Tuition Fees and Academic Decisions: Unpacking the Impact on the Students of Tehran University's Management Faculties

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ARTICLE INFO	ABSTRACT
Article type: Research Article **Article History:** Received 31 July 2023 Revised 25 October 2023 Accepted 18 December 2023 Published Online 12 June 2024 **Keywords:** *Evaluation, Tuition, Academic Decisions, Natural Experiment, Multinational Logistics.*	The upcoming research has been compiled to evaluate the effects of tuition fees on the academic decisions of Tehran University Management Faculties students. In this descriptive research, the statistical population consists of all master's and Ph.D. students of the management faculties of Tehran University in the last five years (2015-2020). Data were analyzed using the natural experiment method. Two different statistical models were fitted. In the first model, the independent variable (the type of course for tuition payers) was significant in deciding to drop out, while the independent variable (year) was significant in deciding to take a leave of absence. In the second statistical model, independent variables (age, GPA, and degree) were significant for the academic decision to drop out, and the independent variable (year) was significant for the academic decision to leave. Among the affecting variables, the type of the tuition-paying course was variable in such a way that the ratio of the probability of the academic decision to drop out for tuition-paying students was almost twice the ratio of the academic decision to drop out for non-tuition students in the management faculties of the University of Tehran.

Introduction

Higher education plays a crucial role in multiple facets of human life. On a broader scale, it contributes significantly to nations' overall growth and development, encompassing public works and benefits. On a more personal level, a university education offers enduring advantages, such as boosting annual income, securing better employment opportunities, enhancing one's quality of life, and elevating social status. These benefits and advantages are well-documented (Afrin et al., 2020). Nevertheless, in the aftermath of global financial crises, including the 2008 economic downturn, governments have grappled with substantial funding shortages for higher education (Teixeira et al., 2014). Furthermore, recent non-financial crises have exacerbated this issue. For instance, the economic upheaval caused by the outbreak of COVID-19 has had a profound impact on the financial resources available for higher education (Rosinger et al., 2022). This has led to a significant surge in tuition fees at universities over time (Millon, 2021). The factors driving tuition increases differ in both public and private universities. Hauptman (1990) outlines five distinct reasons for the uptick in tuition fees in higher education: 1) escalating costs incurred by higher education institutions and universities when procuring various goods and services; 2) adoption of newer services within higher education institutions and universities; 3) a decrease in the proportion of funding from other non-tuition revenue sources, such as government grants; 4) expansion of student financial aid from diverse sources; 5) heightened competition among academic institutions.

The substantial tuition fee surge, its consequential impact on students' academic decisions, and recommended policy solutions to address the tuition dilemma are subjects of deliberation in decision-making circles. The alignment of the escalating tuition fees in higher education with the inflation rate within societies relative to family incomes has transformed tuition into a crucial policy matter in higher education (Lee et al., 2020). Consequently, various interest groups have consistently criticized the high tuition fees and educational expenses in universities (Ma et al., 2020). An examination of the historical trajectory of this issue reveals that tuition fees at higher education institutions and universities have risen over time, typically surpassing the general inflation rate and the consumer price index (Archibald & Feldman, 2018). This trend holds true across all sectors of higher education, encompassing universities as well as private and public two-year and four-year higher education institutions. What unites all these concerns is that the cost of higher education has evolved into a significant worry for students and their families. This is because the tuition and educational expenses borne by students (and families) have become a deterrent factor in pursuing education and a pivotal determinant in the decision to discontinue studies (Hemelt & Marcotte, 2011). This has raised more apprehension, particularly among families with modest to lower economic means (Napolitano et al., 2014).

To address the aforementioned concerns and tackle the tuition issue, Rosenberg (2019) proposes that, given the existing financial constraints, policies policies policies tuition policies should be reevaluated. Simultaneously, there should be a consideration for providing financial assistance to students hailing from lower socio-economic backgrounds. However, one of the most significant drawbacks associated with the recommendation of financial aid policies is the anxiety regarding student debt. This apprehension, both at the micro-level (among students) and the macro-level (involving universities and governments), has adverse consequences that merit attention due to the accumulation of student debt. Some reports have even characterized students' fear of debt as a societal issue, impacting their subsequent decisions like entering the workforce or starting a family (Kamenetz, 2006).

Another noteworthy aspect to consider is the impact of the fear of debt on the career choices made by graduates in the job market (Kim & Kim, 2022). There is a limited body of research that has explored the ramifications of student debt on job hunting and labor market outcomes, including studies conducted by Ji (2021), Luo and Mongey (2019), Weidner (2016), and Rothstein and Rouse (2011). Ji (2021) discovered that students burdened with debt tended to spend less time seeking employment and often ended up in lower-paying positions. Conversely, Luo and Mongey (2019) and Rothstein and Rouse (2011) observed that college graduates with higher debt levels were more inclined to opt for higher-paying jobs at the expense of job satisfaction. Another cluster of studies has highlighted the adverse influence of the fear of debt on decisions regarding further education at higher levels (Kim, 2004; Millett, 2003). Some additional research has centered on the connection between this fear of debt and students' academic performance (Nora et al., 2006). A particularly significant adverse consequence of this fear of debt is its impact on students' mental well-being (Zhang & Kemp, 2009). Conflicting

research exists regarding tuition's impact on student decisions. Some suggest that higher tuition decreases enrollment, retention, and graduation (Huang, 2012), while others find no discernible effect (Vasigh & Hamzaee, 2004). This complex literature underscores multifaceted factors influencing student decisions, including race, gender, financial capacity, field of study, and academic performance (St. John et al., 2005). It highlights the intricate relationship between students and tuition costs.

