■ STUDIES ■

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Analysis of the Factors that Influence the Financial Literacy of Young People Studying in Higher Education

SUMMARY: Financial literacy and the need to improve it are getting more attention as a result of the economic crisis. The effectiveness of the programmes that target the improvement of financial literacy depends on knowing what factors influence people's financial knowledge. This is exactly the reason why, using the data of the Financial Literacy Research Programme coordinated by the State Audit Office of Hungary, we investigated how the different demographic and educational features of students studying in higher education influence their financial literacy. Our results show that the financial knowledge of young people exhibit significant differences according to the measured criteria. Males, older people, people with a higher income and young people whose income is covered by their family only to a small extent are typically characterised by more advanced financial literacy. The results demonstrate that the financial-economic knowledge acquired in higher education has a beneficial impact on the financial knowledge of young people; on the other hand, the type of training and studies does not have any significant effect. Our analyses also revealed that the teaching of financial-economic topics in secondary school does not have any influence on the level of young people's financial knowledge. The students participating in the study performed better in answering theoretical questions than in the case of practical questions. It is also true of theoretical and practical financial knowledge that males, older people, those who pursue economic studies or who are attend these kinds of courses at university know more about financial matters. At the same time, there are certain differences too. Income and its ratio which comes from the family show a significant correlation only in connection with practical knowledge, while as far as economic training is concerned in secondary schools, we can establish that it exerts a significant – positive – influence only on theoretical knowledge. When examining the educational criteria we found that the economic nature of the training correlates significantly with practical knowledge, while the number of semesters spent on studying subjects related to economics has a stronger positive influence on theoretical knowledge. The results reveal the need for a reform in the teaching of financial-economic knowledge and the introduction of programmes that can generate interest in financial matters.

KEYWORDS: financial literacy, higher education, measurement, regression

JEL CODES: A13, A14, D03, D12, D14, D31, D81, G11, H24, I22, J11

INTRODUCTION

The international financial crisis that broke out in 2008 has had a negative effect on the economy, and through it, on the whole society.

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The global recession was primarily caused by the increased pace of product innovation in the financial sector (Borszéki, 2010; Botos, et al., 2012; Béres & Huzdik, 2012; Biedermann, 2012). Several studies (IRBD, OECD, DFID, CGAP, 2009) have demonstrated that the lack of financial knowledge of the population also

played a significant role in the development of the crisis, as these days, when financial institutions are offering a large number of increasingly complex financial products, this kind of knowledge is getting more and more important.

The 2008 financial crisis has not spared Hungary either but has brought to the surface the shortcomings in the financial literacy of the population. The lack of knowledge in the retail sector mostly resulted in taking higher debt-related risks that went beyond what people could afford and, eventually, in excessive indebtedness. The clearest example of this is provided by people with a foreign currency loan.

However, we should by no means confine the importance of financial literacy to the global crisis, which had spectacular consequences, since finances and financial processes are part of our everyday life.

The development of financial literacy is in the joint interest of every economic agent. At the micro level the households and enterprises with more advanced financial literacy have a greater chance of avoiding financial decisions which are detrimental to them [expensive loans, little savings, lack of (home) budget and financial planning] (IRBD, OECD, DFID, CGAP, 2009; Czakó et al., 2011).

As for macro-economics, *Klapper et al.* (2012) concluded that the more advanced the financial literacy of a society is, the more money people save in that country. In addition, a study conducted with the coordination of the World Bank stresses that the financial literacy of the population also contributes to the stability of the financial system.

Thus, on the basis of the above we can say that the development of financial literacy is of key importance both for the individual and for society.

The State Audit Office of Hungary, the University of Szeged, the Budapest University of Applied Sciences, the Nonprofit Association of Hungarian Financial–Economic Auditors and the ECONVENTIO Roundtable Nonprofit Association signed a cooperation agreement in order to provide a comprehensive picture of the financial education of young Hungarians studying various disciplines in higher education.

Financial literacy and the need to develop it are getting more and more attention globally – especially in the developing economies, including Hungary. The effectiveness of the programmes that target the improvement of financial literacy depends on knowing what factors influence people's financial knowledge. This is exactly the reason why, using the data of the Financial Literacy Research Programme, we investigated how the different demographic and educational features of students studying in higher education influence their financial literacy. Financial literacy can be developed first of all through education. Therefore, we also investigated how the different aspects of education influence the financial knowledge of young people.

In our paper we will first present the concept of financial literacy and its different interpretations. Then we will outline the literature on the topic, which is followed by the introduction of the methods and tools used in our research. Then, by assessing the results of the survey conducted with a questionnaire we examine how the different socio-demographic and training features of students studying in higher education influence their financial literacy. Finally, we summarise the conclusions based on the study.

FINANCIAL LITERACY

The goal of this section is to introduce the reader to the concept of financial literacy and its various interpretations.

Several studies have been conducted on fi-

nancial literacy – especially in the Anglo-Saxon countries. The goal, the target group and the research questions of these studies are extremely varied. This diversity also means that the concept of financial literacy has been defined in many different ways over the course of time.

In general, financial literacy means knowledge of financial matters and the ability to process financial information and make good financial decisions. It is debatable where to draw the line for basic financial knowledge and skills that belong to financial literacy. This line is drawn at different places by different studies and, as a result, they often investigate very different questions using fundamentally different methods. Therefore, the concept of financial literacy can be regarded as quite plastic (Czakó et al., 2011).

Czakó and his colleagues (Czakó et al., 2011) argue that the investigation of financial literacy should also include the cultural factors underlying financial decisions, as financial behaviour is influenced not only by level of awareness and intellectual abilities but also by the values, traditions and norms expressed in cultural orientation.

In Hungary, the National Bank was the first to develop a comprehensive definition which includes several components of the concept of financial literacy:

"A level of financial knowledge and skills that enables individuals to identify the fundamental financial information required to make their conscious and prudent decisions; and after the acquisition of identified data allows them to interpret said data, make decisions on their basis, all the while assessing potential future financial and other consequences of their decisions."(National Bank of Hungary, 2008).

This definition is quite close to the concept of financial literacy, so this is what we accepted as valid for our research.

The measurement of financial literacy – just like its definition – involves the use of several

methods. The simplest, hence the most frequently used method is to measure financial awareness, which can only capture some aspects of financial literacy. Therefore, measurement has recently been extended to investigate the skills necessary to make financial decisions (see Kempson 2009; MNB, 2011).

The situation is more difficult if we also want to measure the normative, value-based and attitudinal components of behaviour, since these cannot be interpreted in terms of better or worse categories. It depends on the concrete situation what kind of behaviour leads to consequences that are beneficial (or detrimental) to the individual. Thus, these components of financial literacy can only be interpreted at the level of nominal measurement. In this sense it is misleading to talk about a high or a low level of financial literacy, as we often see it in the everyday use of the concept (Czakó et al., 2011). Because of limitations of space and the difficulties involved in measuring the attitudinal components of financial literacy mentioned above, we will investigate this aspect only in passing in our paper.

The details of the method developed, in the framework of Financial Literacy Research Programme, for measuring the financial literacy of students studying in higher education will be discussed in the section entitled "Methodology".

PREVIOUS RESEARCH FINDINGS

In general we can say that the level of people's financial knowledge in Hungary is rather low and had hardly changed in the years before the financial-economic crisis (Székely, 2010). For example, most people can hardly understand the economic reports and news in the media (Balázsné, 2007). One of the main problems is that most people have not received any training in financial and economic matters,

so they lack basic knowledge, which makes it hard to learn new things. The lack of adequate knowledge makes it hard to make proper decisions, and therefore, people often take risky positions which result in indebtedness and the lack of savings. (Székely, 2010).

According to the experiences gained in the course of research on the topic, the level of financial knowledge differs in terms of socio-demographic features; 20–40 year-old people with a high level of education and in a sound financial situation are the most skilled in financial matters (Székely, 2010).

