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Quantitative analysis of university absenteeism: The case of the Faculty of Economics and Business

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Abstract: There is growing concern about low attendance among university students. In response, the Dean's Office of the Faculty of Economics and Business at the University of Barcelona (UB) designed a data collection procedure to verify whether this perception is correct. Data were gathered from 67% (292 out of 437) of the groups taught during the semester in which the survey was conducted. The main results indicate a wide range of attendance patterns between subjects and groups, with some groups reporting less than 10% attendance and others more than 90%. The information collected from the survey was used to identify the institutional factors that most cause higher attendance in some groups than in others. Specifically, these statistical and relevant factors are the week in which the class was held, the year, the teacher's gender and type of contract, and the type of degree. This addresses new questions for the university community.

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PALABRAS CLAVE:

Absentismo; Educación superior; Estudios de economía y empresa; Enseñanza en el aula; Universidad

Resumen: Existe una creciente preocupación por el bajo índice de asistencia de los estudiantes universitarios. En respuesta a ello, el Decanato de la Facultad de Economía y Empresa de la Universidad de Barcelona (UB) diseñó un procedimiento de recopilación de datos para verificar si esta percepción era correcta. Se recopilaban datos del 67 % (292 de 437) de los grupos impartidos durante el semestre en el que se realizó la encuesta. Los principales resultados indican una amplia variedad de patrones de asistencia entre las asignaturas y los grupos, con algunos grupos que registran menos del 10% de asistencia y otros más del 90 %. La información recopilada en la encuesta se utilizó para identificar los factores institucionales que más influyen en la mayor asistencia de unos grupos respecto a otros. En concreto, estos factores estadísticos y relevantes son la semana en la que se impartió la clase, el curso académico, el género y tipo de contrato del profesor, y el tipo de titulación. Esto plantea nuevas cuestiones para la comunidad universitaria.

1. Introduction

Concerns among teachers about student attendance are not new, as shown by previous studies such as those by Crespo, Palomo and Méndez (2012), López-Bonilla and López-Bonilla (2015), Wolbring and Treischl (2016), Ocak, Ocak and Baysal (2017), Majeed, Hussain, Afzal and Gilani (2019), Triado-Ivern, et al. (2020), Mokhtari, Nikzad, Mokhtari, Sabour and Hosseini (2021), Babakhanian et al. (2022), Şahin (2023) or Almenhali, Azman and Singh (2023).

In this sense, and especially since the pandemic, the general perception among the teaching staff of the Faculty of Economics at the University of Barcelona (UB) is that attendance of lectures is even poorer than ever. In response to these concerns, the academic vice-dean, the vice-dean for teaching and learning, and the directors of the different bachelor's programs taught at this institution set out to test these perceptions in the form of quantitative data. Thus, they undertook the task of collecting and analyzing student attendance data for one academic semester, with the aim of finding out whether there is anything that can be done to improve these figures. The Faculty of Economics is certified by the Catalan Agency for University Quality (AQU), and all degree programs offered at this Faculty are accredited as face-to-face courses, making it the largest at the UB in terms of classroom teaching. Hence, the objectives of this research can be summarized as follows: a) to quantify teachers' perceptions of low student attendance; and b) to suggest possible institutional causes of low attendance.

The paper is structured as follows. The following section presents a review of the literature on student absenteeism and motives for not attending class. This is followed by a description of the study context and the methodology used in this analysis. Finally, the results and main conclusions are presented.

2. Literature Review

Previous studies have demonstrated that class attendance is a significant predictor of academic outcomes (Ancheta et al., 2021; Fadelelmoula, 2018; Kirby and McElroy, 2003; Lukkarinen et al., 2016; Moore et al., 2003; Purcell, 2007; Romer, 1993; Silvestri, 2003). In-person attendance facilitates social interaction, allowing for richer and more effective communication through gestures, tone of voice, facial expressions and so on, all of which help students to understand the content better and feel more emotionally connected (Maturana and Pörksen, 2007). Moreover, a physical classroom provides a structured, distraction-free environment that, in principle, promotes greater concentration, more effective supervision and support from teachers, and a stronger focus on collaborative work and peer learning. However, despite these clear benefits, absenteeism rates have skyrocketed at many educational institutions.

