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Financial education in centennials: evidence from students of public and private educational institutions in the city of Loja, Ecuador

Educación financiera en centennials: evidencia en estudiantes de instituciones educativas públicas y privadas de la ciudad de Loja, Ecuador

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Abstract

Financial education is a process through which people obtain greater knowledge about financial products and services. The objective of this research is to measure the level of financial education of "centennials" in public and private educational institutions in the city of Loja. The methodology used is of an exploratory-descriptive type, for the collection of information a survey based on the PISA test was used, which was applied to 360 students from 11 institutions of the public and private system, aged between 14 and 18 years old. The results show that the financial knowledge of the students is located at level 4 according to the PISA performance levels and that men have greater financial knowledge in relation to women, so it is necessary to implement financial education programs that allow students to reduce risk and minimize errors in decision making by improving their basic financial knowledge.

Keyword: centennials, financial education, financial education, personal finance, educational institutions

Resumen

La educación financiera es un proceso mediante el cual las personas obtienen un mayor conocimiento sobre los productos y servicios financieros, la presente investigación tiene como objetivo medir el nivel de educación financiera en "los centennials" de las instituciones educativas públicas y privadas de la ciudad de Loja. La metodología utilizada es de tipo exploratorio-descriptivo, para la recolección de información se utilizó una encuesta basada en el test PISA, la cual se aplicó a 360 estudiantes de 11 instituciones del sistema público y privado, con edades comprendidas entre 14 y 18 años. Los resultados demuestran que el conocimiento financiero de los estudiantes se ubica en el nivel 4 de acuerdo con los niveles de desempeño PISA y que los hombres poseen un mayor conocimiento financiero en relación a las mujeres, por lo que es necesario implementar programas de educación financiera que permitan a los estudiantes reducir el riesgo y minimizar errores en la toma de decisiones, mediante el mejoramiento de sus conocimientos financieros básicos.

Palabras clave: centennials, educación financiera, finanzas personales, instituciones educativas

Introduction

The financial crises that have arisen in recent years, such as the case of the national holiday and dollarization in Ecuador, the financial bubble of the real estate system in the United States, the emergence of the cryptocurrency market in several countries around the world and currently in Ecuador, Bolivia and Peru, and the proliferation of money laundering companies also known as financial pyramids, are clear examples of the different stages of financial crises that have caused economic setbacks in several countries.

On the other hand, according to Meza (2021) financial inclusion is a worldwide problem, which is reflected in the degree of bankarization, whose accessibility can be improved through the empowerment of people's financial education, making it vital to carry out research to explain how financial education in the youth population could avoid financial exclusion, besides providing enough information to make decisions that enable savings, safe investment, avoiding risks and financial scams; In addition to contributing to sustainable and environmentally friendly production processes, all these events have awakened the interest of institutions worldwide to promote financial education and inclusion.

According to Sconti (2022), with the advent of globalization and the development of technology, people have greater access to financial products and services, but the financial decisions that people must make are increasingly complex, to avoid financial mistakes, people must make are increasingly complex, to avoid financial mistakes, According to information from the World Bank (2020), the lack of knowledge of available financial instruments and the lack of skills or capacities for their use by the population negatively affect the possibility of participating in the benefits of financial services.

In this same context, Da Silva et al. (2017) points out that negative financial behavior can lead to greater difficulties in school performance, affecting their mental and physical health. Given this approach, public and private entities have sought alternatives to include in their activity plan, financial programs or workshops, evidencing financial education as a key tool in the expansion of financial inclusion, as it allows effective decision making, based on the understanding of the concepts, risks and benefits of financial services.

The Organization for Economic Cooperation and Development OECD (2005) states that the lack of financial education in today's society, marked by globalization, information and knowledge, leads individuals and families to be prone to indebtedness and bankruptcy. Likewise, he considers that more educated people are required in financial matters, therefore, training in this subject should begin as soon as possible, allowing that in the transit of the stages of development, financially responsible citizens are formed for their decisions.

