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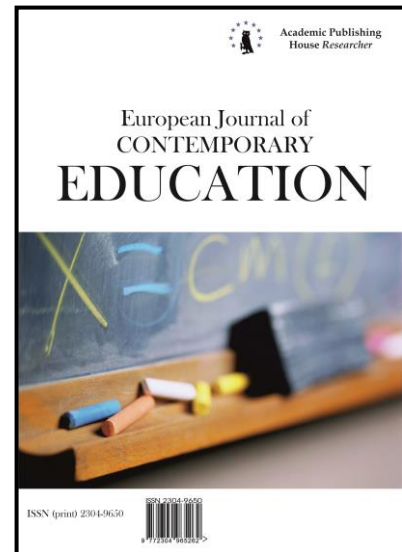
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## Empirical Study on Financial Education. Case Study of Public Accounting Graduates in Veracruz, Mexico

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### Abstract

The purpose of the study was to assess the level of education that public accounting graduates in Veracruz, Mexico have regarding financial topics. Financial education has become an essential skill in people's lives as a result of the evolution of financial markets. It is logical to think that for graduated in the area of accounting it is essential to have a high level of education in financial matter to be able to perform in their professional field. To carry out the research, the survey designed by Moreno-García, García-Santillán, and Gutiérrez (2017) was used. The populations surveyed were students in the course about fiscal topics carried out in the College of Public Accountants of the State of Veracruz. Descriptive techniques were used to measure the data and the hypothesis test was contrasted with the Z statistic of proportions. The main findings suggest that accounting graduates present an adequate level of education towards financial issues on interest rate calculation, inflation, credit card management, savings, and budget.

**Keywords:** financial education, public accounting, graduates, Mexico.

### 1. Introduction

Education can be seen as both an objective and component of development, as well as “fundamental to the broader notion of expanded human capabilities that lie at the heart of the meaning of development” (Todaro, Smith, 2011, cited in Power, 2018). Specifically, financial education has become an essential skill in people's lives as a result of the evolution of financial markets. Financial markets have become more sophisticated, and so have new products offered to retail consumers. The evolution of information technology and telecommunications has led to a proliferation of new financial products adapted to the needs of the market. The use of these products depends on the level of financial education of the population.

Mexico faces the challenge of increasing the level of financial education of its inhabitants; at least this was indicated by evidence gathered in the last decade. There are not enough studies about

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Mexicans financial education yet. Hasting and Tejeda-Ashton (2008) found that Mexicans with less financial literacy had less probability to select the lowest commissions option of account for saving to retirement. That was the result of a survey realized to people affiliated to social security government program. Duarte and Hasting (2009), show that individuals with less financial literacy are more likely to be persuaded by advertising, trademarks, peer opinions or irrelevant information when selecting their account for saving to retirement or when they change to another. In general, these individuals make decisions.

Suboptimal financials compared to those with higher knowledge (Villagomez, 2014).

The result of the survey conducted in Mexico by the National Autonomous University of Mexico, UNAM and Banamex (2008) indicates that 20 % of the population plans and records their financial movements. Apparently the habit of saving does not appear in the Mexican since apparently only allocates 3 % of his income to this item and 1 % for his retirement.

Of the total population surveyed, only 50 % expressed the intention to save, but the scheme they use the most is the group savings scheme (25.8 %), a form of savings among individuals, which certainly carries a risk of permanent fraud. 70 % of respondents also stated that they are not informed about investments, savings, credits, even the withdrawal scheme of the so-called AFORES.

BANAMEX and UNAM (2014) carried out a study with the intention of knowing the financial culture of the Mexican adolescent population between 15 and 29 years. The result shows that 47 % do not have the habit for formal savings, more than 50 % said they did not keep any record of their income and expenses, or savings.

The National Survey of Financial Inclusion (2015) reports that 36.6 % of the population said they kept track of their expenses, although 63.8 % only in their mind, which is definitely not reliable. 44 % have a saving account, 41.2 % have a retirement account and 50 % do not have any financial product, credit or savings, because their income is not enough.

In addition to the products and services offered by financial institutions, a large number of operations that require a certain level of financial education and that have to do with electronic commerce are carried out on a daily basis through technology and globalization. Morales and Morales (2014), refer in this regard that technology has changed people's way of life, for example, expediting procedures between companies and taxpayers, which requires companies to adapt their way of operation to comply with requirements established by the State.

In this sense, it is indeed desirable that people are financially educated to be able to make efficient use of the products and services offered by financial institutions, it is logical to think that for graduated in the area of accounting it is essential to have a high level of education in financial matter to be able to perform in their professional field.

Therefore, the following research question arises:

RQ1: What is the level of financial education of public accounting graduated in Veracruz?

