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PAGES: 243-258

ORIGINAL PDF URL: <https://dergipark.org.tr/tr/download/article-file/1131003>

## THE RELATIONSHIP BETWEEN FINANCIAL LITERACY AND INDIVIDUAL FINANCIAL DECISIONS: AN EXPLORATORY STUDY

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### ABSTRACT

The aim of this study is to find out how literate individuals are about financial concepts, whether or not they can manage their funds in a rational way, and to find out whether they are familiar with the services and instruments offered by the banks and other financial institutions from which they can benefit. Also, this study aims to determine the relationship between financial literacy and individual financial decisions. Data of this study were collected in two steps: firstly by using an on-line questionnaire through random sampling method, and secondly through face-to-face interviews. The sample size in this study is 433 participants from Adana city. Chi-square tests were applied to verify the relevance of the relationship between financial literacy and the variables previously identified in the literature. The study results showed that the major factors that have a relationship with financial literacy in Adana are age, gender, income, and individual financial decision about pension. There is no significant relationship between financial literacy and consumer credit or insurance policy. Saving behavior has not been found significant in explaining financial literacy.

**Keywords:** Financial Literacy, Financial Decision Making, City of Adana

## FİNANSAL OKURYAZARLIK VE BİREYSEL FİNANSAL KARARLAR ARASINDAKİ İLİŞKİ ÜZERİNE KEŞİFSEL BİR ÇALIŞMA

### Öz

Bu çalışmanın amacı bireylerin finansal kavramlar hakkındaki bilgi düzeylerini belirlemek, bankalar ile diğer finansal kurumların sunmuş oldukları hizmet ve ürünlerle ilgili genel bilgi sahibi olup olmadıklarını araştırmaktır. Çalışma ayrıca finansal okuryazarlık ve bireysel finansal kararlar arasındaki ilişkiyi de ortaya çıkarmayı hedeflemektedir. Bunun için Adana ilinde bulunan ve rastgele örneklem metoduyla seçilen 433 kişiyle, internet ve yüz-yüze görüşme yoluyla anket yapılmıştır. Literatürde daha önce tanımlanan değişkenler ile finansal okuryazarlık arasındaki ilişkinin varlığını doğrulamak için ki-kare analizi yapılmıştır. Test sonuçlarına göre yaş, cinsiyet, gelir düzeyi ve emeklilik sistemine dâhil olma kararı ile finansal okuryazarlık arasında ilişki olduğu saptanmıştır. Bireylerin tüketici kredisi alma ve sigorta yaptırma ile ilgili kararları ile finansal okuryazarlık düzeyleri arasında ise anlamlı bir ilişki bulunmamaktadır.

**Anahtar Kelimeler:** Finansal Okuryazarlık, Finansal Karar Verme, Adana İli

### Introduction

In recent years, financial literacy has been the focus of many state-run programs in many European countries. National and international public authorities, as well as private institutions and organizations have been and are developing and increasing several financial literacy programs. New approaches are tried to created to enhance financial education and literacy measures.

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Received/Geliş: 02/06/2020 Accepted/Kabul: 24/12/2020, Research Article/Araştırma Makalesi

Cite as/Alıntı: Vural, G., Beichar, A. (2020), "The Relationship Between Financial Literacy And Individual Financial Decisions: An Exploratory Study", Çukurova Üniversitesi Sosyal Bilimler Enstitüsü Dergisi, cilt 29, sayı 4, s.243-258.

The term financial literacy has been always utilized as an equivalent word for financial education or financial knowledge. This concept is sometimes used in the context of financial aspects to indicate how families' choices are influenced by monetary conditions, and in other instances, it centers barely on fundamental cash administration: planning, sparing, contributing and safeguarding (Hogarth, 2002). It has also been referred to as financial awareness or economics literacy. In finance literature, it is defined as the ability to use knowledge and skills to manage financial resources effectively for a lifetime of financial well-being (Hung, Parker, and Yoong, 2009). It also enables financial service providers to better understand their products, the associated risks and the needs of their customers. It includes trust, confidence, and participation in the formal financial system. Financial literacy, also referred to as financial capability, is an outcome of financial education (Central Bank of Nigeria, 2015).

