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Financial Skills and Gender Difference on College Students

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Abstract

This work focused on determining if there is a difference in the level of financial skills that college students have in programs in the economic-administrative area: Public Accounting, Business Administration, Accounting and Finance, Actuary, Markets and International Business, as well as Engineering: in Business, Industrial, Mechanical and Mechatronic Management. All this according to gender and the type of educational institution in where, they are enrolled. To obtain the data, we build the hybrid instrument from the scales proposed by: Mandell and Kline (2009); Lusardi and Mitchell (2008, 2011); CFI Official Global Provider of the Financial Modeling and Valuation Analyst (FMVA)TM Certification Program (2015); Technological of Costa Rica (TEC) (2016–2017) and LearningExpress (2017). The test was applied virtually to university students, where the participation of 309 students was achieved, from seven municipalities in the state of Veracruz: Acayucan, Alvarado, Banderilla, Boca del Río, Martínez de la Torre, San Andrés Tuxtla, Veracruz Puerto, enrolled in 10 Higher Education Institutions, three are public institutions and seven are private. For data analysis, the non-parametric Kruskal-Wallis test to detect the existence of differences by gender was used. The results indicate that the level of financial ability of the respondents does not differ in relation to gender and educational institution.

Keywords: skills, finance, college students, gender.

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1. Introduction

Currently, it is essential that young people develop financial skills for life, in order to have equitable access to social opportunities (Amidjono et al., 2022). In this sense, it is essential that they have confidence in the use of financial knowledge, which allows the identification of financial products and services; acquire financial skills that will provide them with elements to promote good financial behavior to manage their finances and achieve prosperity (Dwiastanti, 2015).

An adequate financial knowledge is associated with an increase in confidence towards money management and investment decision-making (Kotzè, 2008). In addition, financial training is a very special class for schools, governments, markets, international organizations, among others (Avendaño et al., 2021a). Lusardi (2019) points out that financial knowledge must be known, because financial preparation is a priority as well as the right to basic education, which must be considered a fundamental right and a universal need.

The college student acquires greater financial knowledge when this knowledge is developed in an academic context (Yaringaño, 2018). The knowledge that the student acquires contributes to aspects such as caring for, planning, and valuing money in favor of their daily activities and their professional future (Aguilar, Ortiz, 2013; Sánchez et al., 2020). In this sense, Mancebón et al. (2020), refer that when financial knowledge is acquired, skills are also acquired that become healthy financial habits that lead to the possibility of having an investment fund and being less likely to finance purchases with personal loans. It is very important to evaluate this financial knowledge, mainly in young college students, as mentioned by Annabi, González and Müller (2018) since it is likely that during this stage they will have the need to face expenses, decide on saving, and request credit cards for the first time credit and student loans. They are also investing in their human capital and this will favor their future decision-making towards the work.

In the same way, knowledge in financial topics becomes essential in the current world context due to the considerable increase in the supply of financial and credit products for citizens, which gives evidence of the importance of training them in this area with the purpose of helping them in making the right decisions (Yaringaño, 2018; Wong, Burneo, 2019).

Several studies carried out in the last ten years reveal some reasons why university students are required to be financially educated with financial knowledge and skills. It is important to spread the interest in taking care of their money and their professional future as a graduate, to analyze their available financial information (Saldarriaga Restrepo, 2020).

To implement and execute their personal strategies regarding the selection of alternatives towards the correct decision making that allow the best use of financial services (Yaringaño, 2018). To carry out their financial planning and avoid unpayable debts (Wong, Burneo, 2019). In this way, to be able to acquire financial skills for their practical application and avoid looking for informal savings and credit schemes and participating in investments that endanger their assets and financial stability (Sanchez et al., 2020). Additionally, financial knowledge in young university students plays a key role in the ability to save (Saldarriaga Restrepo, 2020; Mancebón et al., 2020; Yaringaño, 2018; Wong, Burneo, 2019). It is essential that the young adult understand this financial knowledge because it supports the development of a country (Herdjiono et al., 2018). On the other hand, Sole (2014), considers that financial skills are valuable in professional and personal life to apply them inside and outside of school. They avoid falling into over-indebtedness with high costs, lack of liquidity and lack of money (Lusardi, Mitchell, 2014).

