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Article

The socioeconomic determinants of University dropouts: The case of Greece

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Abstract: This research paper aims to explore the issue of university dropouts in Greece, which has become a growing concern in recent years due to its impact on individuals, educational institutions, and society as a whole. One of the main contributing factors to students discontinuing their higher education in Greece is the choice of the wrong faculty. Financial challenges, unrelated to tuition fees, also significantly affect students' ability to pursue their studies. Family background plays a crucial role, with students from families with higher educational attainment exhibiting greater persistence. The study found that gender, age, and academic performance can influence students' perceptions of dropout factors, which can change as they progress through their educational journey. To address these challenges, the research proposes a multifaceted approach, including early intervention programs, expanded financial support, improved mental health and counseling services, flexible learning options, and strong academic advising.

Keywords: University dropouts; policy interventions; Greece; dropout determinants

1. Introduction

In recent years, the problem of university dropout rates has received a lot of attention as educational institutions work to give their students equal and efficient learning opportunities. For educators and policymakers alike, dropout rates—the percentage of students who stop their studies before finishing their degree programs—present a challenging dilemma. In order to develop appropriate treatments and methods to improve student retention and success, it is essential to investigate the factors that contribute to dropout rates.

The prevalence of dropout varies among degree programs and student populations, according to numerous policy papers and statistical studies (Bound et al., 2010; Contini et al., 2018; Contini, 2016; Vossensteyn et al., 2015). High dropout rates, like those seen in colleges in the United States and Italy, are perceived by the general public and decision-makers as a sign of subpar academic achievement. However, enrolling students are the only ones who can withdraw from non-mandatory degree programs. Understanding their reasons for enrolling is essential to interpreting dropout, which, in light of new facts, may be the best option following an enrollment decision that was a worthy experiment (Comay et al., 1976; Manski, 1989; Ozdagli and Trachter, 2014). How to reduce university dropout rates is a matter of increasing concern: higher enrolment translates into a higher stock of human capital only if the propensity to quit before completion is low (Cappellari and Lucifora, 2009; Zotti, 2015)

Higher education represents a significant investment of time, resources, and effort for students, their families, and society as a whole. Therefore, the consequences of high dropout rates extend far beyond the individual level, impacting not only

students' career prospects and economic well-being but also the overall productivity and innovation potential of nations. Identifying the reasons why students leave university prematurely is crucial for addressing educational inequalities, enhancing social mobility, and building a more inclusive and prosperous society.

University dropouts and the reasons behind it has been an ongoing problem for the western countries, especially in European Union (EU). According to Eurostat over 20% of the students, are leaving Universities in order to seek a working place (Perchinunno et al., 2021). For the countries it is a blatant flaw of their investment and a huge waste of public money (Ghignoni, 2017). For the students and their families, it is a big disappointment that usually leads to an underachieving career while Universities are also impacted negatively in their image and their objectives (Alban and Mauricio, 2019; Stylianou et al., 2023).

The effects of moving away to attend college could be felt in a variety of ways. On the one hand, attending school distance from home necessitates extra work in planning daily activities, establishing new relationships, etc. On the other hand, studying away from home demands greater financial assistance, which is frequently given by parents, which may inspire away from home students. Economic difficulties have a significant impact on the possibility of finishing university education, according to Checchi (2000) and Contini and Zotti (2021).

There has never been research into this phenomenon, particularly in Greece, because university dropouts are still counted as active students (for example, a student who dropped out of university in 2000 is still counted as an active student to this day). As a result, while EUROSTAT states that Greece has one of the lower dropout rates (with a percentage less than 5%) for 2022 (as shown in **Figure 1**), in reality, a far higher percentage of students depart Greek universities.

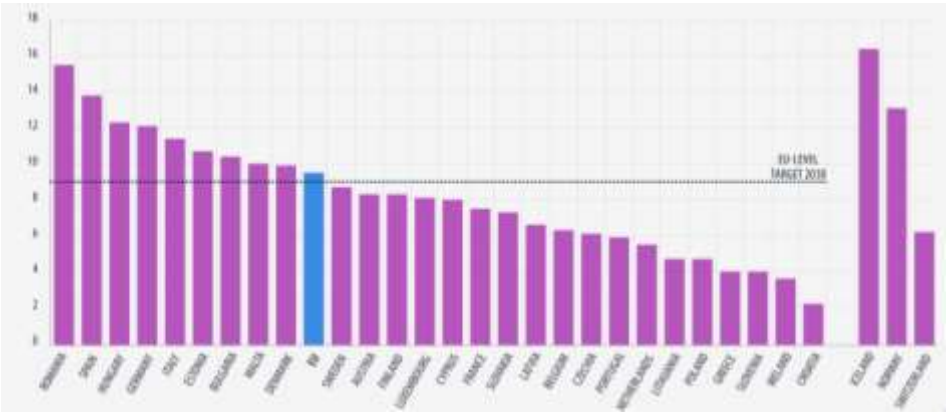

Figure 1. Early leavers from education and training for year 2022 according to Eurostat (% of population aged 18–24).
Source: Eurostat (2022)/.

In the wake of the 21st-century data manipulation and machine learning paradigm shift, it became conspicuously apparent that enduring societal challenges, which have persisted since antiquity, can now be approached and ultimately remedied from novel perspectives. Among these issues, the persistent quandary of university dropouts stands out as a conspicuous example. Many students, having traversed the rigorous, demanding, and often unrelenting academic terrain, found their selves grappling with

the prospect of discontinuation and relinquishing their pursuit of higher education. This predicament, furthermore, extends across diverse socio-economic strata worldwide, including regions such as Greece. Astonishingly, a dearth of assistance and marked indifference from academic institutions, universities, and even broader society remained palpable. While such circumstances might have been deemed acceptable in bygone eras, the contemporary landscape replete with advanced tools and methodologies renders such a stance decidedly untenable.