The Organization for Economic Co-operation and Development (OECD) defined financial education as the process by which consumers/investors improve their understanding of financial products, concepts, and risks. In this process investors through information, instruction and/or objective advice, can develop the skills and confidence to become more aware of financial risks and opportunities. Ultimately they can become more aware of financial risks and opportunities, make informed choices, know where to go for help, and take other effective actions to improve their financial well-being.

If young people are not taught the effective methods to settle on financial decisions, they will probably commit errors tomorrow. Financial literacy gives them the ability to perceive how money works on the planet. This alludes to the arrangement of abilities and learning that enable a person to settle on educated and powerful choices with the greater part of their financial resources (Zettler, 2013). Financial literacy represents much more than basic monetary and budgetary management, because the consumption and saving habits of individuals in their own dwellings reflect on the financial character of the society.

In this context, the purpose of this study is to reveal whether the citizens living in Adana have literacy levels on different financial concepts, whether they are able to manage their funds effectively, and whether they have an idea about the services offered by banks and other financial institutions that they can benefit from.

### **Literature Review**

Financial literacy has consistently expanding significance in our day. Financial literacy aides individuals to become more rational in their financial decision making process by helping them use financial istruments more effectively, make more thorough budgetary plans, and most importantly understand the risk-return relationship. Individuals who understand the risk-return relationship and the content of products and services will make the right investment decisions in line with their risk-return perception while saving, and prefer financing options that they can manage while meeting their funding needs. Thus, over time, individuals become more involved in their own investment, financing and budget arrangements and become more responsible for the decisions they make in these processes. Increasing involvement in these processes as rational individuals will also pave the way for important gains in terms of economy.

Lusardi and S. Mitchell, (2016), conclude that financial literacy is very low around the world, irrespective of the level of financial market development and the type of pension provided. Accordingly, it can be said that the changes and developments in markets do not play an important role in enhancements of financial knowledge. This situation also gives the impression that people have limitations in learning by themselves using their own financial experiences. They also show that retirement planning can be traced back to financial literacy; those can accurately undertake simple calculations, know about inflation, and are knowledgeable about risk diversification, are all more likely to plan for their retirement. Finally, they argue that this relationship is causal: that is, financial literacy influences retirement planning, and not the other way around. Also, Klapper, Lusardi, and Oudheusden (2015) state that only 1 in 3 adults worldwide understand basic financial concepts. Although financial literacy is higher among the wealthy, well educated, and those who use financial service. It is clear that billions of people are unprepared to deal with rapid changes in the financial landscape. They found that the countries with the highest financial literacy rates are Australia, Canada, Denmark, Finland, Germany, Israel, the Netherlands, Norway, Sweden, and the United Kingdom, where about 65 percent or more of adults are financially literate. On the other hand, South Asia is home to countries with some of the lowest financial literacy scores, where only a quarter of adults—or fewer—are financially literate. Pierre-Carl Michaud (2017), says that financial literacy is associated with better financial outcomes, such as more efficient saving and better debt management; in some cases the relationship is shown to be causal. Also they find that Differences in financial literacy may amplify wealth inequality, so early interventions to provide financial literacy may reduce wealth inequality and financial education in schools has been shown to have positive effects on financial behaviors.

Hsiao, Lin, and Dambaravdan (2016), examine how financial literacy and saving behavior affects retirement planning and analyze the difference in retirement planning between respondents with different characteristics. They find a strong, positive relationship between financial literacy and retirement planning; people who are more financially knowledgeable are more likely to plan for retirement. They also find a strong, positive relationship between savings behavior and retirement planning; those who have stronger savings habits are more likely to plan for retirement. Saving habits appear to have a stronger role in explaining retirement planning of individuals than whether they are financially literate. While they consider personal features, they find that females and households classified as average annual income are more actively engaged in retirement planning. Another study, by Kharchenkom and Olga (2011) found that the major factors influencing financial literacy in Ukraine are gender, level of education, occupation, region and wealth. Age and area of residence have not been found significant in explaining financial literacy. With regard to the implications of financial literacy for saving behavior their results suggest that literacy does not have a direct impact on savings when controlling for wealth.