Analyzing tuition effects on academic choices involves terms like "tuition elasticity" (Shin & Milton, 2007) and complexities like Hauptman's "No Overarching Explanation" (1990). Other researchers term it a "tuition paradox" (Heller, 2001) or "tuition puzzle" (Wellman, 1999). Winston (2003) notes the pervasive attention given to tuition fees in higher education. The influence of tuition on academic decisions remains enigmatic, with research findings in conflict. Advanced methods, such as the natural experiment, have evolved to provide more conclusive evidence. This study employs the natural experiment to precisely assess tuition's impact on master's and Ph.D. students in management faculties.

On the one hand, universities across various setups have inevitably implemented tuition policies as a means to offset financial shortfalls, with tuition amounts steadily increasing each year. On the other hand, this uptick in tuition has prompted shifts in students' academic decisions, and so far, political measures addressing education loans have fallen short of resolving this issue. Therefore, it is imperative to address this matter comprehensively, taking into account both sides of the equation. The research focuses on the entire collection of management faculties at Tehran University. This choice is driven by Tehran University consistently raising its tuition fees annually. Additionally, the university employs a multifaceted tuition structure encompassing full tuition, full-time programs with fees, e-learning, and campus courses, each of which incurs varying tuition charges[1]. While annual tuition hikes and the complexity of tuition fee structures persist, there remains a pressing need for empirical evidence to shed light on how these tuition increases impact students' academic decisions. Given the University of Tehran's prominent standing and role within the country's educational landscape, addressing this knowledge gap becomes imperative. Neglecting this task could lead to the misallocation of financial and human resources, diminished effectiveness in the university's operations at a micro level, and broader inefficiencies in higher education as a whole. Conversely, acknowledging and dissecting the influence of tuition fees on students' academic decisions allows one to enhance individual academic decisions and tailor Tehran University's plans and initiatives more effectively on a larger scale.

Despite the significance of this subject, more research is needed to examine the impact of tuition fees on academic decisions among students at Tehran University. Consequently, there is a pressing need to gather information regarding how the yearly tuition fee increases at the University of Tehran affect students within the faculties of Management. Furthermore, it is essential to delve into the existing body of research literature on tuition fees, both in domestically published studies and through further exploration of tuition-related topics in Iran's higher education landscape. The outcomes of this study are poised to offer a comprehensive understanding of how tuition fees influence students' academic decisions, serving as valuable insights for university administrators and policymakers. This understanding can be instrumental in optimizing management policies and tuition-related strategies as it facilitates better prediction of the factors that impact students' academic decisions. Recognizing and pinpointing these factors make enhancing university policies, guidelines, and regulations feasible.

Additionally, the findings of this research can contribute to the formulation of more precise financial policies at the university and higher education levels. Policy interventions, such as tuition discounts and differential tuition policies, can be better tailored to establish a more realistic and effective synergy between policies, maximizing their efficiency and impact. With this context in mind, this research has been undertaken to assess the impact of tuition fees on the academic decisions of management students at Tehran University over the past five years, discerning the extent to which tuition has influenced students' academic decisions.

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1. Statistical evidence presented herein demonstrates a persistent upward trajectory in the tuition fees levied by Tehran University across diverse academic disciplines (https://academics.ut.ac.ir/).

Research background
This section discusses three sub-sections: the supporters and opponents' viewpoints of tuition fees in higher education, theories related to the effects of tuition on academic decisions, and studies on the evaluation of the effects of tuition on students' academic decisions.

Supporters and opponents' viewpoints of tuition fees in higher education
Opinions on tuition fees are divided, with both positive and negative perspectives. Advocates argue that universities and higher education institutions should offer tuition-free education to address social and economic inequality issues. Additionally, there is a call for forgiving or canceling previous student debt (Kreighbaum, 2019). Based on their research findings, Dynarski et al. (2018) have also highlighted that reducing tuition fees is a primary way to bridge the gap between high-achieving students from lower economic backgrounds and their counterparts from more affluent backgrounds. Conversely, opponents argue that, given the current financial constraints and shortages, there are more effective solutions than making higher education entirely accessible (Millon, 2021). Some researchers' express concerns about the impact of increased accessibility to higher education, suggesting that it may diminish the efficiency of higher education institutions and lead to lower-quality programs (Winograd & Staisloff, 2016), resulting in less effective learning environments, among other issues. Additionally, some believe that making higher education more accessible may yield more drawbacks than benefits (Davidson, 2015).

Theories related to tuition effects on academic decisions
Human capital theory: The pertinence of this theory to the impact of tuition on academic decisions lies in how various forms of financial assistance for students influence their decisions regarding higher academic achievement, enrollment, the continuation of their education, and other educational choices. However, tuition hikes can act as a deterrent to fostering investment in knowledge among students (Cameron & Taber, 2004). In accordance with this theory, individuals pursue higher education when the benefits it offers outweigh the associated costs. Therefore, the objective of providing financial aid to students is to alleviate the financial burden of education, boost student enrollment, and create conditions that enable students to persist in their studies (Bettinger et al., 2019).

