee = 1)	36.661	$p < 0.0000$
Changes (descriptive value)		Positive changes: 1982 Negative changes: 250 Without change: 3168
Gender analysis (Men = 2663)		
A) Socio-economic level: Value	-11.129	$p = 0.0000$
Changes (descriptive value)		Positive changes: 410 Negative changes: 793 Without change: 1460
B) Employment situation (employee = 1)	26.323	$p < 0.0000$
Changes (descriptive value)		Positive changes: 1013 Negative changes: 125 Without change: 1525
Gender analysis (Women = 2737)		
A) Socio-economic level: Value	-10.994	$p = 0.0000$
Changes (descriptive value)		Positive changes: 401 Negative changes: 785 Without change: 1551
B) Employment situation (employee = 1)	25.517	$p = 0.0000$
Changes (descriptive value)		Positive changes: 969 Negative changes: 125 Without change: 1643
Test of equal distributions (Kolmogorov-Smirnov) of socio-economic level by gender	**K-S value**	**Sig.**
Socio-economic level at start	0.0378	$p = 0.042$
Socio-economic level at the end	0.0217	$p = 0.548$

Figure 1 presents the results of Kernel density estimation methods, which are used to estimate data densities that do not follow parametric statistical behaviors (i.e., they are not grouped into normal, binomial, exponential, etc., distributions).

Figure 1 shows the distribution of changes in the socio-economic level, comparing the start and finish of the studies. Figure 2 displays the comparison of the socio-economic level between men and women at the start and end of their studies and Figure 3 socio-economic level at the end.
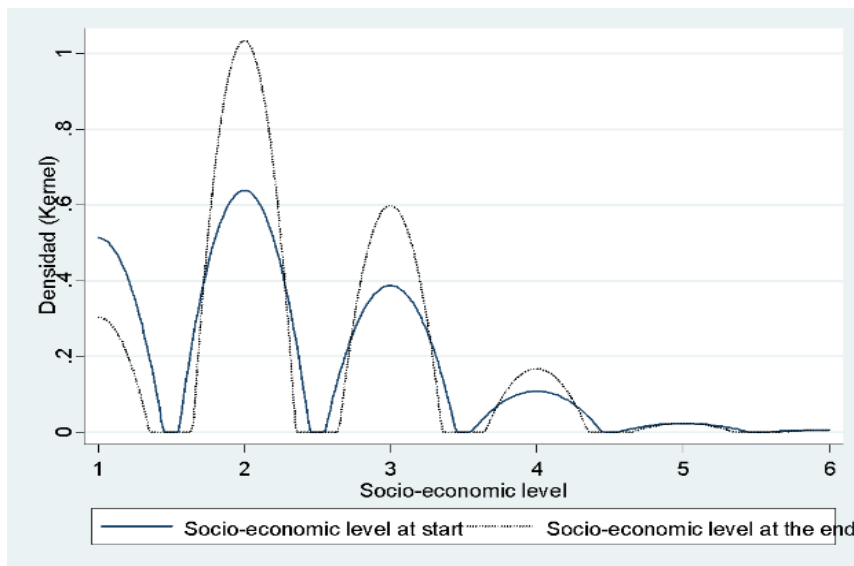
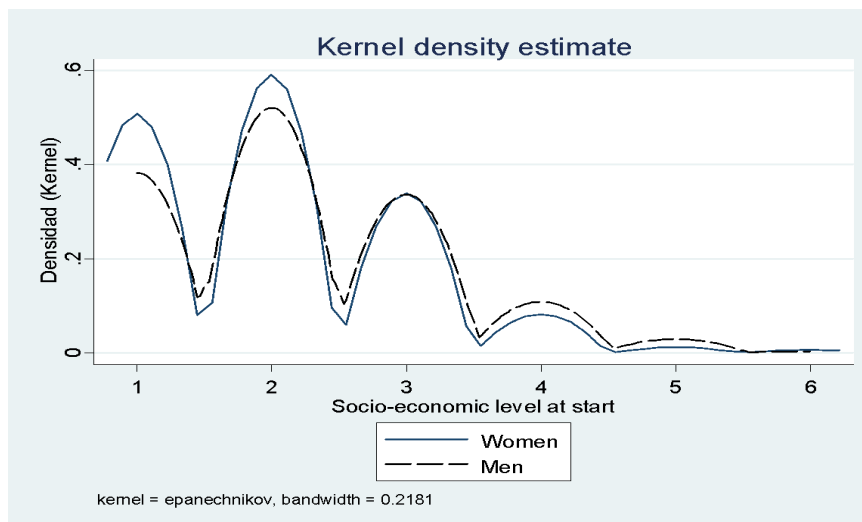*Figure 1. Kernel density estimation methods: distribution by socio-economic level*

