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ANXIOUS SPENDERS: BACKGROUND FACTORS OF FINANCIAL VULNERABILITY

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ABSTRACT. 1) Background: Financial literacy, its attitudinal and behavioral components are subject to increasing awareness in Hungary, especially after the economical crisis of 2018. 2) Methods: Our study examines the selected aspects of the Hungarian young adults' behavior, using the data of the survey conducted on a representative sample to compare financial knowledge, attitudes, behaviors and habits of the 18-35 year-olds with the group of older ones. We also analyze what kind can describe the selected groups, and whether clusters can be established. 3) Results: Financial consciousness and setting long-term financial goals are less typical among young adults. They intend to reach their financial aims not by decreasing their costs or saving but rather by preparing action plans or undertaking more work. Three clusters were identified: worried spenders, satisfied risk-takers and careful considerers. 4) Conclusions: Financial vulnerability is specific to the worried spenders, this cluster represents almost a quarter of young adults. They live for today, financial problems make their existence harder, this, in turn, causes depression, they do not dispose savings. Furthermore, when comparing this cluster to the two other clusters, their financial knowledge and skills are of lower level, less of them make a budget, their income is lower and they tend not to set financial goals as such.

JEL Classification: A22

Keywords: financial literacy, financial knowledge, attitudes and behaviors, young adults, financial vulnerability, Hungary.

1. Introduction

What role does money play in our lives? Angus Deaton received the Nobel Prize in economy back in 2015 for the methodology of measuring poverty. Their Nobel-prize-winning research study states that money does make one happy if it transfers one from deprivation into livelihood and then into security (Steptoe, Deaton & Stone, 2015). Beyond a certain level, however, more money does not lead to significant increase in the quality of life. In our research we searched for the answers to questions like what the financial culture of Hungarian youngsters is like, what attitudes they have towards money, what financial literacy and calculation skills they have, what kind of financial behaviours, coping strategies characterise them, whether they have any financial goals, make budget plans etc. The most important question of the study is whether it is possible to differentiate the groups of youngsters based on their financial attitudes and customs and whether there are any groups among them that are particularly vulnerable financially. We wanted to know what demographic characteristics the financially vulnerable groups have, what information they use for orientation, how they deal with their finances and how they see their own competencies. We are convinced that before any good-intentioned intervention it is important to examine the distinctive features of the social group in need for support, especially in the field of attitudes and behavioural patterns.

2. Literature review

Money, as well as handling and using money, are part of consumers' everyday life, however, not everyone relates to it in the same way (Belás et al., 2016). Examining the relation to money and money matters intrigues economists, psychologists, sociologists as well as anthropologists. From the abovementioned research, however, only the research studies based on the OECD methodology supported by the Financial Compass Foundation (Pénziránytű Alapítvány) can provide a real picture about the state of financial culture in Hungary. As it is the only survey in Hungary, which is based on an international methodology and has a representative sample examining many aspects of financial culture. This may help the financial culture experts to make the right decisions.

The financial products are getting more and more complex, in parallel individual needs are continuously expanding and being formed (Habschick et al., 2007; Botos et al., 2012). The lack of financial literacy, misguided attitude or behaviour may make not only individuals but whole social groups vulnerable, exposed. Mapping the demographic, socialization or personality factors linked to protection or vulnerability is only possible based on scientific research. Luksander et al. (2017) in a study to be published soon on connections between financial personality types and financial attitudes influencing debt stated that combinations of different financial attitude dimensions influence financial behaviour in a complex way; oftentimes financial personality traits that first seem to contradict each other - spending and saving, for instance - go well together. According to their results savings are key in avoiding debts, whereas relying on luck and being unable to get a grip of finances are risk factors.