Absenteeism at schools and universities is a challenge across a variety of countries and educational levels, as reflected by the copious research on the topic. Examples include the study by Pyne et al. (2023) of elementary/primary schools and that by Husman, Jusoh, and Mohamed Arip (2023) of secondary students. Key findings include the observation at Swedish elementary schools that absenteeism significantly weakens academic attainment and therefore lifetime

earnings (Cattan, Kamhöfer, Karlsson and Nilsson, 2023). At Norwegian secondary schools, it was found that an early warning system had no significant effects on absence from lectures, completion rates, or academic results (Sletten, Tøge, and Malmberg-Heimonen, 2023). Secondary school absenteeism is also a nationwide problem in New Zealand, where teacher/student relationships, the school environment, peer relationships, curricula and pedagogy, and family and personal well-being have all been identified as influencing factors (Richards and Clark-Howard, 2023). Similar trends were also observed by Fredriksson, Rasmusson, Backlund, Isaksson, and Kreitz-Sandberg (2023) in their comparison of the PISA results of students from Germany, Japan, Sweden, and the United Kingdom.

Most studies of absenteeism in higher education have focused on the medical and nursing fields, where there is particular concern about the potential impacts on patient care. Bano, Parveen and Nazar (2023) identified transportation difficulties as the main cause of absenteeism among student nurses in Pakistan. In Namibia, Ashipala, Kalyangu, Shikulo, and Lifalaza (2023) found other major causes for absenteeism among nursing students, grouping them into personal factors (such as illness, long distances and menstrual problems); clinical factors (such as poor attitudes and work overload); and institutional factors (such as unhelpful instructors and the need to repeat modules). Sultana, Maqsood, Shakeel, Mubarak, Majeed, and Perveen (2023) used three very similar factors (individual, institutional, and clinical) to group the main causes of absenteeism from nursing lectures in Pakistan. In the case of medical studies, different scholars have found that teaching quality was the main reason for absenteeism (Buni, Abukenda, Abuaien, Jabira, and Zaid, 2023; Bahadori, Salari, Alizadeh, Moaddab, Balasi and Soodmand, 2020), while Din, Fatima, Awan, Mariyam, Naseer, and Tarar (2023) found that preparation for exams, hectic schedules, and self-directed learning were other common causes.

A study in the same context as our own research, conducted at the Faculty of Economics and Business at the UB in 2007-08, analyzed the opinions of 1,162 students and 185 teachers, finding interesting differences between the two groups in terms of hierarchy and motivations related to absenteeism: Students attributed absenteeism to un motivating teaching methods, while teachers themselves blamed enrolment for too many credits and easy access to materials available on the virtual campus as the main causes of their non-attendance at lectures (Triadó-i-Ivern et al. 2009).

The Xarxa Vives d'Universitats (2023) carried out similar research on almost 50,000 students from 20 universities in Catalonia, examining their living conditions, commitment to studies, employment status and study expectations, comparing them between different fields of study. The study concludes that students skip classes for a variety of reasons, many of which are unrelated to their own attitudes, or the quality of education offered, suggesting that study of this issue needs to consider broader social, economic, and political factors, rather than solely focusing on individual students or universities, in the same line of Wadesango and Machingambi's research (2011) conducted in the South African Universities. However, their study still notes that lecturer characteristics can exacerbate non-attendance in higher education, highlighting two problem areas. Firstly, lecturers need to take a more active role in

promoting attendance, retention, and academic success, which is viewed not only as a professional obligation but also essential for the sustainability of the teaching profession. Secondly, the finding that students sometimes skip classes due to disliking certain lecturers or courses presents a perplexing scenario in a supposedly supportive teaching and learning environment. These complexities need to be addressed from a holistic approach that accounts for the full variety of factors influencing student behavior and engagement in educational settings.

In summary, the main causes of university absenteeism cited in the literature are associated to physical, attitudinal, methodological, and organizational factors (Majeed et al. 2019).