Therefore, financial education can be defined as the process by which financial consumers/investors improve their understanding of financial products, concepts and risks and, through information, instruction and/or advice, develop the skills and confidence to become more aware of financial risks and opportunities, to make informed choices, to know where to turn for help and to take other effective actions to improve their financial wellbeing (OECD, 2005). In other words, it is a continuous process that allows promoting the necessary competencies to make informed and appropriate decisions, as well as providing tools so that people have the ability to defend their rights as financial consumers (García et al., 2013).

With this, it should be recognized that financial education is an element capable of reducing social exclusion and developing the financial system; in addition, it has been detected that people are unaware of the basic financial elements and concepts, which leads them to make inadequate decisions regarding their personal and family well-being (González, 2020, p. 2).

García et al. (2013) add to this approach by pointing out that financial education can contribute to reducing barriers to the demand for financial inclusion. To this extent, financial education can increase knowledge and understanding of financial products and services and, as such, promote the demand for them, as well as their effective use.

Against this background, financial education is of great importance and should lead to improved knowledge and attitudes, but especially experiential learning, as financial literacy could lead to more efficient acquisition of information on financial topics, and better opportunities to realize business ideas and increase self-employment (Cumurovic and Hyll, 2018).

The objective of financial education is not only to achieve a level of competencies in citizens that allows them to make decisions autonomously, but also to enable them to distinguish on what occasions it is possible to solve with their abilities and on what other occasions they should ask for help to decide (Bozzo and Remeseiro, 2021).

On the other hand, Tonatiúh (2021), good financial education practices relate to "the most effective way to teach financial education is to include topics on the subject in existing subjects such as mathematics, social sciences and those focused on students learning about the world around them" (para.1).

It is important to consider that the changing global economic situation requires the promotion of education in financial matters, in order to provide new generations with tools with which to make correct and more informed decisions, thus also contributing to the economic stability of the world. It should be noted that the insertion of financial education in educational institutions is one of the fundamental elements of national strategies, being necessary financial education at early ages, in order to avoid economic imbalances, and that colleges and universities on a global scale get involved with action plans (Méndez and Quimis, 2018).

However, according to the report by García et al. (2013), in Latin America there is a generalized ignorance in the population regarding basic financial concepts such as: inflation, interest rates, the relationship between risk and profitability, and the functioning of the capital market. It is also mentioned that in 50% of Latin American countries, financial education initiatives in schools are not part of national strategies, considering the insertion of financial education in schools an effective way to disseminate financial culture and create conditions to generate positive effects.

According to the PISA study on financial competence OECD (2015), the results reflect the degree to which 15-year-old students have acquired financial

knowledge and skills, with the results indicating that more than 20% of students in Brazil (53%), Chile (38%), Peru (48%) and Spain (25%) do not reach the basic level of performance in financial competence.
On the other hand, the Central Bank of Ecuador (2018), points out that financial education is one of the biggest challenges, and according to the Annual Bulletin of Financial Inclusion Statistics 93% of respondents indicated that they have not received talks or material about this topic, on the other hand, it is evident that individuals are not interested in seeking alternatives that allow them to maintain, distribute and strengthen their monetary gains, causing them to make decisions and perform incorrect financial practices, evidencing a low level of financial knowledge.

It is also worth mentioning Meza (2021) in the study of 23 provinces in Ecuador found that the population with individual characteristics, the conditions of geographical location of the household influence the perception of having a high or low level of financial knowledge and that in Ecuador its population has a low level of financial knowledge. Likewise, according to the latest data available as of 2017 from the Global Findex of the World Bank (WB), in Ecuador only 13% of the population over 15 years of age had access to productive savings, and in the case of credit the level of coverage is 17% of this population, these figures are negative since they are located below the global indicator for Latin America and the Caribbean, which according to the same source indicates that only 14% of the population has access to savings and 21% to credit. Faced with this reality, private financial institutions have proposed financial inclusion strategies (Asociación de Bancos del Ecuador , 2021). This is why the Superintendency of Banks of Ecuador (SBS) is encouraging most of the country's financial institutions to carry out financial education programs (Méndez and Quimis, 2018).

