Evaluation of Students' Attitudes in Higher Education: the Case of Econometrics in Two Spanish Universities

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Abstract

The attitudes of students are crucial to the learning process, as they directly influence the acquisition of knowledge and corresponding competencies. It is widely accepted that the development of positive attitudes towards every subject should be a desired outcome of the learning process. However, little attention has been paid to the attitudes of students towards econometrics, and there is a dearth of studies on how to assess the development of positive attitudes towards this subject during the learning process. The general belief is that students tend to have a negative attitude towards econometrics, but there is no empirical evidence to support this claim apart from [1].
The objective of this paper is to fill this gap by using data from a survey conducted among students of econometrics in the Economics bachelor's program at both the University of Oviedo and the University of Balearic Islands. The survey was conducted at the beginning and end of the course, and the results provide detailed insights into the students' attitudes towards econometrics. The findings of the study will help to identify areas for improvement and propose teaching innovations that are consistent with the results obtained.

Keywords: *Econometrics, Attitudes, SATS*

1. Introduction

Attitudes play a crucial role in the acquisition of knowledge and skills in any subject. While there is a lack of research on students' attitudes towards Econometrics, studies in the field of Statistics have shown that students who hold negative attitudes towards the subject are unlikely to utilize their knowledge effectively in their personal, professional, or educational lives. On the other hand, positive attitudes have been found to enhance learning, performance, and the desire to further explore a subject. They also increase the likelihood of utilizing acquired knowledge appropriately in the future [2, 3].

Currently, Econometrics holds a prominent position as a research methodology in the field of Economics [4]. It is included in the core curriculum of undergraduate and doctoral programs in economics worldwide since related-knowledge and skills are increasingly valued in the job market [5]–[8]. However, instructors face quite important challenges in generating student interest as well as ensuring successful course completion [9], [10].

Therefore, it is crucial to expand research on students' attitudes towards Econometrics and the factors associated with them in order to develop strategies for improving these attitudes.

Within this context, this study examines students' attitudes towards Econometrics by means of an adapted version of the widely used Survey of Attitudes Towards Statistics (SATS) scale [11].

2. Empirical approach

The study included undergraduate Economics students who were enrolled in a mandatory introductory course on Econometrics at two Spanish universities: the University of Oviedo and the University of the Balearic Islands.

For data collection, a self-administered questionnaire was designed, based on adapted version of the SATS scale to assess attitudes towards Econometrics [10], along with questions about the students' sociodemographic and academic characteristics. The SATS scale consisted of 36

items measuring various dimensions, namely Affect, Self-confidence, Value, Difficulty, Interest, and Effort. Respondents rated these items on a seven-point Likert scale, ranging from 1 (Not at all agree) to 7 (Totally agree). The same questionnaire was administered at both the beginning and the end of the course, with the tense of the questions adjusted accordingly.

To analyse the obtained data, methodological recommendations from the SATS website [11], previous research utilizing the SATS in the field of Statistics (e.g., [2], [12]-[14]), and the work of [10] were followed.

A total of 103 questionnaires were obtained for the pre-test and 74 for the post-test. The number of students that answered both questionnaires was 50. Table 1 summarizes the main characteristics of the matched sample, which is the one used for our analysis.

Table 1. Matched sample characteristics.

		Mean
Gender	Male	54.0
	Female	46.0
Repeater	Yes	14.0
	No	86.0
Age		21.0
n	50	

3. Results

The reliability of the SATS scale was analysed using the Cronbach alpha. In line with previous studies [10], [12], only results for the Difficulty scale set some concerns about their reliability.

Table 2 illustrates the average scores for the six attitudinal dimensions. The Affect dimension shows an average score of approximately four, indicating a neutral attitude among students in this dimension. The Cognitive Competence, Value, and Interest dimensions exhibit slightly higher mean scores, close to five points, which suggests that attitudes towards these dimensions lean towards a somewhat positive outlook. On the other hand, the Difficulty dimension displays the lowest mean score, implying that students' attitudes in this dimension tend to be predominantly negative. Lastly, the Effort dimension exhibits the highest mean score, around six points in the pre-test and five in the post-test.

Table 2. Mean scores for the attitude items classified by SATS-36 sub-scales.

	Matched sample					
Items and dimensions	***Pre-test***		***Post-test***		***Difference score***	
	Mean	***SD***	***Mean***	***SD***	***Mean***	***SD***
Affect	4.11	1.18	4.13	1.39	0.03	1.17
Cognitive Competence	4.84	0.94	4.68	1.09	-0.16	0.93
Value	4.95	0.92	4.62	1.13	-0.33	0.79
Difficulty	3.36	0.78	3.42	0.80	0.06	0.82
Interest	4.93	1.46	4.70	1.63	-0.23	1.64
Effort	6.15	0.96	5.31	1.22	-0.84	1.24
n	50					

Overall, the surveyed students' attitudes towards Econometrics are not negative. Except for the Difficulty dimension, the remaining dimensions receive neutral or slightly positive evaluations. These findings align with [10] previous study in the field of Econometrics and are consistent with earlier research on students' attitudes towards Statistics [2], [4].When comparing the results between the pre and post questionnaires, differences of 0.5 are deemed practically significant [13]. In this regard, significant changes are only observed in the Effort dimension. According to Table 2, the mean score for this dimension significantly decreases from the pre-test to the post-test questionnaire. These findings support previous studies that found no significant differences

in students' attitudes after completing a Statistics course, as well as other studies that observed a deterioration in students' attitudes at the conclusion of the course.

4. Conclusions

This study has attempted to provide some evidence on students' attitudes towards Econometrics courses since related research is practically non-existent.
Results suggest two main conclusions: on the one hand, attitudes are slightly positive though students do recognize the difficulty of the contents; on the other hand, non-significant changes are observed for attitudes over the course except for effort dimension which worsens, a fact that might be due to various reasons including, among others, students' optimism at the beginning of the course about how much they were going to do, the proper burden of this course and others in which students are enrolled and which limit the time and effort they can devote to each, and a mix of the two mentioned.

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