In Sekita's (2011) study used the Survey of Living Preferences and Satisfaction (SLPS) and found that the level of financial literacy is not high in Japan. Most of the respondents answered a simple question about interest rates correctly, but incorrectly answered a question about risk diversification. Many respondents stated they did not

know the answer to the financial literacy questions, which might indicate that Japanese are very cautious and only answer when confident in their response. Women, young people, and those with lower incomes and lower educational attainment have the lowest levels of financial literacy, and financial literacy increases the probability of having a retirement savings plan. Also a study done by Johan Altenburg, (2011), indicate that many adults have low financial literacy. In general, financial literacy levels are lower among the young, the old, women and those with low income or low educational attainment. People who report having tried to plan for retirement have higher levels of financial literacy. Also another study with similar results was carried out by Klapper (2011), which examine the relationship between financial literacy and retirement planning in Russia. They found that only 36% of respondents in the sample understand interest compounding and only half can answer a simple question about inflation. In a country with widespread public pension provisions, they find that financial literacy is significantly and positively related to retirement planning involving private pension funds. Thus, along with encouraging the availability of private retirement plans, efforts to improve financial literacy can be pivotal to the expansion of the use of such funds.

### **Research Methodology**

This research aims to study how the individuals are literate about different financial concepts, how they can manage their funds in an effective way, and whether they are familiar with the services that the banks and other financial institutions offer, from which they can benefit.

The basic method of this research is “a survey method”. The sample is selected randomly as a representation of the total population. An interview consisting of relevant questions was prepared and the data were collected from the local people in Adana. Participants in this survey include various individuals from different walks of life and represent diverse social and economic backgrounds. The data was collected in two steps, on-line and face-to-face questionnaires. The onlie survey allowed us to reach people we could not reach directly; however, not all people use the internet so we tried to reach those people directly via a face-to-face interviews. The full questionnaire used in this study is presented in Appendix 1.

The data of this study was analyzed to identify, describe and explore financial literacy levels of individuals and its effect on individual decisions. The responses gathered from the participants were analyzed using Statistical Package for Social Sciences (SPSS) software.

At the end of the data collection process, questionnaires were checked thoroughly for completeness. Only duly filled instruments by the participants have been used. The quantitative data were analyzed through descriptive statistics which comprise of frequency tables, mean and standard deviation.

The main categories of research questions in this study are listed as shown below:

1. Do individuals have sufficient financial knowledge or are illiterate of financial concepts?
2. Is there any relationship between individuals' education level and their finance knowledge?

3. Is there any relationship between individuals' gender and their finance knowledge?
4. Is there any relationship between individuals' financial decisions and their financial literacy?
5. Is there any relationship between individuals' saving behavior and their finance knowledge?

Once the research questions are set, the study attempts to achieve the following specific objectives in order to have more concrete answers to the questions:

- To clarify the level of finance knowledge
- To identify the factors that have a relationship with financial literacy

Research hypotheses are as follow:

*Hypothesis 1: Demographic characteristics are significantly related to financial knowledge level.*

This hypothesis can be broken into details as follow:

- 1.1.Age is significantly related to individual financial knowledge level.
- 1.2.Gender is significantly related to individual financial knowledge level.
- 1.3.Income is significantly related to individual financial knowledge level.
- 1.4.Education level is significantly related to individual financial knowledge level.

*Hypothesis2: Individual's saving regularity is positively related to individual financial knowledge level.*

*Hypothesis 3: Individual's financial literacy level is positively related to individual financial decisions.*

This hypothesis can be broken into details as follow:

- 3.1.Individual's financial literacy level is related to individual financial decisions (Consumer Credit)
- 3.2.Individual's financial literacy level is related to individual financial decisions (pension system)
- 3.3.Individual's financial literacy level is related to individual financial decisions (the insurance policy)

## **Data Analysis And Implication**

### *Test Validity And Reliability*

First, the reliability test was done to select the suitable test according to data. Reliability of the measure was assessed with the use of Cronbach's alpha. The result of reliability test was  $\alpha=0,838$  ( $\alpha>0,7$ ), therefore data were parametric. Independence T-Test was used to test the hypotheses.

### *Results of Financial Literacy Measurement Survey*

There are five parts to measuring financial literacy: firstly, basic financial literacy of the participants was calculated by some questions related to the general basic economics and finance such as inflation and exchange rates. The second part was about retail banking, and it was measured by some questions related to the banks and their

services. The third part was retirement and insurance, the fourth part was investment and the fifth part was the taxes and legislation.

