Influence of high school grade point average on university performance: a case study from Albania

Emiljan Karma, Mitat Dautaj
Research Centre on Developing Economies, Faculty of Economic, Social and Political Sciences, Catholic University Our Lady of Good Counsel, Tirana, Albania

Article Info	ABSTRACT
	This study aimed to investigate the impact of high school grade point average (GPA), as an admission criterion, on university performance using administrative data from a non-profit private university in Albania. This paper also examines additional variables that may influence the final degree outcome at Catholic University Our Lady of Good Counsel (Tirana). An ordinal regression analysis was conducted to forecast university performance based on selected university characteristics across various degree courses for 1,485 graduates. The study indicates that the high school GPA, which serves as an entrance requirement for Albanian universities, has a partially insignificant impact on the final university degree. Other factors, such as nationality, gender, university grade point average, and time required for graduation, directly and significantly affect the degree outcome. This result has implications for the efficiency of high school GPA as a mandatory university access criterion. At the same time, the negative impact of high school GPA as a mere barrier to university access is highlighted.

Corresponding Author:

Emiljan Karma
Research Centre on Developing Economies, Faculty of Economic, Social and Political Sciences,
Catholic University Our Lady of Good Counsel
Rruga Dritan Hoxha 23, Tirana, Albania
Email: e.karma@unizkm.al

1. INTRODUCTION

The university studies performance depends on the student's commitment to achieve their objectives during the study, considered as internal factors, and on external factors (social, demographic, and economic) [1], [2]. Several determinants influence student results. Some of these determinants create barriers to accessing and continuing higher education, including family income level, place of residence, and gender [3], [4]. The goal of long-term national education policies should be the reduction of access barriers to education, to include as many people as possible in the education process [5]–[7]. This is also the goal of sustainable development in education. The sustainable development goals for education (SDG4), specifically target 4.3, aims to "ensure equal and affordable access for all women and men to quality technical, vocational and tertiary education, including university, by 2030." This highlights the significance of eliminating obstacles to skill development and technical and vocational education (TVET) from secondary to higher education, including universities, while offering lifelong learning opportunities for both young people and adults. Higher education should be provided free of charge in accordance with existing international agreements [8].

Governments should strive to eliminate impediments to university access faced by both genders, following the sustainable development goals (SDG). Albania has committed to achieving the SDG. However,

like other countries, Albania also faces typical macro-barriers, such as family income levels, education levels of relatives, place of residence, gender, and social environment [9].

Although educational policies aim to reduce entry barriers in higher education, starting from the academic year 2016-2017, an additional criterion (barrier) for university admission was introduced in the Albanian education system, both at institutional and national levels. This criterion is the overall high school grade point average (GPA). It has been regulated by the Council of Ministers Decision (VKM) n° 407/2016: in Albania, high school GPA is calculated as the arithmetic average of high school diploma grade and high school average grade. As per this decision, candidates with an overall GPA of 6.0 or higher are eligible to enter the university system, with a minimum GPA of 5 and a maximum of 10. The required score for admission was raised to 6.5 (and in some degree programs, up to 7 and 8). However, in 2021, it was lowered again to 6 and 6.5 due to a sharp decline in the number of students enrolling at Albanian public universities. As a result of this, thousands of students have been kept out of the university system, confused, and refused entry [10]–[12]. As can be shown from Table 1, in the academic year 2021-2022, 10,300 students out of 32,800 students are excluded automatically from university access, i.e. 30% of potential candidates, due to the access criterion of high school GPA.

Table 1. Candidates excluded from university access due to high school GPA

Academic year of 2021-2022		High school average grade (%)			
		5	6	7	8
High school diploma grade (%)	5	8.99*	6.84*	2.54*	0.5
	6	4.6*	6.99*	4.84	1.8
	7	1.58*	4	5.68	3.79
	8	0.52	1.8	4.56	5.77

Total: 32800 pupils; 10300 pupils excluded from university access
*The percentage of students who do not reach the necessary limit for university access

Compared to other national education systems in Europe, the institutionalization of high school GPA as a barrier to university admission is unusual, if not unique [13], [14]. While there is a high school GPA requirement for university admission, this requirement is not centrally enforced, but is based on the independent policies and curricula of the universities [9], [14]–[16]. The SDGs for education in general, and higher education in particular, are not met by the forced and institutionalized implementation of such a criterion in Albanian higher education. The main justification for the high school GPA barrier in the Albanian system is the need to improve the quality of students entering the system (freshmen), while at the same time allowing the university to adapt it is infrastructure, faculty and other resources to meet the growing demand, which showed a continuous and steady growth until the academic year 2015-2016 [17], [18]. The increase in the freshmen number, at least until the 2015-2016 academic year, has been accompanied by the proliferation in the number of graduates, damaging at the same time the quality of the outgoing students (graduates). Therefore, the point is to see if high school GPA, nor a barrier to university access, has helped as a determinant in maintaining or improving the quality of university graduates [19].

