A Statistical Analysis Of The Factors Affecting The Demand For Higher Education In Albania From The Point Of View Of Graduates

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Abstract— **In recent years, many branches in different faculties of Albanian universities have faced empty auditoriums. It is an undeniable fact that many branches are at risk of closing due to the declining demand from graduates. In this study, the factors that influence the preferences of Albanian graduates in the selection of the educational institution that they will continue are analyzed. The estimation of SEM models will be used to reveal the influence of factors on the demand for higher education. The primary data were obtained from a questionnaire addressed to high school graduates across the country and after piloting there are 492 valid questionnaires. 22 independent variables and four latent variables were used in the modeling, which are academic offers, economic, social and infrastructural factors. From the analysis of the four selected factors, it results that the academic offer factor and the infrastructure factor have a direct and important influence on the selection by the graduates of the institution where they will study . R studio was used for data processing.**

Keywords— *demand for education, graduates, SEM, academic offer.*

I.   INTRODUCTION

Higher education is considered one of the main factors of socio-economic development of society, therefore its study should be a priority of potential researchers. The right to education in the Republic of Albania is defined by the Constitution, Article 57, point 1: " Everyone has the right to education." With the changes in the political system that the country went through in the early 1990s and with the establishment of pluralism, the education system, like in every sector, needed immediate reformation. During the period 1990-2015, the laws on the pre-university and university education system have changed several times. In recent years and until today, where there have been many reforms in education, even though many things have improved, there are still problems to

be solved both qualitatively and quantitatively. The university system in Albania is controlled and monitored by the state. During the last years, the Higher Education system has undergone a series of reforms, which have had as their main goal the increase of quality.

A big problem that is appearing year after year and up to the current year is the decrease in the number of individuals seeking education in the Republic of Albania. This problem is the main purpose of the paper, which is part of a study undertaken at the University of Tirana[1].

According to INSTAT (2024 [2]), at the beginning of the 2023-2024 school year in the lower cycle, we have a decrease in registrations of 4% compared to the previous year or 35% compared to 2010. For lower secondary education in the 2023 school year -2024 there is a decrease in registrations of 2.8% compared to the previous year or 43% compared to 2010. For the higher secondary education for the school year 2023-2024 there is a decrease in registrations of 39% compared to 2010. Compared compared to the previous year, there is a decrease in registrations of 4.3%, where the biggest decrease is in general secondary education with 4.9% and vocational secondary education has a smaller decrease of 2.4%, this year 17.9 % of students attend vocational education, from 17.5% that was a year ago. Policies are in support of vocational education as it provides practical and specialized skills that are in demand in the labor market. This prepares students to start working immediately after finishing school, making them ready for various positions in certain industries. The figures show a continuous decrease in registrations in all three cycles, which after a few years will be reflected in the sharp decrease in the number of registrations in universities also as a result of the smaller number of graduates without taking into account factors others.

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[1] The study is part of the research project:
Determination of influencing factors in the demand for higher education in Albania. Predictions and challenges.
[2] https://www.instat.gov.al/

An ever-increasing phenomenon in recent years is emigration for study purposes by young people but also by families who, in addition to economic and social conditions, a strong reason that compels them to emigrate, to Western countries, but also to Nordic countries, is to ensure the highest quality education for their children. Another very intense aspect that, in our opinion, has not received the proper attention is precisely the movement of students mainly to OECD countries to complete higher studies, and this has turned Albania into a "barn" of flows for foreign universities. According to the Educational Services Center, only in 2023, out of about 30,000 high school graduates across the country, 10,873 of them have applied for studies abroad. This figure represents 36% of the number of all graduates and shows an alarming situation for the number of student dropouts. In this situation HEIs should take measures to attract as many graduates as possible to study within the country by improving the academic offer and continuously improving the study programs they offer. Many Albanian universities are collaborating with foreign universities to offer double study degrees, study programs in the English language as well as involvement as much as possible in student exchange projects. In July MAS together with HEIs undertook the "Study in Albania" campaign. [3]supporting students with excellence scholarships and scholarships for priority branches according to the national education strategy [4]. Only the University of Tirana for the academic year 2024-2025 offers in foreign languages 12 master's programs and 4 bachelor's study programs as well as 4 master's programs with double degrees [5]and is involved in many projects financed by the EU. In this paper we analyze the factors that influence in HEI selection from the perspective of graduates and using SEM on primary data collected from questionnaires will reveal the most important factors in decision making.