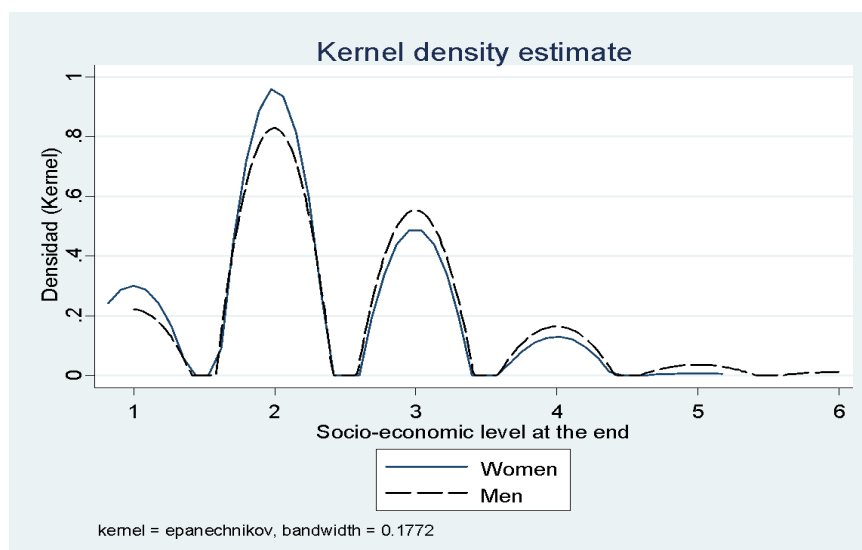*Figure 2. Kernel density estimation methods: socio-economic level at start*

Figure 3. Kernel density estimation methods: socio-economic level at the end

Regarding the behavior of the student-graduate transition in employment situation and to identify the determinants of this transition, a multinomial logit model is employed. Table 3 shows employment transitions throughout university experience, from the beginning to the end of their studies.

The evidence indicates that 50.9% of the students do not change their employment status (without employment at the beginning and without employment at the end of the studies). Additionally, 36.7% of the student-graduates change their employment status (without employment at the beginning and with employment at the end of studies).

Table 3. Students-graduates employment status: employment transitions

Laboral situation	Students-graduates	%
Labour transition 0: Without employment at the beginning and without employment at the end of the studies	2749	50.9
Labour transition 1: Without employment at the beginning and with employment at the end of the studies	1982	36.7
Labour transition 2: With employment at the beginning and with employment at the end of the studies	420	7.77
Labour transition 3: With employment at the beginning and without employment at the end of the studies	250	4.63
Total	5400	100

In Table 4, the results of the multinomial logit regression are presented. Concerning gender, the findings are mixed: There are no gender differences in the employment transition among students who finish their degree with a job (Labor Transition 1 and 2).

The probability of losing a job (Labor Transition 3) during the degree decreases by 21.1 percentage points among women, compared to the probability of the group of unemployed students (Labor Transition 0).

Table 4. Multinomial logistic regression: results (for the interpretation of results, the reference group is labor transition 0: unemployed at the beginning and at the end of the career)

Student Employment Transitions: Average Marginal Effect		
	Labour transition 1	**Labour transition 2**	**Labour transition 3**
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Gender (1= men)	0.063 (0.321)	0.067 (0.547)	0.211 (0.122)
Socio-economic level at start	0.152 (0.000)***	0.021 (0.687)	0.042 (0.512)
Time of studies (years)	-0.093 (0.001)***	–0.117 (0.023)*	-0.316 (0.000)***
Architecture	-0.303 (0.016)**	-1.191(0.003)**	-0.005 (0.988)
Business Studies	0.495 (0.000)***	1.397 (0.000)***	1.222 (0.000)***
Social sciences	-0.505 (0.000)***	-0.632 (0.003)**	-0.132 (0.522)
Law	-0.392 (0.002)***	-0.519 (0.072)*	–0.029 (0.927)
Engineering	omitted	omitted	omitted
Constant	-0.232 (0.000)***	-1.691 (0.000) ***	-1.422 (0.000)***
Wald test (chi2) = 393.44***			
Pseudo R2 = 0.0359			
N	1982	420	250

Note: *, **, *** indicate significance at the 10%, 5%, and 1%, respectively.

On the other hand, the socio-economic level of the students at the beginning of their studies does not affect the probability of getting a job. However, the probability of losing a job (Labor Transition 3) during the degree decreases by 31.6 percentage points among the students who prolong their degree the longest (more years of study), compared to the probability of the group of unemployed students (Labor Transition 0).