The purpose of this study is to evaluate the institutional decision's effectiveness (opportunity cost between access barriers and final university grade) in this particular case study through empirical analysis and an examination of a private, non-profit Albanian university. Furthermore, this study is expected to fill a gap in the literature regarding the factors influencing the GPA of university students in Albania, as there are currently no academic studies in this area. This will encourage further research studies that could provide valuable insights for the creation of more sophisticated educational policies. Identifying other variables that may affect graduate students' chances of obtaining a higher degree is one of the other objectives of the study.

2. LITERATURE REVIEW
2.1. Factors affecting university performance in different countries

Studies have identified the factors that impact students' achievement in higher education. By focusing on the cumulative grade point averages (CGPAs) of Connecticut College students, Russo [20] sought to identify the factors influencing their academic experience. Even after controlling for prior academic achievement and demographics, the study found that certain high school inputs such as student-teacher ratios, total expenditures per pupil, and expenditures per pupil for teacher salaries had a significant impact on college GPA. In addition, Topor *et al.* [21] found a positive correlation between parental participation and students' performance, regardless of the child's IQ. Guimaraes and Sampaio [22] conducted a study on the impact of family background factors on college entrance exam performance at a prestigious university in

Northeast Brazil. The study found a positive correlation between parents' level of education and their children's test scores. Additionally, academic achievement was positively correlated with the father's level of education and family income.

Arnaiz-Sánchez et al. [23] investigated the effectiveness of a program that utilized collaborative and cooperative learning approaches and projects to enhance language and mathematical proficiency as a component of academic achievement. The study emphasized the importance of understanding practical teaching approaches and learning strategies within the larger context of process elements to improve academic achievement. Additionally, Jeynes [24] discovered that graduates of religious high schools outperformed graduates of private and public high schools academically. Indrahadi and Wardana [25] examined the impact of socioeconomic and demographic characteristics on the academic performance of Indonesian students. Their findings revealed that these factors significantly affect students' academic achievement. Tadese et al. study [26] examined the relationship between student tobacco use and graduation rates. The study found that increased tobacco use is associated with lower academic achievement. Psychology research highlights the significance of motivation for both professional and personal competence [27], [28].

Several studies suggest that a student's high school GPA may affect their chances of success in college. To gain a better understanding of the factors that may affect graduation GPA, Kolluri et al. [29] examined various conventional characteristics. The study discovered a significant relationship between high school results and university performance. Ensoy and Lavega [30] found a correlation between college success and high school GPA based on their analysis of first-year education students' academic records from 2010 to 2013. Cyrenne and Chan [31] reported a significant correlation between university entry scores and academic achievement in agriculture, engineering, and the sciences. The case study for this research was conducted at the University of Winnipeg in Canada. The study highlights the importance of high school averages as a reliable indicator of college GPA. However, it also suggests that there may be other variables that affect the academic performance of college students. Danilowicz-Gösele et al. [32] found a significant correlation between high school grades, graduation rates, and final grades in their investigation of the factors that influence academic success in a German institution. Conversely, factors related to socioeconomic status or income had little impact.

Concerning the Albanian university system, there appears to be a lack of research on the aspects discussed in this study. However, based on the limited literature available, the Education Service Center (QSHA) reported statistics indicating an imbalance between high school diploma grades and GPA grades throughout the school years. Additionally, it was found that students' performance during these years may not accurately reflect their abilities [33]–[35].

2.2. Access criteria to the Albanian university system

Albanian universities offer education through both state and non-state institutions. It is worth noting that 20% of Albanian students are enrolled in non-state institutions. Although admission requirements vary between institutions, all universities in Albania must meet the same minimum standard, which is a specific cutoff point for high school GPA. This requirement pertains to Law 80 of 2015 for Higher Education and Scientific Research in the Republic of Albania's Higher Education Institutions. According to Article 74 of Law 80 of 2015, the requirements for university admission are completion of high school and meeting the minimal average grade level, which is determined annually by a decision of the Council of Ministers [36].

Starting from the academic year 2016-2017, the Council of Ministers releases an annual decision that establishes admission quotas and the minimum high school GPA required for admission to state and non-state universities. This legislation is mandatory for all universities to enhance the quality of university demand, predominantly among freshmen. The ever-changing high school GPA criteria has resulted in uncertainty for alumni who wish to pursue university studies [37]. The use of high school GPA as a university access standard and in a centralized manner poses significant issues in achieving the primary objective of Law 80/2015, which aims to enhance quality through university accountability and autonomy [9], [15], [17], [18].

3. RESEARCH METHOD
3.1. Data

The data for this study was gathered through a survey of 1,485 graduates from the Catholic University Our Lady of Good Counsel. The statistical office of the university provided the grade point averages and other relevant information. This sample size was determined considering graduates from first and second-cycle degree programs, that met these criteria. The study's inclusion criteria comprised graduating students who had complete information for their university graduation mark, university GPA, and high school GPA (1,485 graduates). Exclusion criteria were applied to all graduate students who were missing at least one of the variables indicated in the inclusion criteria (566 graduates). Considering this

population size, it can be concluded that the sample size is large enough to meet the statistical criteria for studying social phenomena [38].