Public choice theory: Economists commonly assert that individuals in private markets are primarily driven by their self-interests, and this perspective also extends to the public choice theory, which, however, generalizes this assumption to encompass bureaucratic systems. At the core of public choice theory lies the examination of the behavior of public sector bureaucrats. While it is typically expected that bureaucrats and policymakers should operate in a manner that prioritizes the efficient and effective utilization of public resources in policy-making, the public choice theory posits that, like anyone else, they act in pursuit of their desires and needs (Malek Mohammadi, 2007). The relevance of this theory to the impact of tuition fees on academic decisions is that the government, as the primary investor in higher education, is viewed as the primary provider rather than relying on market-oriented mechanisms with a utilitarian approach to investment. However, striking a reasonable balance between university tuition fees and government budgets is crucial. Furthermore, there should be a harmonious relationship between the extent and type of government financial aid and the level of tuition fees.

Theory of producer organization: According to this theory, production entities are seen as purposeful mechanisms geared toward achieving specific objectives. These mechanisms operate in a cyclical manner, where they employ production factors (inputs) on one end and, after undergoing necessary processes, generate a distinct product in the form of a commodity or service, which is then provided to those in need (Naderi, 2017). The applicability of this theory to the implications of tuition fees on educational choices lies in viewing the university as a production entity that, akin to a production process, receives a sequence of inputs and transforms them into outputs or products through a series of operations. It is important to note that the nature and characteristics of these inputs, processes, and outputs differ.

Scarcity theory elucidates the behaviors and choices of individuals confronted with scarcities in specific aspects of their lives. Mullainathan and Shafir (2013) define scarcity as having less than what one perceives they need. Scarcity can manifest in various contexts, particularly when individuals

experience financial deprivation (Cannon et al., 2019). This theory draws upon several cognitive traits inherent to humans that influence (economic) decision-making. The core concept of the scarcity theory revolves around how scarcity instigates a particular mindset that shapes individuals' thinking, decision-making processes, and, ultimately, their behaviors (Zhao & Tomm, 2018). The applicability of this theory to the repercussions of tuition fees is pertinent to academic decisions at both the individual level and within the purview of universities and governments. At the individual level, students grapple with scarcity when making various academic decisions impacted by tuition fees. They confront intricate decision-making scenarios considering opportunity costs and expected returns. Administrators contend with severe financial constraints at the university level due to the steep rise in expenses across various departments. Consequently, determining tuition levels and the nature and extent of financial aid becomes exceedingly complex yet crucial, aligning with the university's revenue and expenditure dynamics. On the government level, given their multifaceted roles in various sectors, governments perennially contend with limited financial resources, leading to intricate decisions on resource allocation to higher education compared to other sectors, such as healthcare and security, thereby adding layers of complexity to their decision-making processes.

Financial Nexus Theory: According to this theory, the capacity of financial assistance to shape students' decisions within a university hinges on the presence of available aid and students' comprehension of university expenses. The central aim of this theory is to shed light on how students react to financial aid under varying circumstances. Scholars in higher education, including economists, have long believed that information regarding both aspects is readily accessible but not consistently understood. However, this theory underscores the significance of individuals' perceptions, particularly emphasizing them (St. John et al., 2005).

Standard Economic Theory: According to this theory, all else being equal, a reduction in expenses will lead to a higher likelihood of students choosing to enroll in a college. Empirical research findings on the impact of university fees on students' enrollment decisions also corroborate this notion (Acton, 2018).

Studies on the evaluation of the effects of tuition on students' academic decisions
In their research titled "Students' Perspectives on Reasons for Dropping Out and Potential Retention Strategies," Huo et al. (2022) conclude that financial concerns are one of the most significant factors contributing to the decision to drop out of education. Furthermore, factors like residency status, social class, and occupation influence this academic choice. Stoyanova and Goranova (2021), in their study examining the impact of a tuition fee increase on the dropout rate within a nursing program, found that most students perceived the current tuition rates as excessively high. Moreover, an increase in tuition fees exceeding 30% results in a substantial decrease of 68.8% or more in the percentage of students willing to continue their studies. Moulin et al. (2016), in their investigation titled "Tuition Fees and Social Segregation: Insights from a Natural Experiment at the University of Paris 9-Dauphine," discovered that rising tuition fees had the effect of limiting students' geographical and social mobility. Contrary to some earlier studies, these findings do not support the notion that increased tuition fees drive students to strive harder for academic success. In fact, this research found no evidence indicating that tuition fees have an impact on students' success rates or early graduation. Thomsen and von Haaren-Giebel (2016), in a study titled "Did Tuition Fees in Germany Constrain Students' Budgets? New Insights from a Natural Experiment," revealed that increases in tuition fees would lead to a reduction of approximately 4% in students' budgets. Due to their limited personal finances, students are compelled to seek financial support from their parents or resort to taking out loans to sustain their education.

In a concise overview of the research background, the primary aim of this study is to assess how tuition fees impact the academic decisions made by graduate students within management faculties. As mentioned earlier, existing research yields conflicting outcomes on this subject. In recent years, there has been a shift toward employing the natural experiment method in developed nations to enhance the robustness of evidence regarding students' academic decisions and tuition fees. Consequently, this research marks the country's first attempt to evaluate the influence of tuition fees on students' academic decisions using the natural experiment method. Although relatively modest, this research endeavor contributes to enriching the domestic research literature. Its implementation within Tehran

University, a prominent symbol of higher education in the country, has the potential to yield significant political accomplishments for higher education policymakers in shaping policies, university administrators in strategizing, and families and students alike.

