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# Predicting Graduate University Admission in Azerbaijan Using Multiple Regression

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## Abstract

Each year, Azerbaijani universities strive to attract the best candidates for graduate degrees within the academic hierarchy. Since 2005, one-third of undergraduates have been applying for master's programs. The admission decisions primarily depend on the State Examination Center exam scores. This quantitative research mainly discusses the predictors of graduate university admission based on numerous factors using multiple linear regression. This study statistically measured four independent variables to predict university graduate admission scores in 2021 (GAS21). Significant differences were found between the average graduate admission scores of 2021 and those of 2020 (GAS20) and the percentage of students who scored >86%. There was no evidence of a connection between graduate and undergraduate admission scores and undergraduate enrollment. There is a need for more theoretical and descriptive studies to verify whether universities/institutions lose their prestige after the undergraduate degree.

**Keywords:** Graduate degree, master's in Azerbaijan, SEC exam, multiple regression

## Introduction

Azerbaijan's higher education has its roots in the Azerbaijan Democratic Republic in 1919. The first University of Azerbaijan had four departments ranging from medicine to philology and boasted the most extensive library in the South Caucasus (Mammadova, 2018). Immediately after gaining independence in 1991 from the Soviet Union, the Ministry of Education established three stages of higher education (i.e., bachelor, master, and doctorate) with admission regulations. The State Examination Center (formerly known as the SSAC until 2016) was founded in 1993, aiming to implement unified and centralized admission exams for undergraduate degrees (Kazimzade & Silova, 2009). "The main goals of the unified university entrance exams were to increase the accessibility of higher

education for young people from various social groups and to enhance objectivity and transparency in conducting the exams" (Abbaszade et al., 2021, p. 12). Since 2005, the SEC has provided master's admission exams for all universities in Azerbaijan. Master's degree programs in Azerbaijani universities typically span two years, and the faculties do not differ extensively. It is widely believed that "graduates serve as a bridge between economic and industrial firms and higher education institutions, both of which aim to meet the real needs of society" (Mammadli, 2021, p. 29). Finally, young people in Azerbaijan believe that master's degree graduates tend to secure employment more quickly than undergraduates.

Graduate education is a life-changing and rewarding chapter that requires both time, preparation, and financial investment, yet it brings higher annual earnings, advancement in position, and professional opportunities (Cho-Baker et al., 2022). Upon completing undergraduate education, many students either enter the labor market as full-time employees (Bentley et al., 2017) or opt to pursue a master's degree. In comparison to experiences in the USA (Golden, 2006; Hossler, 1987), one-third of Azerbaijani undergraduates aspire to attain a graduate degree to establish themselves as professionals, even though higher degrees often do not significantly impact employment salaries, indicating a minimal difference in wage rates based on the degree obtained.

In many countries, there has been limited empirical research focusing on factors associated with graduate school choice compared to undergraduate college choice. Similarly, there is a lack of research on Azerbaijani students' choices regarding graduate universities. Drawing from the experiences of other countries, it can be inferred that applicants primarily consider factors such as ranking, institutional demographics, and socioeconomic characteristics of universities (Bersola et al., 2014; Kallio, 1995). Our findings will assist graduate programs in developing effective recruitment strategies to attract prospective students from diverse demographic and motivational backgrounds who are considering pursuing tertiary education in Azerbaijan.

## Literature Review

### *Brief Overview of Graduate Education in Azerbaijan*

During the Soviet period, fifteen higher institutions and universities were established, leading to a significant rise in the literacy rate in Azerbaijan. The primary fields of education were predominantly centered around oil and gas production. Following independence in 1991, Azerbaijan adopted the Latin

alphabet, implemented a new curriculum system, and joined the Bologna process in 2005 (Mammadova & Valiyev, 2020; Kazimzade & Silova, 2009; Samadova, 2016). "With the introduction of the Bologna Process in 2005 and the adoption of the Education Act of the Republic of Azerbaijan in 2009, the content of the Azerbaijani higher education system underwent significant updates, and the European Credit Transfer System was introduced" (MOE, 2020, para. 6). As of 2021, there were 51 public and private universities, institutions, and academies, including eight regional branches, classified as follows:

- Higher education institutions under the Ministry of Science and Education (20 universities).
- Higher education institutions under other ministries and committees (13 universities).
- Private higher education institutions (11 universities).
- Missionary higher education institutions (7 universities).