The poor, fair, good and excellent measures were determined based on the level of correct answers in each category of questions. The questionnaire contained 30 questions in total and each category had a different number of questions, e.g. retail banking category consisted of 6 questions and the basic financial literacy category had 9 questions. The measurement scale for each category is presented in Appendix 2.

**Table 1.** Measurement of Financial Literacy

<i>Financial literacy</i>	<i>Poor</i>	<i>Fair</i>	<i>Good</i>	<i>Excellent</i>
Basic Financial literacy score	17,3%	23,8%	<b>43,0%</b>	15,9%
Retail Banking score	12,7%	28,4%	19,4%	<b>39,5%</b>
Retirement and Insurance literacy score	30,9%	<b>31,4%</b>	30,0%	7,7%
Investment score	35,6%	<b>41,3%</b>	14,1%	9,0%
Taxes and Legislation literacy score	<b>33,9%</b>	31,6%	28,6%	5,8%
<i>Overall Financial Literacy</i>	<i>16,9%</i>	<i><b>40,0%</b></i>	<i>35,6%</i>	<i>7,6%</i>

As Table 1 shows, general knowledge of the participants regarding basic financial literacy topics can be considered good, where majority (43%) answered 4-6 out of 9 questions. It can be inferred that the participants have an excellent level of financial literacy in retail banking, where the majority of the participants (39.5%) correctly answered more than 4 out of 6 questions. Although Basic Economics and Finance topic may seem more familiar and relatively simple than the retail banking, the results showed the opposite.

**Table 2.** General Level of Financial Literacy Results

Value	Meaning	Number of correct answers	% correct answers
1	Poor	0-7	16,9%
2	Fair	8-15	40,0%
3	Good	16-22	35,6%
4	Excellent	23-30	7,6%

Results of the general level of financial literacy tests, as presented in Table 2, reflect that basic financial literacy of the general population in Adana is mostly fair (40%) and good (35,6%).

#### *Results of the Tests of Hypotheses*

There are 6 hypotheses. All tests were done at 95% level of confidence and 0,05 Alpha value. The results are shown below:

**Table 3.** Results of Hypotheses Tests

Hypotheses	P-value	Result
H <sub>1,1</sub> : Age is significantly related to individual financial knowledge level	0,000	<b>Accepted</b>
H <sub>1,2</sub> : Gender is significantly related to individual financial knowledge level.	0,000	<b>Accepted</b>
H <sub>1,3</sub> : Income is significantly related to individual financial knowledge level.	0,000	<b>Accepted</b>
H <sub>1,4</sub> : level of education is significantly related to individual financial knowledge level.	0,119	Rejected
H <sub>2</sub> : Individual's saving regularity is positively related to individual financial knowledge level.	0,264	Rejected
H <sub>3,1</sub> : Individual's financial literacy level is related to individual financial decisions (Consumer Credit)	0,196	Rejected
H <sub>3,2</sub> : Individual's financial literacy level is related to individual financial decisions (pension system)	0,011	<b>Accepted</b>
H <sub>3,3</sub> : Individual's financial literacy level is related to individual financial decisions (the insurance policy)	0,115	Rejected

Four (H<sub>1,1</sub> H<sub>1,2</sub> H<sub>1,3</sub> H<sub>3,2</sub>) out of eight hypotheses have been accepted in the 95% confidence interval. The tests results showed that the major factors that have a relationship with financial literacy in Adana are age, gender, income, level of education, and individual financial decision.

### Results

In this study, it is aimed to determine the financial literacy levels of individuals in Adana and whether they have general information about the services and products offered by banks and other financial institutions. In addition, the relationship between individuals' financial literacy level and their individual financial decisions was analyzed.



The sample size in this study is 433 participants from Adana city. The collected data was analyzed by SPSS and according to these analyses some of the key findings of the study are as follow:

The majority (50.1%) of the participants were female while male represented 49.9% of the participants who took part in the study. The empirical results show that generally the participants had a fair to good knowledge of financial concepts. While 40% correctly answered 8-15, and 35,6% correctly answered 16-30 out of 30 questions.