## **2. Literature review**

The economic strategies proposed from various approaches point to greater global financial literacy. Kharchenko (2011) points out that one of the global initiatives aimed at this objective was initiated by the OECD in March 2008, when an international gateway for financial education was established. Another important initiative was that of the World Bank with the project of consumer protection and financial education, aimed at evaluating and improving financial education worldwide.

Montoya (2005) points out that financial education must be for life, due to people's constant change, their own circumstances and motivations, and the existing information on the economy of the country and the world.

Lusardi (2008) conducted a study in the United States where he demonstrated that financial illiteracy is widespread and particularly acute among specific groups, including those with low education, in women and minorities such as older people with an average age of 65 years, who showed an alarmingly low level of financial education. Lusardi and Mitchell (2008) in turn reported that finance experts are more likely to plan and succeed based on formal methods such as retirement calculations, rather than guided by the opinions of family members, relatives or co-workers.

Schuchardt, Sherman, Tahira, Lyons, Palmer and Jing (2009) argue that education is the collective hope for better financial behavior. For their part, Mandell and Schmid (2009) identified that people's financial behavior is positively influenced when they have received courses on personal financial management at an early age, for example, at a secondary level. In this regard, Lusardi and Mitchell (2009) in the United States demonstrated that the level of financial education is higher when consumers have been exposed to knowledge about economics in school and in employer-sponsored programs.

Financial education could be adopted to impart knowledge, direct behavior and promote some skills in students, according to Shafii, Shahwan, Salleh, Ibrahim, Arif, Alwi, and Sopian (2018).

On the subject of financial education Arcos (2010) points out that domestic, family, social or survival economic strategies are some of the names used to generically call the rational actions of social units, either in the form of a domestic group or family unit, aimed at defending their interests and resisting the onslaught of different economic models, which necessarily has implications in financial education.

Financial education is required so that consumers of financial products and services are well informed and can make better decisions. In addition, so that they are able to identify those products that are not suitable for their personal purposes, and that prove to be very expensive, for example, some credit cards or mortgage loans with variable rates (Lusardi, Mitchell, 2014).

Álvarez, Páramo and Carpio (2011) point out that, in order to properly manage an estate, a financial intervention is required based on a strategy that integrates financial education, technical capabilities and knowledge of banking legislation itself. Financial decisions related to asset creation, future planning or debt management require the ability to perform calculations. Improving numerical ability and teaching mathematical skills between school and the young can be useful not only in the labor market but also to achieve good financial decisions throughout life (Lusardi, 2012).

Financial education is the first step to achieve financial inclusion. Financial education is considered an important complement to promote financial inclusion, financial development and, ultimately, financial stability. There is a relationship between behavior and knowledge (Ramachandran, 2011; Atkinson, Messy, 2012), which suggests a positive association for any country: when knowledge increases, so does behavior.

Babajic, Okicic and Kokorovic (2018), point out that easy access to financial products and services is one of the key contributing factors for young people to make their own economic decisions. The more financially aware they are, the greater their chances of making decisions about having a savings account, a debit or credit card, and become more easily and quickly involved in various social groups.

In Mexico, financial education actions have proved insufficient to increase the degree of financial culture of the population and thereby increase people's life quality, while benefiting from financial institutions and the country's economy growth (Amezcuca et al., 2014). The public policy challenge of bringing financial education at an early age and bringing financial products and services to those especially vulnerable groups remains.

An important part of the population depends on the advice of their accountants, so it is essential that these professionals have a solid base of basic financial education to better serve their clients (Rakow, 2019).

In order to answer the research question, the following objectives are proposed: evaluate the level of education that public accounting graduated have in Veracruz, describe the knowledge that accounting graduated have about the calculation of interest rates, inflation, credit card management, savings and investment and budget. For this, the following hypotheses are proposed:

Hi1: Most accountants understand the behavior of interest rates and their effect.

Hi2: More than 50 % of accountants understand inflation.

Hi3: More than 50 % of the accountants understand the use of the credit card.

Hi4: More than 50 % of accountants understand what savings are.

Hi5: Most accountants keep a budget of their personal finances.

### 3. Methodology

The present empirical study is approached from the hypothetical deductive paradigm. It is a non-experimental design work since there is no manipulation of the independent variables (X) that modify the effect (Y). In addition, the study is cross-sectioned, since the field study is carried out in a single moment.

#### 3.1 Population and sample

In order to obtain the data, students of a fiscal course that was held at the College of Public Accountants of the State of Veracruz, Ver., from August 30 to October 18, 2018, were surveyed. The sample is non-probabilistic for convenience, since all of the students of the course referred to above were considered.

#### 3.2 Instrument

For the field work, the survey designed by Moreno-García, García-Santillán and Gutiérrez (2017) called the Financial Education Survey was used, which consists of two sections: the profile section of the respondent and the knowledge section on calculation of interest rate, inflation, credit card management and budget with a total of 28 items. Answers are multiple choice.