A low level of financial literacy is not typical only in Hungary. At the initiative of the OECD International Network on Financial Education (INFE) the level of financial literacy was studied in a pilot project in an international comparison (Atkinson–Messy, 2012). The OECD working group also analysed the research findings along socio-demographic features. On the basis of all this we can establish that in every country there is a positive relationship between education and the level of financial literacy; the financial knowledge of women is much more limited than that of men, and people with higher income typically have more developed financial literacy.

So, on the basis of the literature we can say that people's level of financial literacy differs in terms of socio-demographic criteria. This aspect of financial literacy is much less studied among young people.

The first large-scale research on the topic was conducted in 2006 on behalf of the National Bank of Hungary (MNB, 2006). The research gauged the financial knowledge of 14–30 year-old youngsters by focusing on general financial knowledge and other topics key for financial stability (such as lending, retirement savings, payment services and the use of bank cards). When assessing the findings it turned out that Hungarian youngsters have several shortcomings in terms of financial lit-

eracy. It has been established that although young people think financial knowledge is important, they do not show much interest in the topic. Since they don't know the financial language and the basic financial terms, they are not very interested in the topic. However, according to this study, the lack of financial knowledge is also due to distrust and the unreliability of information sources. The research shows that young people rely on poor information sources, as they typically obtain their knowledge from the advertisements and magazines of service providers. The analysis also addresses which demographic groups of young people are more interested in financial matters. According to the findings, young people (14–17 year olds) living in rural cities and students studying in financial secondary schools are more open, while among older people (18–30 year olds) those living in Budapest, the capital, and people with a job are the most open to this kind of information, with students showing less interest and inactive people (on child benefit or without a job) being the least interested.

Certain studies have shown that financial education is not sufficient for providing adequate information and developing skills, since the attitudes acquired in the family have a greater impact on the future financial behaviour of young people (for instance the propensity to save and take risks) than the knowledge acquired in formal schooling (Hanti, 2011). The study conducted by MasterCard with 1,500 students of Hungarian higher education also showed that young people tend to make decisions on financial matters on the basis of advertisements, and they typically do not compare different offers. Since young people get their information primarily through the traditional media (television and radio), it is worth concentrating the programmes that are meant to develop their financial skills to these media outlets.

The Teacher Training Centre of Corvinus University of Budapest studied the financial knowledge of young people among 14–19 year old secondary school students. The findings of this study showed that 77 per cent of them are ill-informed regarding basic financial concepts; 16 per cent know exactly and 7 per cent know vaguely what is meant by insurance, APR, deposit interest, leasing, shares or a portfolio. They also had a hard time defining what banks do: only 8–8 per cent of them, respectively, could answer the question as to what the task of the national bank was and what role commercial banks played in the national economy.

Another study conducted in 2010 (Kovácsné, 2013) in two secondary schools in western Hungary investigated the financial knowledge and experience of 17–18 year old students. The findings showed that the students obtained most of their knowledge from their parents. This study also examined, as part of financial literacy, the information these young people had regarding transactions that could be made electronically. It was found that the children of parents with lower education are less informed than their peers and are less characterised by conscious consumption of financial products.

METHODOLOGY

The target group of the research was represented by young adults (the 18–25 age group) studying various disciplines in higher education. The sample base consisted of two institutions of higher education which participated in the Financial Literacy Research, the Budapest University of Applied Sciences and the University of Szeged, with a combined total of nearly 38,000 students.

The survey conducted under the Financial Literacy Research Programme involved online data collection using a questionnaire. The questionnaire was queried on www. penzugyikultura.hu between 1 December 2012 and 14 February 2013.

Of the nearly 38,000 students of these two higher education institutions, 5.5 per cent filled out the questionnaire. After cleaning the database, 2,070 records were left for analysis, i.e. that was the number of validly completed questionnaires that could be used for assessment. Of the 2,070 students, 1,743 were between 18 and 25 years of age, so the sample for analysis consisted of this number of items.

The level of financial knowledge of the students participating in the study was measured by using the Financial Knowledge Index (FKI). The items used for calculating the index contained fifty per cent theoretical and fifty practical questions. Although the latter also tested the students' calculation skills, the questions were designed to ensure that any student with an appropriate sense of reality (financial experience) should be able to provide an answer without having to do any calculation.

The value of the FKI was calculated on the basis of the answers given to a set of 20 questions with values between 0 and 1 (the closer the answer is to 1, the better the student's financial knowledge). In order to normalise the values of the Financial Information Index, we performed a transformation using the arcsin function.

In our study we examined how the different socio-demographic features of young people studying in higher education influence their financial literacy. The criteria used in the analysis are shown in *Table 1* broken down into two groups.

During the analysis of the questionnaire we used regression models and variance analysis in addition to descriptive statistical methods. We processed the data with the SPSS software package.

CRITERIA USED IN THE STUDY

Socio-demographic criteria	Criteria related to education
• gender	• type of training (full-time, correspondence, etc.)
• age	• level of education (BSc., MSc., etc.)
• family status	• number of semesters completed studying financial-economic subjects in higher education
• origin (first generation graduate, other)	• type of specialisation (economic, other)
• housing conditions	• has received training in financial-economic topics
• children (yes or no)	• studies abroad
• job (working during studies?)	
• income (level and the ratio of the amount received from the family)	

Source: State Audit Office of Hungary, Financial Literacy Research

THE SOCIO-DEMOGRAPHIC CHARACTERISTICS OF FINANCIAL LITERACY

In our analysis we explored how the different demographic and educational features of students studying in higher education influence their financial literacy. The level of financial literacy was established on the basis of the previously mentioned Financial Knowledge Index (FKI).

The level of financial literacy among students studying in higher education

First we examined the reliability of the test used for the assessment of financial literacy in the questionnaire. To this end, we used the Cronbach alpha index, which expresses the internal consistency of the test with a value between 0 and 1. It is customary to deem the test valid with a value over 0.6. The Cronbach alpha for the set of questions used in our study was 0.63, which means that the reliability of the test is acceptable and the questions measure the same thing – in this case, financial knowledge.

Chart 1 illustrates the distribution of the values of the Financial Knowledge Index in the sample. The smallest value in the sample was 0.15 and the highest value was 0.85. The mean of the FKI was 0.55 with a standard deviation of 0.13. According to this data, the financial knowledge of the students studying in higher education shows a significant difference.
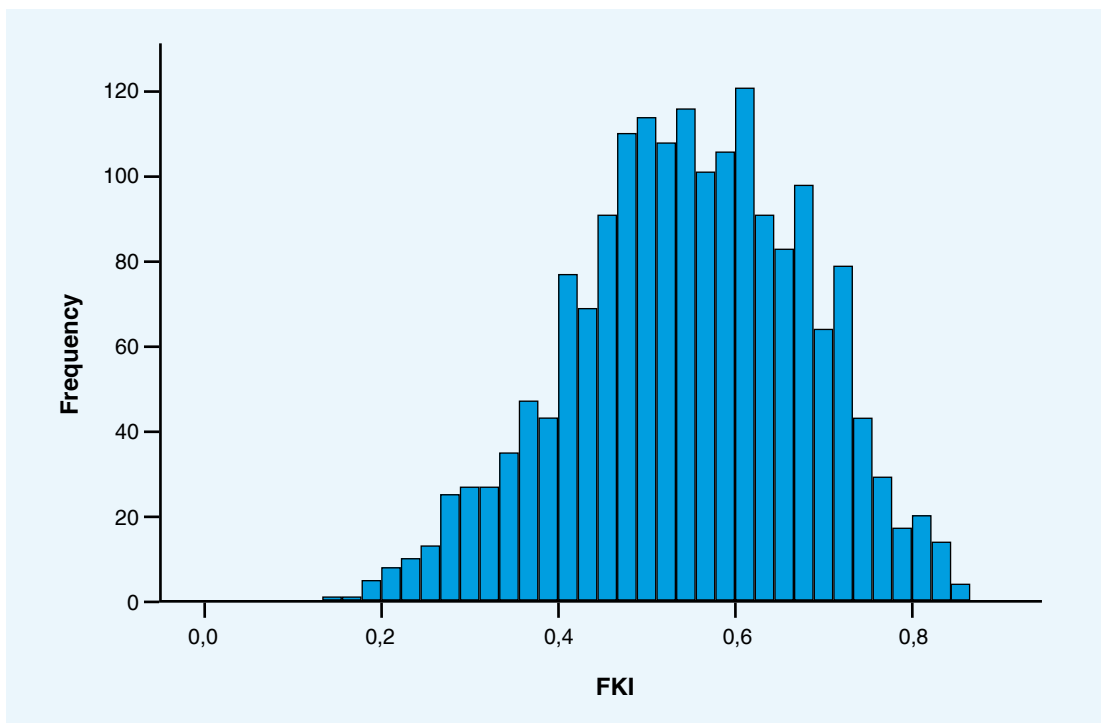
The relationship between financial literacy and each of the variables