The current research utilized data from 42 higher universities and institutions, nearly all offering graduate degrees. In Azerbaijan, individuals with undergraduate diplomas can apply for a master's degree (Ibadoghlu, 2021). "A master's degree typically lasts 1.5-2 years and equates to 90-120 ECTS credits" (European Commission, 2017, p. 6). The Azerbaijan government has provided financial support for exchange programs for master's and Ph.D. students for almost a decade. Additionally, there have been Intergovernmental Scholarship Programs (ISP) in partnership with the Republic of China, Hungary, Romania, and Latvia, along with dual exchange programs. Finally, various international exchange programs such as Fulbright (USA), Chevening (UK), Erasmus (Europe), and Mevlana (Turkey), among others, are available.

*Graduate Admission in Azerbaijan*

The State Examination Centre of the Republic of Azerbaijan (hereafter referred to as the SEC) has been administering graduate exams, such as master's degree exams, since 2005, constituting the second level of higher education. The admission process is regulated according to decree No. 40 of the Cabinet of Ministers of the Azerbaijan Republic, dated 08.02.2017, which outlines the "Admission rules to the graduate-level of education in higher education institutions of the Azerbaijan Republic and Azerbaijan National Academy of Sciences" (SEC, n.d., para. 3). According to these rules, bachelor's degree holders and other individuals with higher education qualifications are eligible for admission to master's programs by successfully passing the SEC exams.

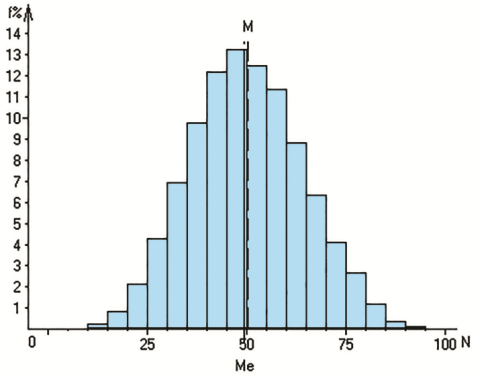
The paper-based exam is scored out of 100 points and comprises multiple-choice and open-ended questions. Candidates are allotted three hours to complete the exam, which includes 50 logical reasoning questions, 25 questions related to selected foreign languages, and 25 questions on computer science as of 2022. Graph 1 illustrates the distribution of points obtained in the master's entrance exam in 2021, showing an almost symmetrical pattern. Approximately one-third of undergraduates apply annually for master's programs, with less than half gaining admission. In different years, access to the graduate exam consisted of two rounds; however, the relevant authorities decided to hold only one round of exams in the academic years 2020-2021 and 2021-2022. Previously, the second round was focused on specific majors.

Additionally, in 2021, "for the first time this year, bachelors were allowed to take the exam in two attempts" (SEC, 2021, p. 604). Generally, master's degree exams are conducted in February and May, with major selections taking place in June. As of 2021, universities offered 71 programs, distributed among 33 state and 11 private universities.

During the admission process, if candidates have equal scores, factors such as the bachelor's GPA, scores in logical reasoning, and foreign language proficiency are taken into consideration for assessment. Some Higher Education Institutions (HEIs) may also require aptitude exams. However, only two universities, ADA University and Moscow State University (specifically, the Baku branch), have their own admission procedures. Their application process typically involves submitting a statement of purpose, a resume, and recommendation letters, followed by an interview stage.

**Graph 1.**

*Numerical characteristics of the distribution of points collected in the master's entrance exam*




| | |
|---|---|
| Mean | 50.53 |
| Standard deviation | 14.19 |
| Mode | 47 |
| Median | 49.61 |
| Minimum score | 0 |
| Maximum score | 96 |
| Total undergrads | 22,007 |

*Source: SEC, 2021, p. 307*

According to the SEC 2021-2022 annual report, candidates who applied for graduate programs answered correctly as follows: 55.91% on logical reasoning, 41.23% on computer science, 48.88% on English, 42.74% on French, 42.75% on German, and 51.63% on Russian. Applicants with the highest scores predominantly selected Azerbaijan State Economic University (ASEU), Baku State University (BSU), Azerbaijan State Oil and Industry University (ASOIU), Baku Higher Oil School (BHOS), The Academy of Public Administration (APA), and Baku Engineering University (BEU).

However, it's important to note that the current ranking does not provide any information on research quality, international orientation, or institutional interaction with industry (Isakhanli & Pashayeva, 2018, p. 113). Nevertheless, the top five HEIs chosen by applicants with more than 50 points for the 2020-2021 academic year were ASEU, ASOIU, BSU, ATU, and ASPU. Finally, bachelor's degree graduates of the Academy of Public Administration (APA) and Baku Higher Oil School (BHOS) achieved the highest admission rates at 74% and 72%, respectively.