Research Method

This study has a practical objective and falls under the category of quantitative research in terms of data analysis. The research encompasses all master's and Ph.D. students within Tehran University's management faculties over the past 5 years (2015-2016). Data collection was conducted using a complete census approach. The total count of master's and Ph.D. students within the management faculties during these 5 years amounted to 3,392. Given the disparities in academic decision-making between master's, Ph.D., and bachelor's students, the statistical population was confined to master's and Ph.D. students.

The data were initially in Excel file format. After organizing and addressing issues such as missing data, extracting the necessary independent variables, and creating dependent variables, the data were then imported into an SPSS file for the subsequent statistical analysis. In terms of validity and reliability, it is important to note that, unlike quantitative data collected by the researcher, the data in this study are derived from archived real-life information from the sample population's daily activities. Therefore, the conventional validity and reliability calculations typically applied to researcher-collected quantitative data do not apply.

Figure (1) presents the distribution of students in Tehran University's management faculties, categorizing them into those who pay tuition and those who do not.

As depicted in Figure 1, 46% of students within the management faculties pay tuition, while the remaining 54% are students exempt from tuition fees. Subsequently, Figure (2) illustrates the distribution of academic decisions among students in Tehran University's management faculties who have made academic decisions.
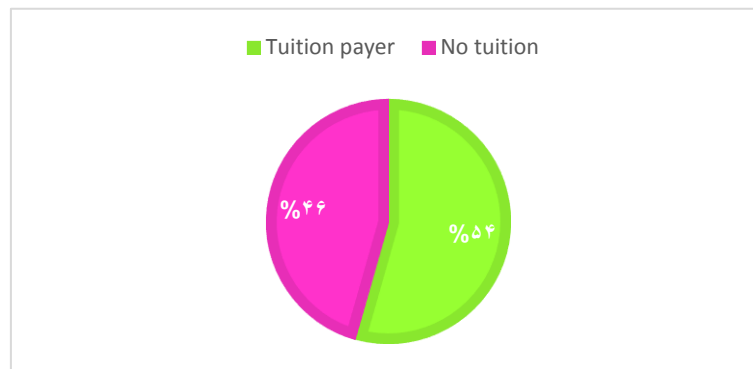
Fig. 1. The percentage of tuition-paying and non-tuition-paying students
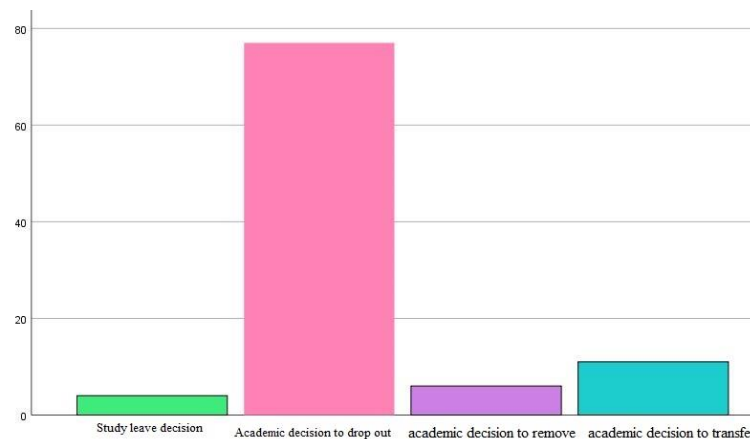
Fig. 2. The percentage of each academic decision for students

According to Figure 2, the most academic decision is to drop out, followed by students who have the decision to transfer. The students who have decided to remove and study leave are in the following ranks.

The research employed the natural experiment method, which relies on events and interventions that have taken place in the past, beyond the control or influence of the researcher (Leatherdale, 2019). When a researcher lacks the capacity to manipulate the timing of such events or interventions—for example, environmental or structural changes (like the construction of a new grocery store), the introduction of a new program (such as a state-level virus vaccine initiative), or a policy modification (like the enactment of state laws)—these occurrences are deemed natural. In this context, the researcher assesses the outcomes and ramifications of these changes (Leatherdale, 2019). Subsequently, a comparison is drawn between the group that experienced the intervention and the group that did not. The following section provides an outline of how groups are categorized within the natural experiment method. Figure (3) offers a general depiction of the natural experiment method's application in evaluating the impacts of tuition.
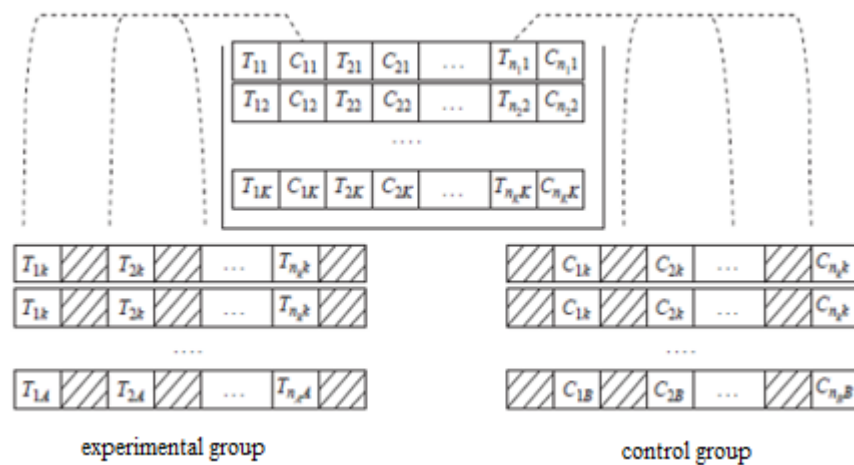