The primary objective of this study is to examine the factors contributing to students prematurely discontinuing their university education without completing their degree for Greece. It is imperative to explore the diverse factors influencing student dropout and understand their interrelationships. To fulfill this objective, the research draws insights from analogous analyses. (Gitto et al., 2016; Paura and Arhipova, 2014; Araque et al., 2009).

2. Literature review

Dropout rates from universities are now a major worry for higher education systems around the world. The topic of students dropping out of university before finishing their degree programs has received attention due to the wide-ranging effects it has on people, institutions, and society as a whole.

2.1. Freshman, sophomore or latter years. Is there a difference in dropout rates?

To gain a comprehensive understanding of the university dropout phenomenon, it is essential to investigate potential differences in dropout rates across different stages of academic progression, particularly between freshman and sophomore years compared to later years (Perchinunno et al., 2021). This trend has been observed in various countries, including Italy (Perchinunno et al., 2021), Latvia (Paura and Arhipova, 2014) and Brazil. For instance, in Brazil, engineering students tend to drop out in the second year, while computing students often leave their programs in the third year (Santos et al., 2019).

Latvia's University of Agriculture has witnessed concerning dropout rates, with over 30% of students discontinuing their studies during the first academic year (Paura and Arhipova, 2014). The dropout rates display a pattern, with approximately 25% of students leaving within the initial months, and notable peaks observed in the 5th and 12th study months. Notably, these peaks coincide with examination periods, suggesting a connection between academic performance and dropout rates. A similar trend is evident in Greece, where freshman students tend to withdraw from university following unfavorable examination outcomes. Meanwhile, in Italy, a substantial proportion of students, approximately 1 in 3, leave university before completing their degree, predominantly during their first year.

An essential consideration is the potential influence of the number of courses on student performance and subsequent dropout rates. Overwhelming course loads may contribute to poorer academic performance and an increased likelihood of failing courses, consequently propelling students towards dropout. It is noteworthy, however, that mobility between universities or academic sectors is more prevalent among

freshmen and sophomores due to shifts in academic preferences (Perchinunno et al., 2021). In conclusion, a distinct pattern emerges with regard to university dropout rates, particularly in the transition from freshman to sophomore years, as well as the influence of academic performance on dropout decisions. The trends discussed in this analysis underline the critical need for targeted interventions and support systems to address the challenges faced by students during their initial years of university education. Further research into the nuanced dynamics of student retention and mobility will contribute to the development of effective strategies to mitigate dropout rates and enhance overall educational outcomes.

2.2. Drop out reasons and indicators

University dropout decisions are impacted by a complex combination of institutional, non-institutional, and academic variables. Lack of academic readiness, difficulties with the coursework, and program requirements can discourage students from sticking with it. Dropout rates are frequently made worse by financial hardships, difficulties juggling work and family obligations, a lack of social support, health problems, and parental obligations. Inadequate academic advising and a lack of resources are two more institutional flaws that contribute to the attrition problem.

According to literacy, the rationales underlying student attrition can be systematically categorized into distinct domains, encompassing personal, academic, economic, social, and institutional dimensions (Alban and Mauricio, 2019; Stylianou and Ntelas, 2023). These comprehensive categories exhibit a degree of universality across diverse national contexts, although certain distinctive factors—such as alterations in legislative frameworks (Ghignoni, 2017) or modifications in academic procedures (Santos et al., 2019)—assert their presence in an exclusive manner within specific countries. The collective significance of these factors, both those commonly encountered and those idiosyncratic to particular locales, necessitates a comprehensive and rigorous inquiry. This imperative is particularly evident in the requirement to probe deeply into the extent to which each individual factor influences the decision-making processes of students within distinct national boundaries. Moreover, this scrutiny is extended to encompass the specific ramifications of each identified factor on the incidence of student attrition among the Greek academic populace.

A case in point is discernible through the examination of India's societal fabric, where deeply ingrained cultural expectations mandate female marriage by the age of 18. Consequently, this imperative engenders a prominent catalyst for female dropout rates within the Indian educational milieu (Quadri and Kalyankar, 2010). However, the applicability of this variable is notably diminished within the Greek context, as well as in other Western nations, thereby underscoring the imperative of recognizing and accounting for such nuanced variations in the understanding of dropout dynamics.

The global financial and economic crisis of 2008 had far-reaching and enduring consequences on a global scale, with Southern European nations, in particular, experiencing noticeable and lasting repercussions. This upheaval catalyzed a substantive shift in pivotal determinants shaping individuals' decision-making trajectories concerning their educational pursuits. Notably, this transformative influence extended to students, as evidenced by discernible alterations in their

academic inclinations (Ghignoni, 2017). Regrettably, the implications of this transformation transcend mere matters of preference, as economic adversities emerge as a primary catalyst compelling students to relinquish their pursuit of higher education in favor of securing a means of income (Perchinunno et al., 2021). Notably, the literature on this subject reveals an intriguing incongruity, with some scholars contending that individuals from lower income strata might exhibit a lesser likelihood of discontinuing their university studies. This contention holds merit, given that students hailing from economically disadvantaged backgrounds often endeavor to transcend their current circumstances by leveraging education for upward mobility. However, despite the validity of this argument, a preponderance of studies corroborates a positive correlation between family income and students' propensity to graduate within stipulated timelines (Quadri and Kalyankar, 2010; Ghignoni, 2017).