When examining youngsters' financial culture, financial literacy, financial behaviour and financial attitudes are also worth paying attention to (Atkinson – Messy, 2012). The literature review of the present study moves along the three concepts mentioned, highlighting studies which have remarkable results and thus may serve as a basis for future empirical research or give inspiration. First we will examine the concept of financial literacy. Financial literacy may be measured in an objective or a subjective way, that is, with tests measuring literacy or based on the respondents' self-declarations showing how the respondents assess their own literacy (Huzdik et al., 2014; Luksander et al, 2014; Béres et al., 2013; Atkinson – Messy, 2012). The relation of the two indicators show how realistically the respondents evaluate their financial literacy (Béres et al., 2012). By financial literacy we generally mean being informed about finances, the ability to process information and make good financial decisions. It is debatable where the boundaries are for financial literacy elements and skills still considered to belong to financial culture. These boundaries are drawn at different points by different research studies, therefore they often examine significantly different questions with significantly different methods. The concept of financial culture is therefore considered vague (Czakó et al., 2011). Lusardi (2008) explains in a study that financial illiteracy is expanding among American residents, especially in groups with special demography. Typically, financial literacy is especially low among women, Spanish speakers, Afro-Americans and those with low level of education. De Beckker et al. (2019) clustered the consumers based on financial literacy and illiteracy and defined the most vulnerable group: individuals who are on average, single, less-educated and unemployed with low incomes. Financial literacy has an impact on financial decisions, therefore not planning ahead for passive years, not saving for pension, not connecting to the wide range of products on the stock exchange, showing bad borrowing behaviour can ultimately be traced back to inappropriate knowledge about even the basic financial concepts. Other authors (Chen - Volpe, 1998; Danes - Hira, 1987; Xiao et al., 2010) also underpin Lusardi's (2008) findings. It is typical of Hungary as well that most people, for instance, hardly understand the economic reports in the media (Balázsné, 2007). Domestic research studies show that higher education students having learnt financial-economic subjects in secondary school do not show significant difference in knowledge compared to other students. It is different in the case of knowledge gained in higher education - the number of semesters spent in financial-economic trainings show development. (Béres et al., 2012). It can be stated also based on the results of Béres et al. (2012) that 58.92% of higher education students assess their financial literacy realistically, while 10,96% underestimate it and 30,12% overestimate it. Luksander et al. (2014) point out that men, the older generations, the ones attending business training or studying subjects of this kind at a university have higher level of financial literacy. In our research the size of wealth and the proportion of the income coming from the family show significant correlation with the practical part of financial literacy.

The second guideline in our paper is financial behaviour. Financial behaviour is a multidimensional concept with several subdimensions. Financial behaviour is a significant influencing factor of financial well-being. (Garman & Forgue, 2006). Certain studies conducted in the field of consumer behaviour examining financial behaviour use household or family finances as their approach. The research of Deacon and Firebaugh (1988) examining the planning and implementation of the use of family resources is an example of the family finances approach. They use the planning and management of finances in their definition. Danes and Morris (1989) also approach financial behaviour from the family examining whether the individuals are planning to change their financial status within five years. They base their research on the dissatisfaction with the present financial status. Planning is present in this approach as well as in the study of McKenna & Nickols (1998), where financial behaviour is linked to a kind of long-term time orientation, namely planning for retirement. A domestic study made in 2012 (Botos et al., 2012) also deals with the financial behaviour of households including savings, the use of outside sources and cash flow. When talking about consumers' financial behaviour we scrutinize the management and implementation of personal finances at individual level (Mathur, 1989). Financial foresight, planning of costs, keeping track of loan and cash, bigger investments, insurance purchase, savings and planning retirement are examined in details. Xiao (2010) refers to every personal behaviour as financial behaviour which may be relevant in personal finances. Xiao's definition includes managing cash, savings and loans too. Reviewing several additional models and definitions for financial behaviour (Shockey & Seiling, 2004; Peng et al., 2007; Chen & Volpe, 1998; Perry & Morris, 2005; Danes et al., 1999) the following elements of financial behavioural stand out: defining goals, planning, savings, keeping track of income and expenditure, checking spendings, orientation for the future, sharing information and communication about finances.

The content of some concepts implies that emphasising and examining consciousness are coming to the foreground in financial behaviour. Beyond the elements of behaviour it is also worth examining, however, how consumers relate to finances, thus we turn to the third pillar of our study, the concept of financial attitude.

Relation to money and money matters has been an area of research since the 1970s. Goldberg & Lewis (1978) identified three types of individuals: misers, autonomy worshippers and power grabbers. The autonomy worshippers amass money to alleviate feelings of discomfort, while the misers wish to avoid damage caused by changes in economy and the environment by accumulating money. As opposed to the two formers groups the main goal of the power grabbers is the strive for security but the desire to gain other people's attention and admiration by owning money. Forman (1987) supplements these three categories with a fourth, the gamblers. They link obtaining money to intensive states of excitement and emotions.