Azerbaijani universities offer education both with and without state scholarships. In the 2021-2022 academic year, 35.85% of students gained admission with state scholarships, while 53.28% secured admission without scholarships from state universities. According to the SEC annual report, certain universities, such as Baku Girls University, Baku Business University, and Nakhichevan University, struggled to attract students even with scholarship opportunities.

According to the SEC report, a correlation indicator reflecting the statistical relationship between the average points on the diplomas of undergraduates representing each higher education institution and the points they gained in the master's entrance exam was calculated. Analyzing the correlation coefficients separately for higher education institutions reveals a moderate correlation between the scores ($r = 0.48$). The correlation coefficient between the corresponding scores of the undergraduates representing most of the higher educational institutions falls within the range of 0.23 to 0.54. The highest index, at 0.54, was observed among the undergraduates of Baku Eurasian University (SEC, 2021).

*Worldwide Graduate Admission Research*

In almost every country, the 21st century has witnessed a surge in applications for master's and Ph.D. programs (Cho-Baker et al., 2022; Colombo, 2021). Researchers worldwide have investigated the predictors of university choice for

higher education that influence students' preferences. However, the empirical literature on graduate education predictors has only recently emerged and remains sparse. Students' previous academic achievements primarily impact their future graduate admission choices, and various techniques can yield accurate prediction models (Moore, 1998; Suvan et al., 2022). Undergraduate GPA and GRE scores are among the most commonly used predictors for graduate admission, which further enhance the reputation of colleges, as "employers use college reputation to make inferences about individual graduates" (MacLeod et al., 2017, p. 223). Nonetheless, "theoretical criticisms of previous GRE validation studies have argued that the GRE does not capture all relevant abilities" (Kuncel, 2001, p. 163). Some universities have even begun utilizing statistical machine-learning systems to predict graduate admission, aiming to support the admission committee's work and streamline the process while minimizing biases (Waters, 2014). However, graduate admission predictors can vary based on gender (Wales, 2013), race/ethnicity (Artes, 2016), and socioeconomic background (Aliyev, 2011; Garibay et al., 2013), influencing the transition to tertiary education. Additionally, previous studies suggest that parental education, student debt, advice from reliable sources, and the quality of undergraduate education are potential factors influencing graduate choice and enrollment (English & Umbach, 2016; Zhang, 2005).

As a global trend, Azerbaijani universities strive for prestige, which is assessed through various criteria. Some universities emphasize their historical significance or modern facilities, while others highlight their ability to attract high-scoring students or boast a high percentage of students who scored >86%. Some universities prioritize dual or exchange programs, while others showcase their international professors and diverse student centers. Only one university, Baku State University, was ranked 1501+ in the World University Rankings by Times Higher Education in 2023 (Times Higher Education, 2022). However, Azerbaijani universities are generally not focused on research, experimentation, or entrepreneurship, as highlighted by Mammadli (2021). These aspects are often considered less important than teaching at internationally renowned universities. Finally, only a few universities, such as Baku State University and Azerbaijan University of Languages, could attract a significant portion of their undergraduates to pursue graduate degrees (61%) in 2021-2022.

The mobility of students beginning their graduate education varies from country to country. For instance, in the United States, as high as 90% of graduates may choose a university different from their alma mater (Nettles et al., 2006), whereas in Australia, this figure can be as low as 12% (Kiley & Austin, 2008). Numerous

factors, including personal and social ties, relocation costs and challenges, and the accessibility of local institutions, can influence students' decisions regarding mobility. It is widely acknowledged worldwide that increased mobility can contribute to diversity, cultural exchange, and introducing new ideas within the academic community (Colombo, 2021; Kiley & Austin, 2008).

*Significance of the Study:*

Even though the number of graduate applicants tends to increase annually, there is limited understanding of the factors influencing students' choices and whether universities can maintain their prestige after undergraduate degrees. Only a small number of descriptive studies based on aggregated data in Azerbaijan have discussed admission rules (Abbaszade et al., 2021; Alasgarova, 2022; Ibadoghlu, 2021; Kazimzade & Silova, 2009), educational reforms (Mammadova & Valiyev, 2020; Mammadova, 2018; Majidov, 2012; Samadova, 2016), and the roles of Higher Education Institutions (HEIs) (Isakhanli & Pashayeva, 2018; Mammadli, 2021). No quantitative analysis has attempted to estimate the various factors associated with graduate admission and the roles of universities in Azerbaijan. Therefore, I aim to fill this gap by conducting a multiple linear regression analysis of the predictors of graduate admission scores in Azerbaijan. The primary purpose of this research is to compare the findings within an international context.