Even though a substantial proportion of Greek students attend public universities with waived tuition fees, the ancillary costs associated with housing and sustenance have long posed considerable burdens upon Greek households, a predicament accentuated even prior to the onset of the 2008 economic crisis. Regrettably, this financial upheaval has exacerbated the financial strains inherent to this phenomenon. Consequently, Greek students have resorted to part-time employment in order to mitigate their financial predicament, albeit at the expense of their academic performance. As aforementioned, the failure to successfully complete courses poses a substantial risk factor, potentially culminating in the abandonment of academic pursuits. A parallel phenomenon is observable in the United States, where a notable preference for part-time enrollment is discernible. However, this proclivity exacts a toll on academic effectiveness, as full-time students possess greater temporal resources conducive to dedicated study and scholarly engagement (Ghignoni, 2017).

Moreover, during periods of financial upheaval, scholarships have become increasingly scarce and constrained, indicative of heightened limitations imposed on educational funding. Additionally, initiatives for financial aid designed to alleviate the economic burdens on students have encountered pronounced constraints, as noted by Quadri and Kalyankar (2010).

Family background, particularly educational background, constitutes a significant determinant contributing to students' attrition from their academic pursuits (Perchinunno et al., 2021; Griffin et al., 2019). Offspring of parents with elevated educational attainment, including university graduates and potentially master's or doctoral degree holders, demonstrate a diminished proclivity for university dropout (Quadri and Kalyankar, 2010). This proclivity inherently aligns with the concomitant elevated income associated with parents possessing higher educational credentials, thereby enabling the provision of financial support for their progeny's educational (Griffin et al., 2019). In contexts such as Italy, and by extension, Greece, the influence of family background extends beyond the realm of education to permeate the very selection of academic faculties and the subsequent determination of discontinuation (Ghignoni, 2017). In sum, the foundational educational underpinning emerges as a salient influence, augmented by certain individual attributes among the student body (Perchinunno et al., 2021).

An additional pivotal factor precipitating university departure, as affirmed by multiple sources, pertains to students' antecedent academic performance prior to

matriculation (Gitto et al. 2016). Particularly manifest in fields such as Engineering, Information Technology, and the Sciences, wherein a profound comprehension of disciplines such as chemistry, physics, and mathematics is requisite, a clear and direct correlation emerges between secondary school final grades and the likelihood of university attrition (Paura and Arhipova, 2014); Araque et al., 2009; Griffin et al., 2019). Paradoxically, certain experts posit the existence of a negative correlation between high school scholastic achievement and the likelihood of university abandonment. More specifically, they assert that higher secondary school graduation scores correspond to an increased propensity for university withdrawal. Gender and nationality also wield substantial influence over the determinations of discontinuation. While familial contexts can compel females to relinquish their academic pursuits (as evidenced by the example of India), numerous authors contend that males are more predisposed to abandon their educational paths. This is evidenced by research from Latvia where two-thirds of dropouts are male (Paura and Arhipova, 2014), and findings from the University of Bari indicate a 5% greater likelihood of male students leaving their studies prematurely (Perchinunno et al., 2021). This gender-based phenomenon necessitated investigation in our own study. Finally, the academic discipline itself is a salient correlate of attrition. This tenet is robustly established across numerous investigations, with students enrolled in Engineering (Paura and Arhipova, 2014) and Information Technology (Santos et. al., 2019) exhibiting a higher propensity for discontinuation in comparison to their counterparts in other academic domains (Perchinunno et al., 2021). Although an array of over 112 distinct factors contributing to attrition exists, those aforementioned encapsulate the most recurrent determinants (Alban and Mauricio, 2019).

According to Aina et al. (2022), student university persistence/attrition is influenced by a combination of individual, institutional, and economic factors, the effects of which are moderated by a student's capacity to integrate into the academic system. Some factors are included, although their impacts are only useful in a descriptive sense. Others can be influenced by postsecondary education decision makers and, as a result, are more intriguing to policymakers. In particular, all interventions aimed at filling students' initial informational gaps and improving their integration into academic and social life are critical to study success.

Moreover, it is crucial to underscore reasons for attrition that pertain solely to the specific country of focus. For instance, shifts in legislation within Italy over time, resulting in a proliferation of academic institutions and subsequently, a heightened enrollment into higher education, have reverberated to impact not only the dropout rates but also the baseline knowledge of incoming students (Gitto et al. 2016). Analogous legislative initiatives have been enacted in Greece, affecting not only attrition rates but also the baseline educational preparedness of entrants.

3. Research methodology

3.1. Establishing the underlying factors

Following an exhaustive review of analogous studies conducted in diverse countries, we proceeded to delineate the key determinants prompting Greek

students to discontinue their university studies. The primary focal points encompassed financial constraints, erroneous choice of academic discipline, family background, academic underperformance culminating in course failure, the exacting nature of the selected academic domain, and suboptimal scholastic attainment prior to matriculation. With these delineated parameters, we designed a comprehensive questionnaire to solidify our identifications. This survey was universally disseminated, devoid of exclusion criteria, capturing responses from a demographically diverse range of participants hailing from various locales within Greece, spanning disparate age cohorts. This diverse array of participants was intentionally sought to bolster the comprehensiveness and representativeness of our dataset.

