

Knowledge regarding the financial topics of expense and credit, savings and investment and money management: an empirical study of high-school students in Veracruz MEXICO

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Abstract: The aim of this paper is focused in measure the level of knowledge they have high school students about financial topics such as: spending and credit, savings and investment and money management. The participants were 368 students of different high schools in three municipalities of the State of Veracruz, México who were selected from of the stratified sample. The questionnaire is a scale that includes 31 items of multiple choices in the form of cases where there is only one correct answer of the total four options. The instrument showed acceptable Chronbach alpha reliability and internal consistency (> 0.7). The results lead us to think that there is a lack of knowledge about the usefulness of pensions, the issues related to insurance, the impact of inflation on salaries of people workers, even an interesting fact is that although it was known that there is a knowledge about the basic channels of saving, they denote lack of knowledge towards the investment instruments, especially those that by their nature are associated with the capital markets.

Keywords: Financial inclusion, financial literacy, financial knowledge

PROBLEM STATEMENT

Nowadays, the subject of Financial Inclusion (FI) has gotten the attention of all the countries in the world, meaning that it has being set in the global agenda, as an example of this we have the group of the 20 leading countries (G-20), which since 2009 has made an exchange of commitments to increase the access of the low-income population to financial products and services, creating a special subgroup for this subject. For continuity on the matter, it can be mentioned that in 2010 those commitments lead to an exchange of lived experiences and planned models, textually stating in the report Principles and Report on Innovative Financial Inclusion from the Access through Innovations [1] that:

"Financial inclusion is a needed condition to reduce poverty. Not only does it equip poor people with a greater capacity to increase or stabilize their income, strengthen their resilience to economic shocks and build assets. It contributes to the financial sector development, which drives economic growth by mobilizing savings and investing in the growth of the productive sector. Economic growth also indirectly contributes to lower poverty rates" [1].

For the G-20 subgroup of experts on financial inclusion, the above mentioned brings to the table the

worries regarding the consequences of financial crisis in developed and developing countries, but more so than the consequences, the discussion has focused on the causes that lead countries to experience those economic problems and on the path needed to follow so that their public policies can be guided to an increase of financial inclusion among the population [2].

In order to promote the global exchange of models implemented in different countries, the G-20 has taken under its wing the Alliance for Financial Inclusion, which started in 2008 as a private foundation between 6 countries, Mexico among them, and so, the G-20 countries entered said foundation to use it as a network from which action plans to increase FI are executed [3].

Through the work carried out by financial experts from 90 countries who are members of the G-20, the AFI has managed to identify that around 2.5 billion people worldwide are "unbanked".

The AFI considers three action levels to improve financial inclusion through public and private alliances. The macro-level, in which they consider the environment and regulation to promote the access to financial services; the meso-level, where they support the offer and supply of financial services such as payment and consumer protection systems; and the micro level, where actions are made to support the

financial sector participants' network, including the geographic coverage and the improvement of access for low-income households by means of co-financing and offering technical assistance in financial services.

Also, the World Bank (WB) issued a report called Financial Development Report, [34], which focused on the discussion of the relationship between FI and economic development, gathering empiric evidence about the impact of FI in economic development and poverty alleviation, considering that depending on its development stage, the degree of financial inclusion varies from one country to another.

To prove this relationship, the WB presents the results of a survey made to the participants of the financial sector, such as the representatives of central banks, Finances ministries and NGO's, as well as academics from 54 countries who are involved in the subject; the results showed that there are 2.5 billion adults worldwide who do not use any kind of financial service. FI considerably reduces poverty and brings measurable benefits that go from basic payments, savings and insurance services among the poor sector and in the case of the companies, financial services access is linked to innovation, job creation and above all, growth.¹

Lusardi [4-6] has stated in various studies that individuals lack the knowledge about financial issues, hence the United Nations (UN) created in 2012 the Child and Youth Finance International movement, supported by the United Nations Children's Fund (UNICEF), whose premise is that today's young people are future economic actors who will make decisions about finances, leading the world economies and therefore, it is important to provide young people and children with environments that are economically and socially appropriate to create the conditions for a prosperous growth of the economy, as well as the competences needed for their decisions to have a positive impact in the life of their fellow citizens and their nation [7].

From a worldwide perspective, countries make a big effort and commitment to increase the access of their population to financial services with the help of their Central Banks and experts in charge of establishing government policies and so, strategies have been made to reach this goal, like the ones related to the economic and financial plan of said countries. Because of this, the document "Putting Financial Inclusion on the Global Map: The 2013 Maya Declaration Progress Report" was published on 2013, gathering relevant information about the agreements and commitments of

the members of the Alliance for Financial Inclusion, whose purpose is promoting FI.²

However, in a national context it should be reminded that in 2011 the Maya Declaration was adopted in Mexico (one of a kind) and it has become a great collaboration effort among its members, growing quickly and making a worldwide impact.

THE CASE OF MEXICO

In Mexico, one of the concerns embodied in the National Development Plan 2007-2013 is to achieve the democratization of the Mexican financial system without risking its solvency, strengthening it as a detonator of growth, equity and economic development of the country, which has been a concern that has been kept in the 2013-2018 Plan. The main objective is to increase financial inclusion among all the population possible, harmonizing the work of the various dependencies to contribute from each sector to the achievement of said goal [8, 9].

The Secretariat of Finance and Public Credit (SHCP for its acronym in Spanish) has directed its efforts to create strategies that increase financial inclusion, strategies that include five goals: promote the substitution of cash for electronic money, boost the use of electronic forms of payment, the more and better usage of new technologies that allow access to financial services, accomplish the total banking of social programs and government payrolls, and support the access to financing for people who usually have not had credit access in order for them to create credit records. With these strategies the policy of the Secretariat is to increase access to basic financial services, which allows families to reduce their consumption and increase their investment in education and health, as well as to be prepared for events that may present a risk to their patrimony.

AFI proposed to encourage an alliance of government-private sector and economic actors aiming to achieve a higher specialization regarding financial inclusion topics, as well as to create and provide useful information to the organizations involved in the financial sector. Because of that, in 2011 the National Council for Financial Inclusion (CONAIF for its acronym in Spanish) was created as a consultation and coordination organization that could put forward planning, formulation, instrumentation, execution and follow up measures for a national policy on FI.

¹ Data consulted in the World Bank (November 13th, 2014) <https://openknowledge.worldbank.org/bitstream/handle/10986/16238/9780821399859.pdf?sequence=4>

² More information available in "Putting Financial Inclusion on the Global Map: The 2013 Maya Declaration Progress Report".

http://www.afi-global.org/sites/default/files/publications/afi_2013_maya_progress_report_sp_final.pdf [Consulted on October, 2014]

The CONAIF has carried out the national survey on financial inclusion in 2012, which showed that 25 million adults have at least a formal savings product; from those, 24 million have a debit card; approximately 20% of citizens in national territory do not use formal financial services, 60% uses cash pools or loans from informal sources and around half of the rural municipalities in the country do not have a bank office [10].