Next, we examined the relationships between the criteria discussed in the previous section and the level of financial literacy. From a statistical point of view the individual criteria can be examined on their own or together with other variables in order to filter out the interaction among each of the criteria. First, using variance analysis and correlation analysis[1], we examined which features show a significant correlation with the level of financial literacy.

The results of variance analysis are shown in *Table 2,* while those of correlation calculation in *Table 3*.

DISTRIBUTION OF THE VALUES OF FKI AMONG STUDENTS STUDYING IN HIGHER EDUCATION

Source: State Audit Office of Hungary, Financial Literacy Research

CORRELATION BETWEEN THE CATEGORY VARIABLES AND FKI

Criteria	F	sig
Gender	49.748	0.000
Family status	6.042	0.000
First generation graduate	12.939	0.000
Housing conditions	4.565	0.001
Has a child?	17.486	0.000
Has a job?	0.207	0.649
Type of training	15.588	0.000
Training level	5.234	0.000
Type of specialisation	45.041	0.000
Has received training on financial-economic topics in secondary school	0.184	0.668
Has lived (worked/studied) abroad	5.332	0.021

F – result of the F test; sig – level of significance

Source: State Audit Office of Hungary, Financial Literacy Research

CORRELATION BETWEEN THE CONTINUOUS VARIABLES
AND FKI

Criteria	Pearson correlation	sig
Age	0.098	0.000
Income	0.208	0.000
Ratio of income coming from the family	−0.178	0.000
Number of semesters completed studying financial subjects	0.220	0.000

Source: State Audit Office of Hungary, Financial Literacy Research

It can be seen in the tables that in nearly every case there is a statistically verifiable difference regarding the financial knowledge of the students along each of the examined criteria. The only exceptions among the variables are those which refer to the financial-economic knowledge learned in secondary school and those which refer to having a job – in these cases the category averages do not differ significantly.

The calculation of correlation for continuous variables shows both the strength and the direction of the relationships. It can be seen that the financial knowledge of young people develops as they get older. The same is true for the number of semesters spent studying financial subjects: the longer they study these subjects the more financial knowledge they acquire. We examined the effect of two variables in connection with income. We included the students' net monthly income as well as the part of their income coming from the family in the analysis. According to the results higher income is coupled with more advanced financial knowledge. It can also be established on the basis of the findings that the smaller the ratio of their income which comes from the family, the more advanced their financial literacy is. Although we received a significant relationship for all four variables, their strength is quite weak, especially for age.

Next, we examined the correlations between category variables and the value of FKI in more detail in cases where variance analysis showed a significant relationship.

Differences in the financial literacy of young people by gender

The differences of the level of financial knowledge among young people by gender are shown in *Chart 2.* On the basis of this it can be established that the average financial knowledge of young men exceeds that of women in the same age group.

Differences in the financial literacy of young people by family status

The data for the young people who completed the questionnaire show that the value of the FKI created for the measurement of financial literacy is higher for married and divorced individuals. The lowest value was measured for the subjects living with a partner for less than six months. *(see Chart 3)*

### The relationship between financial literacy and willingness to have children

Of the subjects participating in the study, 3.8 per cent have a child (about 67 people). *Chart 4* clearly shows that they performed much better on the test measuring financial knowledge than those without children.