However, Gamboa et al. (2019) mention that in schools financial education is not projected as a priority topic that contributes and, therefore, it is excluded as an enriching element of integral education, considering that young people are a very attractive segment of the population to achieve a faster and more effective banking education, which will allow improving the level of financial education of young people, specifically of centennials, so called people born after 1995 and identified as digital natives, a critical generation, who have access to all the information they want, so it is a challenge for traditional education processes, where a context without access to all the elements that the market offers from a technological perspective is unthinkable (Perilla, 2018).

It is necessary to emphasize that the cell phone is part of their daily life, access to information through the network and the possibility of being permanently connected is a reality (Arab and Díaz, 2015). In these considerations, the research aims to measure the level of financial education in "the centennials" of public and private educational institutions in the city of Loja, to identify whether this generation with access to technological tools, knows about financial issues. Given this approach, the research question focuses on determining what is the level of financial knowledge of high school students in public and private educational institutions in the city of Loja?

Materials and methods

Quantitative, exploratory-descriptive study. There was a sample of 360 students from 11 public and private institutions in the city of Loja who consented to participate in the study. Inclusion criteria: high school students between 14 and 18 years of age. Exclusion criteria: general basic education students under 14 years of age.

To ensure the standardization of information collection, all researchers were trained on how the form works, as well as the inclusion and exclusion criteria, and a pilot stage was carried out to test the form's operation and check the adequacy of the planned questions. The survey consisted of 14 questions, divided into categories: general data and financial knowledge. The instrument was applied in person and online using QuestionPro survey software.

The ideal distribution of process scores for financial competency is shown in Table 1. The financial competency assessment comprises a broad sample of questions covering different levels of difficulty, which allows measuring and describing students' strengths and weaknesses; and distinguishing between high and low scoring students.

To assign a score to each question of the survey, a matrix was used in which four categories were evaluated, the weightings and categories were considered based on the methodology applied by the Organization for Economic Cooperation and Development (2016). Afterwards, the answers were classified using PSPP software and spreadsheets to obtain the level of financial knowledge.

Table 1. *Distribution of financial literacy scores by process*

Categories	Weighting
Identify financial information	
Apply financial knowledge and understanding	
Analyze information in a financial context	
Evaluate financial issues	35%
Total	**100%**

Note. Adapted from Organization for Economic Cooperation and Development (2016).

As mentioned by the Education Quality Agency (2017), PISA performance levels are qualitative descriptions demonstrated by participants through the tests. Each question is associated to a point on the scale indicating its level of difficulty, and respondents are related to a point on the same scale, indicating their estimated level of financial literacy. Table 2 shows the definitions and standardization of financial education, consequently, the financial knowledge of high school students in the city of Loja was classified by level.

Table 2. *Definitions of financial education levels*

Level of financial education	Definition
Level 5 [80%-100%]	Students can apply their understanding of a wide range of financial terms and concepts to contexts that will be relevant to their long-term lives. They can analyze complex financial products and take into account features of financial documents that are significant but unstated such as transaction costs. They can work with a high level of accuracy, solve non-routine financial problems, and describe the potential outcomes of financial decisions, showing a broad understanding of the financial landscape.
Level 4 [60%-80%)	Students can apply their understanding of less common financial concepts and terms to contexts that will be relevant to them as they move into adulthood such as bank account management and compound interest in savings products. They can interpret and evaluate a range of detailed financial documents, such as bank documents, and explain the functions of less commonly used financial

	products. They can make financial decisions about loans; and they can solve routine problems in less common financial contexts.
Level 3 [40%-60%)	Students can apply their understanding of financial concepts and commonly used products to situations that are relevant to them. They begin to consider the consequences of financial decisions and can make simple financial plans in familiar contexts. They can make straightforward interpretations of a range of financial documents and can apply a range of basic numerical operations including calculating percentages. They can choose number operations to solve common financial literacy problems such as budget calculations.
Level 2 [20%-40%)	Students begin to apply their knowledge of commonly used financial concepts and common financial products. They can use the information given to make financial decisions in contexts that are immediately relevant to them. They can recognize the value of a simple budget and can interpret prominent features of everyday financial documents. They also apply basic number operations, including division, to answer financial questions. They demonstrate an understanding of the relationships between quantities and costs incurred.
Level 1 [0%-20%)	Students can identify common financial products and terms and interpret information related to basic financial concepts, as well as recognize the difference between needs and wants, and make simple decisions about daily spending. They can recognize the purpose of everyday financial documents such as an invoice and apply simple, basic number operations (addition, subtraction, or multiplication) in financial contexts that they are likely to have experienced personally.