II. LITERATURE REVIEW

Currently, the demand for qualified human resources plays a decisive role in the socio-economic development of any country. Nowadays, the issue of employment is one of the biggest challenges that graduates face, and due to the large offer, the competition is always increasing. For this reason, students must improve their skills and improve their knowledge to create a competitive advantage in the labor market. Therefore, high school students, especially those in the 12th grade, are very interested in choosing university courses that suit their interests

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[3] https://arsimi.gov.al/studio-ne-shqiperi-manastirliu-me-maturantet-chozni-oferten-akademike-te-universiteteve-tona/

[4] https://arsimi.gov.al/wp-content/uploads/2021/05/Draft-Strategjia-per-Arsimin-2021-2026.pdf

[5] https://unitir.edu.al/oferta-akademike-e-universtietit-te-tiranes/

in order to increase their chances of finding a suitable job after graduation [1]. Choosing a higher education institution is a major and important decision for future students. Indeed, it is likely to be one of the first decisions, if not the first, that is made perhaps even without dominant parental involvement. It is therefore not surprising that higher education institutions are keen to gain a thorough understanding of the external influences on prospective students during HEI selection [2].

Graduates are asked to think about their future career from a young age, which will continue to be a matter of concern for a long period of their lives [3].
One might think that a rational selection by the graduates which matches their achievements during the high school years and their personal interests would be more theoretical, since a good part of them make their choices not on the basis of achievements, but on what they want to achieve. The theory of rational choice is based on the premise that people always act deliberately and thoughtfully to choose and use resources rationally to achieve maximum results at the lowest cost [4]. The purpose of the study [4]based on primary data is to determine the factors that influence the selection of the institution of higher education by graduates. The important changes that have occurred during the last decades due to the reforms of the education system as well as the transformations that our society has undergone, including demographic and market characteristics, as well as institutional practices. Many researchers claim that the decision to further select an academic career is a complex process that includes different perspectives and a multitude of factors. Traditionally, the higher education selection process has been studied from a socio-economic perspective. Researchers taking this point of view study the factors that influence the high school graduate to choose a certain institution [5]. Two clearly dominant models are identified in the literature, as an attempt to identify the reasons why graduates choose certain institutions of higher education after secondary education: one is based on an economic model and the other is based on a social model [6]. The study [6]can also be considered as an evaluation of alternatives, of the central stages of a decision-making process, where graduates as customers evaluate different attributes of higher education institutions. In many studies, these attributes are referred to as selection criteria for graduates [7]. With the political changes in the system that occurred after the 90s, there were also changes in the way graduates were recruited to the university, massifying it from year to year. The motto was: give everyone the opportunity to attend a higher school. But with massification came the first challenges for higher education institutions which should now be reformed to increase competitiveness in the market. The physical assets and facilities offered by the environment give higher education institutions the shape and atmosphere suitable for teaching and learning, so these assets and facilities can be a potential influencing factor in the selection by

graduates of higher education institutions [8]. Another factor that can affect the selection of a HEI by the graduate is the financial support that the university itself offers for certain categories. One of the focuses of this study is the role of parents, in their expectations and aspirations in the education and plans of their children for the future. There are studies on access to higher education among young people living in disadvantaged communities, in rural and urban areas. There is a considerable literature internationally on parents' orientations towards their children's education and the role they play in supporting formal and non-formal learning [9]. Another factor that is gaining weight in the last decade is social media. Institutions of higher education through social networks can market their programs and innovations, to encourage graduates to make their decisions and make the choice of the study program, thus increasing the number of registrants [10]. The paper [11]reveals that using the Gray models, the demand for higher education in Albania will continue to decrease in general and this trend will be maintained for public HEIs, while the trend will be positive for private HEIs in the country. The paper reveals [12]the drop in the demand for education in specific branches of public HEIs in the last academic year compared to two years before.