Chart 2

FKI VALUE BY GENDER
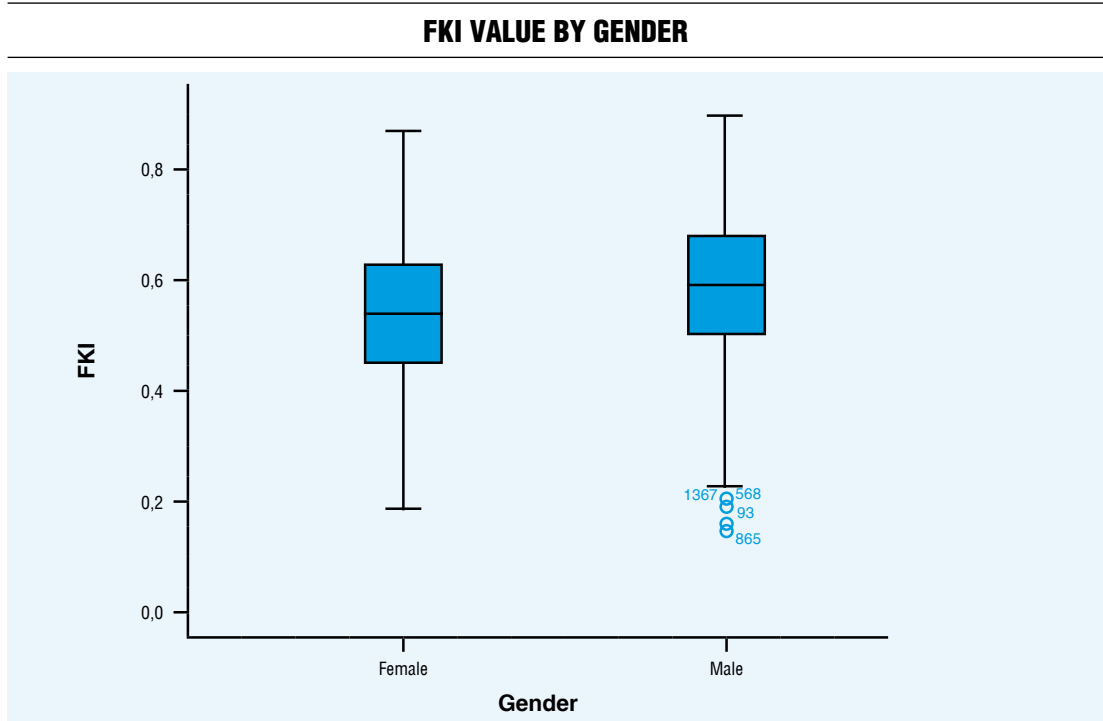
Source: State Audit Office of Hungary, Financial Literacy Research
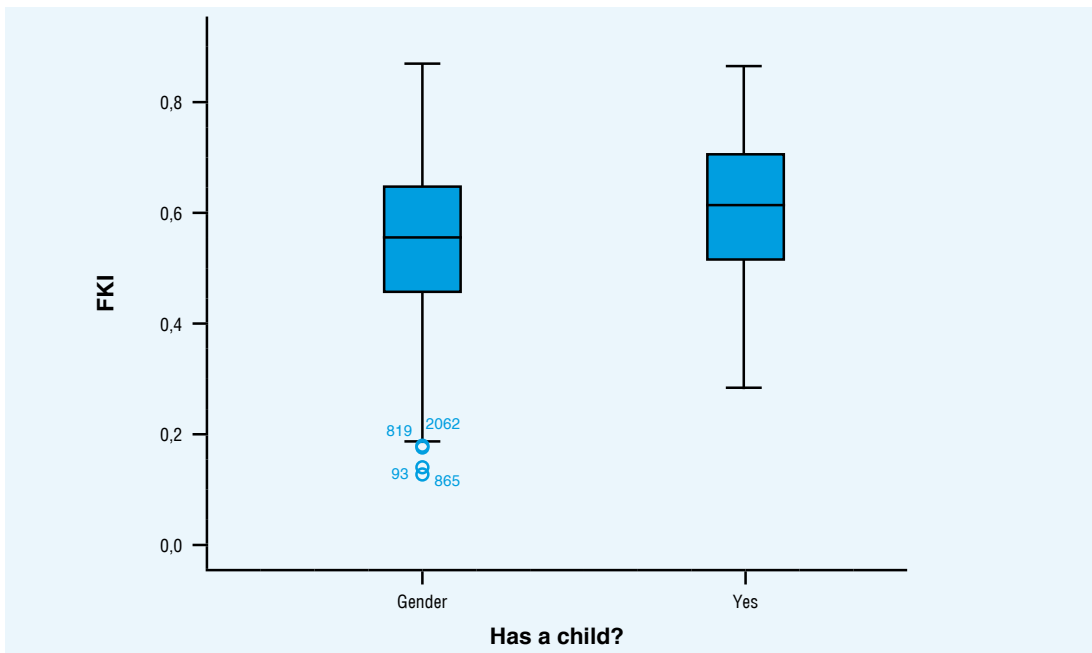
Chart 3
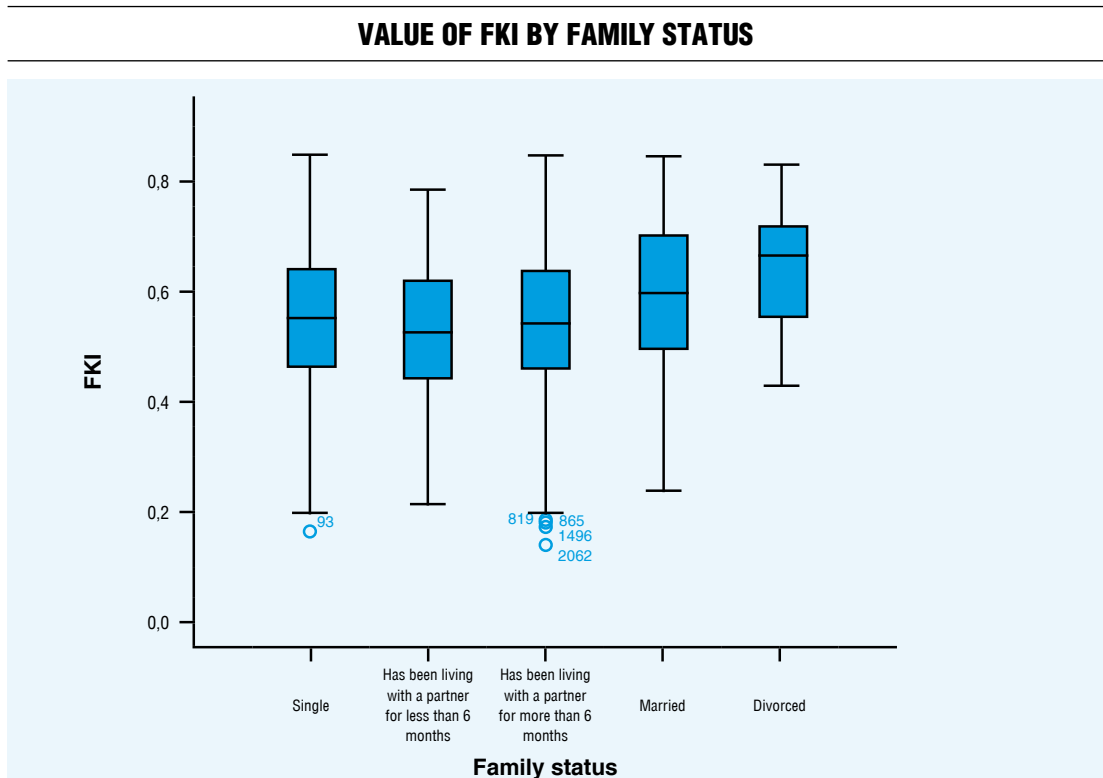
VALUE OF FKI BY FAMILY STATUS

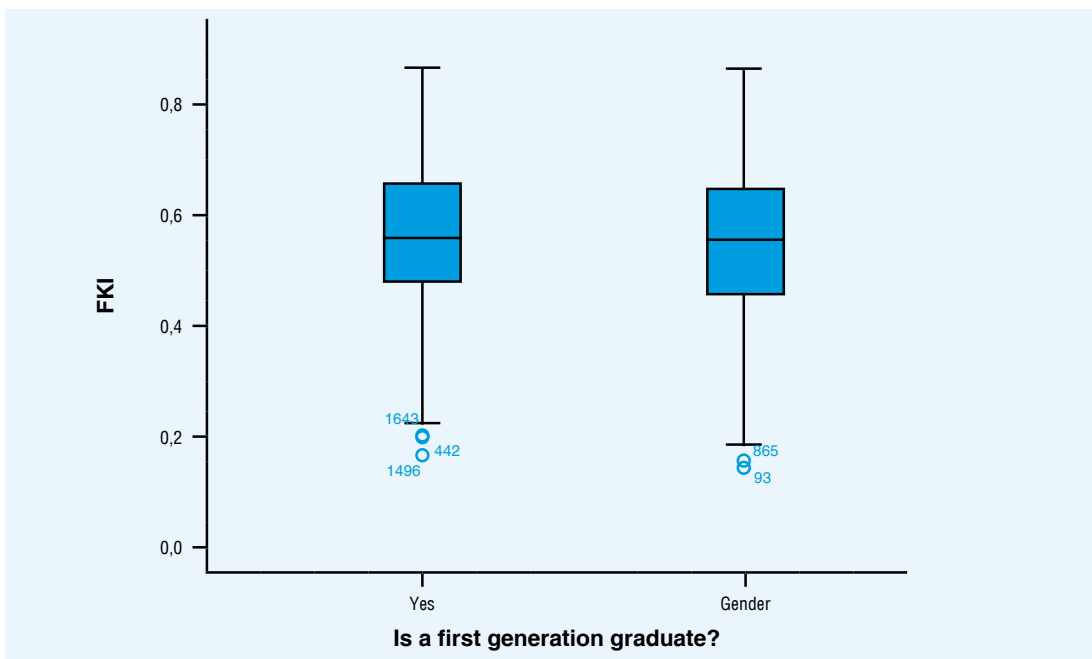*Source:* State Audit Office of Hungary, Financial Literacy Research

LEVEL OF FINANCIAL KNOWLEDGE BY THE WILLINGNESS TO HAVE CHILDREN

Source: State Audit Office of Hungary, Financial Literacy Research

LEVEL OF FINANCIAL KNOWLEDGE BY 'GRADUATE GENERATION'

Source: State Audit Office of Hungary, Financial Literacy Research

Differences in the financial literacy of young people by family background

As far as family background is concerned, the number of subjects whose descendants (parent, grandparent) have a university degree (52.6 per cent) is slightly higher; however, in general the so-called 'first generation' graduates performed better in the area of financial knowledge, though the difference is insignificant. *(See Chart 5)*

The difference in financial literacy among young people according to housing conditions

The analysis of living conditions on *Chart 6* shows that those who rent a flat/room or live in their own flat and, therefore, attend to several financial tasks themselves, have a higher level of financial knowledge. In this respect there was no difference between the students living in a residence hall and those living with their parents. Interestingly, the students who live with their relatives during their studies performed the worst in the test that measured financial knowledge.