Mexico's interest to increase financial inclusion in every area of the country as a strategy for economic development has been tangible in its different participations throughout several world scenarios such as the international seminar "Responsible and Successful Financial Inclusion: International Models", which was chaired in 2013 by the Bank of Mexico, organization that with regard to FI issues, poses to mandatorily recognize the experiences lived in recent financial crisis and increasingly associates poverty levels with low financial inclusion, which is a main component in financial development since it allows for a higher quantity of resources to be used for investment and also, for a more efficient use of resources³.

The Bank of Mexico provides regulatory frameworks to attract the confidence of the consumers towards the use of financial products and services and supports programs that brings those services closer to the population with difficult access, as well as supports the private banking in the creation of new products that are affordable to the lowest levels of the population, but even with this strategies, the efforts to increase FI have resulted in the creation of the Economy Interactive Museum (Mide for its acronym in Spanish), which spreads basic economy knowledge in order to promote financial education to the general population, focusing its actions towards the young population. However, the main role of the Bank of Mexico in the promotion of FI is keeping the price stability.

Adding to these efforts, we can mention the private bank BBVA Bancomer, which analyzed the survey carried out by the CNBV through the CONAIF and concluded that the factors that determine from the side of the demand, the obstacles of financial services access are: insufficient income, auto-exclusion, personal reasons and access barriers. BBVA has also promoted along with the Bank of Mexico the use of mobile phones for financial services, showing special interest in financial education by creating the program "adelante con tu futuro" (go ahead with your future), which helps

people to properly use financial services, encompassing the complete educational process: going from "conscience" to "knowledge", but above all, from "knowledge" to "know-how", in other words, helping people to not only recognize why it is important to increase their financial culture but also by sharing knowledge and helping in the development of skills needed to use savings and credit in their favor.

It is clear that even though financial literacy is desired, it should not be the only mean to improve financial practices since it is but a fragment that influences Financial Inclusion and if FI is the universal access of the population to financial products and services offered by the financial systems, we must ask ourselves the question:

What is the level of knowledge that high-school students have in the topics of money management, savings and investment and expense and credit?

To answer this question it is important to set as objective: to determine the level of knowledge that high-school students have in the topics of money management, savings and investment and expense and credit. With this consideration it is feasible that they are included in the Financial Inclusion phenomenon.

Because of the formerly stated, in the next section there is the discussion and analysis of the state of literature that defines the current situation of financial inclusion from its theoretic reality and the empirical evidence that has been found regarding this research topic.

BACKGROUND

The studies made around the subject of Financial Inclusion (G-20, OCDE, World Bank, UNICEF, CNBV, CONAIF) are essentially holistic, although insofar as we go deeper into this topic, the focus changes to the factors that contribute to its increase, as referred by Atkinson, McKay and Kempson [11], Lusardi [6], Hastings and Tejada [12], Lusardi and Michell [13].

Furthermore, the Young people are the ones who will ultimately make future financial decisions in their life, which are related to issues such as: savings, patrimony increase, credits and in the best of cases, business investments. On this regard, Lusardi [5] states that less than a third of young people own basic knowledge on the kind of interests, inflation and risk diversification and also, if we consider as reference what the movement Child and Youth Finance from the UNESCO mentioned, we can begin to justify the importance of analyzing the phenomenon of FI among young populations, like the one studied in this research.

Continuing with the review of specialized literature on the subject of FI, several studies on the matter have

³ Some of the main ideas from the speech given by Agustín Carsten, PhD during the seminar "Responsible and Successful Financial Inclusion: International Models" held in Mexico City on May, 2013. The document can be consulted on the website: <http://mx.investing.com/central-banks/bank-of-mexico/discursos/palabras-del-gobernador-del-banco-de-m%C3%A9xico,-agust%C3%ADN-carstens-457> [Consulted on January, 2014]

been identified, taking as a starting point one of the first seminal works by Goldsmith [14] and King and Levine [15], who managed to establish from the result of their research that there is a positive correlation between financial growth and the financial system's development. Also, this data is made stronger by the studies from other authors such as Demirguc-Kunt and Maksimovic [16], who reported that when there is an advance on economic indexes then there is an increase in the use of financial products and services, especially in developing countries. They additionally state that the stock market should be supported on financial institutions such as banks, in order to favor the increase or betterment of economic development.

Several studies have established the importance of access to financial services in the development of countries, proving there is a high correlation between economic growth and increase of financial services access [17]. Similarly, Allen, Bartilro and Kowalewski [18] mention that the economic development of each country creates a need for financial products and services, highlighting that the financial system is the entity that must cover said needs. From this ideas followed the work by Caskey, Durán and Solo [19], who stated that access to financial services such as savings, payments and credit can make an important positive difference in the life of low-income population.

FINANCIAL INCLUSION

One of the first attempts to define financial inclusion is the study presented by Leyshon and Thrift [20], who mentioned that FI includes those processes that serve to facilitate the access of several social groups to the formal financial system. According to Sinclair [21], FI refers to the possibility of accessing financial products and services formally.

On the other hand, The World Bank defines FI as the access and use of formal financial services by the excluded population, which translates into a higher economic growth thanks to the expansion of consumption capacity and an increase on investment. Hence, the Alliance for Financial Inclusion defends the idea that FI must be considered as a puzzle made by tools that increase internal savings, encourage SMEs and promote private consumption. Those tools are: enabling regulatory environment, sector coverage (channels), offer of suitable products, consumer protection and transparency, as well as basic consumer financial knowledge.

Even when FI is the access and availability of a number of financial products and services, it is interesting to allude to the research by Mehrota, Puhazhendhi, Nair y Sahoo [22] in India. On their report they conclude that the access to a simple savings account was the point of entry to banking services among the population they studied, since they point out that a bank account *per se* is a product that embodies

values like safety, comfort, liquidity and trust that the product will cover their needs so that low-income people may access a savings bank account in a safe manner.

A financial system that encourages access to several social classes is desirable to better assign resources efficiently, as well as to access suitable financial services, leading to an inclusive financial system that can help reduce the growth of informal credit sources, as mentioned by Sarma [23]. Hence, Sarma defines financial inclusion as a process that provides all members of the economy with access to the formal financial system; this definition highlights several dimensions of financial inclusion, such as: accessibility, availability and use of the financial system, these dimensions together contribute to the creation of an inclusive financial system. Other definitions of the variable FI agree on the fact that access to basic financial services such as savings, payments and credit can make a substantial positive difference in the life of poor people [19, 24].