#### 3.3. Analysis of data

The data is analyzed descriptively to identify the frequencies of the sociodemographic profile of the participants about: age, gender, marital status, education among other indicators. To test the hypotheses: H1 to H25, the Z test of the assertion of the proportion was used, where  $p > 0.5$ , so the null and alternative hypotheses are of the form.  $H_0: p \leq 0.5$  and  $H_1: p > 0.5$  (Triola, 2004). Therefore, the decision criterion establishes: a). – Error type I. Rejects null hypothesis when  $(H_0) P \leq 0.5$  b). – Error type II. No null hypothesis is rejected when  $(H_0) P > 0.5$  so the decision criterion will be: reject  $H_0$  if Z calculated  $> Z$  tables, otherwise do not reject.

### 4. Analysis and interpretation of the information

The frequencies obtained from the sociodemographic profile are shown below: gender, age, marital status, employment status, position and income.

**Table 1.** Gender, age and civil status

Gender	Frequency	% valid	% accumulated
Male	26	49.1	49.1
Female	27	50.9	50.9
Total	53	100.0	100.0
Age	Frequency	% valid	% accumulated
18 a 21	3	5.7	5.7
>21 a 25	11	20.8	26.5
>25 a 30	11	20.8	47.3
>30 a 40	13	24.5	71.8
>50 a 60	10	18.9	90.7
>60	5	9.3	100.0
Total	53	100.0	
Civil status	Frequency	%valid	% accumulated
Co-habitant	8	15.1	15.1
Divorced	4	7.5	22.6
Married	15	28.3	50.9
Single	26	49.1	100.0
Total	53	100.0	

Source: own

Table 1 shows the result of the variables gender, age and marital status, the frequencies are as follows: in gender it is observed that there was a very balanced assistance (50-50). The age range of 21 to 40 years presents a 66.1 %, the highest percentage is of single accountants with 49.1 %, of the latter we could think that of this studied population, they are currently more interested in their professional careers than in starting a family, since the responsibilities acquired with it as well as

the expenses that they entail are greater. It was observed that married people were only 28.3 % of the sample.

In relation to the position they occupy and the economic income they receive, the results are shown in [Table 2](#):

**Table 2.** Position and income

Position	Frequency	% valid	% accumulated
Operative	5	9.4	9.4
Administrative	31	58.5	67.9
Middle management	13	24.5	92.5
Owners	4	7.5	100.0
Total	53	100.0	
Income (\$USD)	Frequency	% valid	% accumulated
<\$150	5	9.4	9.4
\$150 up to \$249	4	7.5	17.0
\$250 up to \$399	10	18.9	35.8
\$400 up to \$649	17	32.1	67.9
\$650 up to \$1,000	10	18.9	86.8
>\$1,000	7	13.2	100.0
Total	53	100.0	

Source: own

In the labor sector, the highest data correspond to the graduated currently working in the administrative area with 58.5 %. The highest range of income obtained by the individuals ranges from \$ 8,000.00 to \$ 12,999.00 with 32.1 %, followed by those who receive between \$ 13,000.00 and \$ 20,000.00 with 18.9 %, (percentage similar to the salary range of \$ 5,000 to \$ 7,000). These amounts of income in Mexico, are very common salaries in those companies who have their accounting and financial departments.

Regarding the frequencies on the knowledge presented by the respondents towards the variables under study, the following results were obtained:

For the variable interest rate calculation, [Table 3](#) shows the frequencies of the indicators CTI1, CTI2 and CTI3:

**Table 3.** Interest Rate Indicators

CTI1 (If anual inflation rate is 2%, after one year, how much could you buy with the money from this account?)			
	Frequency	% valid	% accumulated
More than today	2	3.8	3.8
The same than today	8	15.1	18.9
Less than today	43	<b>81.1</b>	100.0
Total	53	100.0	
CTI2 (If interest rate increases, what will happend with bonds price?)			
	Frequency	% valid	% accumulated
Increases	18	34.0	34.0
Decreases	15	28.3	62.3
Remains the same	5	9.4	71.7
There is no relation	8	15.1	86.8
I don´t know	6	11.3	98.1
I prefer not to answer	1	1.9	100.0
Total	53	100.0	
CTI3 (A 15-year mortgage usually requires higher monthly payments than a 30-year mortgage, but the total interest paid during the loan will be lower.)			
	Frequency	% valid	% accumulated

True	40	75.5	75.5
False	8	15.1	90.6
I don't know	3	5.7	96.2
I prefer not to answer	2	3.8	100.0
Total	53	100.0	

Source: own

The results shown in Table 3 show that 81.1 % of respondents understand the relationship between inflation and interest rate, only 28.3 % know the relationship between the interest rate and the price of bonds and in the calculation of long and medium term interest rate payments, 75.5 % answered correctly.