The difference in financial literacy among young people according to the type of training

The variance analysis showed that it is also a differentiating criterion for financial literacy what type and level of training the student is pursuing. *Chart 7* shows that the students in correspondence courses, evening courses and especially those in distant learning courses performed much better than full-time students.

The difference in financial literacy among young people according to the level of training

The analysis of the level of training shows that the students in masters programmes have the most advanced financial literacy. The lower FKI value of the students in the basic training programme is probably due to the shorter time of training. The fact that the students in the higher vocational training and the unified five year training programmes achieved poorer results suggests that these training programmes provide less help in acquiring financial knowledge *(See Chart 8)*.

Differences in the financial literacy of young people according to the type of training

If the sample fully represented reality, we could draw conclusions regarding financial education by the majors that students have. However, compared to other majors the vast majority of students in the sample are economics majors (67 per cent against 33 per cent). Therefore, it makes sense to compare economics majors with the other majors of the sample. It is easy to see in *Chart 9* that there is a difference in that the students majoring in economics have more advanced financial literacy.

### The relationship between financial literacy and experience gained abroad

Last but not least, we differentiated the students as to whether they have studied or worked abroad before. In accordance with the results of variance analysis, *Chart 10* shows that the subjects who have spent a longer time abroad have achieved a higher average FKI value; however, the difference is not significant.

The complex model of factors influencing the financial literacy of young people

As has been mentioned before, there often seems to be an interaction among the investigated criteria. In order to filter out these interactions and to get a more precise picture of the effects, we need a joint analysis of the variables. Therefore, we used a multi-
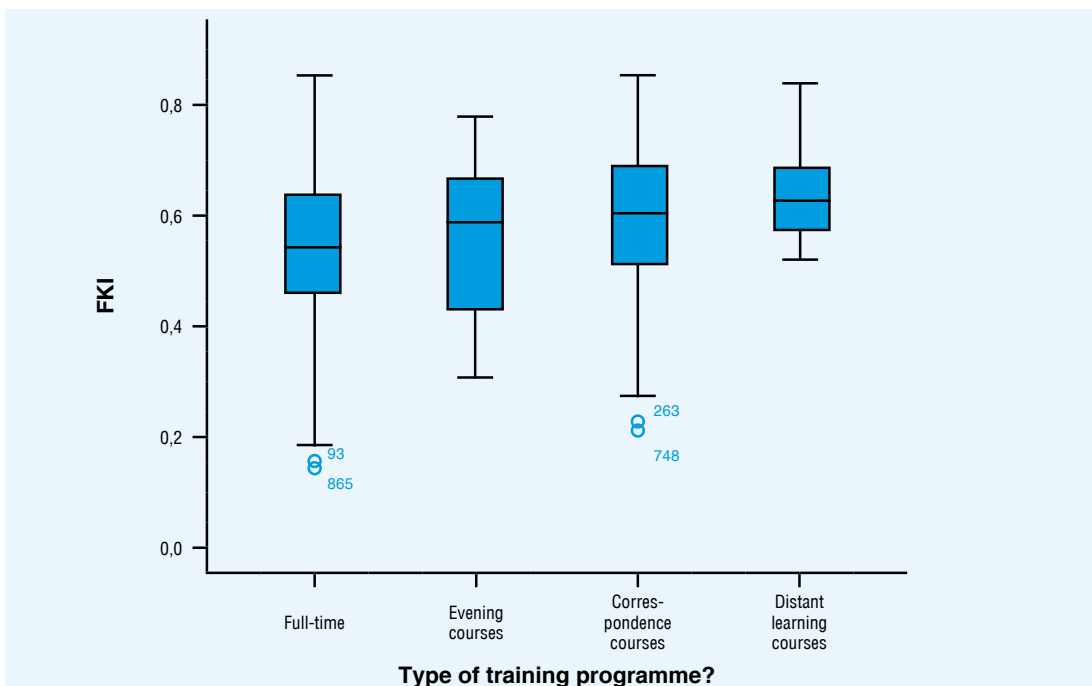
Chart 6

LEVEL OF FINANCIAL KNOWLEDGE BY HOUSING CONDITIONS
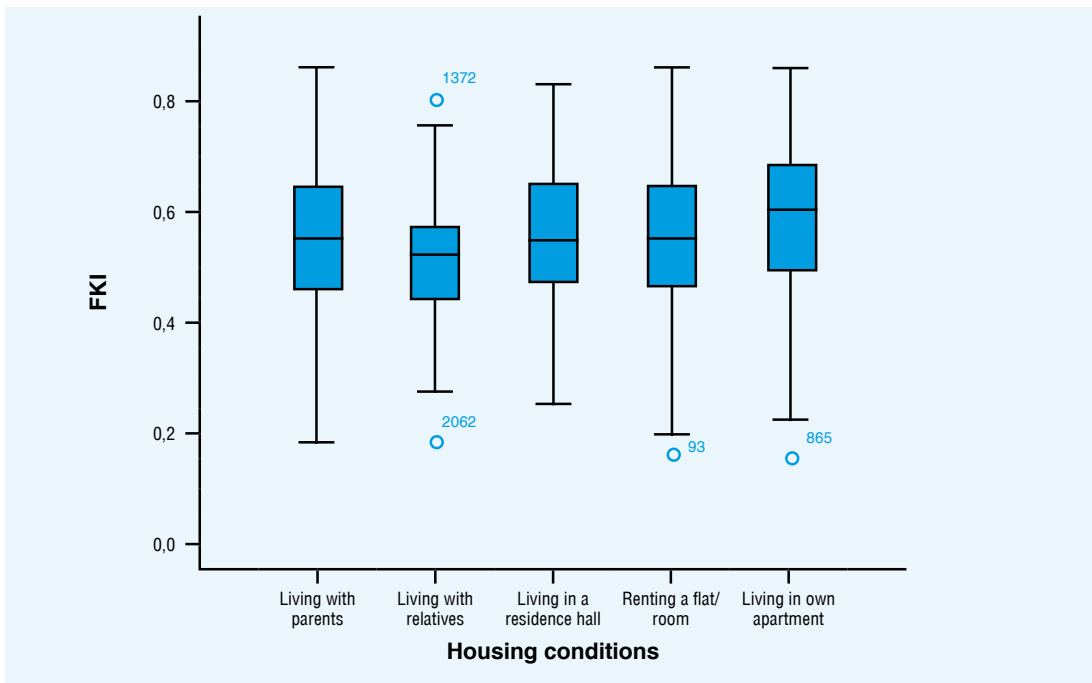
Source: State Audit Office of Hungary, Financial Literacy Research