The physical factors that impact attendance include health issues (such as stress and depression), transportation problems, early morning classes, and family circumstances (Sahin. 2023).

Attitudinal factors include motivation, interest in the curriculum, finding lessons meaningful and informative, relationships with teachers, and conflicts between students and teachers (Majeed et al. 2019; Sahin 2023).

Methodological factors are essentially teaching methods, curricular design, and the overall learning environment (Majeed et al, 2019; Sahin, 2023). In this sense, Monono (2023) recommends that teachers should be encouraged to keep attendance records and send warnings to persistent absentees, as well as use positive reinforcement to improve attendance.

Organizational factors include university policies, learning environments, teachers, class schedules, and the overall structure of the education system (Wadesango & Machingambi, 2011; Almenhali et al., 2023). Sahin (2023) suggests that long course hours, and the lack of sufficient social, cultural, and sporting activities can particularly impact attendance rates.

3. Context of the Case Study

The UB Faculty of Economics and Business Administration is the largest in the university. According to the latest data from the 2022-23 academic year, it has a total of 8,543 students enrolled for bachelor's, master's and doctoral programs, but this study solely focuses on the 6,858 students on bachelor's programs (including Erasmus and Sicue mobility students). Master's and doctoral programs were excluded due to the different profiles of their students. The five undergraduate degrees offered by the faculty are: Business Administration and Management. Economics, International Business, Statistics (jointly with the Universitat Politècnica de Catalunya), and Sociology. There are also five dual degrees (Business Administration and Management with Chemistry; Business Administration and Management with Law; Business Administration and Management with Maths; Business Administration and Management with Sociology; and Economics with Statistics). Table 1 contains some basic data related to each of the five degree programs offered at the faculty.

Table 1: Undergraduate degrees considered in the investigation (2022-23)

Degree	Timetable	New enrollments	Total enrolled students
Business Administration	Morning, midday and late afternoon	944	3979
Economics	Morning, midday and late afternoon	358	1446
International Business	Morning	86	334
Statistics	Morning and afternoon	80	318
Sociology	Morning and afternoon	163	589

Note: Students on double-degree programs are included in the respective single degree programs that are part of the combined pathway.

4. Methodology

Survey (a) was designed by the academic staff at the Faculty of Economics and Business to fulfill the first objective of this research, whereby lecturers were directly asked to collect data on the number of students in their classrooms during the second semester of the 2022-23 academic year. A short questionnaire was created that could easily be opened on a mobile phone using a QR code and which was placed on desks in all classrooms at the faculty.

This was used to collect data on the subject, group and number of attendees each day. The survey was conducted in three periods: at the beginning of the semester (third week after the start of classes), in the middle of the semester (week 9), and at the end of the semester (week 13).

The Dean's Office sent an email explaining the study's objectives to encourage lecturers to participate, and the response can be considered very good. Indeed, after filtering the responses, the data sample included 44.1% of all groups.

The survey yielded the following information from each teacher: Degree; Subject; Name of teacher; Group; Date; Week (with values of 3, 9, 13); and Number of students attending class on each date (variable E).

Based on the information on subjects and groups, we could also extract further data from the official enrolment records:

- Number of students enrolled in each group (variable M)
- Year of study (with values 1, 2, 3, 4).
- Timetable (values D, E, F, G, H, Z).
- Teacher's gender (with value 1 for woman and 0 for man).
- Teacher's contract type (TC, value 1 for full time and 0 part-time).
- Type of subject: core subjects (CS, 1 if so; 0 if not).
- Type of subject: mandatory (OB, 1 if so; 0 if not).
- Number of groups per subject (G).
- Average score given to teacher by students in the survey (A).
- Students' survey response rate (Q).
- Average grade of students who passed the subject (NT).
- Overall group performance measured as the percentage of students who passed the course (R).
- Department responsible for teaching (where the value is the code of the department).

Finally, by combining the number of students enrolled in the group (M) and the number of students attending class (E), we were able to calculate the percentage of attendees (variable $per = E/M * 100$).