III. EMPIRICAL ANALYSIS

In order to discover the factors that influence the demand for higher education in Albania from the point of view of high school graduates across the country, a questionnaire was drawn up which was addressed to high school graduates in various public and private schools throughout the country. The questionnaire was distributed in electronic form through school directorates as well as social networks dedicated to graduates. After cleaning the data, 492 high school graduates who attend pre-university institutions in the country responded to the questionnaire. distributed in 110 schools, of which: 85 public schools with high school profile, 15 public professional schools and 10 non-public schools

General information about participating students is presented in the table below.

TABLE 1: THE DISTRIBUTION OF STUDENTS

Variable	category	percent
Gender	Male	29.7%
	Female	70.3
Orientation of education	Gymnasium	90.4%
	Professional	9.6%
School profile	Social	28.5%
	Scientific	71.5%
Desire for the continuation of the University	It doesn't continue	1%
	Undecided	15.5%
	Outside of Albania	6.3%
	In Albania	77.2%

Source: Author's calculation

From the evaluations, it can be seen that the majority (about 90%) of the interviewees attended high school profile education and 71.5% of them during the third year chose the scientific profile. It is interesting to see that approximately 16% are undecided if they will continue their studies, this is a significant part which should be the subject of information campaigns by HEIs. On the other hand, more than 6% have chosen to pursue studies abroad, and of course most of them want to study within the country, but without specifying whether they prefer public or private HEIs.

In order to analyze the behavior of high school graduates in their preferences for continuing their studies, four factors have been created. The first latent variable is the academic offer for which seven variables have been analyzed , the second factor is the social one with seven variables, the third factor is the economic one with five variables and the fourth factor is the infrastructural factor with three independent variables . In detail, the factors and variables are presented in table 2.

TABLE 2: THE FACTORS AND VARIABLES

factor	Independent variable	symbol
Academic offer	How will the fact that some of the public universities offer double degrees affect the selection of your university/faculty? (in cooperation with foreign universities).	vk1
	How much do you think the fact that some of our country's universities offer programs in foreign languages will affect the selection of the study program?	vk2
	the non-public universities offer international degrees affect the selection of university studies ?	vk3
	How much do you think selecting a university in your city will affect high academic achievement?	vk4
	How much do you think the return of competitions in some universities will affect the selection of your study program?	vk5
	How important do you think high school average should be in selecting students for universities?	vk6
	How much will the fact that the universities of our country offer scholarships through the Erasmus + program affect the selection of university studies?	vk7
Social fact	Do you think that the profession of your parents will influence the selection of the study program at the	vs1

	university?	
	How much do you think advertising study programs in the media will influence the selection of your university/faculty?	vs2
	How much did your teachers influence the selection of the profile for the university?	vs3
	How much will your parents/relatives influence the selection of the study profile?	vs4
	How much will the environment and social circle influence the selection of university studies?	vs5
	How much will the social life of the city where the university is located affect the selection of university studies?	vs6
	How much did the prestige of the university/faculty influence the selection of your profile?	vs7
Economic factors	How much do you think that job offers in your city will influence the selection of university studies?	ve1
	How will the increase in demand for certain professions in our country affect the selection of university studies?	ve2
	How much will the financial stimulus set by the state for some priority branches affect the selection of university studies?	ve3
	How much will the increase in demand for certain professions from European Union countries affect the selection of university studies?	ve4
	How will family income affect the selection of your university studies program	ve5
	How much will the distance of your residence affect the selection of university studies?	vi1
Infrastructural	How important will the study facilities and libraries offered by the university be in your selection of studies?	vi2
	How important will the laboratory facilities offered by the university be in your selection of studies?	vi3

Source: Author's calculation

variable in the analysis is pursuing university studies (y). From the analysis of each latent variable, all independent variables that had sd.all less than 0.5 were eliminated and then used to estimate the SEM for the influence of the four factors on the demand for higher education from the perspective of graduates.

In this study, four hypotheses were raised which are:

Hypothesis 1 : The academic offer affects the preferences of HEI choice for university studies.
Hypothesis 2 : Social factors influence the preferences of HEI choice for studies university.
Hypothesis 3 : Economic factors influence the preferences of HEI choice for university studies.
Hypothesis 4 : Infrastructural factors influence the preferences of HEI choice for university studies .