Table 2 presents the definitions of the variables used in the analysis along with their descriptive statistics. The study examines variables of the Catholic University Our Lady of Good Counsel beyond those outlined in the inclusion criteria. The following defines these variables:

− Graduation mark (ugm): It is the grade obtained at the end of the academic program when the dissertation is defended. This metric determines a student's academic achievement based on their cumulative program grades. The grade range is from 66 (minimum) to 110 (maximum with honors).
− University GPA (ugpa): The final grade for the university program study curriculum is determined by an average score, with the minimum being 18 and the maximum 30 (with honors).
− High school GPA (hsgpa) is calculated as an arithmetical average of the final marks in subjects for each school year and state final exams.
− Degree programs (dp) are also included in the assessment. The examined degree programs include Bachelor's degrees in business administration, physiotherapy, and nursing, as well as master's degrees in dentistry, medicine and surgery, and pharmacy.
− The variation in study length (vsl) refers to the variance between the actual period of program completion and it is legal duration.
− Gender (ge): The study considers two genders, male and female, based on available data.
− Nationality (nat): The university has a significant enrolment of Albanian and Italian students, with Italians comprising 30% of the total student body.

To calculate the strength and direction of association between variables, this study utilizes the Spearman rank-order correlation coefficient for all transformed ordinal variables, except for degree programs. Regarding the correlation between degree programs and university graduation marks, the Kruskal-Walli's test is utilized [39]. The test displays differences among degree programs concerning their association with university graduation marks. In addition, the studied variables show a significant and positive correlation with university GPA, high school GPA, and gender. On the other hand, the correlation is negative regarding difference studies duration and nationality. The strength of the correlation is remarkably strong only for university GPA variable, while it is relative weak for the other variables as shown in Table 2.

Table 2. Correlation between graduation grade and independent variables

Variables		University graduation mark (%)			KW/ Rho(p)
		70-90	91-100	101-110	
Degree programs	Medicine and Surgery	1.1	29.0	69.8	159.4
	Nursing	24.6	36.8	38.5	(0.000)
	Physiotherapy	14.2	35.1	50.6	
	Bus. Administration	41.3	30.0	29.4	
	Pharmacy	49.2	29.0	19.5	
	Dentistry	11.4	41.5	47.2	
Var. study length	0	10.4	32.9	56.7	-0.37
	>1	41.8	38.9	19.3	(0.000)
University GPA	(18-22)	91.8	8.2	0.0	0.82
	(22-24)	34.8	61.5	3.7	(0.000)
	(24-26)	1.7	53.6	44.7	
	(26-28)	0.0	4.5	95.5	
	(28-30)	0.0	0.0	100.0	
High school GPA	(5-6.5)	23.9	44.0	32.1	0.18
	(6.5-7)	29.1	32.1	38.8	(0.000)
	(7-8)	21.1	33.2	45.7	
	(8-9)	23.3	35.2	41.5	
	(9-10)	9.6	31.4	59.0	
Gender	Male	22.3	35.8	41.9	0.07
	Female	17.3	33.9	48.8	(0.001)
Nationality	Italian	2.2	28.8	69.0	- 0.22
	Albanian	22.3	35.7	42.0	(0.000)

3.2. Method

Considering literature and previous research, an ordinal regression analysis was defined to achieve the research objective [22], [23], [28], [32], [40]–[45]. The formulated model is as (1):

$$ugm_i = \alpha_0 + \alpha_1 dp_i + \alpha_2 vsl_i \alpha_3 ugpa_i + \alpha_4 hsgpa_i + \alpha_5 gen_i + \alpha_6 nat_i + \varepsilon_i \qquad (1)$$

where α_1 to α_6 depict the ugm elasticity concerning the explanatory variables. The error term, ε_i, follows classical assumptions, and the variable categories are represented by i.

To conduct ordinal regression, first, we need to verify the four assumptions posed by this regression model: i) ordinal dependent variable; ii) explanatory variables nominal or ordinal; iii) multicollinearity; and iv) proportional odds. Assumptions 1 and two are already satisfied. To check the presence (absence) of multicollinearity, this study used the variance inflation factor (VIF), and the result indicates no multicollinearity as shown in Table 3.

The lack of significance at the p=0.05 level, indicates the presence of proportionality of the independent variables. The regression model used in this context relies on the assumption of proportionate odds. This means that each independent variable has an equal impact at every cumulative split of the ordinal dependent variable. To check this assumption, this study used the test of parallel lines, and the test result indicates that this assumption is fulfilled as shown in Table 4.

Table 3. Multicollinearity results

Variables		VIF	1/VIF
Degree programs	Business administration	1.91	0.522693
	Physiotherapy	4.82	0.207335
	Nursing	4.65	0.214999
	Medicine and surgery	3.26	0.306691
	Dentistry	3.50	0.285599
Diff. Studies duration		2.01	0.496581
University GPA	(22-24)	2.64	0.378979
	(24-26)	3.16	0.316315
	(26-28)	3.31	0.301682
	(28-30)	2.02	0.494482
High school GPA	(5-6.5)	1.49	0.672899
	(6.5-7)	2.04	0.490787
	(7-8)	2.26	0.443298
	(8-9)	3.18	0.314701
Gender		1.18	0.848730
Nationality		1.40	0.711798
Mean VIF		2.68	

Table 4. Parallel lines test results

Tests	Chi2	P>Chi2
Wolfe Gould	10.69	0.098
Brant	9.415	0.152
Score	10.11	0.120
Likelihood ratio	10.76	0.096
Wald	9.878	0.130

4. RESULTS AND DISCUSSION

Table 5 presents the results of the ordinal regression model. It is evident from the outcomes that the model is suitable, and there is an enhancement in the model probability of at least 56% (minimum 0.56-maximum 0.78) as compared to the null model (without predictors). As the research pertains to social matters, the statistical model proves to be highly predictive [46].