As previously referred, this study takes the concept of the G-20 [1] regarding the FI variable as needed condition to reduce poverty, since not only does it equip poor people with a greater capacity to increase or stabilize their income, strengthen their resilience to economic shocks and build assets. It contributes to the financial sector development, which drives economic growth by mobilizing savings and investing in the growth of the productive sector.

Finally we consider what the movement Child and Youth Finance [7] has pointed out about FI, defining this term as the possibility of accessing financial products and services that are affordable, usable, safe and trustworthy.

FINANCIAL LITERACY

According to Ruiz [25], financial literacy is the motor of social development, contributing to the procreation of financially competent human capital, which leads them to make decisions that benefit their economy. It is important to considerer that financial literacy helps in the making of wise decisions but beyond that, Gnan, Silgoner y Weber [26] and Mandell [27] suggest that it leads to the general wellbeing of the economy. According to Gnan *et al.* [26], financial literacy softens the operation of financial markets, because there are better financial decisions from the entire population, which helps to reduce economic crisis and promotes the stability of the financial system.

After the World Bank expressed concern about the topic of financial inclusion, several studies have been carried out, like the research by Lusardi and Michell [4], who made an empirical study to identify the level of financial literacy among a population, obtaining results that proved that individuals have very

little knowledge about financial terms; on the other hand Atkinson, McKay, Kempson and Collard, [11] found that the lack of knowledge about financial matters among the population has repercussions on the decisions on financial issues. For their study they used factors like money management, planning and selection of financial products.

In 2008, Lusardi takes the survey on financial literacy from the Health and Retirement Study (HRS) on 2004 and analyzes data that allow her to conclude that the low levels of financial literacy reduce the ability to save money, plan and accumulate wealth. Another study by Hastings and Tejeda [12], states that people with lesser financial knowledge are less likely to plan for retirement and choose pension funds with lower commissions. Meanwhile, Mandell [27] mentions that financial decisions of consumers have a negative impact on the economy, like a low savings rate and capital accumulation, a low level of savings for retirement and a higher rate of inequity of income and wealth.

At the level of scientific discussion, there are studies that suggest that financial and economic education is only effective in the short-term (a year) for students, according to Mandell [28], who carried out a study for the Jumpstart Coalition for personal literacy, where senior year students were surveyed using variable such as income, money management, savings and investment and expense and credit, stating that financial behavior of students will not change over time.

Opposing this idea, Bernheim *et al.* [29] and Tzu-Chin *et al.* [30] proved that a financial education program implemented for mid-level students during the seventies and eighties in the United States lead to higher wealth accumulation in the long-term (20 years), compared to students who did not attend this program.

However, in 2011 Lusardi and Mitchell find positive effects between financial literacy and the ability to plan, which matches what Pinar, Heimann and Mylenko [35] established in reference to Dupas and Robinson, who in 2009 pointed out that access to basic financial services such as savings, payments and credit can make a significant difference in low-income people.

According the UNESCO movement called Child and Youth Finance International [7], financial literacy is an essential ability for economic and social wellbeing, designing financial education programs that are suitable for children and young people, which is a fundamental factor in the path to financial citizenship acquired in adulthood; this favors the development of generations of economic citizens who are responsible to the countries' economies where they participate and are part of the economically active population. In this manner, the variables used by the Child and Youth Finance movement to measure financial knowledge are: savings, investments, pensions, credits, debts, expenses and budgets.

From the review of the theoretical and empirical basis we are able to identify the variables that may be involved in the study phenomenon, in an attempt to measure the level of knowledge of the students used in this research we consider: Financial Literacy as independent variable, which encompasses the dimensions of income, money management, savings and investment and expense and credit, while Financial inclusion is a dependent variable.

Hence, taking as reference the model of Mandell [28] and the one from Child and Youth, the theoretic causal model is established as shown on figure 1:

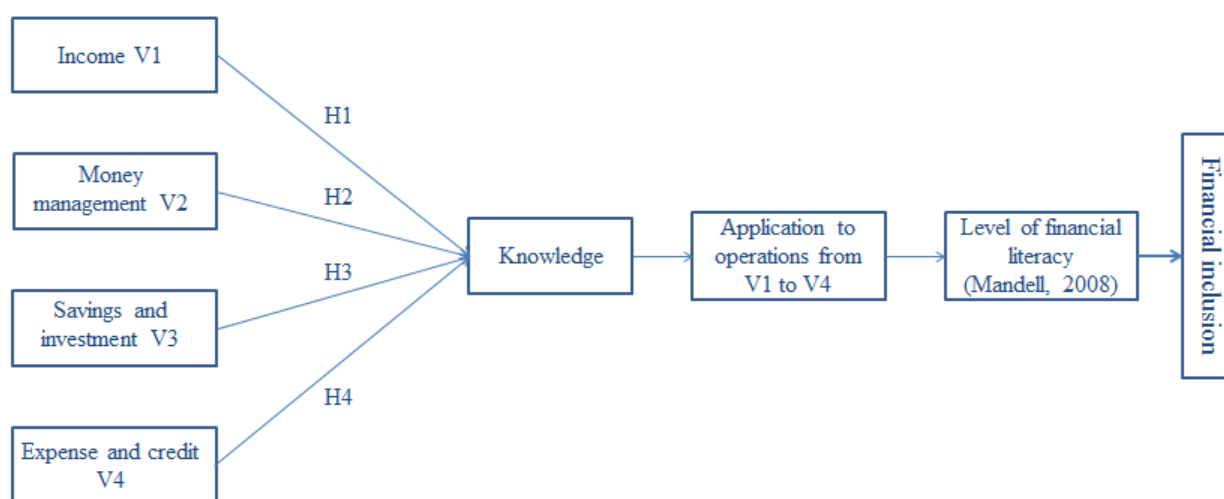


Fig-1: Theoretic-causal study model (construct)

The former allows establishing the following as research hypothesis:

Hi: High-school students have knowledge about financial topics, specifically regarding money management, savings-investment and finally expense-credit.

With regard to the Mexican context, we can point out that the southeast region of the country is the area with the slowest rate growth in access and use of financial services in the country. Therefore, to perform this research we choose the state of Veracruz, where there are 41 technological education high-schools. Also, it is interesting to observe the knowledge of young people -who are close to their financial adulthood-

about the concepts used in the language of financial products and services; this is similar to the study made by Mandell [28] in high-school students of the United States.

The study takes place in 3 municipalities of the state, which are distributed in the north, central and south áreas, focusing on 6 campuses with a total population of 7,668 students.