The following table presents the influence of the factors on the latent variables, in the first column the values of the coefficients are presented, while in the second column the values of the standardized coefficients (std.all) are presented. A standardized coefficient greater than 0.5 usually indicates a strong and significant influence of the independent variable on the dependent variable [13].

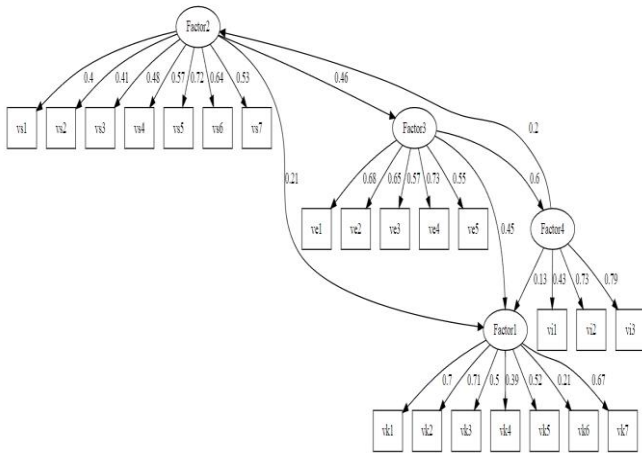TABLE 3 ESTIMATE SEM FOR THE LATENT VARIABLE

Source: Author's calculation

If we refer to the academic offer, the variables with a standardized coefficient value greater than 0.5 are vk1, vk2, vk5 and vk7. In the latent variable academic offer, the variables that have the strongest impact are the HEI's offering of study programs with doubles degress, programs in foreign languages, as well as the inclusion of HEIs in Erasmus programs. The introduction of competitions for study programs also has an impact on this factor, the latter restores students' confidence in the selection of meritorious students in the branches they prefer.

If we refer to the social factor, the variables with a standardized coefficient value greater than 0.5 are vs4, vs5, vs6 and vs7. In the latent variable of the social factor, the variables that have the strongest influence on the selection of HEI for continuing studies are relatives, the social circle, but also the social life where the HEI is located and, moreover, the prestige of the university or faculty that the graduate will select. Regarding the latent variable economic factor, all the selected variables have a significantly strong influence. For the latent variable, the infrastructural factor has a strong influence on the study environments, laboratories and other environments in function of the teaching offered by the university, and

the distance of the university from the residence of the graduate does not have a strong influence.

The diagram below shows the relationship between the independent variables and the latent variables.

FIGURE 1THE FIRST DIAGRAM FOR LATENT VARIABLE

Source: Author's calculation

Based on the estimates obtained by SEM, it is concluded that there are strong relationships between the latent variables. The economic factor turns out to be correlated with the infrastructural and social factors, this is also evident from the p-values of the respective links presented in the table below which are smaller than the 5% significance level and moreover the values of the standardized coefficients indicate significantly strong influences.

TABLE 4THE ESTIMATED REGRESSION FOR THE FACTOR

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Regressions:
                Estimate Std.Err z-value P(>|z|) Std.lv Std.all
Factor4 ~
    Factor3      0.624    0.076   8.252   0.000   0.648  0.648
Factor3 ~
    Factor2      0.659    0.077   8.531   0.000   0.638  0.638
Factor1 ~
    Factor3      0.704    0.071   9.947   0.000   0.666  0.666
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Source: Author's calculation

To test the raised hypotheses, the SEM was evaluated in which only the 14 independent variables with significantly strong influence, the latent variables and the dependent variable that is for finding the HEI are included. The diagram of the proposed model is presented in the figure below.