Table 1. Dimensions included in financial behaviour definitions

Author(s)	**Dimensions of consumer finances**
Chen and Volpe (1998)	Saving Credit management Investments
Danes et al. (1999)	Goal setting Planning Saving Control Communication
Shockey and Seiling (2004)	Saving Goal setting Planning Implementation
Perry and Morris (2005)	Control Planning Saving Care
Peng et al. (2007)	Credit cards usage Paying bills on time

Source: own elaboration.

Yamauchi és Templer (1982) devised the Money Attitude Scale to measure financial attitudes covering four dimensions altogether. The first dimension is the power-prestige with money being the symbol of success and power in the approach of the individuals. In this sense money helps the individual obtain power, security and freedom and stand out from the others. Bell (1998), as well as Durvasula and Lysonski (2010) complement this by stating that the continuous increase of consumption of the individuals belonging to the power-prestige dimension also enhances their material-centeredness, which may eventually culminate in obsessive buying. Bauer and Mitev (2011) also linked Yamauchi and Templer's scale (1982) with obsessive buying. The second dimension is retention-time. Preparing for the future and the on-going control of the financial situation are pivotal for individuals belonging to this group. For them savings and accumulation are of prime importance, they keep a regular record of their finances. They are ready to give up present consumption in hope for a supposedly greater consumption later. The third dimension is distrust. The individuals of this group are common in viewing money with suspicion, almost with fear. For them money is practically the source of distrust. They are distrustful toward money and money matters, usually not really trusting themselves either. The fourth and also last dimension is made up by the anxious individuals who are likely to become worrisome. Money is a contradictory phenomenon for this type of personality. The peculiarity of this paradox personality is that they ease their anxiety by buying, which in some cases may become obsessive. (Valence et al. 1988). Based on MAS Jhang (2018) conducted a research among Taiwanese consumers. The results support the five-factor sturcture of money attitudes and their relation to life satisfaction. Also based on MAS Larimer's (2018) research findings show that anxiety attitudes relate positively to gambling behavior.

Money Beliefs and Behavior Scale (MBBS) can be linked to Furnham (1984) aiming at measuring financial beliefs and behaviour. The scale consists of 60 statements grouped into the following six factors: obsession, power, retention, security, inadequacy, effort/ability. Obsession at Furnham (1984) means that the individuals use money as the basis of comparison with others. Such individuals connect owning money with superiority, from which the second category - power - differs only slightly. For individuals put into the category of power - in line with previous research - owing money is the primary basis of power. The third dimension is retention, which according to Furnham aims at financial conservatism and prioritising security. Individuals belonging to the dimension of inadequacy share the common feeling of never having enough money. Last but not least everyone belongs to the dimension of effort/ability at whom the motive of work is linked to money and to the approach towards money, which also suggests a kind of value approach.

Tang (1992) identified six factors based on attitudes towards money including cognitive, affective and conative factors in line with the three components of attitude. Performance, respect and power are present in the cognitive component, that is, certain evaluative thoughts linked to money. The good and evil nature of money appears in the affective component, that is, what emotions money triggers in the individuals. Budgeting is present in the conative component, that is, it includes the actual behaviour. A questionnaire with 30 statements originally becomes shortened gradually; it is first used with 12 statements (Tang 1995), and finally with 6 (Tang – Kim 1999) The six statements define altogether three factors. The first one is budgeting ("I carefully follow my budget", "I use my money cannily"), the second one stands for negative feelings about money ("Money is bad", Money is the source of all evil"), while the third grabs the idea of money being the token of success ("Money is the symbol of success", "Money mirrors performance").

In our former research studies in this field we attempted at grouping the participants of our survey along financial attitudes and behaviour. In the present study we also rely on our previously gained experience. Based on the results of a survey conducted in 2012 we defined the segments of youngsters studying in higher education by their financial attitudes and opinions regarding loans (Zsótér et al., 2017). It yielded the following results: 1. the conservatives, 2. the worriless, 3. the experienced. The conservatives are individuals with very low level of willingness to take risks, who perceive themselves conscious and who take moral values of money matters into consideration at an outstandingly great extent. The worriless are less conscious and are characterised by high level of willingness in risk-taking. This group consists of individuals rather thinking in a short term. The group of the experienced are financially conscious individuals with a very low level of willingness in risk-taking and high moral values. The study shed light upon the fact that the youngsters in higher education cannot be considered a homogenous group when it comes to financial culture.