The study results suggest that Nursing Degree Program students were 1.12 times more likely to have a high ugm than Pharmacy Degree Program students. Medicine and Surgery Degree Program students had 1.74 times higher odds, and Dentistry had 1.04 times higher odds, all with statistical significance at the one percent level. On the other hand, the study found no significant difference between Business Administration Degree Program and Physiotherapy Degree Program students. Therefore, it can be inferred that Medicine and Surgery Degree Program students perform the best.

The study's findings suggest that students who complete their studies within the designated time perform the best. Those who achieve positive results throughout their academic years, as evidenced by a high university GPA, also perform well in their final evaluation. This outcome is not surprising, given that the university GPA is the basis for calculating the university graduation mark.

For high school GPA, it is unclear whether the average grade up to seven holds any statistical significance. Results for ratings above 7 are significant but have low coefficients. The odds of hsgpa group (7-8) were 0.67 times higher than the odds of hsgpa group (5-6.5); the odds of hsgpa group (8-9) were 0.65 higher than the odds of hsgpa group (5-6.5); and the odds of hsgpa group (9-10) were 0.82 higher than the odds of hsgpa group (5-6.5).

Table 5. Empirical results

Variables		Coefficient	P>|z|
Degree programs	Business administration	-0.29	0.390
	Physiotherapy	-0.34	0.317
	Nursing	1.12***	0.001
	Medicine and Surgery	1.74***	0.000
	Dentistry	1.04***	0.003
Diff. Studies duration		-0.74***	0.000
University GPA	(22-24)	3.15***	0.000
	(24-26)	6.45***	0.000
	(26-28)	10.25***	0.000
	(28-30)	24.7	0.968
High school GPA	(6.5-7)	-0.16	0.600
	(7-8)	0.67***	0.004
	(8-9)	0.65***	0.007
	(9-10)	0.82***	0.002
Gender		0.46***	0.004
Nationality		-0.67***	0.008
Number of observations		1485	
LR Chi2(16)		1761.94***	0.000
Pseudo R2 (Cox&Snell; Nagelkerke; McFadden)		0.683; 0.781; 0.552	
Log-likelihood		-665.47	

In terms of gender and nationality, it is noticed that women have better results than men. On the other hand, students who hold Italian citizenship perform better than their counterparts from Albania. Crossing these two results, it can be said that at the "Our Lady of Good Counsel" Catholic University, Italian women have the best performance.

As for the results related to gender, they are also found in other studies related to this aspect. Female graduates, in general, have a better university performance than their male colleagues. Different studies evidence such a fact, also noting that in special study programs, male students perform better than their female colleagues [47], [48]. Regarding the results according to nationality, empirical studies show that such a variable has a relative impact on academic performance. Academic performance is mostly related to the engagement and motivation of students during university studies. However, foreign students are faced with difficulties, such as the foreign language, which can create problems in university performance [49], [50]. This could also be a reason for the better performance of Italian students at the university since the official language at the university is the Italian language (and not the Albanian language).

Referring to the study program, the results of this study show that students in the medicine study program perform the best. Empirical studies show that university performance does not have a unique and general relationship with any university program and the results show that internal and external factors mainly affect academic results, regardless of the study program [1], [2], [22], [23], [51]. Therefore, it can be said that in the medicine program, different factors (internal and external) influence a better performance of students than in other programs offered by the university.

Regarding the timely completion of studies, it can be said that the results of this research find evidence in other studies as well. In general, students who finish their university studies on time show a greater commitment and motivation to complete their studies and engage professionally. On the contrary, students who extend their studies after the designed time, show a lack of motivation and commitment to completing their studies, bringing further negative consequences in the labor market positioning [52], [53].

University GPA is closely related to the university graduation mark. The evidence indicates that the students with good performance during the academic program maintain or improve the final grade. Evidence indicates that students who perform well during their academic careers maintain or improve their final degree grades. Such a result is predictable as the final degree grade is directly associated with university performance, highlighting in this case (as well as in other universities) the importance of persistence, commitment, and university motivation.

Regarding high school GPA, which is the core of this study, it turns out that this variable affects very little (or not at all) the university performance. In contrast to various other nations, particularly Anglo-Saxon ones, numerous empirical studies show that high school GPA plays a crucial role in determining university performance and can consequently serve as a bellwether for university admission [28]–[31]. However, this is not the case in the present study. Even in countries near Albania (Serbia, Slovenia, Croatia, Greece), empirical evidence shows that high school GPA plays an important role in university performance [54]–[58]. To our knowledge, there is no evidence from North Macedonia, Kosovo, and Montenegro regarding the impact of high school GPA on university performance.