In this idea, Andreou and Philip (2018) highlight the importance that degree programs include the development of financial skills and knowledge through practical applications in finance issues. All of the above will provide training to students by exercising attitudes that favor proper financial behavior, as well as in the long term it can benefit them in making correct decisions towards their personal benefit.

In this same line, Kocoglu (2021), recognizes two benefits that consumers acquire when they have financial knowledge and skills, the first is that the financial knowledge and skills received will help them to use financial resources, ensuring constant financial well-being, and the second benefit will give them self-confidence and motivation to test that knowledge and skill. Regarding gender personality, Gudjonsson, Minelgaite, Kristinsson and Pálsdóttir (2022) consider that, based on gender personality attributes, men are more interested in things, while women are more interested by the people. Studies reflect differences in the way men and women perceive financial problems (Hira, Mugenda, 2000).

Other studies showed that men obtained better results than women in financial knowledge (Falahati, Paim, 2011; Khurshed, Iftikhar, 2014; Yaringaño, 2018). Regarding financial perception, men came out better than women (Yasar, Turğut, 2020). Recently, in the work of Happ, Hahn, Jang and Rüter (2022), which they carried out in Germany, they found a gender difference, but not in Korea, whose results were different. German male students scored higher than female students did. No gender differences were found (Herdjiono et al., 2018; Yasar, Turğut, 2020).

From the above, the research question arises: is there a difference between the level of financial skills of the students in relation to gender and the educational institution? The objective of this research is to determine if there are difference in the level of financial skills on college students have in the programs of the economic-administrative and engineering area, specifically in young people who are in their last semesters of their degree, who also have already received formal instruction related to finances.

2. Literature review

Recently, the studies on financial knowledge and financial skills have gained importance in recent years, example of them the work of Andreou and Philip (2018); Annabi, González and Müller (2018); Avendaño, Rueda and Velasco (2021b); Wong and Burneo (2019); Moreno-Garcia, Garcia-Santillan and Gutierrez-Delgado (2017); Khurshed, Iftikhar (2014); Happ, Hahn, Jang and Ruter (2022). Some especially in young people Andreou, Philip (2018); Cude, Lawrence, Lyons, Metzger, LeJeune, Marks and Machtmes (2006, 2019); Moreno-Garcia, Garcia-Santillan and Gutierrez-Delgado (2017); Falahati and Paim (2011); Khurshed and Iftikhar (2014) and Turğut (2020).

Financial knowledge and financial skills

Particularly in the study developed by Andreu and Philip (2018) they measure the level of financial knowledge about the understanding of basic concepts such as: interest rates, inflation, risk and diversification among Turkish university students. To do this, they examined the financial education, financial aptitude and financial behavior of 881 college students. The findings show that financial knowledge favors college students, since it favors their understanding of managing their credit card debt, as well as enabling them to avoid fraudulent investments. The findings show a low level of financial knowledge specifically in first-year college students, which determines the need to implement a reform in education, improving financial training in the study plans.

In an American context, Cude, Lawrence, Lyons, Metzger, LeJeune, Marks and Machtmes (2006), carried out a study, for which they apply an online survey among university students with the purpose of identifying who has had the most significant influence on the formation of what he knows and thinks about money. They conclude that some college students are not managing their finances well, perhaps due to a lack of practice in these financial topics recommended, but they do not done. In this idea, Annabi, González and Müller (2018), applied a survey to students from a private university. In their research, they reported the identification of some key determinants that influence financial knowledge, such as; the need to acquire a student loan and apply for a credit card. Based on this result, they recommended offering personal finance workshops, primarily to minorities, women, recently graduated students, and students who have a student loan.

In the Latin context, some works were identified; such is the case of Avendaño, Rueda and Velasco (2021b), who carried out a study in an educational institution of the public sector in the city of Ocaña in Colombia. 307 Colombian college students participated in the study. The purpose was to analyze the perception of financial issues, as well as financial skills. The results showed that the students have a favorable perception and attitude regarding financial issues, although the weakness they showed in the dimensions related to skills in the use of financial products and services is evident.