Németh et al. (2016) identified the following 9 personality types with the help of a 36-item-scale:

1. Economizer with little money
2. Money-devourer (opposite of Moderate)
3. Order creates value
4. Price sensitive
5. Collector
6. Planner
7. Ups and downs
8. Diligent
9. Cannot control finances

In their survey they used a typology by Mellan (1997). It turned out, however, that in Hungary there are personality types different from those of Mellan. Zsótér et al. (2016) identified the following clusters regarding the total Hungarian population based on the OECD survey. 1. anxious unsatisfied; 2. satisfied conscious; 3. imprudent. The first cluster is characterised by individuals whose days are hallmarked by anxiety, who feel that their financial situation constrains them leading to dissatisfaction and who, thus, spend carefully.

The individuals belonging to the second cluster are satisfied with their financial situation, feel a lot less anxious and are at the same time characterised by a conscious behaviour concerning their finances (planning, control). The third cluster is characterised most by a carpe diem approach. Spending is more important to them than saving, nevertheless, they consider their debts depressing (though not as much as the first group). This reinforces the research findings saying that the population and the consumers are not to be considered one homogenous group, since they may differ regarding their attitudes or personality along several features. All this requires different approaches in the field of financial education as well.

Researching the young consumers, Fraczek and Klimontowitz (2015) suggest that some financial decisions are made on the basis of emotions and not on the knowledge and skills, and this phenomenon could lead to financial vulnerability. Based on Xiao and O'Neill (2016) findings we can state that financial education (general or specific) of young consumers shows positive associations with financial capability and financial literacy. The financial capability was investigated in the research of Sinha et al. (2018). Their results show that the 18-24 years old consumers can devided into four groups based on their financial attributes and behaviors. The largest group is the financially at-risk cluster, the second largest is the financially precarious group. The financially striving and financially stable groups are smaller than the first two. Grohs-Müller and Greimel-Fuhrmann (2018) studied the younger generation (13-15 years old) and found that the emotional aspects of money attitudes – 1) anxiety, 2) happiness and power, and 3) quality achieved for money – have positive relationship, on the other hand financial planning – the rational aspect - is independent of them.

The present study examines the distinct features of the financial culture of young adults (aged 18-35) to see what factors play a role in the evolvement of financial vulnerability or protection. The research questions we were searching answers for by analysing the OECD database were:

- Q1. What characterises the financial literacy of the age group 18 - 35 from a subjective and an objective aspect?
- Q2. What characterises the age group 18 - 35 along their financial attitudes?
- Q3. What characterises the age group 18 - 35 along their financial behaviour?
- Q4. How can 18 - 35 year olds be segmented along financial attitudes?
- Q5. What are the underlying factors of young adults' financial vulnerability or protection?

3. Research methods

In 2010 and 2015 GfK, conducted a research based on OECD methodology and questionnaires, commissioned by the the Financial Compass Foundation (Pénziránytű Alapítvány), on a representative sample encompassing 1000 people assessing the financial literacy and financial culture of the adult population.

It was in 2010 when Hungary first took part in the basic research, encompassing then 14 countries which, based on international methodology, assessed the stage of development of the adult population's financial culture in each country. Following the survey of 2010 Hungary participated in the research again in 2015, which was conducted in almost 30 countries nearly simultaneously. The initiative of OECD is unique in the sense that the common methodology and nearly simultaneous data recording provide an opportunity for comparing data from countries in a well-founded way internationally, as well as for confronting time series data within a given country

The aim of the present study is to describe the respondent group of young adults aged 18-35. The questionnaire contained questions regarding the recognition and use of financial products, the subjective and objective perception of financial knowledge, financial difficulties, coping strategies and financial attitudes (Atkinson – Messy, 2012) which were included in the present study as well.