As no similar research has been conducted in the field of university education within the country, any comparison is unfeasible. Nonetheless, the utilization of high school GPAs in Albania has been subject to severe criticism from multiple sources. The most significant information regarding this issue originates from the government agencies themselves, which state that the outcomes of high school GPAs in Albania are somewhat fabricated [33]–[35]. Furthermore, these sources indicate that thousands of children are denied access to higher education, triggering an unjustified escalation of social, financial, and psychological burdens.

The problem lies in the quality of high schools in Albania. The results of Albanian high schools, given the current conditions, fail to accurately reflect the level of preparation of candidates seeking admission to universities. Therefore, this study proposes that universities have autonomy regarding accessibility thus eliminating the mandatory character of the university access criteria. It is suggested that each institution follows the Anglo-Saxon example (which can be found in the 2015 Law of Higher Education) and determine whether they will consider high school GPA and, if so, select the minimum value for university entrance or the core subjects to be included in GPA calculations (according to the university's educational programs).

Furthermore, this study proposes (supported by the experiences of several international universities) the implementation of additional selection criteria, including entrance exams and academic performance evaluation at the end of the first academic year [59]. Additionally, students can be mentored during their first year to facilitate their transition to the academic environment [60], [61]. The enhancement of university autonomy not only aligns with the objectives of the 2015 Law of Higher Education but also enables students (as well as universities) to identify the methods they deem most suitable for fulfilling university requirements.

5. CONCLUSION

This study investigated the contentious subject of access criteria in Albanian universities, specifically focusing on the high school GPA criterion. Data from a private not-for-profit university was analyzed to study this indicator. Empirical results demonstrate the insignificance of the criterion, and even when it is significant, the benefits gained from it are limited. Considering these findings results high school GPA is a barrier to university access and a fictitious access criterion in Albania. High school GPA is a hard barrier because thousands of students remain outside the education system. At the same time, it is a fictitious criterion, because high school GPA does not reflect the real knowledge and preparation of the alumni. For this reason, universities, civil society, and policymakers must intervene to correct a situation that can damage the future of the country (the youth). Universities must carry out research in the field, civil society must express its opinion more forcefully and policymakers must intervene to correct a potentially distorting situation. At the same time, universities and policymakers must collaborate to find access criteria useful for truly improving university quality (possibly without damaging or worsening the chances of university access).

This study is limited in space as it deals with a single university in Albania (case study). The authors are aware of such a thing, but the limited possibility of having access to the microdata of Albanian universities did not allow us to do a wider study. Likewise, the Ministry of Education, as the main agency for the administration of university statistics, has only aggregated statistical data. However, this study contributes or can pave the way for a wider scientific discussion (there are many opinions, and thoughts, but not statistical studies), where such contributions from other universities in Albania can be included.

REFERENCES

[1] F. F. Esparza Paz, R. Sánchez-Chávez, S. Esparza-Zapata, E. Esparza-Zapata, and Á. Villacrés-Lara, "Academic performance factors in university students, quality components of higher education. Case study Faculty of Business Administration, Higher Polytechnic School of Chimborazo," (in Spanish), *Innovaciones Educativas*, vol. 22, no. 33, pp. 46–61, Dec. 2020, doi: 10.22458/ie.v22i33.2893.

[2] A. M. Pidgeon, N. L. Davies, and P. Stapleton, "Factors influencing university students' academic experience: an international study," *International Journal of Multidisciplinary Perspectives in Higher Education*, vol. 2, pp. 1–8, 2017.

[3] I. C. Torres-Patiño, C. M. Rojas-Hernandez, and H. A. García-Perdomo, "Barriers to access and permanence at the university: a point of view," *Einstein (São Paulo)*, vol. 19, Dec. 2021, doi: 10.31744/einsteinjournal/2021ED6447.

[4] A. Sulaj, E. Dhamo, B. Kondi, and A. Kambo, "Assessment of accessibility of disabled students in the public university infrastructure in Albania," *Journal of Educational and Social Research*, vol. 11, no. 3, pp. 214–226, 2021, doi: 10.36941/JESR-2021-0064.

[5] T. Benson, "Universities must remove the barriers facing Access to HE students," Wonkhe, 2022. [Online]. Available: https://wonkhe.com/blogs/universities-must-remove-the-barriers-facing-access-to-he-students/ (Accessed: Dec. 15, 2023).

[6] McGraw-Hill Education Europe, Middle East & Africa, "Knocking down barriers to achievement in higher education," Medium, 2018. [Online]. Available: https://medium.com/learning-matters/knocking-down-barriers-to-achievement-in-higher-education-d1b98523863b (Accessed: Dec. 15, 2023).

[7]   J. Salmi and A. D'Addio, "Policies for achieving inclusion in higher education," *Policy Reviews in Higher Education*, vol. 5, no. 1, pp. 47–72, Jan. 2021, doi: 10.1080/23322969.2020.1835529.