Furthermore, this study contributes to the limited literature by conducting a cross-sectional national survey examining the SEC results in the academic years 2020 and 2021. Through the critical research question and multiple linear regression model, this study is a foundation for investigating the impact of additional variables contributing to master's admission. For example, findings from this study could inform future research examining predictors such as family influence, university facilities and costs, potential marketability of the degree, program offerings, course diversity, availability of financial aid, academic reputation, proximity to home, safety, and other relevant factors.

*Research question and hypothesis:*

This study aimed to investigate the central question: What factors predict the average graduate admission scores for the 2020-2021 academic year? The extended version of our research question is: "How well do (1) the average undergraduate admission scores in 2021, (2) the percentage of undergraduate enrollment in 2021, (3) the percentage of students who scored >86%, and (4) the average graduate admission scores in 2020 predict the average graduate admission scores in 2021?"

We utilized four independent variables (predictors) and one dependent or criterion variable (See Table 1).

**Table 1.**

*The details of the variables*

| # | *Variable name* | *Type* | *Range* | *Variable* |
|---|---|---|---|---|
| 1 | Undergraduate Admission Score- 21 (UAS21)<br><br>Average undergraduate admission score that each university gathered in 2021. | Continuous | 0-700 | IV |
| 2 | Percentage of Undergraduate Enrollment-21 (PUE21)<br><br>Total percentage of undergraduate enrollment of each university in 2021. | Continuous | 0-100 | IV |
| 3 | The percentage of students who scored >86% in each university in 2021. | Percentage | 0-100 | IV |
| 4 | Average Graduate Admission Scores- 20 (GAS20)<br><br>Average graduate admission score that each university gathered in 2020. | Continuous | 0-100 | IV |
| 5 | Average Graduate Admission Scores- 21 (GAS21)<br><br>Average graduate admission score that each university gathered in 2021. | Continuous | 0-100 | DV |

## Methods

This empirical research aims to assess the associations between various variables and the decisions of recent graduates to pursue post-baccalaureate education in Azerbaijani universities. Since this research is based on secondary data regression results, multiple variables are considered without manipulating an independent variable (Hahs-Vaughn & Lomax, 2020; Field, 2013). Multiple regression analysis

is commonly employed to examine the impact of exploratory variables on dependent variables in humanities and social sciences studies.

*Research Design*:

Utilizing existing data, a multiple linear regression research design was employed to examine relationships between four independent variables (IVs) and one dependent variable (DV). The current data were obtained from each university's annual report by the SEC. Data collection and processing were analyzed using Microsoft Excel and SPSS 27.

The null hypotheses tested were that the multiple $R^2$ was equal to zero and that the regression coefficients (i.e., the slopes) were equal to zero. "R-squared is a statistical measure of how close the data are to the fitted regression line. A higher R-squared value generally indicates that the model fits the data better" (Acharya, 2019, p. 2). In other words, if we reject the null hypothesis, we claim that there is a relationship between the dependent and independent variables.

*Description of the database:*

There are 42 higher education institutions (HEIs), 61 colleges/vocational educational institutions, and 12 educational institutions nationwide. For the current quantitative research project, only 42 universities/institutions were included as their data were available in the SEC's annual report. Thirty-two universities/institutions are located in Baku, the capital city, and eleven are in the regions. Twenty-one are under the supervision of the Ministry of Science and Education, eleven are under other ministries, and ten are private universities/institutions. Eighteen universities have dual or exchange program contracts; twenty-six were established after independence in 1991. The oldest university, Baku State University (BSU), was founded in 1919, while the youngest, TIA, was established in 2018. Tuition fees per year range from one thousand manats (approximately $590) to six thousand manats (roughly $3500).

In this study, all applicants to graduate programs for the 2021-2022 academic year were considered as the population of interest; however, only the scores of applicants who received and accepted admission were evaluated. According to the SEC report, "22,007 applicants participated in the master's degree exam, and 45.72% (10,060) of them were admitted" (SEC, 2021, p. 604). Among them, 66.02% were current graduates, and 33.98% were graduates from the previous

year. Finally, 90.35% of available admission places were filled. For detailed information about the participants, refer to Table 2.