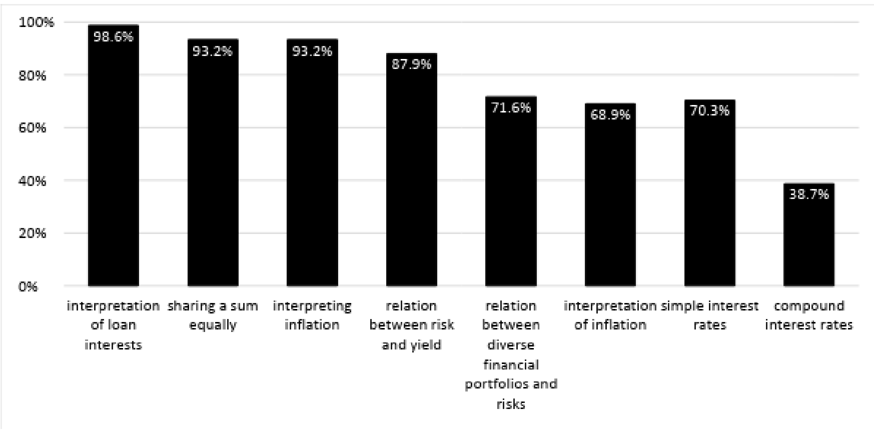
In our research we examined the different aspects of the financial culture of the respondents aged 18 - 35, such as financial literacy, financial behaviour, financial attitudes and the sociodemographic characteristics influencing these aspects. When processing the questionnaire we used regression models (linear and logistical) beyond the methods of descriptive statistics. The regression results are presented in the tables in the appendix. We used SPSS to process data.

We aimed at characterising the youngsters regarding their financial behaviour and attitudes. We did so by using cluster-analysis, since we presumed that our target group was not homogenous along the variables examined. The respondents expressed their agreement with a statement on the questionnaire on a five-point Likert-scale where, according to the unified methodology of OECD, 1 is “I strongly agree” and 5 is “I strongly disagree”, however, for better understanding we applied reverse-coding. After the factor analysis on the statements in the research regarding financial attitude and behaviour we created groups using K-means-cluster analysis. We opted for K-means cluster as it handles high number of items well. (Sajtos – Mitev, 2007). Based on the principal component analysis the financial attitudes concentrated around four factors. The factor structure received enables a segmentation which groups the respondents based on their financial attitude and behaviour. Based on the average scores on the factors we first identified the number of clusters with the help of a hierarchical cluster analysis - based on this the sample could be divided into three groups. Then we carried out the grouping using K-means cluster analysis.

4. Analysis and results

4.1. Financial literacy

The first group of questions is directed to discovering financial literacy and competencies. There were 8 exercises in the questionnaire measuring financial intelligence. Young adults provided the highest number of correct answers to the question on the interpretation of loan interests. This was followed by questions on sharing a sum equally and on interpreting inflation.



Graph 1. The rate of correct answers given to questions measuring financial literacy

Also many knew the correct answer to the relation between risk and yield and also to questions on the relation between diverse financial portfolios and risks. The lowest number of correct answers were given to exercises on compound interest rates: less than 40 percent of responding young adults answered correctly (Graph 1).

Young adults gained on average 5.73 points on a series of questions measuring financial literacy, as opposed to the members of the older generation with 5.69 points, the difference is, however, not significant.

We carried out a linear regression analysis to examine the sociodemographic factors influencing financial literacy. The results of the regression analysis are presented in table 1. in the appendix. In the regression analysis the dependent variable became the score on the series of 8 questions measuring financial literacy.

The results show that there is no significant deviation in financial literacy along sex and age. As for types of settlement we saw that individuals living in bigger places performed significantly better than their village counterparts on questions measuring financial literacy, while no significant difference was found for the capital. As for education it can be said that those who completed higher education or have a school-leaving exam have a significantly higher level of financial literacy than those having only elementary level of education. Compared to young adults having elementary level of education the ones with a school-leaving exam and the ones with qualifications at higher level performed on average 0.75 and 1.06 points better respectively on questions measuring financial literacy. According to the results household income also influences young adults' financial literacy: at higher level of income the score gained on the series of questions measuring financial literacy is also higher. However, based on the type of employment there is no significant difference in the financial literacy of the group aged 18-35.