In relation to inflation, table 4 shows that 47.2 % know how to protect their savings against inflation, 24.5 % do not have a clear idea of how and that 28.3 % are unaware.

**Table 4.** Inflation

Are your savings protected against current inflation?	Frequency	% valid	% accumulated
Yes, if I invest my money in financial products that provide me returns above inflation.	25	47.2	47.2
Yes, if the bank where I am saving informs me that I have high returns.	13	24.5	71.7
c) I don't know	15	28.3	100.0
Total	53	100.0	

Source: own

Table 5 presents the savings variable, based on four indicators: AeI5 (What is saving?), AeI6 (What is the main reason why you save or would save?), AeI7 (How do you determine what you save?) and AeI8 (When you have money left, what do you usually do with it?).

**Table 5.** Indicators of the Savings Variable

<i>AeI5</i>	Frequency	% valid	% accumulated
Save the money	13	24.5	24.5
Have money for emergencies	3	5.7	30.2
Have money for the future	11	20.8	50.9
Do not spend	2	3.8	54.7
Have money available	12	22.6	77.4
Have money in the bank	5	9.4	86.8
Economic security	7	13.2	100.0
Total	53	100.0	
<i>AeI6</i>	Frequency	% valid	% accumulated
Just save	2	3.8	3.8
Personal care	12	22.6	26.4
Retirement	19	35.8	62.3
Unemployment	11	20.8	83.0
Education	9	17.0	100.0
Total	53	100.0	
<i>AeI7</i>	Frequency	% valid	% accumulated
Save what is left over	11	20.8	20.8
Save to buy	10	18.9	39.6
Habit of saving	29	54.7	94.3

Not enough to save	3	5.7	100.0
Total	53	100.0	
<i>Ael8</i>	Frequency	% valid	% accumulated
Don't save	2	3.8	3.8
Don't have enough to save	5	9.4	13.2
Saving	26	49.1	62.3
Pay debts	13	24.5	86.8
Entertainment expenses	7	13.2	100.0
Total	53	100.0	

Source: own

The results indicate that 24.5 % think that saving is saving money, while 22.6 % considered that having money available was a better option and 3.8 % reasoned that the simple fact of not spending would be an adequate synonym for saving. While what would be expected as the right answer would be option A, it seems that they have a clear idea of what should be done to save. 35.8 % of respondents save for old age, 22.6 % save for personal expenses and 3.8 % only save it for no apparent reason.

54.7 % of the accountants surveyed said that they save for a habit they have acquired, however 5.7 % do not make enough money to do this practice. In relation to the use that is given to money when there are surpluses, we observe that 49.1 % of the sample saves it, 24.5 % allocates it to pay debts and 3.8% chooses to spend it.

Table 6 presents the main reason why these individuals save or would save. The result shows that 28.3 % choose to save it for old age, 22.6 % for emergencies and 20.8 % to attend to health problems.

**Table 6.** Saving

<i>Ael9</i>	Frequency	% valid	% accumulated
Health care	11	20.8	20.8
Emergency fund	12	22.6	43.4
Food	1	1.9	45.3
Housing	3	5.7	50.9
Education	5	9.4	60.4
Unemployment	2	3.8	64.2
Retirement	15	28.3	92.5
Personal care	2	3.8	96.2
Just save	2	3.8	100.0
Total	53	100.0	

Source: own

Table 7 shows the results related to the investment variable. Three indicators are analyzed: what is the main reason why you have never had or would not have a savings, deposit or investment account? What is an investment for you? And, where do you save your emergency savings?

**Table 7.** Indicators of the investment variable

<i>Investment10</i>	Frequency	% valid	% accumulated
Not enough money to save or invest	8	15.1	15.1
Not interested	2	3.8	18.9
Distrust	4	7.5	26.4

They ask many requirements	3	5.7	32.1
Interest rate is very low	25	47.2	79.2
Bank fees are very high	5	9.4	88.7
Initial deposit is high	4	7.5	96.2
I don't know how	2	3.8	100.0
Total	53	100.0	
<i>Investment11</i>	Frequency	% valid	% accumulated
Buy to get profits	12	22.6	22.6
Money in a business	2	3.8	26.4
Profits	4	7.5	34.0
Future benefit	12	22.6	56.6
Get the money work	13	24.5	81.1
Buy assets	2	3.8	84.9
Yields	8	15.1	100.0
Total	53	100.0	
<i>Investment12</i>	Frequency	% valid	% accumulated
Short term financial instruments	30	56.6	56.6
Long term financial instruments	9	17.0	73.6
I don't have emergency fund	14	26.5	100.0
Total	53	100.0	

Source: own

The results show that 47.2 % do not have or will have a savings or investment account because they considered that the interest rate is very low, however 3.8 % of the sample said they are not interested and an equal percentage that does not know how to invest. The results also show that the accountants surveyed, for the most part, have a correct concept of what it is to invest, although their responses were varied. 24.5 % say that it is to put money to work and 3.8 % agree that it is the act of buying goods or when money is available to start a business.