**Table 2**

*Source: SEC, 2021-2022 Annual Report*

| # | *Total number of* | *Person* |
|---|---|---|
| 1 | Graduate admission places | 11,135 |
| 2 | Graduate applicants (Azerbaijan/Russian sector) | 22,283 (20,353/1,930) |
| 3 | 2021 undergraduates | 35,811 |
| 4 | 2021 undergraduate applicants | 11,588 |
| 5 | Applicants who participated in the exam | 22,007 |
| 6 | Applicants who participated in major selection | 14,981 |
| 7 | Applicants who received admission (1st stage) | 10,350 |
| 8 | Applicants who received admission (2nd stage) | 888 |
| 9 | Applicants who received and registered for a master's degree | 10,060 |

The SEC and MOE annual reports from the 2020-2021 and 2021-2022 academic years were examined for independent and dependent variables. Data cleansing was conducted to remove irrelevant duplicates and outliers, and in the final stage, the average admission scores of 42 HEIs were observed.

The research question "How well do (1) the average undergraduate admission scores in 2021, (2) the percentage of undergraduate enrollment in 2021, (3) the percentage of students who scored >86%, and (4) average graduate admission scores in 2020 predict the average graduate admission score in 2021?" was analyzed using Multiple Linear Regression. Multiple linear regression analysis relies on several key assumptions: (a) independence, (b) homoscedasticity, (c)

normality, (d) linearity, (e) fixed X, and (f) noncollinearity. The data were screened for missing cases, and violations of assumptions before analysis, and no missing data were identified.

*Independence:* A random distribution of points in the scatterplots of student-based residuals against the values of the independent variables and student-based residuals against predicted values provided evidence of independence. The Durbin-Watson statistic was computed to evaluate the independence of errors, yielding a value of 1.772, which is considered acceptable (i.e., a value close to 2 is desired). This suggests that the assumption of independent errors has been met.

*Homoscedasticity:* A random distribution of points where the spread of residuals appears fairly constant over the range of values of the independent variables provided evidence of homoscedasticity.

*Normality:* The assumption of normality was assessed by examining the unstandardized residuals. The Kolmogorov-Smirnov test for normality (i.e., KS = .112, df = 42, $p$ = .200) and skewness (.717) and kurtosis (.736) statistics suggested that normality was a reasonable assumption. The boxplot displayed a relatively normal distributional shape of the residuals, with no outliers. Additionally, the Q-Q plot and histogram supported the notion that normality was reasonable.

*Linearity:* A partial scatterplot of the independent and dependent variables (i.e., average graduate admission score 2021) indicated that linearity was a reasonable assumption.

*Noncollinearity*: The tolerance values were greater than .20, and the variance inflation factor was less than 10, indicating that multicollinearity was not a concern. However, the eigenvalues for the statistically significant predictors were close to zero (i.e., .009 and .005), and the respective condition indices were within the range of concern (i.e., between 20 and 30, 21.172, and 30.063, respectively). Additionally, when examining the relationship between the average graduate admission score in 2020 and the percentage score, it produced an $R^2$ of .092, suggesting potential noncollinearity. Nevertheless, the correlation table revealed that the correlation between the average undergraduate admission score in 2021 and the percentage score was more than 0.8 (i.e., .851), which could be problematic. Although I did not consider removing this independent variable (IV) as the deviation was not drastic, there is still some isolated cause for concern. However, considering the evidence in aggregate, multicollinearity is not considered a significant issue.

*Fixed X*: Previous research has demonstrated that regression analysis performs adequately even when X is a random variable, provided that other assumptions are met.

**Results (Findings)**

The results of the multiple linear regression suggest that a significant proportion of the total variation in the average graduate admission score in 2021 was predicted by UAS21, PUE21, >86%, and GAS20, resulting in $F(4, 37) = 110.482$, $p < .001$. Additionally, we found:

a. For the average graduate admission score in 2020, the unstandardized partial slope (.817) and standardized partial slope (.947) were both statistically and significantly different from zero ($t = 9.647$, $df = 37$, $p < .001$). These results indicate that with every one-point increase in the average graduate admission scores in 2020, the average graduate admission scores in 2021 would increase by approximately 1/100 of one point when controlling for other independent variables.

b. For the percentage of students scoring >86%, the unstandardized partial slope (-.259) and standardized partial slope (-.148) were both statistically and significantly different from zero ($t = -2.363$, $df = 37$, $p = .024$). This indicates that with every one-point increase in the percentage of students who scored >86%, the average graduate admission scores in 2021 would increase by approximately 1/4 of one point when controlling for other independent variables.

c. The confidence intervals around the unstandardized partial slopes do not include zero (GAS20, .645, .988; >86%, -.480, -.037), further confirming that these variables are statistically significant predictors of GAS21. Thus, among the four independent variables, average graduate admission scores in 2020 and the percentage of students who scored >86% were shown to be statistically significant predictors of average master's degree admission scores for 2021 collectively.

d. UAS21 (.007) was neither statistically nor significantly different from zero ($t = .907$, $df = 37$, $p = .370$), and PUE21 (.043) was not statistically or significantly different from zero ($t = 1.747$, $df = 37$, $p = .089$).

e. $R^2$ indicates that the model predicted approximately 92% of the variation in average master's degree admission scores for 2021 (i.e., GAS20 and >86%). Interpreted according to Cohen (1988), this suggests a significant effect.