4.2. The subjective assessment of financial literacy

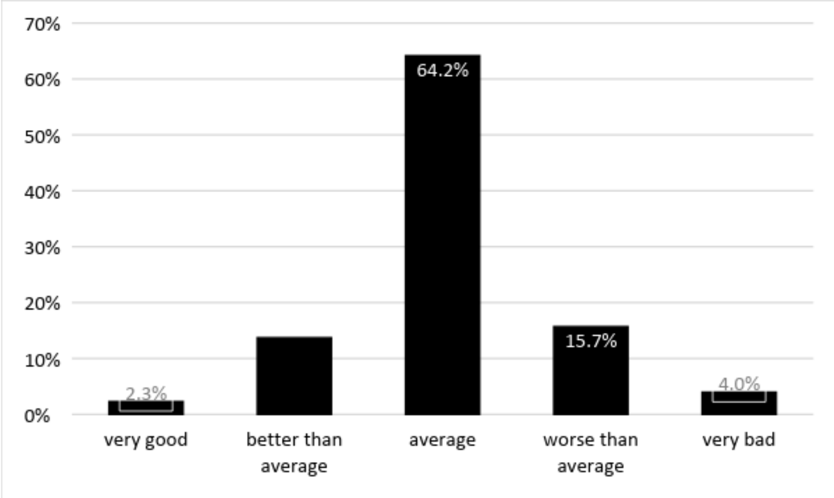
At the next stage we examined the respondents' self-image of their financial literacy and how realistic this image is. Unrealistically high self-image leads to an excessive risk-taking behaviour, whereas if it is too low it holds one back from manageable and profit-enticing financial decisions. Cutting your coat according to your cloth is true for financial decisions as well, that is, we must take decisions whose benefits and potential risks we are able to assess.

Respondents were asked to rate their general financial literacy on a 5-point-scale (1-very good, 5-very bad). Only 2.3% of the young adults rated their financial literacy very good. Most – 64.2% - of the respondents, rated it average. All in all more rated their financial literacy worse than average than better than average.

When examining the factors influencing the subjective assessment of financial literacy we used linear regression analysis. The results of the regression analysis are presented in Table 1 in the appendix.

Apart from the sociodemographic factors we also included the score gained for questions on financial literacy in the regression analysis as an explaining variable, therefore our results indicate differences independent of literacy. According to the results of the regression analysis respondents aged 18-35 show no significant difference in assessing financial literacy along sex or according to types of settlement.

However, with age the self-confidence of young adults regarding their financial literacy increases, though slightly (on average by 0.02 points per year). According to the results self-confidence regarding financial literacy increases with higher level of education.



Graph 2. Assessment of financial literacy

We did not detect significant differences along income and employment. According to the results with higher level of financial literacy self-confidence increases too, but the connection is rather weak, which suggests that young adults often do not assess their financial literacy realistically or in line with their real financial knowledge.

We examined how young adults with higher than average and with lower than average score on a set of financial questions see their financial literacy.

Table 2. The connection between financial literacy and its subjective assessment

	Assesses own financial literacy better than average or very good.	Assesses own financial literacy average.	Assesses own financial literacy worse than average or very bad.
Scored higher than average	10.3%	38.8%	10.1%
Scored lower than average	5.7%	25.4%	9.7%

As it can be seen in the table above only 20% of the respondents aged 18-35 assess their financial literacy realistically. They are the respondents who scored better than average on financial questions and claim to have a better than average financial literacy as well as the ones who scored lower than average and assessed their financial literacy lower than average.