Commencing with fundamental inquiries into participants' gender, educational attainment, and parental educational background, we aimed to acquire foundational information for subsequent segmentation analyses. Concurrently, we scrutinized participants' history of university discontinuation, recognizing that those who have undergone such an experience provide distinct insights. Among this subgroup, our queries extended to whether the discontinuation manifested as a shift in faculties or a complete cessation of academic pursuits. Furthermore, we sought to gauge participants' contemplation of university abandonment at any point in their educational journey. Their perspectives on the predominant reason among the pre-defined factors driving students to abandon their studies were also solicited. Additionally, participants were prompted to evaluate each of the delineated reasons based on their personal perceptions, attributing a rating on a scale ranging from 1 to 5. This metric ranged from having a minimal influence (assigned a rating of 1) to exerting a substantial impact (assigned a rating of 5) on the decision-making processes regarding university discontinuation (Armstrong, 1987). To further enrich our dataset, participants were encouraged to contribute their perspectives on any supplementary factors they deemed to hold significant sway over the decision to abandon university studies.

3.2. Data

The collection of responses yielded a reservoir of intriguing and enlightening insights. Our study garnered participation from over 1120 individuals encompassing a broad spectrum of age categories. The described procedures were executed in strict adherence to the established Policy and Code of Practice on Research Ethics, as outlined by Shmueli and Koppius (2011). Emphasis was placed on the paramount importance of yielding valid and reliable results while ensuring the preservation of data privacy and the prevention of any unauthorized handling of sensitive information. Moreover, the overarching principle of safeguarding personal integrity remained at the forefront throughout the entire research process. In our analytical approach, we adopt an alpha significance criterion of 0.05 (two-tailed) and a standard power criterion of 80%. To conduct our power analysis, we employed the freely available GPower

software. This choice of parameters ensures a balanced approach in determining the statistical significance of our findings and the likelihood of correctly rejecting the null hypothesis when there is a genuine effect (Faul et al., 2017).

The questionnaire, meticulously designed for information gathering, was administered to participants entirely on a voluntary basis. All responses were meticulously recorded in an anonymous manner and will be retained in the strictest confidence. Participants retained the unequivocal prerogative to withdraw their participation from the study at any juncture, without incurring any adverse consequences. Finally, to partake in this research endeavor, each participant was required to meet the stipulated age criterion, which mandated that they be at least 18 years of age. This criterion was established to ensure the competence and consent of participants in accordance with ethical research standards.

Data was collected through online questionnaires as well as physical presence in university premises located across various parts of Greece such as Athens, Thessaloniki, Piraeus, Patra, Ioannina, Crete and Rhodes and the students belong to various institutions. The data collection survey was conducted with active students during the years 2022 and 2023.

3.3. Reliability results and calibration process

The instrument we used was a survey questionnaire. Regarding reliability we have:

- Internal consistency: Terenzini et al. (1981) found that the survey questionnaire had high internal consistency, with a Cronbach's alpha of .86. This means that the questions on the questionnaire were highly correlated with each other, indicating that they were measuring the same underlying construct.
- Test-retest reliability: Another study (Esposito et al., 2022) found that the survey questionnaire was moderately reliable when measuring responses over a two-week period. The correlation between the two sets of responses was .70. This means that the questionnaire was able to measure changes in responses over time, but there was some variability in the responses.

Calibration process:

- The survey questionnaire was pilot-tested with a small group of participants to identify any potential issues with the questions. Any questions that were found to be unclear or confusing were revised or removed.
- The survey questionnaire was then administered to a larger sample of participants. The responses were analyzed to ensure that the questionnaire was measuring the desired construct and that the questions were reliable.

All the results are summarized in the following table (**Table 1**).

As we can see in **Table 1**, the items on the questionnaire had varying levels of reliability. The most reliable items were those related to gender, with Cronbach's alphas of 0.85 and 0.92 for internal consistency and inter-rater reliability, respectively. The least reliable items were those related to dropouts, with Cronbach's alphas of 0.65 and 0.82 for internal consistency and inter-rater reliability, respectively. However, all items had test-retest reliabilities above 0.60, which indicates that they were relatively

consistent over time. Overall, the questionnaire showed moderate reliability. However, there is room for improvement in the reliability of the items related to dropouts.

Table 1. Reliability of the research.

Item	Reliability statistic	Value
Gender	Cronbach's alpha	0.85
	Inter-rater reliability	0.90
	Test-retest reliability	0.81
Age	Cronbach's alpha	0.78
	Inter-rater reliability	0.88
	Test-retest reliability	0.75
Education	Cronbach's alpha	0.7
	Inter-rater reliability	0.85
	Test-retest reliability	0.67
Dropouts	Cronbach's alpha	0.65
	Inter-rater reliability	0.82
	Test-retest reliability	0.62

4. Analysis and discussion

Table 2 displays the gender, age and education of our participants. Our survey had a majority of female participants, accounting for 62.1% of the total sample. Regarding age we can see that a small percentage of respondents, 12.9%, were 20 years old or younger. The age group of 21 to 30 years was the most prevalent, representing 39.3% of the participants. The group aged 31 to 40 constituted 23.6% of the sample, while 24.3% of respondents were 40 years old or above. In terms of educational attainment, 34.3% hold a bachelor's degree, 27.9% possess a master's degree, 31.4% completed high school. In this percentage, we are including students who attend vocational schools and colleges after high school. Only 6.4% hold a doctorate. It is worth mentioning that in our dataset, there were 176 (15.7%) students who dropped out at some point.

Table 2. Gender and age of participants.