Finally, regarding investment options, 56.6 % responded that they prefer short-term liquid instruments, 26.5 % choose not to make savings and 17.0 % choose long-term instruments.

Tables 8 and 9 present results regarding the management that this population makes of a credit card.

**Table 8.** Credit card variable

MCT14		Frequency	% valid	% accumulated
	Never	7	13.2	13.2
	Sometimes	35	66.0	79.2
	Always	11	20.8	100.0
	Total	53	100.0	
MCT15		Frequency	% valid	% accumulated
	Ge into debt	18	34.0	34.0
	Do not pay and lose patrimony	8	15.1	49.1
	Pay a high interest rate	27	50.9	100.0
	Total	53	100.0	
MCT16		Frequency	% valid	% accumulated
	Yes	34	64.2	64.2
	No	19	35.9	100.0
	Total	53	100.0	
MCT16.1		Frequency	% valid	% accumulated
	1-2	25	47.2	47.2
	3-4	11	20.8	67.9
	More than 4	2	3.8	71.7



	I don't have credit card	15	28.3	100.0
	Total	53	100.0	
MCT16.2		Frequency	% valid	% accumulated
	Pay the total amount	26	49.1	49.1
	Pay a little more than the minimum	16	30.2	79.2
	Pay the minimum	11	20.8	100.0
	Total	53	100.0	
MCT17		Frequency	% valid	% accumulated
	To buy when there is no money	16	30.2	30.2
	To carry less cash	12	22.6	52.8
	Unforeseen	23	43.4	96.2
	Avoid assaults	1	1.9	98.1
	To buy in department stores	1	1.9	100.0
	Total	53	100.0	
MCT18		Frequency	% valid	% accumulated
	Cash	9	17.0	17.0
	Credit card	8	15.1	32.1
	Debit card	36	67.9	100.0
	Total	53	100.0	

Source: own

The results show in a global way that the sample surveyed presents an adequate level of knowledge in this subject.

The main findings have to do with the frequency with which it is customary to read or learn about this financial product (MCT14), in this case, 66.0 % get informed occasionally and 20.8 % perform this activity continuously, however, 13.2 % are never informed about the terms and conditions of their credit card showing the lack of interest in it. 50.9 % of the respondents perceive that the main risk of buying with a credit card (MCT15) is to pay high interest and 15.1 % consider that they may not pay and lose their assets.

64.2 % have a credit card (MCT16) and most of them (47.2 %) only have one or two cards. 28.3 % do not occupy this instrument (MCT16.1). When questioning about how they pay for purchases made with their credit card (MCT16.2), 47.2 % make the payment of the total amount and only 20.8 % choose to make the minimum payment.

Regarding the MCT17 indicator on what is the main advantage when using the credit card, 43.4 % say that it should be used for emergencies and 30.2 % considered it a useful instrument to be able to consume when there is no money available.

Finally, Table 9 shows that 67.9 % prefer to occupy their debit card while 17.0% choose to bring cash and 15.1 % opt for credit card management (MCT18).

**Table 9.** Credit card variable

MCT19		Frequency	% valid	% accumulated
	Bank branch	14	26.4	26.4
	ATM's	22	41.5	67.9
	Internet	17	32.1	100.0
	Total	53	100.0	
MCT20		Frequency	% valid	% accumulated
	Always	23	43.4	43.4
	Sometimes, unhelpful	21	39.6	83.0
	I don't know what the total annual cost is	9	17.0	100.0
	Total	53	100.0	
MCT21		Frequency	% valid	% accumulated
	No, I cancel the ones I don't use	40	75.5	75.5
	Yes, every card is useful	10	18.9	94.3

	I use all of them, I finance with some	3	5.7	100.0
	Total	53	100.0	
MCT22		Frequency	% valid	% accumulated
	Yes, I register it	41	77.4	77.4
	Sometimes I forget it	10	18.9	96.2
	No, I pay when I have money	2	3.8	100.0
	Total	53	100.0	
MCT23		Frequency	% valid	% accumulated
	Finance me 50 days without interest	23	43.4	43.4
	To cover unforeseen expenses	28	52.8	96.2
	To complete family spending	2	3.8	100.0
	Total	53	100.0	
MCT24		Frequency	% valid	% accumulated
	According to my needs	43	81.1	81.1
	It has an adequate TAC	8	15.1	96.2
	It gives me status	2	3.8	100.0
	Total	53	100.0	

Source: own

Table 9 shows the rest of the indicators used to measure the credit card variable. The MCT19 indicator shows that 41.5 % choose to carry out their operations through ATMs, 32.1 % have the possibility of doing them through the internet and 26.4 % prefer to go to the bank.