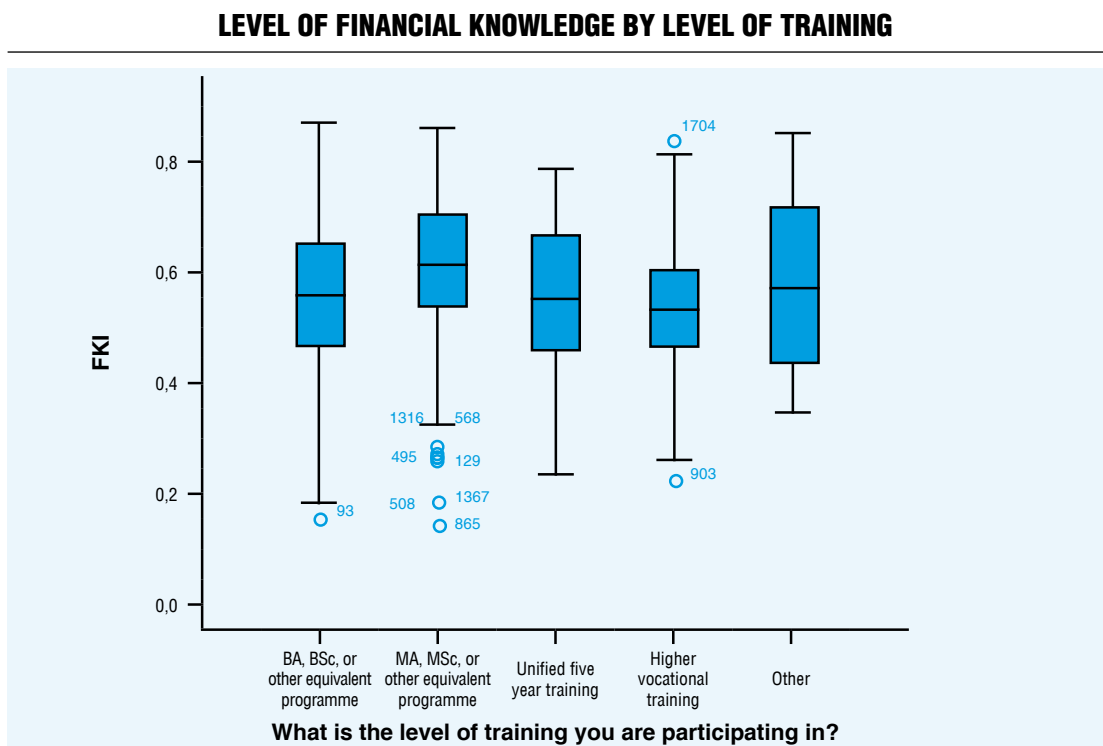*Chart 7*

LEVEL OF FINANCIAL KNOWLEDGE BY TYPE OF TRAINING

Source: State Audit Office of Hungary, Financial Literacy Research

Chart 8

LEVEL OF FINANCIAL KNOWLEDGE BY LEVEL OF TRAINING

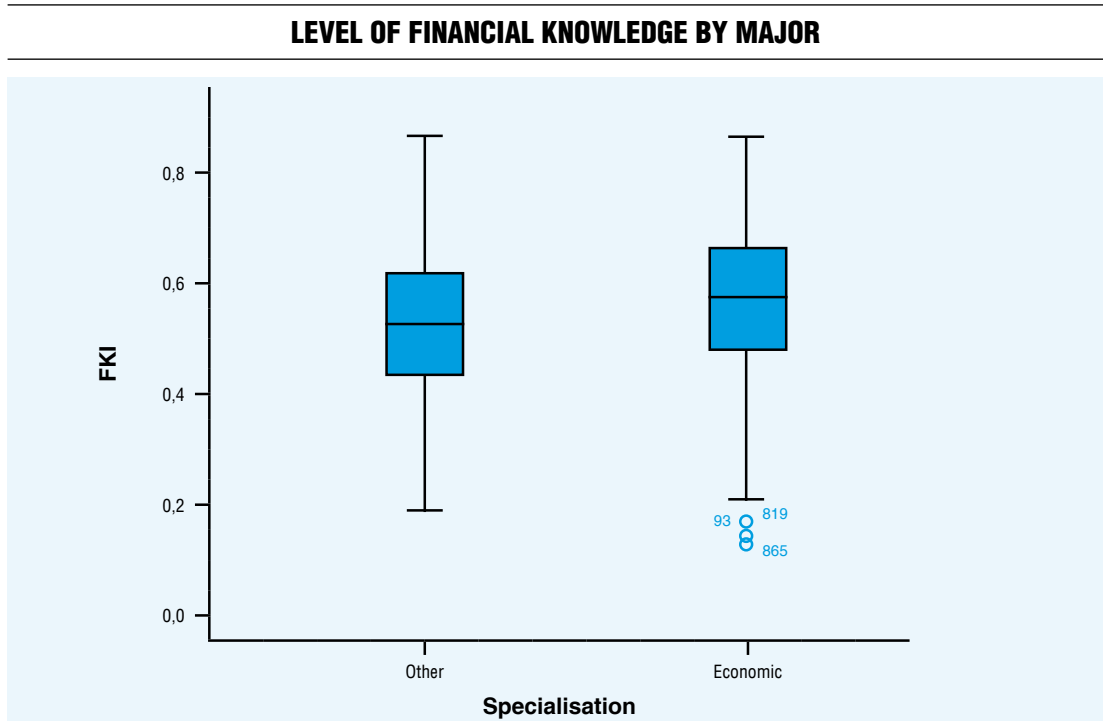*Source:* State Audit Office of Hungary, Financial Literacy Research

Chart 9

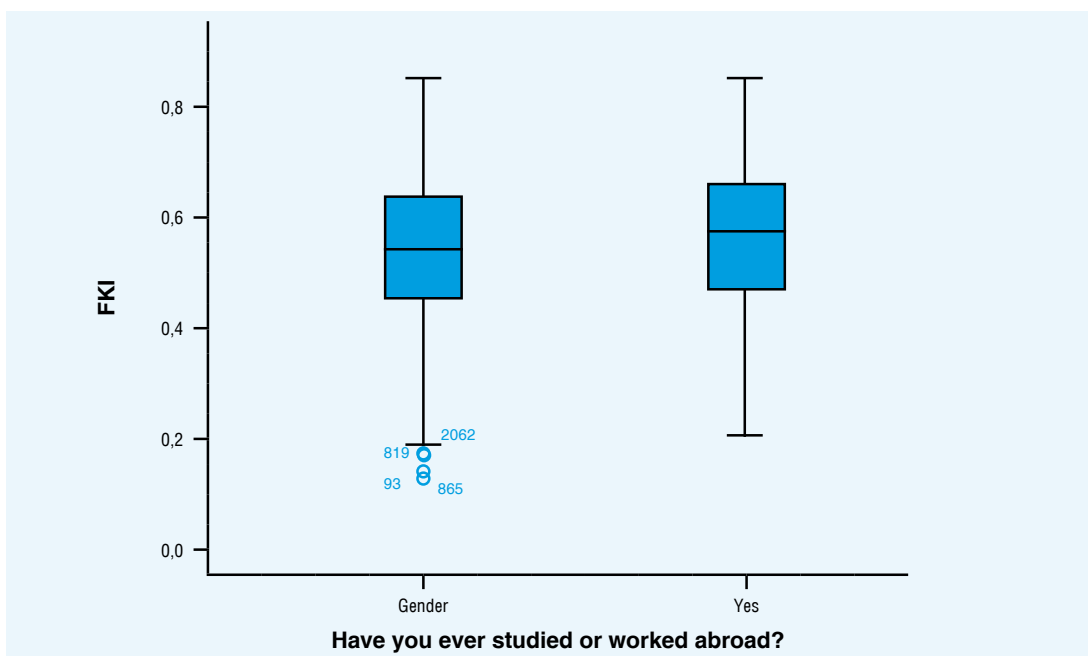## LEVEL OF FINANCIAL KNOWLEDGE BY MAJOR

Source: State Audit Office of Hungary, Financial Literacy Research

Chart 10

FKI VALUES ACCORDING TO STUDY ABROAD/WORK ABROAD

Source: State Audit Office of Hungary, Financial Literacy Research

variable regression analysis to investigate the independent effect of the socio-demographic and educational criteria previously discussed on the financial knowledge of young people.

First, we included the demographic criteria examined previously in the analysis. The results are shown in *Table 4.*

As was found with variance analysis, the presence on the labour force market does not have any significant effect on financial knowledge.

Even by controlling for the other variables, the analysis by gender shows that men's financial literacy is more advanced than women's: men performed 4.1 percentage points better on the test that measured financial literacy.

The fact that a student is a first generation graduate continues to show a significant correlation with the level of financial knowledge; however, this effect is not significant: the FKI value of a first generation graduate is 0.018 points higher on average.