Our empirical results reveal that the major factors that have a relationship with financial literacy in Turkey are age, gender, income, individual financial decision abot. It means that when the person ages, he or she becomes more literate about financial literacy. Thus, it can be said that maybe people become more interested in time or maybe they get that information through life experiences. Also the test indicates that there is a very clear correlation between the level of literacy and gender; the highest level of correct answers to financial questions has been given by men. This leads to say that men are more interested in financial issues than women.. Income has also a positive relationship with financial literacy. It can be explained that the increase of the income leads people to think more about how to use or save their money and therefore become more interested in the field of investment, which leads directly to increase the level of financial knowledge.

The chi-square test and correlation were used also to understand the relationship between financial literacy and the individual financial decision making through three topics: consumer credit, pension system, and insurance policy, while we found that there is a significant relationship between pension system and financial literacy when the level of financial literacy is higher, people start to be interested in participation in the private pension system. While there is no significant relationship between financial literacy and consumer credit or insurance policy.

Level of education and saving behavior has not been found significant in explaining financial literacy.

The results of the survey carried out with 433 people in the city of Adana indicated that financial literacy among the general population is fairly low. These results should motivate policy makers to implement programs in order to increase the level of financial literacy, especially among women. Because, increasing the level of financial literacy among women will enable that group of the population, which is underrepresented in the economy, to participate more in saving and financial investment type of activities. The positive relationship between pension investments and financial literacy should also signal to policy makers who wish to popularize participation in the pension system to invest firstly in programs to develop financial literacy. It should be noted that the most important factor, may be a prerequisite, for financial literacy to become widespread is the improvement of income distribution, i.e. an enhancement in the spread of income accompanied by an increase in per capita income. Savings are possible only among individuals with a surplus of income and only then, those individuals would be interested in investment opportunities, taking on mortgages or other lump-sum long-term credits, become more savvy about financial market instruments and have a desire to increase their general knowledge of finance.

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**Appendix 1**

**Questionnaire Form**

**Personal Information**

1. Gender: ☐ Female ☐ Male
2. What is your birth year? .....
3. Your marital status: ☐ Married ☐ Single
4. Number of children: ☐ No ☐ 1 ☐ 2 ☐ 3 ☐ 4 and over
5. Education level: ☐ Primary education ☐ High school ☐ University  
☐ Master
6. Job: ☐ students ☐ State officer ☐ Private sector employee ☐ worker ☐  
Own business ☐ Retired ☐ Not working
7. Do you have regular income?  
☐ I have regular income ☐ I have irregular income ☐ I have no income
8. Your average monthly income level?  
☐ Less than 1,500 TL ☐ 1.500 – 3.000 TL ☐ 3001-4500TL  
☐ 4501-6.000 TL ☐ 6.000 and over
9. Number of people living in your home:  
☐ Live alone ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 and over
10. Number of employees at your home:  
☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 and over
11. Total monthly income in your home ?  
☐ Less than 1,500 TL ☐ 1.500 – 3.000 TL ☐ 3001-4500 TL ☐  
4501-6.000 TL ☐ 6.000 and over
12. Do you have a home? ☐ Yes ☐ No
13. Do you have a care? ☐ Yes ☐ No
14. How do you evaluate your family economic situation?  
☐ Not at all satisfactory ☐ not satisfactory ☐ neither satisfactory nor not ☐ Satisfying ☐ Very  
satisfying
15. Specify if you have insurance policy:  
☐ Life insurance ☐ Health insurance ☐ Vehicle insurance ☐ Accident fire theft for your  
home or business ☐ Specify other .....
16. Order your investment preferences from 1 to 6.  
☐ Currency ☐ Gold ☐ Deposit ☐ Real estate (house plot ....) ☐ Stock market ☐ Specify  
other .....
17. Do you follow the economy and finance agenda? ☐ Yes ☐ No
18. From which tools do you follow the economic and financial agenda, list from 1 to 6. ☐ TV ☐  
Internet ☐ Telephone messages ☐ Newspaper ☐ Friends  
☐ Specify other.....
19. Are you included in the private pension system? ☐ Yes ☐ No
20. Do you have insurance policy? ☐ Yes ☐ No
21. Do you have consumer credit? ☐ Yes ☐ No