[8]   UNESCO, "Unpacking Sustainable Development Goal 4: Education 2030." UNESCO, 2016. [Online]. Available: https://unesdoc.unesco.org/ark:/48223/pf0000246300

[9]   E. Cani and E. Olldashi, *Pese vjet nga reforma ne arsimin e larte*. Tirane: Friedrich Ebert Stiftung, 2020.

[10]   Council of Ministers, "For determining the average grade criterion for the admission of candidates to first-cycle study programs and second-cycle integrated study programs, in higher education institutions, for the academic year 2016-2017," 2018. [Online]. Available: https://qbz.gov.al/eli/vendim/2016/06/01/407/853b5a12-315e-497e-aead-3cf4eacddb33 (Accessed: Oct. 25, 2023).

[11]   Council of Ministers, "For determining the average grade criterion for the admission of candidates to first-cycle study programs and second-cycle integrated study programs, in higher education institutions, for the academic year 2018-2019," 2018. [Online]. Available: https://qbz.gov.al/eli/vendim/2018/04/20/216/344867e7-fdaa-439b-82e0-5a6437a2cba4 (Accessed: Oct. 27, 2023).

[12]   Council of Ministers, "CMD 436/2020, For determining the average grade criterion for the admission of candidates to first-cycle study programs and second-cycle integrated study programs, in higher education institutions, for the academic year 2020-2021." [Online]. Available: https://unitir.edu.al/wp-content/uploads/2021/04/per-percaktimin-e-kritereve.pdf (Accessed: Oct. 30, 2023).

[13]   C. Hoareau McGrath, M. L. Henham, A. Corbett, and European Parliament, "Higher education entrance qualifications and exams in Europe: a comparison: study," Directorate-General for Internal Policies, Brussels: European Parliament, 2014.

[14]   A. Krasniqi, Reform in higher education 2015-2018: innovations and problems. Tirane: Albanian Institute of History (in Albanian), 2018.

[15]   E. B. Pruvot, T. Estermann, and N. Popkhadze, "University autonomy in Europe IV: The scorecard 2023," European University Association, 2023.

[16]   B. Kajsiu, "Higher education in Albania: The never-ending challenge," *International Higher Education*, no. 82, pp. 15–16, 2015.

[17]   Ministry of Education and Sport, "The government's decision to lower the admission average in some bachelor's programs, Kushi: For teaching, the criteria remain unchanged, the quality is non-negotiable (in Albanian)," 2022. [Online]. Available: https://arsimi.gov.al/vendimi-i-qeverise-per-uljen-e-mesatares-se-pranimit-ne-disa-programe-bachelor-kushi-per-mesuesine-kriteret-mbetet-te-pandryshuara-cilesia-e-panegociueshme/ (Accessed: Oct. 28, 2023).

[18]   Top Channel TV, "The quality of education! Reducing the number of students also has positive effects (in Albanian)," 2023. https://top-channel.tv/2023/11/12/cilesia-e-arsimit-ulja-e-numrit-te-studenteve-ka-edhe-efekte-pozitive/ (accessed Dec. 16, 2023).

[19]   N. Dosja, "The education expert raises the alarm: The government is destroying the dream of Albanian youth to study (ARGUMENTS) (in Albanian)." 2019. [Online]. Available: https://dosja.al/eksperti-i-arsimit-ngre-alarmin-qeveria-po-shkaterron-endrren-e-rinise-shqiptare-per-te-studiuar-argumentet (Accessed: Dec. 16, 2023).

[20]   P. Russo, "Determinants of undergraduate GPA and persistence at Connecticut College," *Economics Honors Papers 16*, 2014.

[21]   D. R. Topor, S. P. Keane, T. L. Shelton, and S. D. Calkins, "Parent Involvement and Student Academic Performance: A Multiple Mediational Analysis," *Journal of Prevention and Intervention in the Community*, vol. 38, no. 3, pp. 183–197, Jun. 2010, doi: 10.1080/10852352.2010.486297.

[22]   J. Guimarães and B. Sampaio, "Family background and students' achievement on a university entrance exam in Brazil," *Education Economics*, vol. 21, no. 1, pp. 38–59, Feb. 2013, doi: 10.1080/09645292.2010.545528.

[23]   P. Arnaiz-Sánchez, R. de Haro, S. Alcaraz, and A. B. Mirete Ruiz, "Schools that promote the improvement of academic performance and the success of all students," *Frontiers in Psychology*, vol. 10, Feb. 2020, doi: 10.3389/fpsyg.2019.02920.

[24]   W. H. Jeynes, "A meta-analysis on the effects and contributions of public, public charter, and religious schools on student outcomes," *Peabody Journal of Education*, vol. 87, no. 3, pp. 305–335, Jul. 2012, doi: 10.1080/0161956X.2012.679542.

[25]   D. Indrahadi and A. Wardana, "The impact of sociodemographic factors on academic achievements among high school students in Indonesia," *International Journal of Evaluation and Research in Education (IJERE)*, vol. 9, no. 4, pp. 1114–1120, 2020, doi: 10.11591/ijere.v9i4.20572.