## Discussion

In Azerbaijan, graduate admission is defined by the SEC as a centralized post-baccalaureate exam covering logical reasoning, foreign language, and computer science. This study aims to identify the institutional predictors that applicants consider when deciding about their graduate degree across Azerbaijan, based on data from 2021-2022. Our research question explored how well factors such as (1) the average undergraduate admission scores in 2021, (2) the percentage of undergraduate enrollment in 2021, (3) the percentage of students who scored >86%, and (4) the average graduate admission scores in 2020 predict the average graduate admission score in 2021. We successfully conducted the analysis through secondary data analysis and obtained several significant results.

The research revealed that a significant proportion of the total variation in the average graduate admission score in 2021 can be predicted using other variables. Among the four variables analyzed, two emerged as significant predictors in the model, positively impacting graduate exam results. These variables are associated with the percentage of students who scored >86% and the previous year's (i.e., 2020) average graduate admission scores.

First, the literature (Bersola et al., 2014; Heathcote et al., 2020; Sturm, 2019) supports the idea that reputation or prestige strongly predicts a high admission percentage. We conclude that a high percentage of outstanding students represents another prestige aspect, and our findings align with previous research. Additionally, previous SEC admission scores are expected to correlate with the latest admission scores if no changes have been made to the admission rules (SEC, 2021). Thus, this research aligns with other findings (Bentley et al., 2017) and suggests that universities' reputations, as indicated by the percentage of high-scoring students and the previous year's results for the same degrees, tend to predict graduate admission scores.

Secondly, it was somewhat surprising that the average undergraduate admission score in 2021 and the percentage of undergraduate enrollment in 2021 were not predictors of graduate admission scores for 2021. Much research has concluded that graduate students prefer their undergraduate universities for their comfort and familiarity (Sturm, 2019). However, our findings contradict previous studies, which is the crux of this study. Since admissions are conducted by the SEC for both undergraduate and graduate levels, and universities do not participate in the selection process, there appears to be no correlation between the two stages,

leading applicants to mainly change their preferences. Despite this, institutions must recognize the importance of making students feel connected to the institution and valued as potential students (Sturm, 2019, p. 110). Examples of such institutions include Baku Slavic University, Azerbaijan Technical University, Baku Engineering University, etc. (SEC, 2021). It can be interpreted that universities may lose their prestige after undergraduate degrees, and applicants tend to change their preferences accordingly. Thus, more research is warranted in this area to further investigate students' mobility.

This particular study differs from previous studies by focusing on the predictors of average admission scores for graduate degrees from all Azerbaijani universities. Additionally, the study utilizes a more recent dataset, precisely the graduate admission exam results for the 2021-2022 academic year. Finally, a unique contribution of our study was that two sets of factors related to the undergraduate level were found to have no impact on graduate school decision-making.

## Conclusion

Prospective graduate students pursuing tertiary education face numerous considerations when applying for a master's degree. Despite the straightforward admission process in Azerbaijan and the availability of over forty universities, students must carefully consider which institution best aligns with their needs. This study delved into the SEC score predictors of the graduate admission exam for the 2021-2022 academic year. By evaluating all four predictors in the dataset, we were able to determine which model better predicts graduate scores. Employing multiple linear regression analysis, we found that the percentage of students scoring >86% and the previous year's (i.e., 2020) graduate admission scores were statistically significant predictors of graduate admission scores for 2021. Universities are more likely to attract highly skilled students for their graduate programs if they have a higher percentage of outstanding students and maintain similar average admission scores as the previous year, aligning with Kallio's (1995) findings. However, the analysis also revealed valuable evidence suggesting that average admission scores for bachelor's degrees are less likely to influence post-baccalaureate choices, though such findings may not apply universally to all considered universities. Finally, the results indicate that universities with lower average graduate admission scores are more likely to attract students with similar lower scores.

Prior studies have primarily concentrated on the correlation between SAT and undergraduate admission exam scores and their connection with first-year GPA.