Please indicate the frequency with which to perform the following expressions

	<b>General Questions</b>	<b>Never</b>	<b>Rarely</b>	<b>Sometimes</b>	<b>Often</b>	<b>Always</b>
22	I can save money individually.					
23	We can save money as a family.					
24	I keep my income and expenditure records individually.					
25	Our parents keep their income and expenditure records.					
26	Use your banking services for your transactions to invest in payment.					
27	In the last 12 months my income (salary, pension, earnings, scholarship etc) has been met by my expenses.					
28	Over the last 12 months, my family's income (salary, pension, earnings, scholarships, etc.) has been met by our parents.					
29	I follow economic and financial indicators (foreign exchange and gold prices, interest rates etc.)					
30	In the past 12 months, I had to borrow again to pay my debts.					
31	I get information from an expert when making a decision about borrowing or investment.					
32	In important monetary decisions, we share the common opinion of our parents.					

Please state your answers to the following amendments.

	<b>Economics and Finance at Basic Level</b>	<b>Right</b>	<b>False</b>	<b>I have no</b>
33	Inflation reduces the purchasing power of money.			
34	inflation rate in Turkey is above 10%.			
35	It is advantageous to borrow if inflation is high.			
36	Only stocks are traded on the stock exchanges.			
37	The name of the securities market in Turkey is Istanbul Stock Exchange			
38	Demand deposits account provides interest income.			
39	The ounce is the measure of precious metals like gold.			
40	The euro is worth more than the dollar.			
41	If the monthly interest rate of the loan is 1%, the annual interest rate is more than 12%.			

	<b>Retail Banking</b>	<b>Right</b>	<b>False</b>	<b>I have no</b>
42	All banks operate with the same transaction fees.			
43	Using a long-term loan is more costly than using a short-term loan.			
44	IBAN is the international bank account number.			
45	EFT is used to transfer money between accounts on the same bank.			
46	Loan application can be made with the help of internet banking.			
47	Stock trading can be done with the help of internet banking.			
	<b>Retirement and Insurance</b>	<b>Right</b>	<b>False</b>	<b>I have</b>
48	The age of the individual is an important role in determining the cost of car insurance.			
49	SSI (Social Security Administration), health insurance is the affiliations of employees in Turkey.			
50	65 The retirement age for everyone in Turkey.			
51	The private pension system is a private pension system that is made up of monthly premium payments.			
52	In order to qualify for retirement in the private pension system, it is necessary to pay contributions for 10 years.			
	<b>Investment</b>	<b>Right</b>	<b>False</b>	<b>I have</b>
53	Your equity is the difference between your total assets and your debts.			
54	If you take the bonds of a company, you become a partner to that company.			
55	When you invest in stocks, you earn interest.			
56	A stock investment is a more risky than a bond investment.			
57	Currency is a savings tool.			
58	Two investments with the same level of return are more risky than the B investment. Therefore, B should be selected from two investments.			
	<b>Taxes and Legislation</b>	<b>Right</b>	<b>False</b>	<b>I have</b>
59	KDV rate is applied as 18% for all products in Turkey.			
60	Before establishing a new business, it is necessary to register with the Chamber of Industry and Commerce.			
61	Every business has to register with the proprietor's tax office.			
62	A "Tax Year" starts on January 1 and ends on December 31.			



**Appendix 2**

**Basic Financial literacy score**

Value	Meaning	Number of correct answers	% of correct answers
1	Poor	0-1	17,3%
2	Fair	2-3	23,8%
3	Good	4-6	43,0%
4	Excellent	7-9	15,9%

**Retail Banking literacy score**

Value	Meaning	Number of correct answers	% of correct answers
1	Poor	0-1	12,7%
2	Fair	2-3	28,4%
3	Good	4	19,4%
4	Excellent	5-6	39,5%

**Retirement and Insurance literacy score**

Value	Meaning	Number of correct answers	% correct answers
1	Poor	0-1	30.9%
2	Fair	2	31.4%
3	Good	3	30.0%
4	Excellent	4-5	7.7%

**Investment literacy score**

Value	Meaning	Number of correct answers	% correct answers
1	Poor	0-1	35,6%
2	Fair	2-3	41,3%
3	Good	4	14,1%
4	Excellent	5-6	9,0%

**Taxes and Legislation literacy score**

Value	Meaning	Number of correct answers	% correct answers
1	Poor	0-1	33,9%
2	Fair	2	31,6%
3	Good	3	28,6%
4	Excelent	4	5,8%