[26]   M. Tadese, A. Yeshaneh, and G. B. Mulu, "Determinants of good academic performance among university students in Ethiopia: a cross-sectional study," *BMC Medical Education*, vol. 22, no. 1, p. 395, Dec. 2022, doi: 10.1186/s12909-022-03461-0.

[27]   H. Ekşi, M. Özgenel, and E. Metlilo, "The effect of motivation of success of university students on personal-professional competence: Mediation role of lifelong learning tendency," *International Journal of Evaluation and Research in Education (IJERE)*, vol. 9, no. 3, pp. 583–593, Sep. 2020, doi: 10.11591/ijere.v9i3.20664.

[28]   R. Steinmayr, A. F. Weidinger, M. Schwinger, and B. Spinath, "The importance of students' motivation for their academic achievement-replicating and extending previous findings," *Frontiers in Psychology*, vol. 10, Jul. 2019, doi: 10.3389/fpsyg.2019.01730.

[29]   B. Kolluri, R. Singamsetti, and M. Wahab, "GMAT And Other Determinants Of GPA In An MBA Program," *American Journal of Business Education (AJBE)*, vol. 3, no. 12, pp. 77–86, 2010, doi: 10.19030/ajbe.v3i12.967.

[30]   C. P. Ensoy and M. L. Lavega, "High School General Point Average (GPA) as Basis for Students' Academic Performance in College," *JPAIR Institutional Research*, vol. 5, no. 1, pp. 33–48, 2015, doi: 10.7719/irj.v5i1.344.

[31]   P. Cyrenne and A. Chan, "High school grades and university performance: A case study," *Economics of Education Review*, vol. 31, no. 5, pp. 524–542, 2012, doi: 10.1016/j.econedurev.2012.03.005.

[32]   K. Danilowicz-Gösele, K. Lerche, J. Meya, and R. Schwager, "Determinants of students' success at university," *Education Economics*, vol. 25, no. 5, pp. 513–532, 2017, doi: 10.1080/09645292.2017.1305329.

[33]   Educational Services Center, "State Matura 2014. Public report on student achievements," 2014. [Online]. Available: https://qsha.gov.al/wp-content/uploads/2023/08/raporti_msh2014.pdf (Accessed: Dec. 16, 2023).

[34]   Educational Services Center, "State Matura 2019. Public report on student achievements," 2019. [Online]. Available: https://qsha.gov.al/wp-content/uploads/2023/08/raporti_msh_2019.pdf (Accessed: Dec. 16, 2023).

[35]   Educational Services Center, "State Matura 2021: Public report on student achievements," 2021. [Online]. Available: https://qsha.gov.al/wp-content/uploads/2023/08/raport_publik_msh2021.pdf (Accessed: Dec. 16, 2023).

[36]   Quality Assurance Agency in Higher Education of Albania, On higher education and scientific research in higher education institutions in the Republic of Albania. Albania, 2015.

[37]   H. Ymeri, "The Right of Access to Higher Education in Albania (in Albanian)," *Albanian Law Journal*, vol. 3, no. 1, pp. 1–12, 2017.

[38]   S. Kaur, "Sample size determination (for descriptive studies)," *International Journal of Current Research*, vol. 9, no. 48365–48367, p. 03, 2017.

[39]   J.-B. du Prel, B. Röhrig, G. Hommel, and M. Blettner, "Choosing statistical tests," *Deutsches Ärzteblatt international*, vol. 107, no. 19, pp. 343–348, May 2010, doi: 10.3238/arztebl.2010.0343.

[40]   A. B. Santoso, E. C. M. Simatupang, and R. H. Sofyandi, *Factors affecting the improvement of students' grade point average (GPA)*. CRC Press, 2020. doi: 10.1201/9781351241892-49.

[41]   A. O. Adejumo and A. A. Adetunji, "Application of ordinal logistic regression in the study of students' performance," *Mathematical Theory and Modeling*, vol. 3, no. 11, pp. 10–20, 2013.

[42] R. B. Sesay, M. Kpangay, and S. Seppeh, "An ordinal logistic regression model to identify factors influencing students academic performance at Njala University," *International Journal of Research and Scientific Innovation*, vol. 08, no. 1, pp. 91–100, 2021, doi: 10.51244/ijrsi.2021.8104.

[43] S. Parry, "Ordinal logistic regression models and statistical software: what you need to know," *StatNews*, vol. 91, 2016.

[44] G. Tutz, "Ordinal regression: A review and a taxonomy of models," *WIREs Computational Statistics*, vol. 14, no. 2, Mar. 2022, doi: 10.1002/wics.1545.

[45] R. Williams, "Ordinal regression models: Problems, solutions, and problems with the solutions," *German Stata User Group Meetings, June*, vol. 27, pp. 1–12, 2008.

[46] G. A. J. Hemmert, L. M. Schons, J. Wieseke, and H. Schimmelpfennig, "Log-likelihood-based Pseudo-R 2 in logistic regression," *Sociological Methods and Research*, vol. 47, no. 3, pp. 507–531, Aug. 2018, doi: 10.1177/0049124116638107.