5. Results and Discussion

The collected data could be used to address the two primary objectives of this research, in relation to which our findings are presented in two parts: a) estimation of class attendance; and b) identification of institutional factors that may affect attendance.

a) Estimation of Class Attendance

The survey responses could be used to estimate the proportion of students attending class in each of the three weeks of data collection, namely the 3rd, 9th and 13th weeks.

In the third week, we found that the percentage of students attending class was around 60%. Table 2 shows the results for each of the five undergraduate degrees.

Table 2: Quantification of student attendance in the 3rd week of the second semester

	Class groups			Students		Attendance			Percentage = E/M*100
	Total	% responses		Attending	Enrolled	Minimum	Median	Maximum	
Business Administration	135	238	56.7%	5774	9815	9.2%	59.0%	100.0%	58.8%
Economics	53	112	47.3%	2006	3429	25.0%	59.9%	88.2%	58.5%
International Business	12	24	50.0%	472	673	42.4%	66.0%	90.9%	70.1%
Statistics	7	19	36.8%	332	435	69.4%	76.8%	83.3%	76.3%
Sociology	31	44	70.5%	1087	1903	17.7%	58.5%	90.0%	57.1%
Global	238	437	54.5%	9671	16255		60.0%		59.5%

Source: Own elaboration. Data collected via Survey FEE (2022-2023).

Data supporting the findings of this study are available on request from the corresponding author [MCV]. The data are not publicly available due to the privacy agreements with the research participants.

Six weeks later, in the 9th week of the semester, average attendance had dropped to 49.9% across all five degrees, Economics being the one with the lowest rate of 46.5% (Table 3).

Table 3: Quantification of student attendance in the 9th week of the second semester.

	Class groups			Students		Attendance			Percentage = E/M*100
	Total	% responses		Attending	Enrolled	Minimum	Median	Maximum	
Business Administration	99	238	41.6%	3512	7174	4.6%	49.8%	100.0%	49.0%
Economics	43	112	38.4%	1208	2717	9.9%	46.5%	84.8%	44.5%
International Business	10	24	41.7%	353	500	34.8%	63.5%	100.0%	70.6%
Statistics	10	19	52.6%	343	622	33.9%	54.4%	79.2%	55.1%
Sociology	21	44	47.7%	559	1121	15.9%	50.4%	75.9%	49.9%
Global	183	437	41.9%	5975	12134		49.9%		49.2%

Source: Own elaboration. Data collected via Survey FEE (2022-2023).

Data supporting the findings of this study are available on request from the corresponding author [MCV]. The data are not publicly available due to the privacy agreements with the research participants.

The final set of data was collected 13 weeks after the year had started. The average attendance was still low, with similar values to the 9th week of 49.6% across all five degrees, Statistics having the lowest attendance rate of 46.8% (Table 4).

Table 4: Quantification of student attendance in the 13th week of the second semester.

	Class groups			Students		Attendance			Percentage = E/M*100
	Total	% responses		Attending	Enrolled	Minimum	Median	Maximum	
Business Administration	83	238	34.9%	2654	5748	4.6%	47.7%	100.1%	46.2%
Economics	36	112	32.1%	1185	2554	17.9%	47.8%	95.3%	46.4%
International Business	12	24	50.0%	435	719	38.6%	68.2%	100.0%	60.5%
Statistics	11	19	57.9%	350	726	5.7%	46.8%	70.8%	48.2%
Sociology	15	44	34.1%	408	812	7.7%	54.9%	81.0%	50.2%
Global	157	437	35.9%	5032	10559		49.6%		47.7%

Source: Own elaboration. Data collected via Survey FEE (2022-2023).

Data supporting the findings of this study are available on request from the corresponding author [MCV]. The data are not publicly available due to the privacy agreements with the research participants.