The SEC's analysis of correlation coefficients calculated separately for higher education institutions in 2021 revealed a relatively moderate correlation (r = 0.58) between graduate admission scores and baccalaureate diploma grades. This study aligns with previous research findings (Moore, 1998) that have identified similar factors influencing the decision-making process for graduate education. The results of this study can contribute to the literature by elucidating which predictors may influence graduate students' choices. Furthermore, the study contributes novel insights to this topic by being more current and focusing on Azerbaijani universities. Based on these findings, higher education administrators and graduate faculty can take specific measures to enhance the academic program's reputation and increase potential graduate students' admission scores.

**Limitations**

Several limitations have influenced this study:

1. Use of secondary archival data: "While this method is cost-effective, time-saving, and provides researchers with abundant data, it may suffer from accuracy issues" (Forumplus, 2022, para. 19).
2. Incomplete population information: Since not all applicants enroll, some drop out for various reasons, and some high-scoring students opt for education abroad, we lack information about the entire population. Additionally, factors such as financial constraints or other obligations may prevent some students from continuing their education.
3. Potential missing data: The dataset may contain missing elements, contributing to potential gaps in the analysis.

However, despite these limitations, the SEC and MOE annual reports stand as the most comprehensive sources of data in the Azerbaijan education domain. By leveraging these reports, we could ascertain that universities exhibited nearly identical average admission exam scores and percentages as reported.

Another limitation of the study is that it solely relied on information from universities and did not directly involve input from students. This approach may introduce bias into the conclusions drawn, as it relies exclusively on data provided by the SEC report concerning universities. To address this limitation, future research should aim to conduct more comprehensive investigations by surveying students directly and analyzing relationships among various variables. For example, exploring how student choices vary across factors such as gender, age,

sociocultural background, and enrollment status would provide valuable insights into the predictors of graduate college selection.

**Implications/ Recommendations**

Other studies encompassing master's and doctoral degrees categorize graduate school choice and admission predictors based on various factors. Many of these studies have identified factors such as low cost of living, university/program reputation, availability of paid graduate assistantships, and access to scholarships as crucial for enrollment (Bersola et al., 2014; Hossler and Gallagher, 1987; Sturm, 2019). Additionally, characteristics like proximity to home, exemption from GRE requirements, flexible program structures, stipend amount, family background, and job opportunities within the department are also considered significant determinants of enrollment (Poock and Love, 2001; Sturm, 2019). Conducting surveys among Azerbaijani graduate applicants and students would provide valuable insights. Therefore, gathering information directly from individuals about how they make decisions regarding their graduate education would be highly beneficial. Kallio's findings (1995) suggest that even factors such as marital status and the ability to maintain current employment could influence graduate university choice.

Recent studies have shown that social and cultural opportunities such as diversity, equity, and inclusion also influence graduate school choice (Bersola et al., 2014; Cho-Baker et al., 2022; Poock and Love, 2001; Soroka & Akimova, 2020). In our study, we also aimed to identify institutional factors related to graduate school choice, a novel approach in Azerbaijan education. It is recommended that future research investigating post-baccalaureate enrollment consider the aforementioned factors. Further exploration is needed to understand why individuals make choices regarding graduate university selection. We could only address this gap by examining and comparing four institutional variables related to admission scores and percentages without exploring personal factors. The results will be valuable for future master's degree applicants, education professionals, and preparatory courses.

Additionally, universities can adjust their admission processes according to demand, and both the Ministry of Education (MOE) and the State Examination Center (SEC) can implement qualitative improvements in admissions. Drawing from the experiences of successful higher education institutions (HEIs), they can extend these practices to all public and private HEIs.

**Conflicts of interest**

This study was not funded, and the author declares no conflicts of interest. The author expresses gratitude to the State Examination Center of the Republic of Azerbaijan for providing annual reports with detailed open data.