The findings show that income is positively correlated with the students' financial knowledge, but this correlation is not significant either. A 10,000 Hungarian forint higher income means a 0.003 point higher FKI value on average. The table also shows that the more of a student's income comes from the family, the lower his or her FKI value is. The strength of the relationship is insignificant in this case too: if the ratio of the income coming from the family increases by 10 per cent, the value of FKI decreases by 0.003 point on average.

The findings also demonstrate that family status, housing conditions and whether the student has a child do not have an influence on the level of financial literacy. These variables merely 'mediate' the effect of the other variables included in the study.

Next, we included the variables for education in the regression model discussed previously. The results are shown in *Table 5.*

As shown in the table, even when the ed-

THE REGRESSION MODEL OF THE RELATIONSHIP BETWEEN
THE DEMOGRAPHIC VARIABLES AND FKI

	beta	Sig
Constant	0.397	0.000
Gender (ref. category: female)	0.041	0.000
Age	0.004	0.007
Family status (ref. category: single)		
has been living with a partner for less than 6 months	−0.017	0.148
has been living with a partner for more than 6 months	0.002	0.741
married	0.018	0.419
divorced	0.071	0.069
Has a child? (ref. category: no)	−0.004	0.866
First generation graduate (ref. category: no)	0.018	0.003
Housing conditions (ref. category: living with parents)		
living with relatives	0.020	0.140
living in a residence hall	−0.009	0.244
renting a flat/room	−0.007	0.314
living in own apartment	−0.011	0.121
Has a job (ref. category: no)	0.002	0.794
Income (ten thousand Hungarian forints)	0.003	0.000
Ratio of income coming from the family (measured on a scale of 10%)	−0.003	0.000

R square = 0.09

Source: State Audit Office of Hungary, Financial Literacy Research

ucational features are controlled, there is no change in the effect of most of the demographic variables discussed before on FKI. It can thus be established that males, older people, people with a higher income and young people whose income is covered by their family only to a small extent typically have a higher FKI value, and these effects do not stem from the special composition of educational features. At the same time, when educational criteria are included, the direction of the effect exerted by family background changes; that is, it actually has a positive effect on the students' financial knowledge if their parents or grandparents have a university degree.

We examined the effect of the type of training and the subject area on the financial knowledge of the students. According to the results there is a significance difference only in one case regarding the type of training, although it is not significant: the students in correspondence courses performed an average of 2.8 percentage points better than full-time students in the test measuring financial knowledge. The findings show that the type of training has no significant effect on the students' financial knowledge.

The major a student is studying has a significant effect on their financial knowledge. The students who study in an economic spe-

Table 5

THE REGRESSION MODEL OF THE RELATIONSHIP BETWEEN THE DEMOGRAPHIC AND EDUCATIONAL CRITERIA AND FKI

	beta	sig
Constant	0.357	0.000
Gender (ref. category: female)	0.045	0.000
Age	0.004	0.034
Family status (ref. category: single)		
has been living with a partner for less than 6 months	−0.016	0.154
has been living with a partner for more than 6 months	0.003	0.676
married	0.004	0.866
divorced	0.068	0.077
Has a child? (ref. category: no)	−0.004	0.845
First generation graduate (ref. category: no)	−0.022	0.000
Housing conditions (ref. category: living with parents)		
living with relatives	−0.031	0.137
living in a residence hall	0.018	0.167
renting a flat/room	0.000	0.987
living in own apartment	0.014	0.169
Has a job (ref. category: no)	0.010	0.121
Income (ten thousand Hungarian forints)	0.002	0.007
Ratio of income coming from the family (measured on a scale of 10%)	−0.002	0.017
Type of training (ref. category: regular)		
evening courses	−0.024	0.673
correspondence courses	0.028	0.007
distant learning courses	0.033	0.486
Level of training (ref. category: BA, BSc.)		
MA, MSc	0.022	0.069
unified five year training	0.012	0.483
higher vocational training	−0.018	0.093
other	0.013	0.667
Type of specialisation (ref. category: other)	0.034	0.000
Study/work abroad (ref. category: no)	0.002	0.800
Number of semesters completed studying financial topics	0.008	0.000
Financial-economic training in secondary school (ref. category: yes)	−0.001	0.934

R square = 0.14

Source: State Audit Office of Hungary, Financial Literacy Research

cialisation programme have 3.4 percentage point higher FKI values on average than those participating in another specialisation. For the interpretation of the results we should note that the regression model also included the variable "How many economic courses have you taken during your studies in higher education?", so the difference described before refers to a hypothetical case when two students – one studying in an economic specialisation and one in some other specialisation – have received training in the same number of semesters. Since in general it is not the case in reality, the effect of the two variables may add up, resulting in a more significant difference.

The number of semesters spent on studying economic subjects also has a significant effect on the level of financial literacy: taking an economic subject for one semester increases the value of FKI by an average of 0.8 percentage points. Although this effect does not seem to be significant, it represents an 8 percentage point difference in the case of a five year, 10 semester degree programme; that is, this is the difference between the FKI values of two students in terms of percentage points, one of whom has not studied a subject like this during their studies in higher education, while the other one has received this kind of training for 10 semesters.

The regression analysis confirmed our previous result which showed that the economic knowledge obtained in secondary school does not have a significant effect on the level of financial knowledge.

Finally, we also examined the effect of work and study abroad, but the result in this case was not significant. This means that this kind of experience in itself does not influence the level of financial literacy. It only showed a significant relationship with the value of FKI in the calculation of correlation because it 'mediated' the effect of the other variables.

The investigation of the criteria shows that the effect of the individual variables is often not significant. We should not forget, however, that the effect of the individual variables is not independent; in other words, the individual's level of financial knowledge should be defined as the resultant of the criteria – the effects added up can lead to significant differences.

The two aspects of young people's financial literacy and the analysis of the factors influencing them

The questions used for the measurement of financial literacy fall into two groups. Some of the questions test theoretical knowledge – financial terms, level of information on financial processes – while others query practical knowledge – for example calculation of interest. We examined each of these two groups separately. Like in the case of FKI, the total score was given in the ratio of right answers.

Table 6 shows that students performed better on average in the theoretical questions (58.7 per cent compared to 48.2 per cent) and standard deviation also indicates that the stu-

Table 6

THE RATIO OF RIGHT ANSWERS TO THEORETICAL AND PRACTICAL QUESTIONS

Criteria	Mean	Standard Deviation
Theoretical questions	0.587	0.157
Practical questions	0.482	0.174

Source: State Audit Office of Hungary, Financial Literacy Research

dents differ in terms of theoretical knowledge to a lesser extent.

Then, we examined the relationship between these two forms of financial knowledge using correlation calculation. The results show that the correlation between the two scores is significant, with a value of 0.39. Values between 0.3 and 0.7 are usually considered to be significant in methodological literature, and the scores we got belong to the lower segment of this range.

Next we ran the linear regression models which contained the demographic and the educational criteria separately for the scores we received for these two types of questions. The results are shown in *Table 7*.

The results are similar to those we received for the FKI in the regression model. It is also true of theoretical and practical financial knowledge that males, older people, those whose parents or grandparents have a university degree, those who are getting their training in economics or who are studying these kinds of subjects at university know more about financial matters. At the same time, there are certain differences too. Income and the ratio of it which comes from the family show a significant correlation only in connection with practical knowledge, while as far as economic training is concerned in secondary schools, we can establish that it exerts a significant – positive – influence only on theoretical knowledge. When examining the educational criteria we also found that the economic nature of the training correlates significantly with practical knowledge, while the number of semesters spent on studying subjects related to economics has a strong positive influence on theoretical knowledge.

CONCLUSIONS

In our paper we studied the financial literacy of students studying in higher education and the demographic criteria that influence

it along with the special features of the training.

The value of the FKI used for the measurement of financial literacy was 0.55 in the sample, which means that on average the students were able to give the right answer to a bit more than half of the questions. At the same time, the standard deviation of the FKI (0.13) indicated that there were significant differences among the students regarding the level of their financial knowledge.