Sample

To calculate a sample we follow the procedure of Levin [17] quoted by Moreno-García, García-Santillán and Munguía-Tiburcio [31], which suggests the use of the following formula:

$$n = \frac{NZ^2(P)(Q)}{e^2(N-1) + Z^2(pq)}$$

Where:

N = 7,936 population (enrolled students)

n = sample

e = allowed error (0.05)

Z = reliability level (1.96)

p = probability in favor of the event (0.5)

q = probability against the event (0.5)

After solving that we get:

$$n = \frac{N * Z^2(P)(Q)}{e^2(N-1) + Z^2(P)(Q)} = \frac{7,936 * 1.96^2(0.5)(0.5)}{.05^2(7,936-1) + 1.96^2(.5)(.5)}$$

$$n = \frac{7,936 * 3.8416(0.25)}{.0025(7,935) + 3.8416(.25)} = \frac{7,621.7344}{19.8375 + 0.9604} = 366.466537$$

$$n = 367$$

The former gives us 367 students to survey, distributed as follows (table 1):

Table-1: Stratification by municipality and campus

Municipality	Campus	Technical careers	Students	%	Number of cases	
North area Misantla	CBTis 67	<ul style="list-style-type: none"> ✓ Electricity ✓ Car maintenance ✓ Accounting ✓ Clinical lab ✓ Programming 	1,047	13.19%	48.40	49
Central area Córdoba	CBTis 47	<ul style="list-style-type: none"> ✓ Electronics ✓ Mechatronics ✓ Industrial Mechanics ✓ Human Resources Management ✓ Programming ✓ Support and maintenance of computer equipment 	1,447	18.23%	66.90	67
Zona Sur Veracruz	CETis 15	<ul style="list-style-type: none"> ✓ Management ✓ Electricity ✓ Accounting ✓ Construction ✓ Programming 	1,528	19.25%	70.64	71

	CBTis 124	<ul style="list-style-type: none"> ✓ Electronics ✓ Electricity ✓ Industrial Mechanics ✓ Nursery ✓ Car maintenance 	836	10.54%	38.68	39
Zona Sur Boca del Rio	CBTis 79	<ul style="list-style-type: none"> ✓ Management ✓ Accounting ✓ Lodging services ✓ Maintenance of computer equipment ✓ Logistics ✓ Food preparation ✓ Programming 	2,206	27.8%	102	102
	CBTis 190	<ul style="list-style-type: none"> ✓ Accounting ✓ Nursery ✓ Programming 	872	10.99%	40.33	40
			7,936	100%	367	367

Source: made with the data of: Integrated system of high school management. SIGEEMS for its acronym in Spanish <http://www.sistemadeevaluacion.sems.gob.mx/sigeems/index.php>

INSTRUMENT

From the instrument designed by Contreras-Rodríguez [32] called EDUFINANMS⁴, which has the aim to recollect information related to the knowledge that senior year high-school students have about financial topics. It consists of two parts: the socio-demographic profile of the surveyed and section A, where there are 31 indicators about the knowledge of young people about the variables of money management, savings and investment, as well as expense and credit. The items are structured according to the case method, meaning that each question presents the students a mini-case that simulates a situation related to financial aspects which they will face in real life as adults.

Instrument validation

The validation of the instrument was made as follows:

⁴ The instrument is in annex 1

Summary of the scale: Mean=226.022 Std.Dv.=20.7502 Validated cases:368 Cronbach's alpha: .788120 standardized alpha: .780780					
	Mean if	Var. if	Stdv. if	Itm-Totl	Alpha if
GENDER	224.4375	430.6265	20.75154	-0.071754	0.789491
AGE	223.3206	428.6635	20.70419	0.014788	0.788756
MARITAL STATUS	221.1223	429.2595	20.71858	-0.008199	0.789006
WORK STATUS	222.9919	429.1440	20.71579	-0.001892	0.788851
INCOME	222.4294	415.6635	20.38783	0.131376	0.789565
MEDICAL CARE	222.3125	412.2692	20.30441	0.091733	0.796506
KINSHIP WITH THE HEAD OF HOUSEHOLD	223.8913	428.9773	20.71177	0.007438	0.788681
INCOUA01	222.8831	424.7934	20.61052	0.093831	0.788004
INCOUA02	223.0136	427.9047	20.68586	0.049250	0.788265
INCOUA03	223.0299	425.1213	20.61847	0.126617	0.787239
INCOUA04	223.9022	430.0665	20.73804	-0.042304	0.789348
INCOUA05	224.2473	427.3438	20.67229	0.033772	0.789099
INCOUA06	223.3206	419.3863	20.47892	0.196049	0.785791
INCOA07	224.5978	431.2948	20.76764	-0.075151	0.790865
MONMANCO01	224.1005	429.6991	20.72919	-0.026332	0.789079
MONMANCO02	223.4348	429.2567	20.71851	-0.023093	0.791007
MONMANCO03	224.0081	426.7418	20.65773	0.026610	0.790129
MONMANCO04	223.5408	424.8842	20.61272	0.068005	0.788999
MONMANCO05	224.0897	427.9621	20.68724	0.017398	0.789405
SAVINCA01	223.8288	432.0278	20.78528	-0.094033	0.791394
SAVINCA02	223.3315	422.0096	20.54287	0.099920	0.788724
SAVINCA03	222.3723	421.8532	20.53907	0.193775	0.785995
SAVINCA04	222.6060	424.7062	20.60840	0.093277	0.788045
SAVINCA05	223.3505	426.2603	20.64607	0.032689	0.790162
SAVINCA06	224.1331	429.4089	20.72218	-0.024768	0.790735
SAVINCA07	223.8261	424.9426	20.61414	0.076568	0.788576
SAVINCA08	223.4538	423.3185	20.57471	0.105699	0.787999
EXPCRECA01	223.4294	430.0005	20.73645	-0.043379	0.792942
EXPCRECA02	223.8288	425.4897	20.62740	0.085456	0.788072
EXPCRECA03	223.3777	428.7785	20.70697	-0.001674	0.789557
EXPCRECA04	223.0951	422.3524	20.55121	0.121827	0.787656
EXPCRECA05	223.6087	418.1295	20.44822	0.200520	0.785672
EXPCRECA06	223.4348	427.3762	20.67308	0.018745	0.790012
EXPCRECA07	223.1413	423.8496	20.58761	0.091443	0.788390
EXPCRECA08	223.5951	434.7247	20.85005	-0.131782	0.794721
EXPCRECA09	223.6223	426.0992	20.64217	0.034107	0.790213
EXPCRECA10	223.3967	423.1796	20.57133	0.079475	0.789305
EXPCRECA11	223.5761	422.7279	20.56035	0.165253	0.786527
EXPCRECO01	222.6902	415.9420	20.39466	0.202077	0.785717
EXPCRECO02	222.3397	412.3819	20.30719	0.314799	0.782583
EXPCRECO03	222.3859	409.5685	20.23780	0.378159	0.780907
EXPCRECO04	222.3315	408.2162	20.20436	0.434549	0.779738
EXPCRECO05	222.3505	410.2766	20.25529	0.341863	0.781699
EXPCRECO06	222.3940	411.8746	20.29469	0.308581	0.782633
EXPCREUA01	221.9592	407.8435	20.19514	0.414347	0.779922
EXPCREUA02	222.8750	413.5767	20.33659	0.252314	0.784174
EXPCREUA03	223.1277	414.2527	20.35320	0.214598	0.785393
EXPCREUA04	223.1522	412.0584	20.29922	0.240010	0.784581
EXPCREUA05	222.2935	408.2617	20.20549	0.353422	0.781116

The results attained by the Cronbach's alpha (normal and standardized alpha) display low values even though they are not below 0.5 but still, they are not as Hair, Anderson, Tatham and Black [33] would consider desirable ($> .8$). From table 9 it can be seen that the reliability of each of the items is higher than 0.70, for which it can be inferred that each of the items are well explained and understood.