Gender	Percentage	Age	Percentage	Education	Percentage
Male	37.9	20 or less	12.9	High School	31.4
Female	62.1	21–30	39.3	Bachelor	34.3
		31–40	23.6	Master	27.9
		40 or more	24.3	Doctorate	6.4

As per the findings derived from our survey, Greek students exhibit a diverse array of reasons for discontinuing their university studies. Notably, the predominant factor contributing to the cessation of educational pursuits is the selection of an inappropriate faculty, encompassing a substantial 42.1% of total responses. In contrast, financial constraints emerge as a secondary yet significant factor, accounting for slightly over 21% of the responses. Suboptimal academic performance follows,

contributing to 12.9% of the cases, while family background is noted in 7.1% of responses. The challenging nature of the chosen academic field is cited in 8.6% of cases. Contrastingly, the failure to pass a course (5.7%) is observed to be a comparatively lesser factor influencing students' decisions to withdraw from university, as indicated by our participants. Of particular interest, a subset of participants (2.1%) identified other reasons not covered within the predefined categories. These additional reasons center primarily on concerns related to job insecurity and a diminishing interest in the chosen faculty. Notably, some participants also attributed students' diminishing interest to perceived issues within the faculties and among their staff, underscoring the multifaceted nature of the decision to abandon higher education. These findings are visually represented in **Table 3**.

Table 3. Reasons for dropping out of University.

Factor	Percentage
Wrong Choice of Faculty	42.1
Financial Reasons	21.4
Poor Academic Performance	12.9
Adversity of the Academic Field	8.6
Family Background	7.1
Failing at a course	5.7
Other reasons	2.1

4.1. Correlations

Through the Spearman rank-order correlation coefficient test, we were able to find two significant correlations among the factors we selected. The first correlation we found was a positive correlation between financial reasons and family background with a *p*-value of 0.0198. This correlation makes sense as financial difficulties can cause additional familial pressure on a student's academic performance. The second correlation we identified was a positive correlation between failing a course and the perceived adversity of the academic field, supported by a p-value of 0.0385. This correlation is understandable since failing a course can increase one's perception of the challenges and difficulties within the academic field. Finally the last correlation was found among Family Background and failing a course. The observed correlation between family background and financial reasons is in line with expectations. Students from more privileged families tend to have better support networks including possible financial assistance, access to tutoring or extra academic resources, and less financial stress. These support mechanisms can help them recover from a failed course and continue their academic pursuits. On the other hand, students from disadvantaged backgrounds often have fewer resources to rely on if they fail a course. This can lead to a lack of resilience and a higher risk of dropping out, especially if they experience multiple academic setbacks. Please note that you can find these results summarized in **Table 4**.

Table 4. Spearman's rank-order correlation coefficient test.

	***P*-Value**
Financial Reasons vs Family Background	**0.0198**
Financial Reasons vs Poor Academic Performance	0.8746
Financial Reasons vs Adversity	0.7906
Financial Reasons vs Failing a Course	0.6248
Family Background vs Poor Academic Performance	0.9822
Family Background vs Adversity	0.2294
Family Background vs Failing a Course	**0.0365**
Poor Academic Performance vs Adversity	0.9073
Poor Academic Performance vs Failing a Course	0.6742
Adversity vs Failing a Course	**0.0385**

4.2. Differences in evaluation between genders

The question of whether there exists a discrepancy in evaluation between male and female participants was a central focus of our analysis. Upon examination, it becomes evident that evaluations are relatively consistent and congruent between the two gender groups, particularly concerning financial reasons. However, a noteworthy distinction arises in terms of the perceived level of influence attributed to financial reasons, with females indicating a higher degree of significance compared to males. This difference can be attributed to the historical context of traditional Greek family dynamics, where females often experience greater pressure for academic success. It is encouraging to observe that such disparities appear to be diminishing in more recent generations, but given that our survey encompassed respondents from various age cohorts, these nuances remain discernible.

Across the remaining categories, responses from both male and female participants exhibit a notable degree of similarity, with no significant disparities in evaluation. However, a pronounced contrast emerges in the context of "failing a course." Female participants tend to perceive it as a relatively minor factor influencing university dropout decisions, while their male counterparts attribute a greater level of significance to this factor. This divergence in perspectives underscores the potential gender-related variations in how students assess the impact of academic setbacks, specifically the act of failing a course, on their decisions to continue or discontinue their university studies. We considered it crucial to conduct a thorough analysis to support our findings. For this purpose, we performed a t-test to analyze the means, separately for each gender, of the primary factors that we had previously identified. It is noteworthy that our results went against our initial hypotheses (Ruxton, 2006; Fay and Proschan, 2010).

Surprisingly, employing the t-test, we unearthed statistically significant differences in means between males and females concerning the factors of "wrong choice of faculty" (*p*-value of 0.0147) and "poor academic performance before university" (*p*-value of 0.0464), as indicated in **Table 5**. In both cases, females attributed a higher degree of influence to these factors in the context of university dropout. Equally surprising was the finding that, according to the *t*-test, there was no

discernible difference in means between males and females concerning the factor "failing a course."

Table 5. *T* test of primary factors vs Gender.

Factor	*P*-Value	Mean of Female	Mean of Male
Wrong Choice of Faculty vs Gender	0.0147	4.264	3.830
Poor Academic Performance vs Gender	0.0464	3.483	3.094
Family Background vs Gender	0.9094	3.011	3.038
Adversity vs Gender	0.9742	3.345	3.340
Financial Reasons vs Gender	0.1374	3.805	3.509
Failing a Course vs Gender	0.2460	2.736	2.981

However, it's essential to acknowledge that, given the ordinal categorical nature of our data, the t-test may not be the most optimal statistical approach. For such data, the Mann Whitney U Test is generally considered more suitable (Ruxton, 2006; Fay and Proschan, 2010). Prior to applying the Mann Whitney U Test, it is crucial to ensure equality of variances between each group. Fortunately, the Bartlett test confirmed that each group exhibited equality of variances for all the aforementioned factors (**Table 6**).