[47] I. Tsaousis and M. H. Alghamdi, "Examining academic performance across gender differently: Measurement invariance and latent mean differences using bias-corrected bootstrap confidence intervals," *Frontiers in Psychology*, vol. 13, Aug. 2022, doi: 10.3389/fpsyg.2022.896638.

[48] P. Crowther and S. Briant, "Gender-based differences in academic achievement in a University Design Program," *International Journal of Art and Design Education*, vol. 41, no. 4, pp. 631–643, Nov. 2022, doi: 10.1111/jade.12429.

[49] Y. He and H. Banham, "International Student Academic Performance: Some Statistical Evidence And Its Implications," *American Journal of Business Education (AJBE)*, vol. 2, no. 5, pp. 89–100, Aug. 2009, doi: 10.19030/ajbe.v2i5.4073.

[50] UKEssays, "Academic Performance of International Students - Problems," 2018. [Online]. Available: https://www.ukessays.com/essays/education/academic-performance-international-students-7323.php?vref=1 (accessed Dec. 16, 2023).

[51] T. A. Yusuf, M. I. Oseni, and G. O. Adejoh, "Correlation of relationship between course of study and academic performance of undergraduate engineering students in universities," *Journal of Language, Technology and Entrepreneurship in Africa*, vol. 7, no. 2, pp. 72–81, 2016.

[52] G. Casalone and C. Aina, "Does time-to-degree matter? The effect of delayed graduation on employment and wages," *AlmaLaurea Working Paper*, pp. 1–21, 2011.

[53] A. Brugiavini, C. Carraro, and M. Kovacic, "Academic achievements: the effects of excess time to degree on GPA," *Education Economics*, vol. 28, no. 1, pp. 46–66, Jan. 2020, doi: 10.1080/09645292.2019.1672623.

[54] B. Banai and V. Perin, "Type of high school predicts academic performance at university better than individual differences," *PLOS ONE*, vol. 11, no. 10, Oct. 2016, doi: 10.1371/journal.pone.0163996.

[55] G. Sočan, M. Krebl, A. Špeh, and A. Kutin, "Predictive validity of the Slovene Matura exam for academic achievement in humanities and social sciences," *Psihološka obzorja/Horizons of Psychology*, vol. 25, pp. 84–93, Sep. 2016, doi: 10.20419/2016.25.449.

[56] S. Maslov Kruzicevic, K. J. Barisic, A. Banozic, C. D. Esteban, D. Sapunar, and L. Puljak, "Predictors of attrition and academic success of medical students: a 30-year retrospective study," *PLoS ONE*, vol. 7, no. 6, Jun. 2012, doi: 10.1371/journal.pone.0039144.

[57] I. Papadogiannis, V. Poulopoulos, N. Platis, C. Vassilakis, G. Lepouras, and M. Wallace, "First grade GPA as a predictor of later academic performance in high school," *Knowledge*, vol. 3, no. 3, pp. 513–524, Sep. 2023, doi: 10.3390/knowledge3030033.

[58] V. Aleksić and D. Politis, "Trait emotional intelligence and multiple intelligences as predictors of academic success in Serbian and Greek IT students," *International Journal of Cognitive Research in Science, Engineering and Education (IJCRSEE)*, vol. 11, no. 2, pp. 173–185, Aug. 2023, doi: 10.23947/2334-8496-2023-11-2-173-185.

[59] R. K. Ningrum and N. W. D. Ekayani, "Predictive value of entrance test with the academic achievement of medical students," *Journal of Physics: Conference Series*, vol. 1402, no. 2, p. 022068, Dec. 2019, doi: 10.1088/1742-6596/1402/2/022068.

[60] D. Yomtov, S. W. Plunkett, R. Efrat, and A. G. Marin, "Can peer mentors improve first-year experiences of university students?" *Journal of College Student Retention: Research, Theory and Practice*, vol. 19, no. 1, pp. 25–44, 2017.

[61] L. R. Lachter and J. P. Ruland, "Enhancing leadership and relationships by implementing a peer mentoring program," *Australian Occupational Therapy Journal*, vol. 65, no. 4, pp. 276–284, Aug. 2018, doi: 10.1111/1440-1630.12471.

BIOGRAPHIES OF AUTHORS

Emiljan Karma [iD] [g] [SC] [◐] is an Associate Professor at the Catholic University Our Lady of Good Counsel, Tirana (Albania). He was appointed lecturer at the university in 2005 and went on to pursue his Ph.D. studies in European Studies at the University of Bari, "Aldo Moro" (Italy). He was appointed as Senior Lecturer in 2011 and as Associate Professor in 2023. Assoc. Prof. Karma's research interests lie in the fields of econometrics, financial mathematics, and statistics. He can be contacted at email: e.karma@unizkm.al.

Mitat Dautaj [iD] [g] [SC] [◐] is a Lawyer and Lecturer at the Catholic University Our Lady of Good Counsel, Tirana (Albania). He was appointed lecturer at the university in 2005 (Civil Law; Commercial Law) and is an expert in civil and commercial Law (practicing as a lawyer since 1986). Adv. Dautaj is Head of the Legal Office of the Catholic University "Our Lady of Good Counsel". He can be contacted at email: m.dautaj@unizkm.al.