These findings therefore confirm and quantify the perception among staff at the UB Faculty of Economics and Business of widespread non-attendance. In this sense, although the previous study by Triadó-i-Ivern et al. (2009), also carried out at the Faculty of Economics of the UB, is based on the analysis of the reasons for absenteeism, no previous research has quantified the percentage of absenteeism in the classroom, which is one of the added values of this article, also supported by Díaz and Pons (2024).

b) Identification of Institutional Factors Influencing University Attendance

In this section, we analyze the factors that explain why attendance is much higher for some subjects than others. As mentioned, different previous studies have focused on different types of factors: physical (Sahín, 2023), attitudinal (Majeed et al., 2019), methodological (Monono, 2023; Babakhanian et al., 2022; Triadó-i-Ivern et al., 2020) or organisational (Wadesango & Machingambi, 2011; Almenhali et al., 20203). This study focuses on some of the latter.

Table 5 summarizes the variables used in the analysis, where the units of measurement are the class groups. The data is taken from a total of 437 class groups (1,311 considering the three waves of the survey), yielding 801 observations.

Table 5: Description of variables.

Variable	Definition	Value
per	Percentage of enrolled students attending class (0-100)	real
degree	Degree code ("ADE", "ECO", "INT", "EST", "SOC")	factor
gender	Teacher's gender (Female / Male)	factor
week	Survey week (3/9/13)	factor
year	Year (1/2/3/4)	factor
timetable	Timetable (D, E, F, G, H, Z)	factor
TC	Teacher's contract type (1 = full time, 0 other)	dummy
CS	Core subject (1 = yes, 0=no)	dummy
OB	Mandatory subject (1=yes, 0 =no)	dummy
G	Number of groups taking the subject	natural
A	Average survey score (0-10)	real
Q	Percentage of responses to the teachers' survey (0-100)	real
NT	Average grade of students who passed (0-10)	real
R	Performance (percentage students who passed) (0-100)	real
M	Number of students enrolled in the group	natural
department	Department responsible for teaching (code)	factor

Source: Own elaboration

The percentage attendance (per variable) was used as a dependent variable. To identify which of the variables in Table 5 are explanatory of this percentage, several models

were estimated. Table 6 presents the main results of what were considered the five most informative models.

Table 6: Summary of the estimated (linear) regression models

Variable	Model 1		Model 2		Model 3		Model 4		Model 5	
n=	794		794		801		801		801	
var(Per)=										
degree	x	***	x	***	x	***	x	***	x	***
gender	x		x	*	x		x		x	*
week	x	(-) ^{***}	x	(-) ^{***}	x	(-) ^{***}	x	(-) ^{***}	x	(-) ^{***}
year	x	***	x	***	x	***	x	***	x	***
timetable	x	***	x	***	x	***	x	***	x	***
TC	x	*	x	**	x	*	x	*	x	**
CS	x		x		x		x		x	
OB	x	***	x	***	x	**	x	**	x	***
G	x	(+) ^{***}	x	(+) ^{***}	x	(+) ^{***}	x	(+) ^{***}	x	(+) ^{***}
A	x		x		x	*	x	*	x	
Q	x		x							
NT	x		x							
R	x	(+) ^{***}	x	(+) ^{***}			x	(+) ^{***}	x	(+) ^{***}
M	x	(-) ^{***}	x	(-) ^{***}			x	(-) ^{***}	x	(-) ^{***}
department			x	*					x	*
adj. R2	0.33		0.36		0.28		0.33		0.36	
es	15.71		15.38		16.60		15.71		15.37	

* p<0.05; ** p<0.01; *** p<0.001

Source: Own elaboration

Note: The number of observations (n) used to estimate the models is greater than the number of groups for which information was collected (578) because in some groups the number of students was collected on more than one day in the same week. Other groups have more than one teacher.

Although the estimates of all five models are very similar, we have chosen Model 5 as our reference. This model has the highest adjusted R2 coefficient and the lowest standard error. The following conclusions can be drawn from the different variables considered:

- (degree) Statistically significant differences between degrees are confirmed even when controlling for the other variables. Specifically, International Business (and to a lesser extent, Economics and Statistics) have higher attendance than the Business Administration and Management and Sociology degrees.
- (gender) Female teachers have a 2.4 point lower attendance rate than their male counterparts.