Fig. 3. General representation of the natural experiment method

Independent variables include gender (Garrett & Greene, 2018; Acton, 2018; Hübner, 2012), native status (Acton, 2018; Dwenger & *et al*, 2012), degree (Dietrich & Gerner, 2012; Dwenger & *et al*, 2012; Hemelt & Marcotte, 2016), GPA (Andrieu & John, 1993; Hemelt & Marcotte, 2016), marital status (Callender & Jackson, 2005: 2008), nationality (Moulin *et al*, 2016), age (Callender & Jackson, 2008; Dwenger & *et al*, 2012; Neill, 2015), financial aid (Vasigh & Hamzaee, 2004; Doyle, 2011; Havranek *et al*, 2017), the number of children (Callender & Jackson, 2005; Neill, 2015; Hemelt & Marcotte, 2016), the type of course (Vasigh & Hamzaee, 2004; Dwenger & *et al*, 2012; Havranek *et al*, 2017), and year (Dwenger & *et al*, 2012; Dickson & Pender, 2013). Dependent variables include the decision to transfer, the decision to drop out, the decision to remove, and the decision to leave (Moulin *et al*, 2016; Hübner, 2012; Martindale, 2015).

A dummy variable was generated for analysis through multinomial logistic regression to accommodate the dependent variable's integration, which consists of multiple binary variables. Following the formula for constructing k-1 dummy variables, one of the academic decisions, namely, the choice to become a guest, was excluded. Furthermore, the reference decision, serving as the basis of comparison within the dependent variable, is students who have yet to make an academic decision. Figure (4) illustrates the research's conceptual framework.
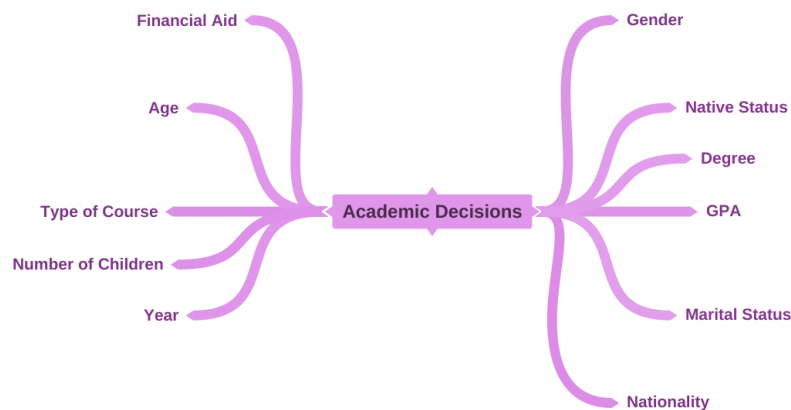
Fig. 4. The conceptual framework of the research

Binary academic decisions were merged, and multinomial logistic regression (LR) was used to examine the probability and predict a bivariate variable. Therefore, this regression's dependent variable is based on the Bernoulli distribution. This modeling is used when combining continuous and discrete independent variables, and the dependent variable has two categories. Suppose Y is a binary response variable and X is an explanatory variable of quantitative type. If $\pi(x)$ indicates the probability of success under observing a particular value of x, then the probability of $\pi(x)$ is considered a parameter of the binomial distribution. The LR model has a linear form based on the logit probability of $\pi(x)$:

$$logit\left[\pi\left(x\right)\right]=\log\frac{\pi(x)}{1-\pi(x)}=\alpha+\beta x$$

Function 1. Logistic regression formula

Another formula for LR is defined directly based on the probability of success. This formula uses the exponential function $[\![\exp(x)=e]\!]^x$ as follows:

$$\pi\left(x\right)=\frac{e^{\alpha+\beta X}}{1+e^{\alpha+\beta X}}$$

Function 2. Success probability function

By entering a specific value of X and estimating the parameters α and β, the expected probability value can be calculated for the specific value of X using the exponential function. For more than one independent variable, the LR equation is written as:

$$\pi\left(x_i\right)=\frac{\exp\left(\alpha+\beta_1 x_{1i}+\ldots+\beta_p x_{pi}\right)}{1+\exp\left(\alpha+\beta_1 x_{1i}+\ldots+\beta_p x_{pi}\right)}$$

Function 3. Logistic regression with specific values

Multinomial LR is used when the response variable has more than two categories. The following assumptions should be considered in this model:
- Each observation is associated with only one value of the dependent variable.
- The relationship between the response variable and the independent variables is not explicit and complete, and therefore random patterns (the presence of error sentences) should be used in the model.
- In multinomial LR, the odds ratio will not change with the entry of an unrelated variable. This assumption causes an LR model to be modeled with k categories or groups based on k-1 independent binary variables.

To reach the multinomial LR model, we use the method used to calculate the LR for each level of the multinomial LR response variable. Based on the odds ratio, we have:

$$\ln\frac{p(Y_i=1)}{p(Y_i=k)}=\beta_1.X_i \quad \ldots \quad \ln\frac{p(Y_i=k-1)}{p(Y_i=k)}=\beta_{k-1}.X_i$$

Function 4. Logistic regression

With the view of writing, we will have the above relationships:

$$P(Y_i=1)=P(Y_i=K)e^{\beta_1.X_i} \quad \cdots \quad P(Y_i=K-1)=P(Y_i=K)e^{\beta_{k-1}.X_i}$$

Function 5. Logistic regression

Since the sum of the probabilities of each observation belonging to k groups is equal to 1, we can write:

$$P(Y_i=K)=1-\sum_{k=1}^{k-1}P(Y_i=K)=1-\sum_{k=1}^{k-1}P(Y_i=K)e^{\beta_k.X_i}$$