Appendix A.

| # | Universities | UAS21 | PUE21 | >86% | GAS21 | GAS20 |
|---|---|---|---|---|---|---|
| 1 | Baku State University | 407.97 | 92.26 | 20.81 | 54.4 | 53.6 |
| 2 | Azerbaijan State Oil and Industry University | 392.37 | 88.68 | 9.97 | 56.1 | 55.9 |
| 3 | Azerbaijan Technical University | 304.04 | 78.93 | .00 | 47.7 | 47.9 |
| 4 | Azerbaijan University of Architecture and Construction | 282.88 | 82.44 | .44 | 47.0 | 46.3 |
| 5 | Azerbaijan Medical University | 596.88 | 97.40 | 21.30 | 53.9 | 70.0 |
| 6 | Azerbaijan State Pedagogical University | 385.40 | 91.80 | .33 | 49.2 | 47.9 |
| 7 | Azerbaijan State Economic University | 408.87 | 94.92 | 8.39 | 55.1 | 54.6 |
| 8 | Azerbaijan University of Languages | 447.31 | 97.82 | 3.10 | 53.3 | 52.6 |
| 9 | Baku Slavic University | 352.47 | 87.72 | .00 | 46.9 | 44.2 |
| 10 | Baku Engineering University | 382.29 | 86.21 | 2.94 | 57.4 | 58.3 |
| 11 | The Academy of Public Administration under the President of the Republic of Azerbaijan | 514.36 | 98.21 | 5.88 | 68.4 | 67.3 |

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|---|---|---|---|---|---|---|
| 12 | ADA University | 558.99 | 85.98 | 6.15 | 62.3 | 62.9 |
| 13 | Baku Academy of Music | 139.05 | 95.97 | .00 | 40.0 | 37.8 |
| 14 | National Conservatory of Azerbaijan | 103.27 | 89.90 | .00 | 35.9 | 34.0 |
| 15 | Azerbaijan State University of Culture and Arts | 319.27 | 94.78 | .00 | 37.0 | 33.4 |
| 16 | Azerbaijan State Academy of Fine Arts | 214.61 | 98.67 | .00 | 37.3 | 34.7 |
| 17 | Azerbaijan Tourism and Management University | 321.50 | 88.75 | .00 | 51.3 | 49.1 |
| 18 | Baku Choreography Academy | 309.99 | 67.27 | .00 | 36.5 | 31.6 |
| 19 | Azerbaijan State Academy of Physical Education and Sport | 229.46 | 98.13 | .00 | 37.2 | 33.3 |
| 20 | National Aviation Academy | 369.87 | 90.02 | .33 | 55.0 | 53.9 |
| 21 | Azerbaijan State Marine Academy | 362.71 | 87.50 | .00 | 47.8 | 48.9 |
| 22 | Baku Higher Oil School | 631.13 | 86.87 | 9.75 | 76.3 | 78.4 |
| 23 | Academy of State Customs Committee | 529.88 | 100.00 | 1.53 | 57.4 | 59.0 |
| 24 | Nakhichevan State University | 387.96 | 88.22 | .76 | 46.2 | 45.2 |
| 25 | Nakhichevan Teacher's Institute | 216.83 | 80.00 | .00 | 43.1 | 39.7 |
| 26 | Azerbaijan State Agricultural University | 237.53 | 78.16 | .05 | 43.2 | 43.4 |
| 27 | Ganja State University | 343.96 | 85.81 | .27 | 45.5 | 44.0 |

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|---|---|---|---|---|---|---|
| 28 | Azerbaijan Technical University (Ganja) | 205.91 | 69.47 | .00 | 40.5 | 44.0 |
| 29 | Sumgait State University | 330.37 | 73.47 | .00 | 44.8 | 44.6 |
| 30 | Mingachevir State University | 306.74 | 81.23 | .11 | 46.1 | 44.3 |
| 31 | Lankaran State University | 291.71 | 74.57 | .11 | 46.1 | 48.0 |
| 32 | Azerbaijan University of Cooperation | 228.25 | 62.00 | .00 | 39.8 | 41.4 |
| 33 | Theology Institute of Azerbaijan | 288.37 | 94.44 | .00 | 39.9 | 34.8 |
| 34 | Azerbaijan University | 284.50 | 77.61 | .00 | 41.3 | 43.5 |
| 35 | Western Caspian University | 228.77 | 73.61 | .00 | 44.2 | 41.0 |
| 36 | Khazar University | 399.46 | 79.90 | .93 | 50.7 | 48.3 |
| 37 | Baku Eurasian University | 274.10 | 68.51 | .00 | 41.8 | 39.7 |
| 38 | Baku Girls University | 336.91 | 74.55 | .00 | 41.3 | 42.3 |
| 39 | Odlar Yurdu University | 280.00 | 81.81 | .00 | 38.3 | 39.3 |
| 40 | Baku Business University | 248.37 | 87.29 | .00 | 41.9 | 43.0 |
| 41 | Nakhichevan University | 267.96 | 71.36 | .00 | 40.5 | 40.7 |
| 42 | Azerbaijan Academy of Labor and Social Relations | 306.68 | 66.00 | .00 | 41.5 | 41.8 |

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