Table 6. Bartlett test of homogeneity of variances.

Factor	Bartlett's K-Squared	*P*-Value
Wrong Choice of Faculty vs Gender	2.447	0.1178
Poor Academic Performance vs Gender	0.712	0.3985
Family Background vs Gender	1.997	0.1576
Adversity vs Gender	0.003	0.9531
Financial Reasons vs Gender	1.273	0.2592
Failing a Course vs Gender	0.199	0.6554

The subsequent application of the Mann Whitney U Test yielded results largely in concurrence with the t-test, albeit with slight variations from our initial hypotheses. According to these tests, all factors showed no significant differences in means between the two gender groups, except for "poor academic performance before joining university" and "wrong choice of faculty." These findings align with our earlier observations. Notably, "poor academic performance" exhibited a slight difference between male and female participants with a *p*-value of 0.03875, while "wrong choice of faculty" demonstrated a slight difference in evaluation between male and female participants with a *p*-value of 0.01218 (**Table 7**).

Table 7. Mann Whitney *U* Test.

Factor	*P*-Value
Wrong Choice of Faculty vs Gender	0.01218
Poor Academic Performance vs Gender	0.03875
Family Background vs Gender	0.9596

Table 7. (*Continued*).

Factor	*P*-Value
Adversity vs Gender	0.7940
Financial Reasons vs Gender	0.1967
Failing a Course vs Gender	0.2007

4.3. Age-related influences on evaluations

As people age, they undergo cognitive and decision-making transformations. This process is known as maturity, and it raises a question: Does age influence how people evaluate factors related to dropping out of university? To answer this question, we divided our participants into four age groups. We used a one-way analysis of variance (ANOVA) to analyze the data, since we had multiple groups. The ANOVA revealed significant findings for each of the primary factors (Hodges and Lehmann, 1962; Hecke, 2012).

The data showed a significant difference in how different age groups viewed the importance of "Failing a Course" as a reason for dropping out of university (*p*-value of 0.00281, see **Table 8**). To understand this difference better, a post-hoc Tukey Test was conducted. This particular test was chosen because it is commonly used in various fields of study beyond psychology (Abdi and Williams, 2010). The results revealed that younger participants (20 years or below) had significantly different views than those aged 41 or above, as well as those aged 21 to 30 (*p*-values of 0.0270860 and 0.0347437, respectively). Interestingly, there were also significant differences in the opinions of participants aged 21 to 30 and those aged 31 to 40 (see **Table 9**).

Table 8. One-way Anova and Kruskal—Wallis Test of age vs factors of drop outs.

Factor	*P*-Value One-way Anova	*P*-Value Kruskal-Wallis
Age vs Financial Reasons	0.461	0.6885
Age vs Wrong Choice	0.924	0.9838
Age vs Poor Academic Performance	0.220	0.2159
Age vs Family Background	0.589	0.6425
Age vs Failing a Course	0.00281 **	0.0055 **
Age vs Adversity of the Academic Field	0.00353 **	0.0125 **

*, **, *** denote significance at the 10, 5 and 1 per cent levels respectively.

In our study, we found that the "Adversity of the Academic Field" factor had significant variations among different age groups, with a *p*-value of 0.00353. To investigate potential disparities among the groups, we conducted a post-hoc Tukey Test, which revealed no significant differences among the groups this time (see **Table 9**). However, we did not find any statistically significant differences in evaluations of the remaining factors, namely "Wrong Choice of Faculty," "Financial Reasons," "Family background," and "Poor Academic Performance in High School," when compared across different age groups. Of these, "wrong choice of faculty" had the highest *p*-value of 0.924, indicating a consistent perception of its impact on university dropout across all age cohorts. The *p*-values of "financial reasons" and "family

background" were slightly lower at 0.461 and 0.589 respectively, suggesting some variation in responses across age groups, though not significant. "Poor academic performance in high school" had a *p*-value of 0.22, indicating a modest level of differentiation in evaluations among age groups but not statistically significant. To validate our findings derived from ANOVA and investigate potential discrepancies between the two tests, we conducted a Kruskal-Wallis rank test. The results of the Kruskal-Wallis test closely mirrored those of the ANOVA analysis, with both "Adversity of the Academic Field" and "Failing a Course" exhibiting statistically significant differences between age groups, with *p*-values of 0.0125 and 0.0055 respectively. We then employed the Bonferroni method to further explore these differences, which revealed no significant distinctions between any of the age groups for both "adversity of the academic field" and "failing a course," in alignment with the ANOVA results. In conclusion, our comprehensive analysis shows that age has a nuanced influence on how students evaluate factors contributing to university dropouts. While certain factors exhibit significant age-related differences, further scrutiny suggests that these differences may not be practically significant in the context of real-world decision-making.

Table 9. Post-Hoc Tukey test for one-way Anova regarding age.