Note. adapted from Agencia de Calidad de la Educación (2017).

Results

The characteristics of the population are presented in Table 3, the results indicate that the age range of the respondents is 14 to 18 years old and the average age is 15 years old. Most of the informants are men. The predominant area of residence is the urban parish of San Sebastián in the city of Loja. Regarding the year of high school they attend, most of them were students in the first year of high school, and the type of educational institution they attend is mostly in the public system.

Table 3. *Demographic data of participants*

		Level of Financial Education					
		Level 1	Level 2	Level 3	Level 4	Level 5	
		%	%	%	%	%	Total
Age	14,00	0,28 %	5,00%	7,22%	10,00 %	4,44%	26,94 %
	15,00	1,39 %	2,78%	7,78%	10,00 %	5,56%	27,50 %
	16,00	0,83 %	4,17%	6,39%	10,83 %	8,33%	30,56 %
	17,00	0,28 %	1,94%	3,61%	4,44%	1,67%	11,94 %
	18,00	0,00 %	0,56%	0,56%	1,67%	0,28%	3,06%
Genre	Male	0,28 %	7,50%	11,94 %	20,83 %	10,00 %	50,56 %
	Female	2,50 %	6,94%	13,61 %	16,11 %	10,28 %	49,44 %
Ethnic self-identification	Mongrel	1,94 %	12,78 %	23,89 %	34,72 %	18,89 %	92,22 %
	Indigenous	0,00 %	0,00%	0,83%	0,00%	0,00%	0,83%
	Afro-Ecuadorian	0,28 %	0,83%	0,56%	0,83%	0,00%	2,50%
	Mulato	0,00 %	0,00%	0,00%	0,28%	0,00%	0,28%
	White	0,56 %	0,83%	0,28%	1,11%	1,39%	4,17%
Area of residence	El Sagrario	0,28 %	2,22%	2,78%	3,06%	2,22%	10,56 %
	Sucre	0,00 %	4,17%	7,78%	6,94%	5,00%	23,89 %

	El Valle	0,56 %	3,06%	5,00%	7,22%	2,22%	18,06 %
	San Sebastian	0,28 %	3,06%	5,83%	10,28 %	5,28%	24,72 %
	Punzara	0,83 %	0,83%	1,67%	4,72%	3,33%	11,39 %
	Carigán	0,83 %	1,11%	2,50%	4,72%	2,22%	11,39 %
Year of high school	First	1,11 %	6,67%	10,56 %	13,89 %	6,39%	38,61 %
	Second	0,56 %	4,72%	9,44%	12,22 %	6,39%	33,33 %
	Third	1,11 %	3,06%	5,56%	10,83 %	7,50%	28,06 %
Type of institution	Public	2,50 %	11,11 %	21,94 %	24,72 %	12,50 %	72,78 %
	Private	0,00 %	0,56%	1,11%	4,44%	3,06%	9,17%
	Fiscomisional	0,28 %	2,78%	2,50%	7,78%	4,72%	18,06 %

Regarding the level of financial education, Table 4 shows the results of the participants. The level of financial literacy of students in first, second and third year of high school of the public and private system institutions in the city of Loja is 61.34%, consequently, they are located at Level 4 according to the PISA performance levels which is organized and conducted by the Organization for Economic Cooperation and Development (2016). Consequently, students are able to apply their understanding of less common financial concepts and terms to contexts that will be relevant to them as they move into adulthood. They can interpret and evaluate a range of detailed financial documents, such as banking documents, and explain the functions of less commonly used financial products. They can make financial decisions with longer-term consequences in mind, such as understanding the implications of repaying a loan over a longer period; and they can solve routine problems in less common financial contexts.

