Empirical Assessment of the Role of the Academic Staff in the Participation of Students in the Teaching Process as an Indicator of the Process Quality-an Econometric Approach

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Abstract

One of the main objectives that every university has is increasing the efficiency of the teaching process. The role and performance of the academic staff as well as the participation of students in the lectures are important factors to achieve this. The goal of this research is to identify the role of academic staff as well as the participation of students in lectures in Albanian public universities and to show the means and ways to follow in order to increase its efficiency. The study was conducted in 5 public universities in Albania and the total number of students surveyed was 854. To analyze data, we used descriptive statistics, such as means and statistical graphical presentation and econometric models, mainly classical one-factor regression techniques. From the study result that as the greater is the role of the pedagogues in the teaching process, the more its efficiency increases. The study also shows that the high the participation of students in lesson increases the efficiency of the teaching process. This research identifies the problems that exist for the participation of students in the lectures and problems related with the academic staff. In the end, conclusions and recommendations are provided on how the role and performance of the academic staff, and students' participation in the teaching process can be further improved.

Keywords: teaching, academic staff, student participation, econometric model

JEL Codes: C1, C2, C5

1. Introduction and theoretical background

Increasing the quality of the teaching process and its efficiency are the main objectives of any university. An important factor contributing to increased efficiency of the teaching process is the role of the pedagogue in the teaching process. This role could be seen in two main aspects:

First, this role is directly related to the quality of his lectures and seminars he develops in the auditorium. This means that the lecturer must be equipped with sufficient

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professional skills to competently teach the students the basics of their expertise. Moreover, this becomes important when we are living in a globalized economy and students need to adapt better to changes that continuously are taking place in the world. The knowledge and skills include those which are concerned with problem-solving, information and communication technology, administration and management, science and technology, research, and languages (Komba, 2012). It is very important for lecturers to be well prepared, to be good experts in their field and able to adapt their lessons with the latest science and technology developments.

"Institutions should have ways of satisfying themselves that staff involved with teaching of students are qualified and competent to do so" (ENQA, 2007, cit. after Van de Ven et al., 2008) and further: "institutions should ensure that their staff recruitment and appointment procedures includes a means of making certain that all new staff have at least the minimum necessary level of competence" 2.

Secondly, this role is related with good communicative skills and ethics of pedagogue with students. He should not be just a good lecturer, but he should communicate with the students openly, honestly, he should encourage the spirit of cooperation, which means encouraging students to express their ideas, thoughts, suggestions related to the lecture, with the pedagogical staff and with the society as a whole.

The education system should teach students the ideas of tolerance, understanding of other cultures, and how to leave behind the dark past of hatred and inhumanity (Shehu, 2013). The pedagogue with his behavior and ethics must be a model for the student, both with his verbal and nonverbal communication

Student participation in lectures in the teaching process is important factor for increasing of the efficiency. This means that the more students participate in the lesson, the better they will acquire the needed knowledge. Participation will help them not only to understand most of the lectures in the classroom, but also to be active in the teaching process, which means they may ask, may require explanations for part of the lesson they don't understand. An important factor for increasing the participation in the lectures is the university's regulation, which requires students to attend 70% of the lectures.

Student attendance in lectures relates primarily to their motivation and the objectives they have when they apply to continue university studies. Did they come to the field of study they wanted, or were they forced to go to another one for various reasons? Consequently, not going to the branch they want is a reason that does not motivate them to increase their quality in the teaching process. If we are analyzing the Albanian public universities, results that the despite adaptable educational reform that is being implemented and the law of higher education still needs much to do with regard to the admission of students to higher education. So the average with which students go to university should increase.

Students should develop their communication skills through discussions and presentations in the classroom, as well as recognize communication situations in the real

world. They should polish their communicative skills with each other, discussing various issues related to the lecture, seminar, and more.
The research problem is lack of empirical knowledge about basic determinants' of students' participation in lectures and how the aggregate level of marks the students obtain is related with the number of subjects failed by the student.
The general goal of this study is to learn about the basic determinants of the students' participation in lectures as an indicator of quality of the teaching process in the university.
The specific objectives of this study are:
-Assessing the effect of the number of failed subjects on the aggregate level of students' marks.
-Assessing the role of staff able to teach interesting lectures on the aggregate level of the teaching quality in the students' participation during lectures.
Research hypotheses:
-There exists a positive association between the average level of marks obtained by the student and the number of subject failed by the students.
-There is a positive relationship between the staff able to teach interestingly and the aggregate level of interesting teaching
-There is a positive relationship between the students' participation in lectures and how much interesting is teaching.