Function 6. Logistic regression

So, we will have:

$$P(Y_i=K)=\frac{1}{1+\sum_{k=1}^{k-1}e^{\beta_k.X_i}}$$

Function 7. Logistic regression

Therefore, the probability of each observation being placed in each of the response variable categories can be calculated using the following relationship:

$$P(Y_i=1)=\frac{e^{\beta_1.X_i}}{1+\sum_{k=1}^{k-1}e^{\beta_k.X_i}} \cdot P(Y_i=2)=\frac{e^{\beta_2.X_i}}{1+\sum_{k=1}^{k-1}e^{\beta_k.X_i}} \quad \cdots \quad P(Y_i=K-1)=\frac{e^{\beta_{K-1}.X_i}}{1+\sum_{k=1}^{k-1}e^{\beta_k.X_i}}$$

Function 8. Logistic regression

In this research, multinomial LR has been used by integrating academic decisions (decision to transfer, decision to drop out, decision to remove, and decision to leave).

Findings

The findings are presented in two categories: statistical and inferential description.

In the inferential statistics section, the results of the multinomial LR analysis for the academic decision to take a leave of absence, the academic decision to drop out, the academic decision to remove the program, and the academic decision to transfer to management faculties in the form of two different statistical models are given in the following tables.

The first statistical model of management faculties

Table (3) displays the positive and statistically significant coefficient of the course type variable in the logit function, which stands at 0.05. The likelihood ratio statistic value for this variable suggests that tuition-paying students are 1.71 times more likely to drop out compared to their tuition-free counterparts. In terms of the academic decision to take a leave of absence, the year variable has attained significance. The regression coefficients for the years 2015, 2016, and 2017 are 17.066, 16.774, and 17.590, respectively. The significance level of 0.000 indicates that this independent variable has an influence on the probability ratio of the dependent variable. In this case, it bears a positive sign, signifying that the passage of time has played a role in increasing the likelihood of the event occurring within the dependent variable. Subsequent to this, the table provides fit indices for the initial statistical model within the management faculties.

According to Table (3), the statistic value (-2 Log Likelihood) is equal to 242.731, the chi-square value is 52.078, the degree of freedom (df) value is equal to 36, and the significance level is 0.040. The results of the plausibility test show the fit of the model. Based on these results, the first statistical model of management faculties differs from the zero models and is superior to them because the value of the chi-square statistic is smaller than 0.05.

The second statistical model of management faculties
In the second statistical model of management faculties, independent variables include Age, GPA, the number of children, year, native status, degree, the type of course, marital status, and gender.

In the context of the academic decision to drop out, the regression coefficient for the age variable is calculated at -0.157. The significance level of 0.029 indicates this independent variable's involvement in influencing the dependent variable's probability ratio. The negative sign signifies that the age variable has a diminishing effect on the likelihood of the event occurring within the dependent variable (i.e., making the academic decision to drop out). The odds ratio statistic for the age variable stands at 0.855, with the odds ratio being less than one. This implies that the likelihood of the event (the academic decision to drop out) occurring decreases for each unit change in the independent variable (age). In a broader interpretation, while controlling for the impact of other variables, the age variable alters the probability ratio in the academic decision to drop out by 85-tenths.

Regarding the GPA variable, there is a negative regression coefficient of -0.510. Similar to the prior variable (age), this variable exerts a diminishing impact on the probability ratio of the dependent variable, given that the odds ratio for a GPA of 0.600 is less than one. This suggests that the likelihood of making the academic decision to drop out decreases with each unit change in the GPA variable. The GPA variable decreases the probability ratio of the academic decision to drop out by one-tenth.

As shown in Table (3), in the context of the decision to discontinue their education, there is a positive and statistically significant coefficient of 1.22 associated with the degree variable (specifically, master's degree) in the logit function. The likelihood ratio statistic for this variable indicates that master's students are 3.76 times more likely to decide to drop out than Ph.D. students. In simpler terms, the probability ratio for the academic decision to drop out among master's students is approximately four times that of their Ph.D. counterparts. The year variable registers values of 16.889, 16.655, and 16.888, each with a positive regression coefficient for the years 2015, 2016, and 2017, respectively. Consequently, the year variable amplifies the probability ratio for the academic decision to take a leave of absence. The subsequent table furnishes the fit indices for the second statistical model within the management faculties.

According to Table (3), the statistic value (-2 Log Likelihood) is equal to 404.591, and the chi-square value is 91.280 with a df of 52 and a significance level of 0.001. The results of the probability test for the fitting of the model indicate that the second statistical model of management faculties is superior to the zero models according to the significance level of the fitted model. Figure 5 represents the process of making academic decisions of students in management faculties over time (2015-2020).
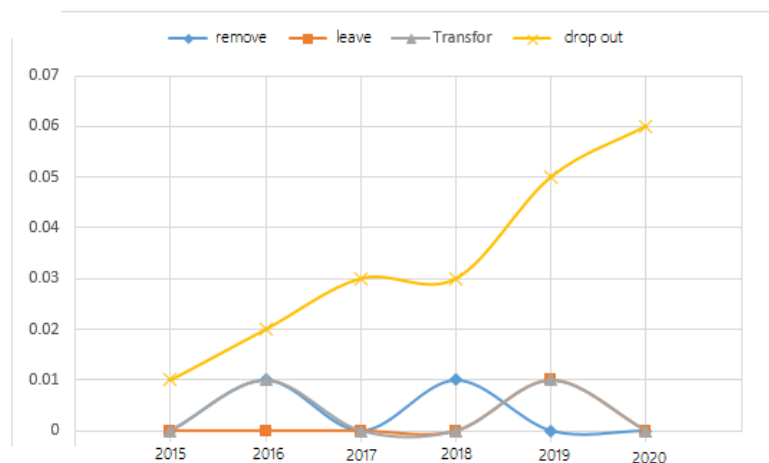

Fig. 5. The time course of students' academic decisions in management faculties

Figure 5 depicts the process of academic decisions of students in management faculties during 2015-2020. According to this table, the decision to drop out has significantly increased in the last 2 years. The other three academic decisions, the decision to remove, drop out, and transfer, have a relatively stable process.