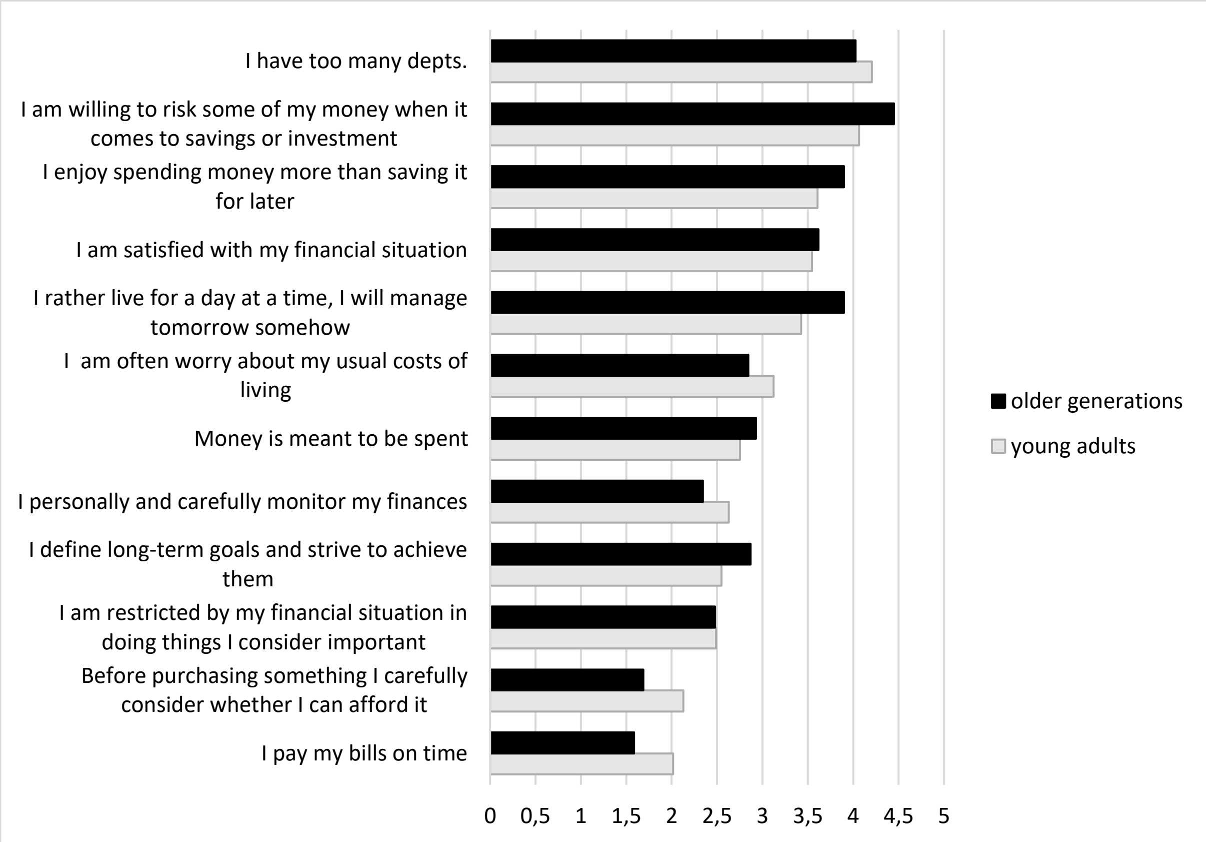
4.3. Financial attitudes

Financial behaviour is influenced not as much by financial literacy as by the emotional relations to money, by attitude.

There were 12 statements in the questionnaire to assess financial suppositions, habits, attitudes. The respondents had to express their agreement with a statement on a five-point-scale where, following the reverse coding, 1 meant "I strongly disagree" and 5 meant "I strongly agree". The average scores calculated from the answers to the questions are presented in table 4.

Comparing the answers of young adults to the older generation we found that youngsters tend to set long-term goals and have a carpe diem life approach (I enjoy spending money more than saving it for later). They rather live for a day at a time, they will manage tomorrow somehow, money is meant to be spent. Compared to the older generations young adults rather take risks (I am willing to risk some of my money when it comes to savings or investment). In addition, financial prudentiality is less characteristic of young adults (before purchasing something I carefully consider whether I can afford it; I personally and carefully monitor my finances).

According to the results, thus, the financial attitudes of young adults and older generations differ to a great extent. Only in case of two statements was there a lack of significant difference (I am restricted by my financial situation in doing things I consider important, I am satisfied with my financial situation). These are not so much linked to financial attitudes, rather to the assessment of one's financial situation.