Furthermore, getting a job is possible among the group of students who begin their studies without a job but finish their degree with a job (Labor Transition 1). The probability of getting a job decreases if they study degrees in Social Sciences (by 50.5 percentage points), Architecture (by 30.03 percentage points), and Law (by 39.2 percentage points). In the case of Business Studies, the probability of getting a job increases by 49.5 percentage points compared to students studying Engineering (reference course).

4. Managerial Implications

Multiple regression models were utilized to test the stated hypotheses on a sample of 1,261 graduates from Universidad de la Costa in Colombia for the year 2019. The results align with previous research highlighting the positive correlation between graduates' happiness and job status [6], [14].

The findings also indicate significant differences between men and women regarding employment status and graduates' satisfaction levels, with women generally experiencing lower employment rates than men.

In general, men's employment success emerges significantly higher than that of their female counterparts. Additionally, consistent with other research, the data show that men and women enter the job market at different times following graduation [15], [16], [17]. The results also reveal a strong relationship between graduates' satisfaction and employment status, consistent with findings by [18]. Overall, this suggests a strong market connection between job status and satisfaction. Furthermore, factors such as job identity, social capital, and human capital are particularly crucial to university graduates' contentment [19].

Given these results, it has been observed that salary income does not influence graduates' satisfaction significantly. This may indicate that other factors, such as job characteristics, occupational sector, country, skills, university education [5], [20], and the degree of social capital [22], play more critical role in determining graduates' satisfaction. Importantly, these results validate the assertion that graduates' happiness is a crucial component of higher education institutions, potentially influencing decisions about which university to attend for professional courses or postgraduate training [21].

5. Conclusion

The conclusions of the study hold substantial real-world applications. Firstly, they provide valuable insights to Colombian regulators, universities, decision-makers, and policymakers on the factors contributing to graduates' happiness. These stakeholders should consider these results when advocating for policies aimed at expanding graduate employment prospects through legislative mandates or recommendations. Additionally, university administrators can align curriculum and competencies with industry needs to enhance graduates' employability.

Moreover, graduates' happiness, as it fosters a close bond with the institution, is identified as a critical component of higher education institutions. Emphasizing gender perspectives and incorporating graduates from diverse fields of expertise can help address disparities in job satisfaction and employability between males and females.

Furthermore, the knowledge gained from this research can significantly influence the development of curricula and instructional approaches in higher education. Educational institutions can design more relevant and engaging academic programs that improve learning outcomes and better prepare students for evolving demands in the job market by understanding the unique needs and expectations of graduates. Proactively increasing employment rates and enhancing job satisfaction among graduates can enhance the overall reputation and competitiveness of institutions.

The study's focus on gender disparities underscores the importance of targeted efforts to address the specific challenges faced by male and female graduates. Initiatives such as networking events, career counseling, and mentoring programs tailored to diverse student demographics can create a supportive and inclusive environment that promotes fairness and enhances every graduate's employability and sense of fulfillment.

Ultimately, these practical implementations of the study's findings may contribute to a more adaptable and dynamic higher education system that effectively bridges the gap between professional success and academic preparedness.

Future research should acknowledge several limitations of the current study. Firstly, the study's cross-sectional nature and one-year data collection period limit firm conclusions about the causal relationships in graduates' satisfaction metrics. Longitudinal analysis is essential for future research to explore these correlations over time.

Secondly, while the study included graduates from the previous five years to capture changes in attitudes over increasing social and professional experiences, it would be beneficial to examine data from a broader range of time periods pre- and post-graduation.

This would provide higher education institutions with pertinent insights into the evolution and societal impact of graduates.

Thirdly, replicating this study with samples of Colombian graduates from diverse institutions and across various educational fields can ascertain the variables influencing graduates' happiness in different contexts. Such comparative studies can inform international educational policies and identify best practices.

Finally, the study's context-specific findings in Colombia necessitate caution in interpreting and generalizing the results. External variables such as economic conditions and employment market volatility, which were not fully accounted for in this research, significantly impact graduates' job satisfaction and outcomes. Future studies should incorporate comprehensive economic indicators and trends to enhance the robustness and applicability of their findings.

Additionally, mitigating biases associated with self-reported data, such as respondents' perspectives and memory accuracy, can be addressed through mixed method approaches like focus groups and qualitative interviews. These methods can offer deeper insights into graduates' experiences and perceptions.

In conclusion, the study's emphasis on Colombian graduates underscores the importance of comparative research across global educational systems to understand universal trends and cultural variations in graduates' job satisfaction and employability. Comparative studies can inform international educational policies and practices, fostering informed decision-making and strategic planning.

Furthermore, given the growing importance of technology in today's workforce, future research on the impact of digital literacy and technical skills on graduates' job satisfaction and employability is warranted. Incorporating these additional factors will strengthen research in this field and enhance its relevance in shaping educational programs and policies globally.

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