For item MCT20 on the choice of a credit, comparing the Total Annual Cost of each option, 43.4 % of the sample always indicates that this comparison is made in a timely manner, however, 17 % do not know what the TAC is. Regarding what the respondents do with the credit cards they do not use (MCT21), 75.5 % indicated that they cancel them, 18.9 % mention that they do not cancel them since at some point they may be useful and 5.7 % say they use them all as they finance the debts of other cards.

Regarding the payment date of their credit card (MCT22), 77.4 % said they keep a record in their calendar or add a notification on their cell phone so as not to forget it, although 18.9 % accepted that sometimes they forget causing them a commission payment and 3.8 % choose to pay it when they have money.

Finally, the indicators MCT23 and MCT24 show that 52.8 % consider that the credit card is more useful to cover unforeseen expenses, and in terms of choosing a card, they do this according to their needs and also because it has the most adequate TAC.

Finally, table 10 presents the results obtained on the knowledge that this group of professionals has about the budget variable. In this regard we can say that the result globally allows us to think that the level of understanding towards the subject is high.

**Table 10.** Budget

Pre25	Frequency	% valid	% accumulated
Yes	42	79.2	79.2
No	11	20.8	100.0
Total	53	100.0	
Pre26	Frequency	% valid	% accumulated
Yes	48	90.6	90.6
No	5	9.4	100.0
Total	53	100.0	
Pre27	Frequency	% valid	% accumulated
Yes	50	94.3	94.3
No	3	5.7	100.0
Total	53	100.0	

Source: own

As it can be seen, the frequencies of the cases in which they are accustomed to keeping track of their operations (debts, expenses, income and savings) were 79.2 %. 90.6 % said they knew how to make a budget and 94.3 % considered that they had an adequate budget and only 5.7 % said they failed to manage their expenses within their economic possibilities.

In this way the descriptive analysis is concluded, to give way now to the hypothesis test, for which, we start from the following data.

Starting from the assumption that:  $H_0: p = 0.5$  and  $H_1: p > 0.5$  we have:

To calculate  $\hat{p} = x/n$  we must look for the number of possible answers in each item. For this, those survey questions that allow identifying the knowledge that the surveyed accountants have towards the study variables based on the established hypotheses are selected. The summary of the correct and incorrect cases that will serve as a basis for the hypothesis contrast is shown in table 11:

As we can see in [Table 12](#), the results of the hypothesis test in all cases gave evidence for the rejection of the null hypotheses, that is, the respondents correctly answered in most cases the questions related to: calculation of interest rates, inflation, savings and investment, credit card management and budget.

Now, the result must be taken with a lot of caution, since the number of cases, in this case 53, turns out to be very low and we could not make a more generalizable inference. Although, due to its characteristics, it could be thought that the result seemed very predictable, however, it should not necessarily be so, since in a study by Moreno-García, García-Santillán and Tiburcio (2013) they found that students in this specialty of accounting, presented a low level of knowledge in these financial topics.

## **5. Conclusion**

On the result of the descriptive study we can say in a general way that among the accountants who participated in the study there is an acceptable level of financial education. In most of the items analyzed, the responses ranged from regular to adequate, given the frequency of the responses to the correct options.

It should be noted that the theoretical-practical link is notorious in this surveyed population, that is, they have received university training in these subjects and apparently they are putting it into practice in their professional activity. It highlights, for example, the widespread use of a budget for the management of their finances, however, it became clear the ignorance that a significant percentage of the respondents had about the relationship between the interest rate and the price of bonds, the way to protect their savings from inflation and the efficient handling of a credit card.

The result obtained in the hypothesis test yielded sufficient evidence to reject the null hypotheses in all cases. This leads us to think that the group of accountants surveyed is very clear about how interest rates and inflation behave and how savings, investment, credit cards and budgets are managed. The result of this research coincides with the work of Contreras-Rodríguez, García-Santillán and Moreno-García (2017) who conducted a study in high school students who soon entered the financially adult age and identified that the perception they have about financial topics is good, however, the majority of students surveyed answered incorrectly on the subject of inflation. That is, students are unaware of the impact that inflation has on wages, salaries and pensions.

Results of this study, showing that this group of accountants have adequate level of financial education contrast with the low level of financial literacy found by researches in different populations over the world (Lusardi, Mitchell, 2011a, 2011b; Berhman et al., 2010). This could suggest that there is a difference between those who studied a program that provide mathematical skills and the understanding of basic economic and financial concepts and those who never studied that topics.

## **6. Limitations of the study**

Case study facilitates the obtention of data and information and allows the analysis of a population with similar reasons and motivations. In this case, case study let the possibility to evaluated the level of financial education of graduates of public accounting program in Veracruz. Despite this, the sample size is recognized as a limitation of the study.

## 7. Further research and suggestion of future work

The results invite to evaluate financial education of accountants comparing different programs from where they graduated in order to identify the relationship between levels of financial education and the type subjects included in the programs they studied.