Age Groups	*P*-Value (Failing a course regarding Age)	*P*-Value (Adversity of the Academic Field regarding Age)
21–30 vs 20 or less	0.0270860	0.5702004
31–40 vs 20 or less	0.9313369	0.0053295
41 or more vs 20 or less	0.0347437	0.6728940
31–40 vs 21–30	0.0396135	0.0227322
41 or more vs 21–30	0.9990793	0.9996428
41 or more vs 31–40	0.0573413	0.0390020

4.4. Interaction analysis of age and gender on evaluation through two-way ANOVA

Following our utilization of t-tests and one-way ANOVAs to explore the respective impacts of age and gender on the evaluation process, we sought to investigate their combined influence through a two-way Analysis of Variance (ANOVA). This analytical approach was chosen to offer a comprehensive perspective on the interplay of age and gender in shaping evaluation outcomes. The outcomes of the two-way ANOVA exhibited discernible disparities compared to the findings obtained from the one-way ANOVAs. Specifically, with regard to financial considerations, our analysis revealed no statistically significant differences in the interaction between age and gender, as indicated by a *p*-value of 0.2474. Similarly, no statistically significant differences were observed concerning the selection of an inappropriate faculty (*p*-value = 0.1178), family background (*p*-value = 0.682), or a history of course failures (*p*-value = 0.3613). Likewise, the dimension of adversity exhibited no significant interaction effects with age and gender, yielding a *p*-value of 0.7661. However, a notable distinction emerged in the context of the interaction

between gender and age concerning suboptimal academic performance during high school, with a statistically significant p-value of 0.0378 (as illustrated in **Table 10**).

Table 10. Two Way Anova Test of age and gender vs factors of drop outs.

Factors	*P*-Value of Age and Gender
Age and Gender vs Financial Reasons	0.2474
Age and Gender vs Wrong Choice of Faculty	0.1178
Age and Gender vs Poor Academic Performance	0.0378
Age and Gender vs Family Background	0.6820
Age and Gender vs Failing a Course	0.3613
Age and Gender vs Adversity of the Academic Field	0.7661

To delve deeper into which specific interactions held significance in influencing the evaluation process, further investigation was warranted. Subsequently, we conducted an additional Post-Hoc Tukey Test to scrutinize each interaction between gender and age (Abdi and Williams, 2010). Our analysis uncovered a statistically significant difference in evaluation scores between male participants aged 20 years or younger and female participants aged 41 years or older. This disparity, attributed to the considerable age gap and inherent gender distinctions, rendered any additional inquiry superfluous.

4.5. The impact of education level

Education is considered as one of the vital aspects of human progress. In our research, we examined the relationship between the education level and the evaluation of individuals who discontinued their education. We categorized the participants into four distinct groups based on their educational attainment and investigated whether there was a significant difference in their evaluation scores.

After conducting a one-way Analysis of Variance (ANOVA), we found no significant differences in evaluation scores between the education groups, except for the evaluation of family background, where a significant difference was observed (*p*-value of 0.00233). We conducted a Post-Hoc Tukey Test to investigate this further, which did not reveal any additional significant disparities between the groups. This suggests that a person's level of education does not significantly influence their capacity to be well-informed. To strengthen our analysis, we conducted a Kruskal-Wallis non-parametric test, which also identified a significant difference among the groups concerning the influence of family background on evaluation. The Bonferroni Post-Hoc Test revealed specific differences in evaluations between participants holding a bachelor's degree and those possessing a doctorate, as well as between those with a bachelor's degree and individuals who had completed high school or lower education levels.

4.6. Interaction of level of education with gender and age

Our research aimed to explore the potential interactions between the level of education, gender, and age of participants. To scrutinize these interactions, we conducted a two-way Analysis of Variance (ANOVA). However, the results were

unequivocal, indicating that there were no statistically significant interactions on any of the key reasons assessed. Therefore, we did not need to conduct further investigation through a Post-Hoc Tukey Test.

4.7. Influence of parent's level of education on thoughts of dropping out

In the realm of decision-making, parents often play a significant role in a person's choices, particularly among students. In Greece, where familial support is crucial in students' lives, we wanted to determine how much parents' level of education influences their children's consideration of dropping out. We hypothesized that parents' level of education is a primary influencer of an individual's decision-making process.

We categorized parents' level of education into four groups, matching the classification of the participants' education levels. Within our sample, 57.1% of parents had completed high school or lower educational credentials, while 35% held a bachelor's degree, 5% had a master's degree, and only 2.9% had a doctorate. For simplicity and relevance, we analyzed the parent with the higher education level.

Using a one-way Analysis of Variance (ANOVA), we aimed to find significant differences among the groups in their assessment of primary reasons. Most reasons remained unaffected by the parent's level of education, with *p*-values exceeding 0.05. The only exception was the evaluation of the adversity of the academic field, which showed a significant difference among the groups categorized by the education level of parents. This difference may be due to the hypothesis that parents with lower levels of education perceive academic challenges more strenuously. In contrast, parents with education levels beyond high school may have a better understanding of the hardships inherent to various academic disciplines and, therefore, are better equipped to provide support to their children. Our results are in line with other research (Araque et al., 2009; Bennett, 2003).

As a precautionary measure, we conducted a non-parametric Kruskal-Wallis Test, which yielded similar results to the ANOVA analysis. The adversity of the specific academic field showed a significant difference in values concerning parents' different levels of education. However, the subsequent Bonferroni Post-Hoc Test did not identify any specific groups with significant values.

We also explored how parents' level of education interacted with other categorical data, particularly the participant's level of education, and whether it influenced evaluations. This exploration employed a two-way ANOVA and revealed significant differences in evaluations regarding financial reasons among the two groups' interactions (with a *p*-value of 0.0478). However, subsequent analysis through a Post-Hoc Tukey Test did not identify any significant values between the groups that merited concern.