DATA ANALYSIS

Next, we can see the results given by the descriptive analysis corresponding to the socio-demographic profile of the surveyed students.

Descriptive analysis

Below the descriptive analysis of data about the surveyed profile is presented.

Table-1: Descriptive statistics of the variable Gender

Campus	Variable	>Frequency	μ	D.S.	P<0.01	SW-W	Lilliefors
North area	Gender	82% women	1.8163	0.3912	P=0.00	0.4716	P<0.01
Central area		72% women	1.7164	0.4541	P=0.00	0.5646	P<0.01
South area		50% men	1.504	0.501	P=0.00	0.6364	P<0.01

Source: own

In table 1 about the variable gender it can be seen that women are more frequent in the campuses from the North and Central areas (82% and 72%) while in the selected institutions in the South area, the range of men and women is 50% each. The Kolmogorov –

Smirnov with the Lilliefors correction goodness of fit test is < 0.01 , which supports this measurement and it can establish that this data come from a normal distribution.

Table-2: Descriptive statistics of the variable Age

Campus	Variable	>Frequency	μ	D.s.	P<0.01	SW-W	Lilliefors
North area	Age	53% 18 years old	2.6122	0.5707	P= 0.00	0.726	P<0.01
Central area		57% 18 years old	2.6119	0.5762	P=0.00	0.7471	P <0.01
South area		56% 18 years old	2.7421	0.6192	P=0.00	0.7658	P<0.01

Source: own

With regards to the variable Age, table 2 shows that the age of 18 years old is the most frequent in the 6 institutions of the studied population: 53% in the North, 57% in the Central area and 56% for the South area.

The Kolmogorov –Smirnov with the Lilliefors correction goodness of fit test is < 0.01 , which supports this measurement and it can establish that this data come from a normal distribution.

Table-3: Descriptive statistics of the variable Marital status

Campus	Variable	>Frequency	μ	D.s.	P<0.01	SW-W	Lilliefors
North area	Marital status	100% Single	N/A	N/A	N/A	N/A	N/A
Central area		93% Single	4.791	0.8445	P=0.00	0.2587	P<0.01
South area		97% Single	4.9087	0.5535	P=0.00	0.1525	P<0.01

Source: own

For the analysis of the variable Marital status, it is possible to observe in table 3 that the marital status "Single" is the most frequent among the entire population, especially in the North area where it reaches 100%. Similarly, in the selection from the Central and South areas, the percentage is 93% and 97% respectively, so that it can be said that the higher

frequency is single. The Kolmogorov –Smirnov with the Lilliefors correction goodness of fit test is < 0.01 , which supports this measurement and it can establish that this data come from a normal distribution, except for the institutions in the North area where goodness of fit tests do not apply.

Table-4: Descriptive statistics of the variable Work Status

Campus	Variable	>Frequency	μ	D.s.	P<0.01	SW-W	Lilliefors
North area	Work Status	84% Only studies	3.0612	0.4747	P=0.00	0.531	P<0.01
Central area		75% Only studies	2.9851	0.5901	P=0.00	0.709	P<0.01
South area		75% Only studies	3.0357	0.5527	P=0.00	0.6697	P<0.01

Source: own

Table 4 exhibits the frequency for the variable Work Status, being more frequent the population that only studies in the analyzed institutions. By areas the results are: in the North (84%), Central and South areas

(75%). The Kolmogorov –Smirnov with the Lilliefors correction goodness of fit test is < 0.01 , which supports this measurement and it can establish that this data come from a normal distribution.

Table-5: Descriptive statistics of the variable Income

Area	Variable	>Frequency	μ	D.s.	P<0.01	SW-W	Lilliefors
North Area	Income	67% Do not apply	3.6939	1.8952	P=0.00	0.5916	P<0.01
Central Area		82% Do not apply	4.3284	1.4605	P=0.00	0.4772	P<0.01
South Area		58% Do not apply	3.3611	1.9415	P=0.00	0.6429	P<0.01

Source: own

Table 5 shows the frequency of the variable Income, where the higher frequency in the population of the six institutions is that it does not apply because they do not gain an income: 67% in the North Area, 82% in the Central Area and 58% in the campus of the South

Area. The Kolmogorov –Smirnov with the Lilliefors correction goodness of fit test is < 0.01 , which supports this measurement and it can establish that this data come from a normal distribution.

Table-6: Descriptive statistics of the variable Medical care

Campus	Variable	>Frequency	μ	D.s.	P<0.01	SW-W	Lilliefors
North Area	Medical area	33% Popular Insurance	3.3878	2.7372	P=0.00	0.7548	P<0.01
Central Area		40% IMSS	4.6567	3.0229	P=0.00	0.7245	P<0.01
South Area		47% IMSS	3.5198	2.5239	P=0.00	0.7493	P<0.01

Source: own

The frequency for the variable Medical care seen on table 6 indicates that the higher frequency is the individuals who have Popular Insurance in the Northern Area (33%), while the institutions in the Central and South Areas present higher frequency among the

population who have IMSS (from 40 to 47%). The Kolmogorov –Smirnov with the Lilliefors correction goodness of fit test is < 0.01 , which supports this measurement and it can establish that this data come from a normal distribution.

Table-7: Descriptive statistics of the variable Kinship with the head of household

Campus	Variable	>Frequency	μ	D.s.	P<0.01	SW-W	Lilliefors
North area	Kinship with the head of household	88% Son/Daughter	2.2449	0.6931	P=0.00	0.3969	P<0.01
Central area		87% Son/Daughter	2.1493	0.6094	P=0.00	0.4544	P<0.01
South area		92% Son/Daughter	2.1032	0.4433	P=0.00	0.317	P<0.01

Source: own

For the analysis of the variable Kinship with the head of household on table 7, it can be noticed that in the totality of the sample institutions, the most frequent answer is Son/Daughter: 92% in the South area and 87% in the Central area, so that it can be stated that the highest rank is related to the head of household Son/Daughter. The Kolmogorov –Smirnov with the Lilliefors correction goodness of fit test is < 0.01 , which supports this measurement and it can establish that this data come from a normal distribution.