In the same idea, Wong and Burneo (2019) carry out research in the Peruvian context, which focused on measuring the level of financial knowledge that prevails in the educational field. The idea focused on finding solutions through educational tools that allow increase the level of financial knowledge. For this purpose, they applied a survey to 819 students belonging to 39 Professional Schools from both the Private University of Tacna and the Jorge Basadre Grohmann National University. The main finding confirmed, the level of knowledge on financial issues was very low, which was the main argument for implementing actions to improve this situation.

In the Mexican context Moreno-García, García-Santillán, Gutiérrez-Delgado (2017) carried out a study, whose results show a low level of financial education on 115 college students. The only knowledge and skill identified is the habit to carry out a budget, but the level of financial education is very low compare with the rest of the variables evaluated.

Empirical evidence on gender differences

Regarding the gender difference, several studies developed on this topic, such is the case of the work of Falahati and Paim (2011), who carried out a study in which 2,340 university students from six public and five private universities participated in the Malaysian region. For the empirical study, they used the stratified sampling method and used as an instrument to obtain the data, the test developed by Sabri et al. (2006). The purpose of the work focused on the measurement of knowledge in financial education on financial issues and general knowledge about personal finance.

Following the same idea, Khurshed and Iftikhar (2014), surveyed 250 students from five universities: three from the public sector and two from the private sector, in the Faculty of Business and Business managerial sciences, belonging to the University of Peshawar in Pakistan. Topics on the time value of money, financial records, financial goals, saving, investing, education loans, general personal finance knowledge, and financial management skills to manage daily expenses were discussed. The results showed that men have greater skills in future needs, financial goals, investment and general knowledge about personal finance. In general, male students have more knowledge in financial education than female students.

A study carried out in Peru by Yaringaño (2018) analyzes the level of financial knowledge. For the work, 176 university students participated; it also verifies if there are significant differences when comparing the variables sex, age, professional career, marital status, if they have children, if they have a job and if they have a debit or credit card. The sample is made up of college students from the administrative, accounting, educational and psychological careers of the Marcelino Champagnat University. The results showed that 47.8 % of the college students, they have basic financial knowledge and the average level of students in administrative fields is significantly higher than other careers.

Herdjiono et al. (2018) focused on determining gender differences in financial knowledge, financial attitude and financial behavior in 382 university students from the border region of Indonesia. The findings showed that there is no difference between men and women in terms of financial knowledge, financial attitude and financial behavior.

Similar work carried out by Yasar and Turğut (2020) did not find significant differences in relation to gender, in the study carried out with 654 university students. The purpose was determine economic well-being on college students of the Sport Education career according their gender, age, semester among others indicators. Using the Turkish version of the financial well-being scale to obtain data, which were measured by the t-test and one-way ANOVA, they found that the financial situation of university students was low. Regarding financial perception, men showed better results than women did.

Finally, the work of Happ, Hahn, Jang and Rüter (2022), which they carried out on Korean and German college students, evaluated their financial knowledge specifically in the topic of money management, banking and insurance. A gender difference was determined in Germany, but not in Korea. Male students in Germany scored higher than female students. They concluded that the Korean and German students with more preparation in financial subjects achieved higher scores in financial knowledge.

Based on the empirical evidence, the research hypotheses are formulated:

H1 = There is a difference between the level of financial ability of the students in relation to gender.

H2 = There is a difference between the level of financial ability of the students in relation to the institution to which they belong.

2. Method

Non-experimental cross-sectional design study, descriptive and exploratory. The participants in this study are college students in the last semesters belonging to programs in the economic-administrative and engineering areas.

The population are university students, and the type of sample is non-probabilistic by self-determination, since those accessible students who agreed to participate in the study were selected.