2. Method and Data

2. 1 Method

To analyze data, we used descriptive statistics, such as means and statistical graphical presentation and econometric models, mainly classical one-factor regression techniques. The standard form of one-factor model is the following:

$$Y=a+bX+e \qquad (1)$$

Here Y is the dependent variable, and X is the regression, or the independent variable, while *a* and *b* are parameters of the model. Theoretically the parameter *a* indicates the expected Y value if X=0, while b is the regression coefficient, or the marginal change in Y if the variable X changes with one unit. The term e is the residual or error term, thus representing the implicit effect of the residual factors on Y.
More details about methods we used readers could find in the referenced literature (Osmani, 2015; Osmani, 2017; Gujarati, 2003: Wooldridge, 2013; Verbeek, 2008).

2.2 Data

The data we used come from a special survey we carried out in several higher education institutions in Albania To this purpose, 854 students from 5 of the most important

Albanian universities were randomly selected and interviewed: Agricultural University of Tirana, University of Tirana, "Luigj Gurakuqi" University of Shkodra, "Aleksandër Moisiu" University of Elbasan, and "Fan Noli" University of Korça. Variables used for this paper are presented in Table 1 below:

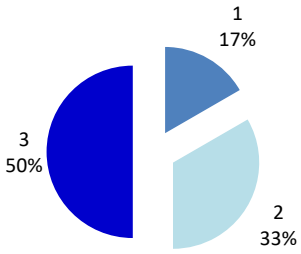
Table 1: Variables and their measurement scale

	Average mark	**Number of subjects failed**	**Is teaching interesting? (1 to 4)**	**% of staff teaching interesting (1 to 4)**	**Participation in lectures**
	Y_1	Y_2	X_1	X_2	X_3
Measurement scale	Ratio	Ratio	Ordinal scale (1 to 4)	Ordinal scale (1 to 4)	Ordinal scale (1 to 4)

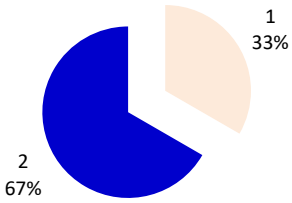
Source: The Survey

The following graphs show the structure of the sample of respondents by age, gender and study level.

Graph 1: Sample by age (1, 2, 3)



Graph 2: Sample by gender (1, 2)



Graph 3: Sample by study level (1, 2)

Source: The Survey

To analyze data, we used GRETL econometric software and the standard Microsoft Excel package.

3. Analysis and results

First we made a descriptive analysis to understand how averages of variables in consideration vary by study level (Table 2) and gender (Table 3).

As Table 2 indicates, the average mark and the number of subjects failed seems to be larger in the study level 2, while there seems not to be a significant difference in other variables (X_1, X_2 and X_3).

Table 2: Averages of variables by study level

Study level	**Average of failed subjects (Y_2)**	**Average of interesting teaching (X_1)**	**Average mark (Y_1)**	**Average of participation in lectures (X_3)**	**Average of percentage of staff teaching interestingly (X_2)**
1	3.52	2.51	7.33	3.35	2.23
2	4.20	2.51	7.92	3.33	2.37
Total	3.93	2.51	7.68	3.33	2.31

Source: The Survey

Now, as Table 3 indicates, the average mark and the number of subjects failed seems to be larger for gender 2, while there seems not to be a significant difference in other variables (X_1, X_2 and X_3).

Table 3: Averages of variables by gender

Gender	**Average of failed subjects (Y_2)**	**Average of interesting teaching (X_1)**	**Average mark (Y_1)**	**Average of participation in lectures (X_3)**	**Average of percentage of staff teaching interestingly (X_2)**
1	3.72	2.54	7.43	3.33	2.32
2	4.02	2.50	7.79	3.34	2.31
Total	3.93	2.51	7.68	3.33	2.31

Source: The Survey

Next, we analyzed the relationship between the marks students obtain and the number of subjects failed, using standard classical regression. In Table 4 we have presented the estimation results of regression model using Ordinary Least Squares method with the use of GRETL software, for the relationship between the average mark of the students and the number of subjects failed.
The model is:

$$\mathbf{Y_1=6.914+0.195Y_2+e} \qquad \mathbf{(2)}$$

Table 4. Relationship between marks (Y_1) and number of subjects failed (Y_2)

	Coefficient	**Std. Error**	**t-ratio**	**p-value**	**Sign.**
Const	6.91376	0.103489	66.8066	<0.00001	***
Y_2	0.195185	0.0244707	7.9762	<0.00001	***