Results from Section A. Financial Knowledge

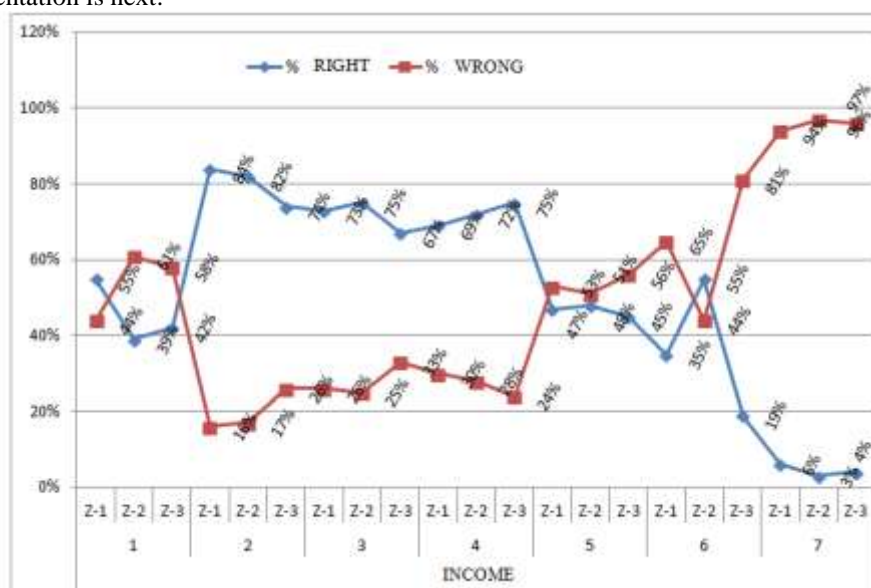
For the interpretation of the results from Section A, called Financial Knowledge, there is a descriptive analysis for each of the variables distributed by areas, in order to observe the comparison between them and provide answers to the question about the Financial Literacy construct. Hence, the results of the variable Income are presented in table 8 as follows:

Table-8: Frequency of positive versus negative answers of the variable "Income"

VARIABLE	ÍTEM	AREA	% RIGHT	% WRONG
INCOME	1	Z-1	55%	44%
		Z-2	39%	61%
		Z-3	42%	58%
	2	Z-1	84%	16%
		Z-2	82%	17%
		Z-3	74%	26%
	3	Z-1	73%	26%
		Z-2	75%	25%
		Z-3	67%	33%
	4	Z-1	69%	30%
		Z-2	72%	28%
		Z-3	75%	24%
	5	Z-1	47%	53%
		Z-2	48%	51%
		Z-3	45%	56%
	6	Z-1	35%	65%
		Z-2	55%	44%
		Z-3	19%	81%
	7	Z-1	6%	94%
		Z-2	3%	97%
		Z-3	4%	96%

Source: own

The graphic representation is next:

**Graphic-1: Description of the correct and incorrect answers to the variable "Income by areas". (Source: own)**

On graphic 1 we can see how students from the areas 2 and 3 do not consider that a college degree would increase the income they aspire to earn (item 1) but on the contrary, they do consider that taking extra-curricular training courses to improve their knowledge (item 2) impacts the future salary because it can be valuable for the company. Besides, students evidence knowledge with regards to their income alternatives they can have in their adulthood or better said, in the stage where they enter the formal working field (item 4). On the contrary, with respect to taxes, the results

lead us to think that students cannot apparently identify or precise what sort of tax is charged to the income they will receive for their workday (item 5). In addition to this, there is no evidence to imply that students recognize the effect of tax rates in fiscal and social security issues of the income (item 7).

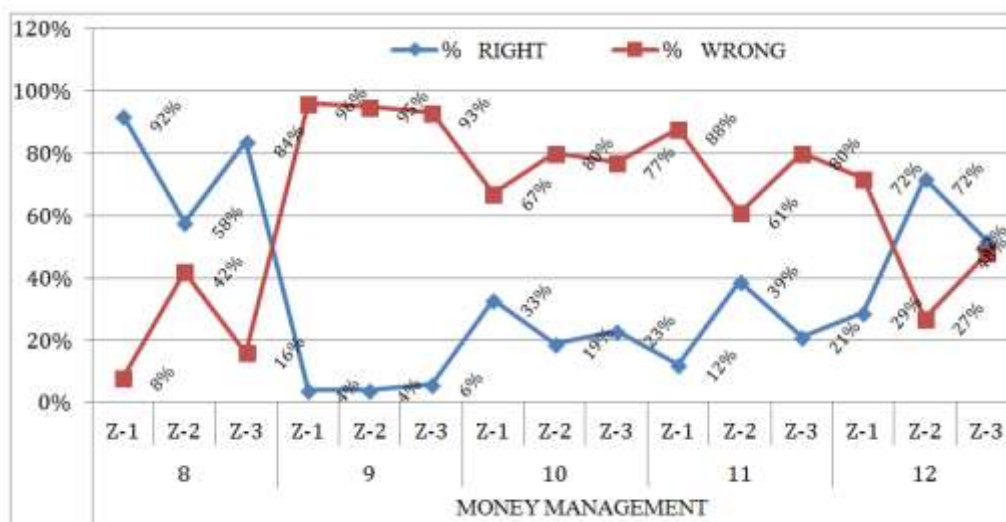
In regard to the variable Money management, for each of the items (from 8 to 12) the following frequencies were obtained:

Table-9: Frequency of positive versus negative answers of the variable "Money Management"

VARIABLE	ITEM	AREA	% RIGHT	% WRONG
MONEY MANAGEMENT	8	Z-1	92%	8%
		Z-2	58%	42%
		Z-3	84%	16%
	9	Z-1	4%	96%
		Z-2	4%	95%
		Z-3	6%	93%
	10	Z-1	33%	67%
		Z-2	19%	80%
		Z-3	23%	77%
	11	Z-1	12%	88%
		Z-2	39%	61%
		Z-3	21%	80%
	12	Z-1	29%	72%
		Z-2	72%	27%
		Z-3	52%	48%

Source: own

The graphic representation is as follows:

**Graphic-2: Description of the correct and incorrect answers to the variable "Money management". (Source: own)**

As to the variable Money management on graphic number 2, we can infer that even though it is true that the students from the 3 researched areas know the existence of pensions and its general definition (item 8), by contrast they lack knowledge about insurance, specifically regarding life and car insurance (items 10 and 11) and also do not know about inflation and its impact in personal finances (item 9). On the

other hand, they do know their health provider, which means they are aware of having medical insurance through their parents (item 12) and the risk to their coverage if their parents become unemployed.