Discussion

Considering the significance of academic decisions, the decision to drop out, and the decision to take a leave among the students of the management faculties of Tehran University, each of the academic decisions is explained and analyzed according to the research evidence.

The discussion on academic dropout decisions within the context of the first statistical model, which identifies the type variable as significant, opens up a critical perspective on the influence of financial resources. Bäulke et al. (2022) and Huo et al. (2022) underline the considerable sway that financial constraints hold over students' choices to discontinue their education. The assertion that financial difficulties significantly influence academic decisions to drop out, as suggested by Bennett (2003), and the notion that elevated tuition fees can lead to psychological and economic burdens, as proposed by Li and Killian (1999), offer a compelling argument. Breier's (2010) contention that financial hardships drive many students to prematurely drop out their academic pursuits reinforces the importance of financial factors. However, it is essential to recognize that while these findings align with the outcomes of the current study, there are contrasting perspectives. For instance, Singh and Alhulail (2022) claim that financial concerns are not correlated with students' decisions to discontinue their studies, challenging the prevailing narrative. The complexity of financial influences on academic dropout becomes evident when considering studies like Bania and Kvernmo (2016), which reveal that family income does not exert a significant impact on students' retention rates and their decisions to drop out. This diversity of findings underscores the multifaceted nature of financial influences on academic decisions and calls for further investigation to unravel the underlying dynamics.

In the context of financial aid and student dropout, the research presented paints a nuanced picture of how socioeconomic and racial backgrounds can shape students' responses to financial aid and influence their decisions to drop out. Chen and DesJardins (2008) highlight the notable disparity in dropout rates between low-income students and their high-income counterparts, emphasizing the role of socioeconomic factors. Chen's (2008) exploration of the varied responses to financial aid based on socioeconomic and racial backgrounds highlights the intricate interplay of these variables. While these findings align with the current study, they stand in contrast to Singh and Alhulail (2022), suggesting that financial concerns may not be a significant factor in students' decisions to discontinue their studies. This contradiction underscores the need for a more comprehensive understanding of the relationship between financial aid and dropout decisions, acknowledging the diversity of students' experiences and backgrounds. It also raises questions about the effectiveness of current financial aid policies and their impact on dropout rates, signaling the need for more targeted and nuanced interventions to support students in their academic journeys.

The discussion regarding the connection between age and the decision to education dropout presents a compelling perspective on the role of age in dropout. Studies by Noboa et al. (2018), Stratton et al. (2008), and Castelló et al. (2017) highlight the significance of age, with each study revealing distinct findings. The notion that older students are more likely to discontinue their education, as suggested by Noboa et al. (2018) and Stratton et al. (2008), challenges the conventional understanding that younger students are more prone to dropping out, as indicated by Castelló et al. (2017). This divergence in findings underscores the complexity of the relationship between age and dropout decisions, emphasizing that the impact of age on dropout decisions may vary in different contexts and among different student populations. Moreover, the observation that older students and those deferring their entry into higher education are more inclined to drop out, as reported by Lassibille and Navarro Gómez (2008), sheds light on the significance of the timing of academic pursuits. It indicates that factors, such as life stage and prior educational experiences, play a crucial role in shaping dropout decisions. However, the absence of a significant relationship between gender and the decision to drop out, as noted by Xenos et al. (2002), challenges the common notion that gender is a key determinant of dropout decisions.

The mention of international students being more inclined to make the decision to drop out introduces a noteworthy dimension to the discussion. It suggests that the experiences and challenges faced by international students may significantly influence their academic decisions, particularly in the context of dropping out. However, it is essential to consider the diverse backgrounds and motivations of international students as these factors can vary widely. The findings reported by Gitto et al. (2016) and Guimarães et al. (2010) emphasize the multifaceted nature of academic dropout decisions, where

age, gender, and marital status intersect to shape enrollment and attrition patterns. The research conducted by Bonaldo and Pereira (2016) in the Brazilian higher education context further highlights the influence of age, changes in marital status, and financial considerations in the decision to discontinue education. Nevertheless, it is important to acknowledge that the impact of age on dropout decisions is context-dependent and may not universally align with the results of these studies.

The independent GPA variable also significantly influenced students' decisions to drop out of management faculties. For instance, Cocoradă et al. (2021) studied Romanian higher education and found that students with lower GPAs were more prone to opt for dropout. This trend was particularly pronounced among male students from lower economic and social standing families. In the research conducted by Chen et al. (2020), GPA emerged as one of the most critical predictors of a student's decision to drop out of their educational program. Cuji Chacha et al. (2022) likewise concluded that course grades were pivotal in students' decisions to drop out. In Australian higher education, Li and Carroll (2020) determined that students with lower grades were more inclined to decide to drop out.