FIGURE 2: THE DIAGRAM FOR THE FINAL MODEL
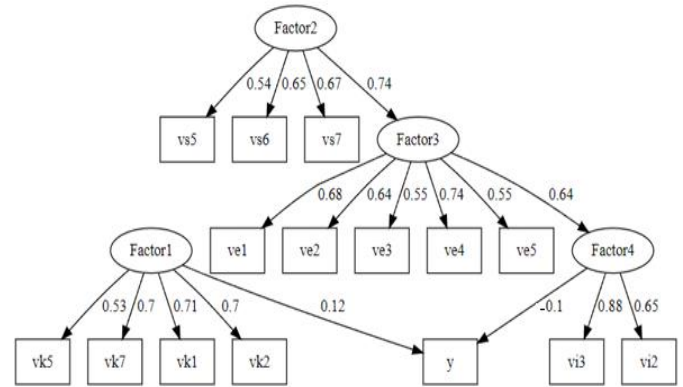
Source: Author's calculation

The figure shows the values of the coefficients in each connection case. The coefficients in the proposed final model are statistically significant since the p values are smaller than the 5% significance level . To analyze the fit of the estimated model, the following indicators were used: the Comparative Fit Index (CFI), as the closer the CFI is to 1, the better the model fit; *THE* Root Mean Square Error of Approximation (RMSE), if RMSE is less than 0.05 we have close fit, if it is greater than 0.1 we have poor fit; t he (Adjusted) Goodness of Fit is the proportion of variance accounted for by the estimated population covariance (GFI/AGFI); the Incremental Fit Index (IFI), Tucker Lewis Index (TLI), TLI greater than 0.9 we have close-fit, [11]while GFI and IFI must be greater than 0.95 [12].

TABLE 5: MODEL FIT INDICES FOR THE MEASUREMENT MODEL

CFI	RMSE	GFI	AGFI	IFI	TLI
0.942	0.053	0.949	0.927	0.943	0.928

Source: Author's calculation

The indicators used indicate a good fit of the proposed model. The estimated regression is presented in table 6.

TABLE 6THE FINAL REGRESSION

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Regressions:
            Estimate Std.Err z-value P(>|z|) Std.lv Std.all
Factor4 ~
  Factor3    0.612    0.075  8.183   0.000   0.642  0.642
Factor3 ~
  Factor2    0.883    0.103  8.574   0.000   0.735  0.735
y~
  Factor1    0.111    0.050  2.232   0.026   0.097  0.124
  Factor4   -0.095    0.042 -2.261   0.019  -0.077 -0.098
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Source: Author's calculation

All correlations based on p-values are significant at the 5 % significance level. Regarding the issues raised in this paper, we conclude that the academic offer is one of the most important factors for the choice of HEI by the graduate. On the other hand, the social factor affects the economic factor, the latter affects the infrastructural factor. The infrastructural factor has a significant influence on the selection of the HEI where they will study. Students demand that the institutions have a good infrastructure in offering the highest quality and most up-to-date study.

CONCLUSIONS

In Albania, as well as in many other countries, in recent years, universities are facing an ever-increasing demand. There are branches that are in danger of being closed, there are faculties that become vacant every year or more. Many young people want to leave the country for studies and then to live in European countries and not in their own country. Albanian universities are modifying the academic offer by opening new branches of study to be as close as possible to market requirements, cooperating with foreign universities and including in national and international projects. In this paper, the factors that influence HEI selection by high school graduates are analyzed in order to discover the strong and weak points. A questionnaire distributed to high school graduates throughout the country served to collect primary data. The estimation of SEM helps us to discover the relationship between the variables taken in the analysis. From 22 independent variables, only 14 of them resulted according to the standardized coefficients with significantly strong influence on the four latent variables created. The academic offer turns out to be the most important factor and the strongest influence in HEI selection. Prospective students prefer that the institution they choose offers double degrees with foreign universities. Likewise, study programs in a foreign language (English) are preferred by graduates to be selected. If the institution is involved in Erasmus+ programs, graduates prefer it more. So HEIs need to improve their academic offer even more to be at the level of institutions in developed countries. The cooperation of the institution with foreign institutions and its involvement in projects financed by the EU increases the trust of Albanian high school graduates towards these institutions. The future students, as the technology generation that they are, demand that the institution have an infrastructure that is as functional as possible and suitable for the current conditions. The library or laboratories are very important in HEI. Economic factors and why they were expected to have a strong impact, they affect HEI enrollment through the infrastructural factor. Albanian families are inclined to choose the best for their children's education even in cases where financial support is not sufficient.

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