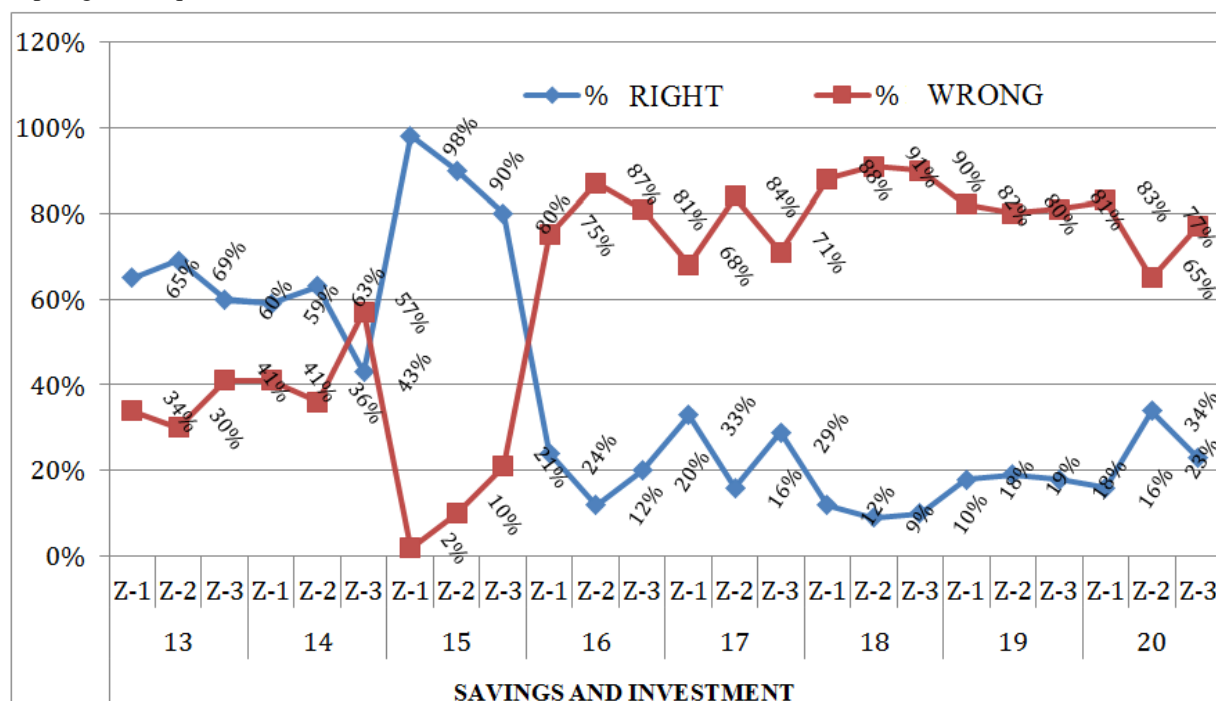
The variable Savings and investment got for each of the items (from 13 to 20) the following frequencies.

Table-10: Frequencies of positive versus negative answers in the variable “Savings and investment”

VARIABLE	ITEM	AREA	% RIGHT	% WRONG
SAVINGS AND INVESTMENT	13	Z-1	65%	34%
		Z-2	69%	30%
		Z-3	60%	41%
	14	Z-1	59%	41%
		Z-2	63%	36%
		Z-3	43%	57%
	15	Z-1	98%	2%
		Z-2	90%	10%
		Z-3	80%	21%
	16	Z-1	24%	75%
		Z-2	12%	87%
		Z-3	20%	81%
	17	Z-1	33%	68%
		Z-2	16%	84%
		Z-3	29%	71%
	18	Z-1	12%	88%
		Z-2	9%	91%
		Z-3	10%	90%
	19	Z-1	18%	82%
		Z-2	19%	80%
		Z-3	18%	81%
	20	Z-1	16%	83%
		Z-2	34%	65%
		Z-3	23%	77%

Source: own

Graphing the frequencies as follows:

**Graphic-3: Description of the correct and incorrect answers to the variable “Savings and Investment”. (Source: own)**

According to Graphic 3, it is possible to see from the data analysis that students from the explored areas

exhibit a wide knowledge about the usefulness of savings (item 13); due to this, they know some benefits

from saving money and it is also important to mention that they identify some basic savings channels, as bank accounts for instance (item 15).

By contrast, there is a lack of knowledge regarding the more complex investment instruments (item 16), which are those instruments that by their nature are linked to the capital markets, specifically those negotiated in the Stock Exchange, which shows that students do not have knowledge about this

particular instruments. In addition, the results do not show evidence that allows us to state that students know the Treasury bonds (item 18). While they still do not have contact with such complex financial issues, apparently they have not had any contact with third parties who know these concepts.

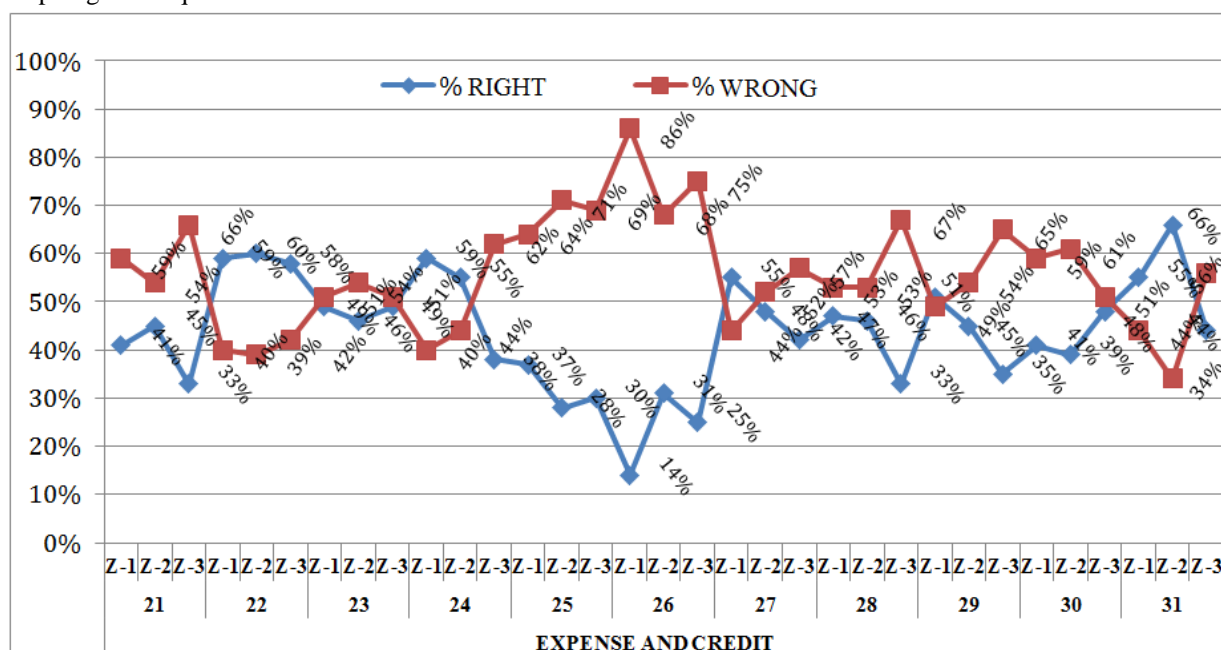
Finally, the variable Expense and credit is constituted by the following frequencies for each of the items (from 21 to 31):