On the basis of the analysis it can be established that certain demographic features of the students have a significant influence on the level of financial literacy.

According to the findings, men performed better on the test measuring financial knowledge than women. Since this difference continues to hold even after including the other demographic variables and the criteria regarding the training in the regression model, it can be regarded as a real difference rather than the result of effects added up. We assume that men are more interested in financial matters and, as a result, they are also better informed. If our hypothesis is right, this difference can be reduced by programmes that target young women in order to raise their interest in financial matters.

Age also has an effect on the level of financial knowledge: the students' financial knowledge develops over time as they grow older. This results seems to be evident, just as in other areas of life, we gain more knowledge in finances in the course of our lives. In addition, as they grow older, young adults more frequently find themselves in situations – taking out a loan, buying a real property – that help expand their financial knowledge.

Family background also influences the FKI value achieved by the students. According to the results, the first generation graduates get higher scores on the test but the direction of the effect changes after the variables regarding

THE REGRESSION MODEL OF THE RELATIONSHIP BETWEEN THE DEMOGRAPHIC AND EDUCATIONAL CRITERIA AND THE THEORETICAL AND PRACTICAL ASPECTS OF FINANCIAL LITERACY

	Theoretical knowledge		Practical knowledge	
	beta	sig	beta	sig
Constant	0.446	0.000	0.228	0.000
Gender (ref. category: female)	0.026	0.001	0.069	0.000
Age	0.004	0.086	0.004	0.071
Family status (ref. category: single)				
has been living with a partner for less than 6 months	−0.014	0.304	−0.022	0.142
has been living with a partner for more than 6 months	0.009	0.240	−0.007	0.454
married	−0.005	0.863	0.013	0.651
divorced	0.065	0.162	0.077	0.134
Has a child? (ref. category: no)	−0.003	0.920	−0.003	0.904
First generation graduate (ref. category: no)	−0.024	0.001	−0.021	0.010
Housing conditions (ref. category: living with parents)				
living with relatives	−0.045	0.067	−0.022	0.419
living in a residence hall	0.000	0.979	0.039	0.027
renting a flat/room	−0.009	0.308	0.008	0.405
living in own apartment	0.023	0.062	0.002	0.861
Has a job (ref. category: no)	0.008	0.289	0.012	0.183
Income (ten thousand Hungarian forints)	0.001	0.099	0.002	0.017
Ratio of income coming from the family (measured on a scale of 10%)	−0.001	0.273	−0.003	0.008
Type of training (ref. category: regular)				
evening courses	−0.056	0.416	0.008	0.921
correspondence courses	0.051	0.000	0.007	0.634
distant learning courses	0.019	0.739	0.046	0.473
Level of training (ref. category: BA, BSc.)				
MA, MSc	0.021	0.151	0.026	0.113
unified five year training	0.035	0.104	−0.008	0.748
higher vocational training	−0.011	0.369	−0.023	0.102
other	0.044	0.222	−0.011	0.777
Type of specialisation (ref. category: other)	0.029	0.001	0.043	0.000
Study/work abroad (ref. category: no)	−0.001	0.939	0.004	0.649
Number of semesters completed studying financial topics	0.011	0.000	0.006	0.005
Financial-economic training in secondary school (ref. category: yes)	−0.016	0.049	0.015	0.092

R square = 0.114 and 0.107

Source: State Audit Office of Hungary, Financial Literacy Research

education are added to the model. This suggests that although the first generation graduates performed better in the test measuring financial literacy, this is actually due to their differing composition on the basis of educational criteria. In fact, it has a beneficial effect on the students' financial knowledge if some of their parents and grandparents have a higher degree.

We also examined the financial situation of the students and its effect on financial literacy. The findings showed that the more income students have and the less of it comes from the family as support, the more advanced their financial knowledge is. Thanks to their financial situation, the students with a higher income can also make financial transactions – for example investments – which their less wealthy peers cannot afford. Higher income can increase interest in financial processes due to exposure. The negative effect of the ratio of family support can be explained by the fact that the students who have to rely on other sources to generate income – for example on student loans – can, as a result, acquire new financial knowledge.

The other demographic criteria, such as family status or housing conditions, are also differentiating factors for financial knowledge, but the analysis shows that these features merely mediate the effects of other features. As for family status, the respondents did not confirm the assumption that single students have a lower level of financial knowledge that their peers living with their partner (CBF, 2004; Hung, et al., 2009). However, the data for the young people who completed the questionnaire show that the value of the FKI created to measure financial literacy is higher for married and divorced individuals. The students falling into the latter two categories – taking the special features of their situation into account – probably pay more attention to finances since establishing a home requires

long-term thinking and planning, while the division of property at the time of divorce needs circumspection.

Surprisingly, there is no difference between the students as far as presence on the labour force market is concerned. This may mean that the labour force market is not the right place to obtain financial knowledge.

Certain features of education also influence the financial literacy of young people. There are significant differences regarding the level of the students' financial knowledge in accordance with the form and type of training – for example, the less students are confined to sitting in classes during their studies, the more they know about finances – but the analysis showed that these differences in fact derive from the different composition of the students in terms of the other examined variables.

As for the variables regarding the content of training, the situation is different. The students participating in economic specialisation programmes performed better on the test measuring financial knowledge than those taking other types of courses. Irrespective of the nature of the specialisation, taking financial-economic courses also has a positive correlation with the value of FKI. These results suggest that the financial-economic training in higher education institutions increases this kind of knowledge in students, but the relatively weak relationship, in our view, indicates that this training should be developed in order to improve its efficiency.

This is even more true for secondary school training, as the results show that there is no significant relationship between the financial-economic training in secondary school and the level of financial knowledge. This result suggests that the teaching of economic knowledge in the secondary school is not efficient enough to be able to improve financial literacy.

We also examined how study and work experience abroad influences students' financial

knowledge. The results do not exhibit any significant relationship.

We also examined the theoretical and the practical questions separately. The results show that students performed better on average in the theoretical questions and that the difference among the students is somewhat smaller in terms of theoretical knowledge. This result shows that special attention should be devoted to increasing the practical knowledge of young people. The relatively weak correlation (0.39) between the two kinds of scores suggests that although theoretical and practical knowledge do correlate regarding financial knowledge, the fact that a students has a high level of knowledge in one does not mean that he or she has the same level of knowledge in the other.

The demographic and training variables, and the scores for practical questions show a similar relationship to the one we received for FKI. At the same time, income and the ratio of it which comes from the family show a significant correlation only in connection with practical knowledge. This results suggests that personal engagement and the financial experience obtained in real life mainly help improve practical knowledge.

As far as economic training is concerned in secondary schools, we can establish that it exerts a significant – positive – influence only on theoretical knowledge, that is, the efficiency of practical training falls short of the effectiveness of theoretical training. This again calls attention to the importance of developing practical training. When examining the educational criteria we also found that the economic nature of the training correlates significantly with practical knowledge, while the number of semesters spent studying subjects related to economics has a stronger positive influence in the case of theoretical knowledge. In other words, the financial-economic subjects studied in higher education enhance the students' theoretical knowledge, while practical skills can be improved by the coherent knowledge acquired in economic specialisations.

In general we can say that our results reveal the need for reform in the teaching of financial-economic knowledge and the introduction of programmes aimed at increasing interest in financial matters. It would be especially important to teach this kind of knowledge efficiently in the lower levels of the education system, as most people do not continue their studies in higher education. In addition, more emphasis should be placed on practical training. Our analyses demonstrated that the interest in financial matters and the interest vested in them have a positive effect on the financial literacy of young people, so special emphasis should be given to this aspect in addition to imparting financial knowledge.

Note

1 We used variance analysis for category variables and correlation calculation for continuous variables in order to find correlations between the variables.

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