- (week) Attendance in weeks 9 and 13 was lower than in week 3. However, the biggest difference was the drop by 10 points detected between the 3rd and 9th weeks.
- (year) There are no significant differences in attendance between the first and second years. However, in the third year, there is a significant drop in attendance by approximately 13 points.
- (timetable) There are no systematic differences between timetables. The only exception is the so-called Z timetable, which is significantly less attended than all other groups, with a difference of 30 points. However, there is a highly specific reason for this, as these are special groups for which only repeating students are enrolled. Contrary, the study carried out at Lincoln University by Fleming (1995) found that the timing of lecture was a major reason for non-attendance at lectures.
- (teacher contract type) There is a statistically significant difference of 4.5 points in class

attendance between groups with a full-time teacher and those with a part-time one. In this sense and following the results of Bernardo et al. (2018), the state government should be able to provide economic resources to hire personnel with full-time contracts and train them in improved and suitable teaching methodologies.

- (type of subject) There is a clear difference between attendance of mandatory subjects (including core subjects) and optional ones, with the latter being 15 points higher. There is no difference between mandatory and core subjects.
- (number of groups) The more groups take the same subject, the lower the attendance, with each additional group tending to cause a 1.4-point drop in attendance. Hence the difference can be very large in cases of subjects with 8 or 10 groups. A possible explanation might be that subjects with more groups are, in general, the ones that have more repeaters.
- (performance) In higher-performing subjects, attendance is higher but less than we might have expected. For example, a 10% higher pass rate is only reflected by an increase in attendance of 2 or 3 points. Nevertheless, this difference is statistically significant. These findings are aligned with other previous research (Bowen, et al., 2005; Baldacchino and Farrugia, 2002; Marburger, 2001).
- (department) No statistically significant effect was detected in terms of departments.
- (student survey response rate) No relationship was detected with the survey response rate.
- (students' evaluations of the surveys) No statistically significant relationship is detected with class attendance. However, this conclusion is affected by multicollinearity issues between the variables, so we cannot rule out a possible relationship. However, there is insufficient information to demonstrate this.

These variables are limited to more organizational aspects of the university and do not consider other aspects that impact attendance, such as social interaction, feedback sessions, teamwork or collaboration between peers.

6. Conclusions

The initial conclusion is that the level of class attendance at the UB Faculty of Economics and Business is already low at the beginning of the semester, being approximately 60% in the third week of class. From this point on, and as the semester progresses, class attendance decreases, but not as much as assumed by previous research. By the middle of the semester, attendance has dropped to 50%, and by the end of the semester, it is down to 40%.

There are also differences between the different degrees, with International Business getting significantly higher attendance than the other degrees offered by the Faculty.

However, one of the most significant conclusions is the major differences between one subject and another on the same degree program. Hence the second part of this research is especially valuable, in which we identify the institutional and organizational variables that might play a role in explaining these differences.

As noted earlier, organizational factors include university policies, class schedules, and the overall structure of the education system (Wadesango & Machingambi, 2011; Almenhali et al., 2023). Meanwhile, institutional variables include the degree, type of subject, teacher gender and the teacher's type of contract. However, variables related to the teaching methodology, assessment strategy, and activities and resources used in class were not considered.

In other words, all the variables considered in the regression models are external, with no accounting for internal variables that can only be collected by actually entering the classroom and observing what is being done. However, we do know that these external variables explain between 30% and 40% of the differences.

The factors identified as most relevant and statistically significant are the week and year in question, the teacher's gender and contract type, and the type of course.

We should note that although the 30%-40% explanatory value is high, it is well below 100%. However, what this tells us is that the remaining 60% of the difference must be due to internal characteristics, i.e., to what happens in the classroom.

In short, the reasons why students do not go to class are very transversal. They affect all degrees, all courses, and all timetables. And, therefore, if attendance rates are to be raised, it is important for student opinions about best classroom practices to be researched in much greater depth.

Consequently, we intend to complement this research by designing a qualitative study that explores internal variables. This is, students' reasons for non-attendance, to thereby contribute further insight to the body of literature on student attendance and provide practical recommendations for university teachers.

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