The literature argues that math abilities stimulate logical thinking and the capacity to solve problems, positively affecting long term planning and the understanding of financial terms. Another interesting research possibility is to compare the levels of financial education of populations graduated from different degree programs with different levels of math knowledge each.

## References

- Álvarez et al., 2011 – Álvarez, L., Páramo, T., Carpio J. (2011). De la Inclusión Financiera a la Intervención Social: Una Experiencia en el Sureste de México. *Nova Scientia*, 4. [Electronic resource]. URL: <http://corneey.com/wZHIwJ>
- Amezcuca et al., 2014 – Amezcuca, E., Arroyo, M., Espinosa, F. (2014). Contexto de la Educación Financiera en México. *Ciencia Administrativa*, 1. [Electronic resource]. URL: <https://bit.ly/2lQ2dPK>
- Arcos, 2010 – Arcos, G. (2010). La Educación Financiera y su Influencia en la Estrategia Crediticia del Productor Cañero en el Centro de Veracruz. (Tesis de Maestría en Ciencias). Colegio de Postgraduados, Veracruz. Disponible en: Colegio de Postgraduados, Tepetates, Ver.
- Atkinson, Messy, 2012 – Atkinson, A., Messy, F. (2012). Measuring Financial Literacy: Results of the OECD/International Network on Financial Education (Infe) Pilot Study, OECD Working Papers on Finance, Insurance and Private Pensions, 15. OECD Publishing. DOI: <https://doi.org/10.1787/5k9csfs90fr4-en>
- Babajic et al., 2018 – Babajic, A., Okicic, J., Kokorovic, M. (2018). Identification of Barriers to Financial Inclusion Among Youth. *International Business Research*, 11 (7). Published by Canadian Center of Science and Education. DOI: <https://doi.org/10.5539/ibr.v11n7p120>
- Banamex – UNAM, 2008 – Banamex – UNAM (2008). Primera Encuesta sobre Cultura Financiera en México. [Electronic resource]. URL: [https://www.banamex.com/compromiso-social/pdf/encuesta\\_corta\\_final.pdf](https://www.banamex.com/compromiso-social/pdf/encuesta_corta_final.pdf)
- Banamex – UNAM, 2014 – Banamex – UNAM (2014). Cultura Financiera de los jóvenes en México. [Electronic resource]. URL: <https://www.banamex.com/compromiso-social/pdf/culturafinancieradelosjovenes.pdf>
- Behrman et al., 2010 – Behrman, J., Mitchell, O., Soo, C., Bravo D. 2010. Financial Literacy, Schooling, and Wealth Accumulation. NBER WP.
- Contreras Rodríguez et al., 2017 – Contreras Rodríguez, B., García-Santillán, A., Moreno-García E. (2017). Nivel de conocimiento que tienen los alumnos de nivel medio superior en tópicos financieros sobre gasto y crédito, ahorro e inversión y la administración del dinero. *International Journal of Developmental and Educational Psychology*, 2 (1): 487-511. DOI: <http://dx.doi.org/10.17060/ijodaep.2017.n1.v2.962>
- Kharchenko, 2011 – Kharchenko, O. (2011). Financial Literacy in Ukraine: Determinants and Implications for Saving Behavior. (Thesis MA in Economics Kyiv School of Economics). [Electronic resource]. URL: <https://goo.gl/1ehvmW>
- Lusardi, Mitchell, 2008 – Lusardi, A., Mitchell O. (2008). Planning and Financial Literacy: How do Women Fare? National Bureau of Economic Research Working Paper No. w13750. DOI: <http://dx.doi.org/10.3386/w13750>
- Lusardi, Mitchell, 2009 – Lusardi, A., Mitchell, O. (2009). How Ordinary Consumers Make Complex Economic Decisions: Financial Literacy and Retirement Readiness. National Bureau of Economic Research 1050 Massachusetts Avenue Cambridge, MA 02138 September 2009. [Electronic resource]. URL: <https://tinyurl.com/y76a6ha3>
- Lusardi, Mitchell, 2014 – Lusardi, A., Mitchell, O. (2014). The Economic Importance of Financial Literacy: Theory and Evidence. *Journal of Economic Literature*, 52(1): 5-44. [Electronic resource]. URL: <https://bit.ly/2TZedBm>
- Lusardi, 2008 – Lusardi, A. (2008). Financial Literacy: An Essential Tool for Informed Consumer Choice? National Bureau of Economic Research Working Paper No. w14084. DOI: <http://dx.doi.org/10.3386/w14084>

**Lusardi, 2012** – Lusardi, A. (2012). Numeracy, financial literacy and financial decision-making. National Bureau of Economic Research Working Paper No. w17821. DOI: <http://dx.doi.org/10.3386/w17821>

**Lusardi, Mitchell, 2011a** – Lusardi, A., Mitchell O. (2011). Financial Literacy and Planning: Implications for Retirement Security and the Financial Marketplace. (A. Lusardi, and O. S. Mitchell, Edits.) Oxford: Oxford University Press.