Table 4. *General financial literacy*

Process	Questions	Percentage	Value per question	Correct answers	Overall percentage	Individual percentage
Identify financial information	1		3,00%	189	52,50%	1,58%
			3,00%		49,44%	1,48%
			3,00%	241	66,94%	2,01%
			3,00%	259	71,94%	2,16%
	5		3,00%	269	74,72%	2,24%
Apply financial knowledge and understanding			6,25%	162	45,00%	2,81%
			6,25%		21,11%	1,32%
			6,25%	189	52,50%	3,28%
			6,25%	301	83,61%	5,23%
Analyze information in a financial context			12,50%	299	83,06%	10,38%
			12,50%	215	59,72%	7,47%
Evaluate financial issues		35%	11,67%		62,22%	7,26%
			11,67%	301	83,61%	9,75%
			11,67%	135	37,50%	4,38%
Total		**100%**				**61,34%**

Financial literacy is defined as "the knowledge and understanding of financial concepts and risks; and the skills, motivation and confidence to apply that knowledge to make effective decisions in a range of contexts. All of the above to improve the financial well-being of individuals and society, and to enable participation in economic life" (OECD, 2012, p. 12).

The level of financial knowledge by performance level is presented in Table 5. At performance level one (2.78%), participants identify common financial products and terms and interpret information related to basic financial product concepts.

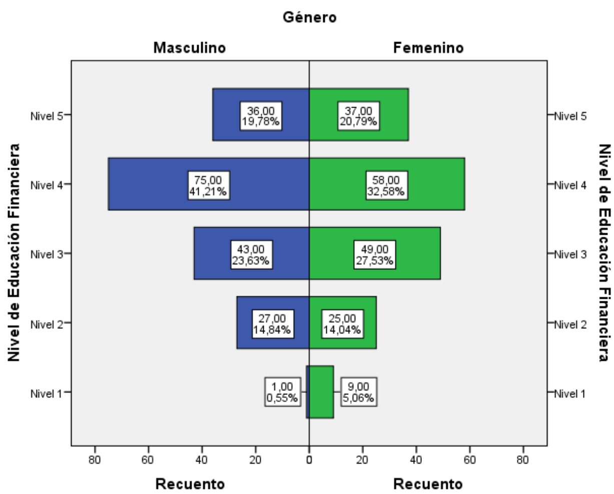
At performance level two (14.44%), students apply their knowledge of commonly used financial concepts and common financial products. At performance level 3 (25.56%), informants consider the consequences of financial decisions and can make simple financial plans in familiar contexts. In contrast, at performance level 4 (36.94%), students apply knowledge about less common financial concepts, terms and products that are relevant in adulthood, such as bank management or compound interest in savings, and at performance level 5 (20.28%), students can work with a high level of accuracy, solve non-routine financial problems, and can describe the potential outcomes of financial decisions, showing a broad understanding of the financial landscape.

Table 5. *Financial knowledge by performance level*

Level	Frequency	Percentage
Level 1		2,78%
Level 2		14,44%
Level 3	92	25,56%
Level 4		36,94%
Level 5		20,28%
Total		**100,00%**

Finally, Figure 1 reveals information on financial education with a gender focus; the study concludes that men have better results than women. Consequently, there is a gender gap in financial knowledge in favor of men, since on average they are at performance level four (62.89%) while women are at level three (59.76%).

Figure 1. *Level of financial education and gender*



The financial system is in continuous change both in European countries and in those located in America, so digitalization opens possibilities of easy access to financial operations in which all kinds of goods are negotiated, leading people to buy products or services potentially, resulting in an inadequate management of personal finances. These advances and more, condition people to be financially responsible and autonomous, being essential to start transferring financial knowledge from the classrooms where young people who will later be inserted into the labor field attend.