Mean dependent variable	7.680328	S.D. dependent variable	1.162238
Sum squared residuals	1072.169	S.E. of regression	1.121790
R-squared	0.069483	Adjusted R-squared	0.068391
F(1, 852)	63.62049	P-value(F)	4.85e-15
Log-likelihood	-1308.919	Akaike criterion	2621.838
Schwarz criterion	2631.338	Hannan-Quinn	2625.476

Source: The Survey

Though Y_2 can explain a small portion of the variation of Y_1 (6.9% as denoted by the R-squared coefficient) its effect is positive and highly statistically significant. The model is also statistically significant. The model shows that an increase in the Y_2 scale is expected to bring about a 20% change in the students' average mark. These findings seem a paradox, since the expectation is that more failed subject mean lower average mark, therefore this finding needs some discussion.

In Table 5 we have presented the estimation results of regression model for the relationship between the percentage of the interesting teaching and percentage of the staff teaching interestingly.

Table 5. Relationship between percent of teaching interesting (X_1) and % of staff interesting (X_2)

	Coefficient	**Std. Error**	**t-ratio**	**p-value**	**Sign.**
Const	1.32926	0.050154	26.5035	<0.00001	***
X_2	0.511557	0.0201667	25.3664	<0.00001	***

Mean dependent variable	2.511710	S.D. dependent variable	0.716071
Sum squared residuals	249.1885	S.E. of regression	0.540809
R-squared	0.430274	Adjusted R-squared	0.429605
F(1, 852)	643.4553	P-value(F)	3.4e-106
Log-likelihood	-685.8284	Akaike criterion	1375.657
Schwarz criterion	1385.157	Hannan-Quinn	1379.295

Source: The Survey

The model is:

$$\mathbf{X_1=1.329+0.511X_2+e} \qquad \mathbf{(3)}$$

Though X_2 can explain a relatively small portion of the variation of Y_1 (43% as denoted by the R-squared coefficient) its effect is positive and statistically highly significant. Furthermore, the model shows that an improvement in the X_2 scale is expected to bring about a 51% change in the percentage of the staff teaching.

In Table 6 we have presented the estimation results of regression for the relationship between participation in lectures and interesting teaching.

Table 6. Relationship between participation in lectures X_3 and interesting teaching X_1

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	Sign.
Const	2.91769	0.100894	28.9184	<0.00001	***
X_1	0.166104	0.0386319	4.2997	0.00002	***

Mean dependent variable	3.334895	S.D. dependent variable	0.816176
Sum squared residuals	556.1525	S.E. of regression	0.807936
R-squared	0.021238	Adjusted R-squared	0.020089
F(1, 852)	18.48705	P-value(F)	0.000019

Log-likelihood	-1028.638	Akaike criterion	2061.276
Schwarz criterion	2070.776	Hannan-Quinn	2064.914

Source: The Survey

The model is:

$$X_3=2.918+0.166X_1+e \quad (4)$$

Though Y_2 can explain a small portion of the variation of Y_1 (2% as denoted by the R-squared coefficient) its effect is positive and highly statistically significant. The model as well is statistically significant. The model shows that an improvement in the X_1 scale is expected to bring about a 17% change in the students' participation in lectures.

4. Discussion, conclusions and recommendations

This paper is about the role of academic staff in the participation of students in the teaching process.

As we found above, between the number of failed subjects and the average mark there is a positive relationship, meaning that students with more failed marks generally have better average mark. At first sight, this seems controversial, but there might be some explanation to it. First, students who have failed subjects are evaluated by mark four; while evaluating students, professors usually don't use other lower legitimate marks such as one, two or three. Thus, the negative effect of failed subjects in the average mark is reduced. Second, many students consciously miss some exams or don't get properly ready wishing to focus on specific subjects they are more interested for better marks.

As expected, the role of the academic staff and the participation of the students in the lectures are important factors of the quality of the teaching process.

Increasing the quality of the academic staff recruited is a key condition for increasing the efficiency of the teaching process. This means that the criteria for the admission of quality academic staff should be strengthened and the selection process must be more rigorous.

The quality of the teaching process starts with the admission of students in higher education. If in the last years the average of the admission has increased to the median grade 6, we think it would be better if the university entry requirement were raised to the median grade 7, thus, increasing the bar of admission.

The effectiveness of communication would increase if the spirit of cooperation, solidarity between academic staff and students and students themselves prevail. Consequently, this achievement shall elevate the quality and mutual benefits of the teaching process.

The quality of the teaching process would increase if more surveys would be conducted regarding the students' communication with the academic staff and their elected representatives in the senate.

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