During our research, we asked participants if they had ever thought about dropping out of their studies. 46.8% of them admitted that they had entertained such thoughts at some point. However, we conducted ANOVA and found out that this had no impact on their evaluations of the primary reasons. This observation highlights the significance of our research as it shows that participants' judgments were not affected by their momentary thoughts of quitting their educational pursuits.

4.8. Independence between variables

During our analysis, we didn't only look at each variable in isolation, but we also examined their relationships with one another. Our aim was to determine whether different categorical variables displayed any dependence when paired with each other. To achieve this, we conducted a Pearson chi-squared correlation test. The results consistently yielded p-values well above the threshold of 0.05, indicating that there is independence between each of the categorical variables when analyzed in pairs.

5. Discussion and policy implications

5.1. Factors influencing university dropout decisions

One of the major reasons why students drop out of university is because they choose the wrong faculty. This accounts for 42.1% of all dropouts. Our research highlights the importance of universities providing better career guidance services to help students make informed decisions about their studies. Financial constraints had a significant impact, with 21.4% of respondents citing them. Policymakers should consider expanding financial aid programs and scholarships to alleviate these burdens on students. Our results are in line with the research made by Aina et al. (2022) and Tasos et al. (2020). Considerable influence over students' decisions was wielded by both poor academic performance (12.9%) and the intrinsic challenges within the selected academic field (8.6%). Our results are aligned with the study of Scheunemann et al. (2022). Therefore, targeted academic support programs and mentoring initiatives implementation is required. Although family background has a moderate influence in only 7.1% of cases, policy discourse should consider family support programs and counseling services to alleviate external pressures on students. These findings were observed in the study by Esposito et al. (2022).

5.2. Correlations

5.2.1. Financial reasons and family background

A significant and positive correlation exists between financial reasons and family background (p = 0.0198). This highlights the need for personalized financial counseling that takes into account familial contexts. These results are in line with the research made by Perchinunno et. al. (2021).

5.2.2. Failing a course and academic field adversity

The correlation between failing a course and academic field adversity (p = 0.0385) highlights the need for stronger academic support systems.

5.3. Gender-based evaluation disparities

Our research has revealed that female students consider factors such as "wrong choice of faculty" and "poor academic performance" as more important than male students do. This highlights the importance of breaking down gender stereotypes and implementing support mechanisms that are sensitive to gender differences in educational institutions.

5.4. Age-related influences

The perception of failing a course varies greatly across different age groups, highlighting the need for targeted interventions.

5.5. Interaction of age and gender

The interaction between suboptimal academic performance during high school, gender, and age require an informed approach in designing academic support programs that considers age and gender dynamics.

5.6. Education level's impact

Targeted interventions are necessary for students from diverse backgrounds due to significant differences in evaluations based on parents' education levels, particularly regarding the difficulty of the academic field.

5.7. Independence between variables

The analysis suggests that policy interventions should take a holistic approach by addressing multiple factors simultaneously rather than in isolation, to demonstrate independence between variables when analyzed in pairs.

Our extensive analysis has revealed the complex factors that contribute to students' decisions to discontinue their university studies. Based on empirical insights, we provide nuanced policy recommendations aimed at creating a supportive academic environment that assists students in overcoming challenges and achieving successful educational outcomes. These recommendations emphasize the importance of higher education institutions taking proactive and targeted measures to improve student retention and success. Universities and policymakers should consider implementing support programs aimed at students from disadvantaged backgrounds. Addressing the root causes of academic failure, such as inadequate preparation, can also help reduce dropout rates. Early intervention and support for struggling students can make a significant difference. These results are aligned with a previous study by Alban and Mauricio (2019). As we have seen in our analysis there is a clear correlation between family background and failing a course in university, with socioeconomic factors and parental support playing crucial roles. Failing a course can be a significant contributor to university dropout, and understanding these dynamics can inform strategies to improve student retention and success. Implementing these policies and initiatives will require financial investment, coordination among various stakeholders, and a commitment to monitoring and evaluating their effectiveness over time. Reducing university dropouts in Greece is not only important for individual students but also for the country's economic and social development.

6. Conclusion

The issue of university dropouts, as examined in the context of Greece, represents a multifaceted challenge with far-reaching implications for both individuals and society as a whole. This research has shed light on the complex web of factors that contribute to student attrition, encompassing financial, academic, familial, and personal dimensions.

One of the key findings of this study is the significant impact of the wrong choice of faculty on dropout rates. A staggering percentage of respondents cited this as the primary reason for abandoning their academic pursuits. This underscores the importance of effective academic guidance and orientation programs to help students make informed decisions about their educational path. Financial constraints were 2022identified as another critical factor leading to dropout. While public universities in Greece offer tuition-free education, the associated costs of living and studying can pose substantial challenges to students and their families, particularly in the wake of economic crises. Expanding financial aid and scholarship programs is imperative to alleviate this financial burden and promote access to higher education. Furthermore, the influence of family background cannot be underestimated. Students with parents who have higher education levels are more likely to persist in their studies. This highlights the need for targeted support programs, especially for students from underprivileged backgrounds, to bridge this gap and provide equitable opportunities.

Age was found to impact the evaluation of specific reasons, signifying the evolving nature of students' perspectives as they progress through their academic journey. To address these challenges and reduce dropout rates, a multifaceted approach is necessary. In conclusion, addressing the issue of university dropouts in Greece requires a comprehensive and collaborative effort from universities, policymakers, and society as a whole. By implementing the strategies identified in this research, we can strive to provide a more supportive, accessible, and inclusive higher education system, ultimately bolstering the educational attainment and future prospects of Greece's students.

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