Based on the above context, Kraitzek et al. (2022). summarizes the findings in the comparative study of financial knowledge and understanding conducted on 1218 and 1108 American and German students respectively, using the Test of Fnancial Literacy (Walstad and Rebec, 2016) that evidences the heterogeneity between both categories, and even finds substantial differences between students from each country internally, which resulted from a sample obtained in grades 11 and 12 (16 to 18 years old). These results are similar to those determined in this study in terms of internal and internal differences, which showed the gap between male students who have a level 4 financial education and their female counterparts who were below this level.

It is essential to broaden the range of research conceptualized to financial education under three parameters described by Aprea et al. (2015), which are: a) education in personal finance management; b) critical consumer education for the purchase of goods and services; and c) economic and socioeconomic education, with the aim of covering in the first instance the boom in online purchases and transactions, especially by young people. In this way, the dimensions of financial knowledge, understanding and application, necessary to manage finances correctly, are addressed.

Research goes beyond the management of personal finances and assumes the proposal of measuring whether or not young people are capable of facing the challenges of preparation in the areas of: a) income generation; b) savings; c) use of credit; d) financial investment; and, c) protection and insurance. Each of these standards described by the Council for Economic Education (2013) are supported by sections on planning, goal setting, decision making and evaluation of results, since it cannot be denied that today's generations of young people and adolescents are one hundred percent familiar with technology, which puts business opportunities within their reach, as well as unrealistic scenarios that lead them to financial bankruptcy before achieving the desired success.

Valenzuela et al. (2022) in their research work consider the topics indicated above as important for young people's decision making; thus, after conducting a survey of a total of 391 students with an average age of 21 years, they determined that debt options are already significantly addressed, however, financial education related to knowledge explains only 6.8% of these decisions; in addition, of the 100% of the participants who have debt, 50.8% have a job that provides them with income. Within this context, a degree of irresponsibility is evident in the students of this research, who despite being aware of their lack of income, are not conscious at the time of acquiring debt.

It is imperative that from an early age, the conceptualization of obligatory payment commitments and their effects due to omitted actions, especially on unsubstantiated debts, be handled; thus, young people will be able to evaluate credit offers according to their ability to pay through a rational cost-benefit analysis.

These transactions that end in debt are preceded by flashy and misleading advertising campaigns, which offer access and ease of payment with high hidden financial costs, with the aim of retaining the attention of this group of people. The authors Minella et al. (2017) agree with this statement, pointing out that young people due to their size characteristic are an important target that are increasingly approaching countless purchasing possibilities, mainly through virtual media, without discarding the importance of the physical environment; in both cases they face the launch of product offerings, payment and delivery systems, and countless facilities, thus becoming an attractive market that grants many profits to the interested parties.

Conclusions

Based on the results obtained, it is concluded that of the four airlines that operate domestic flights in Ecuador, Latam Airlines showed dominance in this market by routes and frequencies to and from the Mariscal Sucre International Airport in Quito during the weekly cut-off period from June 20 to 24, 2022.

For frequencies, it is identified that they are important factors for the measurement of market share by airline as presented in the Quito-Guayaquil-Quito route that registers the highest frequency in Latam's domestic operation, with 52.3%, which allows it to dominate the domestic market. Avianca airline appears in second place in relation to the number of routes operated in the domestic market, differentiating itself from Latam, prioritizing the operation to Manta airport over Cuenca airport.

For Aeroregional airline, it is evident that its domestic operation is much smaller than the two previous ones and that it operates with airports of lower demand in the market, such as Loja, Santa Rosa and Francisco de Orellana, the first being the one that obtained the highest number of operations by this airline with 60.9%. In the same way, for Equair airline it shows that from its initial operations in 2022, presents a greater participation in the domestic market in relation to Aeroregional, which began operating in 2018. In addition, its reduced domestic participation is justified, just like Aeroregional airline, because its market is composed of routes with higher demand, such as those of Guayaquil, Baltra and San Cristóbal airports.

Finally, relating Ecuador's planning zones to domestic operations, it can be identified that zone 9, which includes Quito airport, zone 8 with Guayaquil airport, and zone 5 with Baltra and San Cristóbal airports, concentrate the highest frequency operation due to the number of airlines serving these routes. Unlike zones 1 and 3, which do not operate due to market reorganization

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