The discussion about the impact of degree status on students' decisions to drop out is enriched by insights from studies conducted in various contexts, such as the research by Guzmán Rincón et al. (2021) in Colombia and Larsen et al. (2013). Guzmán Rincón et al. (2021) present evidence that factors, such as marital status, parental occupation, students' employment, and family income alongside degree status, provide a comprehensive understanding of the multifaceted nature of dropout decisions. However, the challenge lies in recognizing the unique socioeconomic and cultural dynamics of Colombia, which may not directly translate to other educational settings. Similarly, Larsen et al.'s (2013) emphasis on the role of faculty and educational groups highlights the importance of institutional factors in dropout decisions. Yet, the specific nuances of these factors, such as faculty support systems, teaching methodologies, and curricular relevance, require in-depth exploration to draw meaningful conclusions.

Critically evaluating these studies, it is essential to acknowledge the limitations inherent in generalizing findings across diverse global contexts. Cultural, economic, and institutional disparities significantly impact students' decisions, making it imperative to contextualize these studies within their specific environments. Moreover, the omission of certain variables, like psychological factors, student motivation, and mental health, in these analyses might limit the comprehensive understanding of dropout decisions. Additionally, the absence of a comparative analysis with international studies or a cross-cultural perspective might hinder a broader understanding of the factors influencing degree status-related dropout. Furthermore, the potential interplay between these variables and external factors, such as governmental policies or economic fluctuations, remains unexplored. To enhance the validity and applicability of these findings, future research should adopt a more inclusive approach, considering a wider array of variables, and incorporate international comparative studies to capture the global diversity in dropout decision dynamics.

The discussion regarding the significant role of the year variable in students' decisions to take a leave, especially during the COVID-19 pandemic, is well-supported by empirical evidence. The studies by Yorulmaz and Aydoğdu (2021), Sahoo et al. (2023), Prihandoko et al. (2022), Dewi (2022), and Upadhyaya et al. (2020) collectively emphasize the disruptive impact of the pandemic on academic pursuits, particularly thesis and dissertation work. This insight is invaluable, given the global scale of the COVID-19 pandemic and its repercussions on higher education. It highlights the immediate need for universities to adapt and provide appropriate support systems and flexibility to accommodate students facing pandemic-induced challenges. However, it is important to acknowledge that while the studies underline the challenges posed by the pandemic, they do not delve deeply into the specific strategies or interventions that institutions and educators can adopt to mitigate these challenges effectively. Moreover, the discussions do not extensively explore the potential long-term consequences on students' educational trajectories and future career prospects, which can be of particular interest in the post-pandemic era.

Conclusion

This study's findings provide valuable insights into the complex dynamics of academic decisions within Tehran University's Management Faculties, particularly dropout and leave of absence. The significance of various variables, including type, age, GPA, degree, and the influence of financial and

pandemic-related factors, underscores the multifaceted nature of students' choices in the higher education context. These results contribute to our understanding of the intricate relationship between academic decisions and various influential factors, offering practical implications for university administrators and policymakers.

The theoretical implications of this study are twofold. Firstly, it enriches the landscape of tuition literature within Iranian higher education by offering practical insights while enhancing the theoretical comprehension of the intricate interplay between tuition and academic choices. Secondly, the study lays the foundation for further theoretical advancements in the tuition domain, as supported by the research's empirical findings. For instance, despite referencing several economic theories in the realm of tuition, the variable influence of tuition on withdrawal decisions implies an opportunity to extend existing theories related to student attrition, such as Bean's Model of Student Attrition and Spady's Theory of Integration, thus contributing to the development of these theories.

The practical implications of this research include the following:

Financial Aid and Access: To address the impact of tuition fees on the decision of tuition-paying students to drop out, administrators and professionals in Tehran University's management faculties should create a more supportive environment for continued education. This can be achieved by offering various financial aid options, focusing on increasing accessibility for low-income students.

Tuition Discounts: Managers of management faculties should consider implementing strategies, including tuition discounts based on academic performance, to incentivize tuition-paying students to continue their studies.

Financial Resource Development: Managers of management faculties can explore ways to attract financial resources, including seeking donations and funding to support tuition-paying students. These resources can be used to provide financial assistance and scholarships.

Collaboration: Deans of management faculties can establish partnerships and memorandums of understanding with institutions and financial organizations to offer exceptional facilities and support for tuition-paying students within the faculty.

Tuition Policy: When determining tuition fees, it is essential to balance and establish a proportionate relationship between tuition, government budget allocation, and financial aid. Consideration should be given to the concept of differential tuition, considering factors such as academic field, degree level, and geographical regions.

Macro Policies: By understanding the effect of tuition on academic decisions, it is advisable to set tuition policies at each university based on comprehensive macroeconomic factors. Instead of uniform percentage increases (e.g., 15%), policies should be aligned with indicators such as inflation rates, employment rates for university graduates, average household income, and the demographic structure of the student population.

Research limitations

The research has several limitations, including the lack of recorded tuition amounts for each course, which imposes constraints on certain statistical analyses. Limited registration information may only cover some key and influential factors related to academic decisions—incomplete data, including missing information on student and parents' income.

Research suggestions

Future researchers are recommended to study the impact of tuition fees on students' academic decisions comparatively using data from various universities in Tehran. It is also advisable to investigate the relationship between tuition fees and the quality of education by considering quality indicators in the field of education. Another recommendation is to utilize comparative research methods, such as George Brady's model, to compare tuition policies and financial aid systems in higher education across selected countries.

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