The sample was by the criteria of convenience, accessibility and proximity of the participants to the research team. The participating students are from seven municipalities in the state of Veracruz: Acayucan, Alvarado, Banderilla, Boca del Río, Martínez de la Torre, San Andrés Tuxtla, Veracruz Puerto, belonging to 10 Higher Education Institutions of which three are public institutions and seven private.

The students are enrolled in nine careers related to the economic-financial field and engineering: 1) Bachelor's Degree in Public Accounting, 2) Bachelor's Degree in Business Administration, 3) Bachelor's Degree in Accounting and Finance, 4) Bachelor's Degree in Actuary, 5) Bachelor's Degree in Markets and International Business, 6) Business Management Engineering, 7) Industrial Engineering, 8) Mechanical Engineering and 9) Mechatronic Engineering.

Questionnaire: To obtain the data, a hybrid questionnaire built from the scales proposed by: Mandell and Kline (2009); Lusardi and Mitchell (2008, 2011); CFI Official Global Provider of the Financial Modeling and Valuation Analyst (FMVA)TM; Certification Program (2015); Tecnológico de Costa Rica (TEC) (2016–2017); as well as, LearningExpress (2017). The instrument consist of 23 items grouped into 9 dimensions, which is made up of cases that allow measuring the ability acquired in their academic training, as part of the courses related to finance. The estimated time to answer the test was approximately 15 to 20 minutes. For the analysis of the data, the non-parametric Kruskal-Wallis test was used to detect the existence of differences in the distribution of the data. A priori, this procedure assumes that there is no difference in the populations analyzed.

3. Results

First, [Table 1](#) shows the students who participated in the study according to gender and educational institution. 309 students participated in the study, 185 women and 124 men. As we can see, the highest percentage (59.95 %) corresponds to women, and 61.8 % study in a private institution.

Table 1. Descriptive analysis

Variable	Frequency	Percentage	Variable	Frequency	Percentage
Female	185	59.9	Public Inst.	118	38.2
Male	124	40.1	Private Inst.	191	61.8
Total	309	100.0		309	100.0

Source: own

The percentage corresponding to gender between men and women is distributed by careers according to the following information in [Table 1b](#) and [Table 1c](#) it show the associations measures (ETA) among gender and career, which is acceptable.

Table 1b. Descriptive analysis, gender and type of program they belong to

Gender	BDPA 1	BDBA 2	BDAF 3	BDA 4	BDMI 5	BME 6	IE 7	ME 8	ME 9	Total
Female	79	41	5	4	21	13	19	2	1	185
Male	30	28	2	3	9	3	22	23	4	124
Total	109	69	7	7	30	16	41	25	5	309

Notes: 1) Bachelor's Degree in Public Accounting, 2) Bachelor's Degree in Business Administration, 3) Bachelor's Degree in Accounting and Finance, 4) Bachelor's Degree in Actuary, 5) Bachelor's Degree in Markets and International Business, 6) Business Management Engineering, 7) Industrial Engineering, 8) Mechanical Engineering and 9) Mechatronic Engineering.

Initially, the test used is validated and an internal consistency coefficient $\alpha = 0.691$ is obtained, which is considered acceptable in the terms suggested by Hair, Anderson, Tatham and Black (1999). Subsequently, [Table 2](#) shows the ability level of the students, the results indicate that a high percentage of students (63.4) is within the medium to excellent level.

Table 1c. Directional career by gender and career

			Value
Nominal by interval	Eta	a. Dependent Gender	.387
		f. Name of the career: dependent	.274

Notes: In the association measure, the values are between 0 and 1: The value 0 indicates that there is no association between the row and column variables, and values close to 1 indicate that there is a great relationship between the variables.

Table 2. Financial Skill Level

Scores	Frequency	%	Interpretation
1 a 11	113	36.6	Null
12 a 14	94	30.4	Medium
15 a 19	98	31.7	Regular
20 a23	4	1.3	Excellent

Source: own

Subsequently, [Table 3](#) shows the results that allow the research hypothesis to be contrasted: H1 = There is a difference between the level of financial ability of the students in relation to gender; it is observed that the higher average range was for women. Since the test p-value (.923) is greater than 0.05, these values provide evidence that there is not enough evidence to say that there is a statistically significant difference between the median level of financial ability in these groups.