**Lusardi, Mitchell, 2011b** – Lusardi, A., Mitchell O. (2011). Financial Literacy around the World: An Overview. *Journal of Pension Economics and Finance*, 10 (4): 497-508.

**Mandell, Schmid, 2009** – Mandell, L., Schmid, L. (2009). The impact of financial literacy education on subsequent financial behavior. *Journal of Financial Counseling and Planning*, Vol. 20, Is. 1. [Electronic resource]. URL: <http://ssrn.com/abstract=2224231>

**Montoya, 2005** – Montoya, P. (2005). Educación Financiera. Estudio aplicado a: Comisión Federal de Electricidad Zona Metropolitana Poniente. (Tesis de Maestría, Universidad Autónoma de Nuevo León). [Electronic resource]. URL: <https://bit.ly/2PPGcRV>

**Morales, Morales, 2014** – Morales, J., Morales A. (2014). Planeación financiera. Grupo Editorial Patria. [Electronic resource]. URL: <https://bit.ly/2EuqZPR>

**Moreno-García et al., 2013** – Moreno-García, E., García-Santillán A., Munguía J. (2013). Some Aspects About Financial Knowledge of Undergraduate Students. *International Journal of Management and Sustainability*, Vol. 2, Núm. 4, pp. 40-62. [Electronic resource]. URL: <https://bit.ly/2TBBsgt>

**Moreno-García et al., 2017** – Moreno-García, E., García-Santillán, A., Gutiérrez-Delgado L. (2017). Nivel de Educación Financiera en Escenarios de Educación Superior. Un Estudio Empírico en Estudiantes del Área Económico-Administrativa. *Revista de Investigación en Educación Superior* 8 (22): 163-183. Retrieved from: <https://bit.ly/2tVc1fa>

**OCDE, 2018** – OCDE, 2018. Effective financial education for sustainable and inclusive growth. 5th OECD-GFLEC Global Policy Research Symposium to Advance Financial Literacy de OECD Conference Centre. Paris, France. [Electronic resource]. URL: <https://www.oecd.org/daf/fin/financial-education/FinLit-Paris-2018-Proceedings.pdf>

**Power, 2018** – Power, C. (2018). Education development: Importance, challenges and solution. *The Student Economic Review*, 28. [Electronic resource]. URL: <https://www.tcd.ie>SER>colin-Pow>

**Rakow, 2019** – Rakow, K. (2019). Incorporating financial literacy into the accounting curriculum. *Accounting Education*, 1-17. DOI: 10.1080/09639284.2019.1578247

**Ramachandran, 2011** – Ramachandran, R. (2011). Financial Literacy – The Demand Side of Financial Inclusion, 26th SKOCH Summit 2011, Swabhimani-Inclusive Growth and Beyond 2nd & 3rd June, Mumbai, India. [Electronic resource]. URL: <https://ssrn.com/abstract=1958417> DOI: <http://dx.doi.org/10.2139/ssrn.1958417>

**Ramos-Hernandez et al., 2017** – Ramos-Hernandez, J., García-Santillán, A., Moreno-García E. (2017). Educación Financiera: Una Aproximación Teórica desde la Percepción, Conocimiento, Habilidad, y Uso y Aplicación de los Instrumentos Financieros. *International Journal of Developmental and Educational Psychology. INFAD Revista de Psicología*, 2(1): 267-278. DOI: <https://doi.org/10.17060/ijodaep.2017.n2.v2.888>

**Schuchardt et al., 2009** – Schuchardt, J., Sherman, H., Tahira, H., Lyons, A., Palmer, L., Jing, X. (2009). Financial Literacy and Education Research Priorities. *Ciencia Administrativa*, 1. [Electronic resource]. URL: <https://bit.ly/2ASDnaj>

**Shafii et al., 2018** – Shafii, Z., Shahwan, S., Salleh, S., Ibrahim, N., Arif, H., Alwi, K., Sopian S. (2018). Educating Children on Financial Management Using an Interactive Tool: A Case Study On Product Development Stages for Muamalat Interactive Game. *Reports on Economics and Finance*, 4(4): 159-171. DOI: <https://doi.org/10.12988/ref.2018.8115>

**Triola, 2004** – Triola, M. (2004). Estadística. Novena edición. Pearson Addison Wesley. México ISBN: 970-26-0519-9. [Electronic resource]. URL: <https://bit.ly/2U7mioE>

**Villagómez, 2014** – Villagómez, F. Alejandro (2014). El ahorro para el retiro. Una reflexión para México. *El Trimestre Económico*, 81 (3): 549-576. Fondo de Cultura Económica.