Table-11: Frequencies of positive versus negative answers in the variable “Expense and credit”

VARIABLE	ITEM	AREA	% RIGHT	% WRONG
EXPENSE AND CREDIT	21	Z-1	41%	59%
		Z-2	45%	54%
		Z-3	33%	66%
	22	Z-1	59%	40%
		Z-2	60%	39%
		Z-3	58%	42%
	23	Z-1	49%	51%
		Z-2	46%	54%
		Z-3	49%	51%
	24	Z-1	59%	40%
		Z-2	55%	44%
		Z-3	38%	62%
	25	Z-1	37%	64%
		Z-2	28%	71%
		Z-3	30%	69%
	26	Z-1	14%	86%
		Z-2	31%	68%
		Z-3	25%	75%
	27	Z-1	55%	44%
		Z-2	48%	52%
		Z-3	42%	57%
	28	Z-1	47%	53%
		Z-2	46%	53%
		Z-3	33%	67%
	29	Z-1	51%	49%
		Z-2	45%	54%
		Z-3	35%	65%
	30	Z-1	41%	59%
		Z-2	39%	61%
		Z-3	48%	51%
	31	Z-1	55%	44%
		Z-2	66%	34%
		Z-3	44%	56%

Source: own

Graphing the frequencies as follows:



Graphic-4: Description of the answers regarding the variable “Expense and credit”, positives versus negatives.
(Source: own)

In the former graphic about the variable Expense and credit, the students have a profound lack of knowledge about issues related to expense. In the first place, it is possible to see that they cannot tell the difference between a necessary and an unnecessary expense (item 21); on the other hand, they do not know simple credit operations, like the costs of a financial charge, for instance (item 26). Nevertheless, students do have knowledge regarding credit cards and associate them with expense (item 24), they also know that some institutions provide responsible credit counseling, such as the CONDUSEF, which they consider that represents a service of protection to their rights (item 31).

CONCLUSIONS

The results given by the analysis from the field instrument data provide information regarding the level of financial literacy in the studied population and thus, it is important to mention that from these findings we can get a current view to the financial knowledge of the students that will soon become legal adults and it is also possible to identify the perception they have regarding financial topics.

In the case of pensions, most of the students from the three analyzed areas know the existence of pensions and its broad definition with a 92% and 84% of correct answers in the north and south areas respectively; this amount decreases in the central area, where a relative majority of 58% has a general knowledge of pensions (item 8).

Conversely, students answered incorrectly on the subject of inflation (item 9) for the most part with scores of 96% (north area), 95% (central area) and 93% (south area), meaning that this percentage of students does not know the influence that inflation has on income, salaries and pensions (see table 9 and graphic 2).

On the matter of insurance (items 19 and 11), many students do not know about life insurance and the effect they have on the income level, since 67%, 80% and 77% in the north, central and south areas respectively gave wrong answers. Moreover, 88% lack the knowledge about car insurance (see table 9), which coincides with Atkinson, McKay, Kempson and Collard [11], who state that the lack of knowledge about financial matters among the population has repercussions in the decisions made about financial issues.

Following the same line of thought, Hastings and Tejeda [12] mention that people with lesser financial knowledge, have a smaller chance of planning for retirement and choosing pension funds with lower commissions. In this respect, Mandell [28] points out that the financial decisions of consumers have a negative effect on the economy, such as a decrease in the savings rate and capital formation, a low savings level for retirement and a higher rate of inequity in the distribution of income and wealth.

The students from the analyzed sample have knowledge regarding the usefulness of savings, because

65%, 69% and 60% of students from the north, central and south areas respectively responded correctly to the cases presented about options and benefits of savings (items 13 and 14). Along these lines, most of them know basic savings channels (item 15), like a bank account for example, since 98%, 90% and 80% provided right answers (see table 11 and graphic 3). The obtained results leads us to adopt a different stance from Lusardi [5], who claims that low levels of financial literacy decrease the ability to save, plan and accumulate a modest amount of wealth, since in the examined population, students display a high knowledge about the usefulness of saving money.

In addition, many (54%) show a lack of knowledge about the function of ATMs (item 23); by contrast, even when 55%, 66% and 56% (north, central and south area respectively) know the existence of credit institutions that offer protection and consultancy to the users of financial products and services, like the CONDUSEF, most students do not know that there is a credit record and the use banks make of it. The percentage of wrong answers in this subject varies from 53% (northern and central areas) to 67% (south area).

The present research obtained empirical evidence that allows to explain the current state of the variables studied and therefore, know the level of financial literacy and the perception of financial subject of the high school students in the State of Veracruz. Hence, the findings add up to the existing knowledge as a contribution in Latin-American contexts as is the case of this study.

However, besides establishing the lack of knowledge of the students as stated above, financial systems are widening the offer of products and services; therefore, financial education becomes a tool which helps financially knowledgeable people to make more analytic decisions in order to preserve their patrimony and improve economically, which is related to family finances. The former is relevant since it has been one of the factors –among others-, that if wrongly managed can lead countries to very important economic breakdowns: if families have poor finances, the dynamic that financial systems require to create the market activity needed in every economy cannot exist.

From the findings, this research proposes to highlight the importance of including in the school curricula subjects that encourage and help the development of the students' skills and abilities regarding personal finances management, so that through a case methodology, they are lead to a contextualized reality of their financial future. This means that since the age previous to adulthood, the already have an approach to personal finances, its concepts, institutions and involved organizations, products and services, among others.

We consider that from the moment the student becomes aware of the above mentioned financial concepts, their use and application, then he/she will have better arguments with which to make better financial decisions for his/her life. Besides, it will develop his/her analytic ability in economical subjects and everything related to family finances, which are fundamental matters in the society we live in.

Last, we can point out that having stable personal finances, even when having limited resources, will contribute to keep the wellbeing of the households, taking into consideration that financial crisis are the cause of the social problems in the country. Hence, it is suggested to carry out studies in adult populations with high-school academic level, meaning adults whose last level of studies was high-school, in order to know the current level of the ones already immersed in the financial products and services market. In this respect, it is also suggested to analyze if the digital offer of financial products and services is helping increase financial inclusion in the low-income sectors.

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