Table 3. Difference in financial ability and gender

Gender	N	Average range
Female	185	155.40
Male	124	154.40
Kruskal-Wallis H(1df)		Significance
0.09		.923

Source: own

Finally, [Table 4](#) shows the results of the hypothesis test: H2 = There is a difference between the level of financial ability of the students, in relation to the educational institution in which they are enrolled. The results reveal that the highest average range occurs in the private institution for women. The p-value (.191) is greater than 0.05, this allows us to verify that there is not enough evidence to say that there is a statistically significant difference between the median level of financial ability in these groups of study.

Table 4. Difference of financial ability and institution

Educational Institution	N	Average range
Public	118	146.58
Private	191	160.20
Kruskal-Wallis H (1df)		Significance
1.706		.191

Source: own

4. Discussion

The results show a good general level of financial ability, since the level ranges from medium to excellent (63.4 %). However, it should not be overlooked, the percentage of students who lack this ability (36.6 %). Likewise, the results show that there is no significant difference in financial ability between men and women, in the same way there is no difference among those who study in a public or private institution.

Having demonstrated that there is no gender difference in the level of financial skills of the college students participating in the study, even with the type of institution where the students,

are enrolled. Therefore, the objective is achieved. These results are consistent with the results of Herdjiono et al. (2018) and Yasar and Turğut (2020). Additionally, the results of this research differ in relation to the findings reported in other works on gender differences, where men obtained better financial results than women (Falajahi, Paim, 2011; Khurshed, Iftikhar, 2014; Happ et al., 2022).

5. Conclusion

As we can see, the study found that higher education institutions, both public and private, develop finance-related skills in students, considering the importance of this, since they will use them not only in their work environment, but also, in their daily life. It should be noted that these skills, are observed in the same way in women, which provides an opportunity for this sector to be included in financial inclusion statistics, which is currently a relevant issue worldwide.

Theoretical implications

A theoretical implication of the study was the validation of the hybrid model to assess financial skills, which was designed based on the proposals of: Mandel and Kline (2009); Lusardi and Mitchell (2008, 2011); CFI Official Global Provider of the Financial Modeling and Valuation Analyst (FMVA)[™]; as well as the Certification Program (2015). In addition, the instrument proposed by the Tecnológico de Costa Rica (TEC, 2016–2017), as well as LearningExpress (2017). With all these proposals, the instrument used in this work was designed, whose results showed a significant evidence that allows us to have a better understanding of the financial skills that college students should have.

Another theoretical implication of this study is to have shown that the level of financial skills of the surveyed students does not differ in relation to gender and the educational institution they are enrolled, constitutes a contribution to the discipline according to its scope and limitations. In addition, something important to highlight is that the work was carried out in a Mexican context.

In addition, having verified that the level of financial skills of the students surveyed, does not differ in relation to gender and the educational institution of affiliation, it constitutes a contribution to the discipline according to its scope and limitations. Moreover, something important to highlight is, that the work was carried out in a Mexican context.

Practical implications and importance of the finds

Knowing the level of financial ability in university students provides elements so that the academic authorities of public or private HEI (Higher Education Institution) can take specific measures on these results. The actions carried out by educational institutions must be equitable, benefiting both the female and male gender, allowing greater financial knowledge to improve their level of financial ability.

Limitations and future research

A great limitation is in relation to the population surveyed, since initially the instrument designed to measure the financial capacity of the student, would be applied face to face in the classrooms of the universities. The conditions to answer the survey would be: not to use a calculator and that the survey was completed in a maximum time of 20 minutes, however in March 2021 as a result of the arrival of the Covid-19 pandemic in the world, and with the confinement measures and healthy distance, it was not authorized to apply it face to face, therefore, the instrument was adapted and designed in electronic format (Google forms) for its application. Another limitation was the size of the sample; a greater participation it was expected that would allow a better result of the total population. Therefore, it is suggested to future research, that the population can be extended. With larger samples, we may generalized behavioral in relation to populations studied, as well as, proposals of solution.

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