Graph 3. Average scores on questions regarding financial attitude

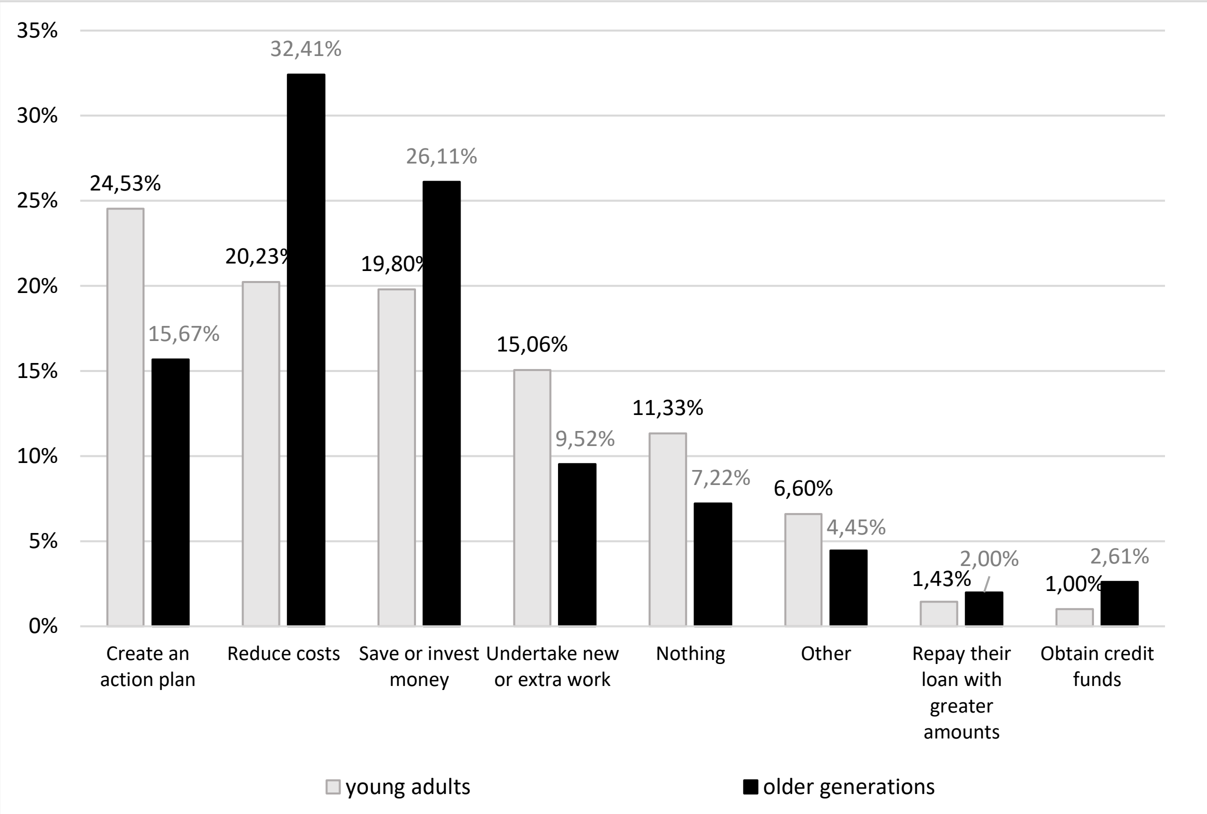
4.4. *Financial behaviour*

Responses to questions aimed at discovering financial behaviour: whether, for example, they have financial goals, how they wish to implement them: if they have savings, do overtime, borrow money, prepare a budget at all, were examined with logistical regression analysis except for questions on recognising and using financial products when we used linear regression analysis.

Budget is prepared in 22.1% of the households of young adults , which is slightly lower than the rate at older generations (26.2%), but the difference is not significant. Among young adults rather women than men tend to prepare a budget: women are on average 65% more likely to make a budget plan than men. Young adults living in the capital are four times more likely to prepare a budget than their village counterparts.

40.5% of young adults had **some savings** in the past 12 months compared to the rest of the society, where this rate was 45.4%, the difference was not significant. Young adults living in larger places more typically have savings than their village-resident counterparts. At the same time young adults living in the capital are half as likely to have savings than those living in a village. According to our results whether or not young adults have savings is not influenced by the other variables examined such as education, income, financial literacy and its subjective assessment.

53.2% of the young adults asked have **financial goals** compared to older generations where this rate is only 45.2%. The difference is significant. According to the results of the logistical regression youngsters living in small towns are three times more likely to have financial goals than their village-resident counterparts. In case of other types of settlement the difference is not significant. Young adults living in households with an income over 75% of the income median of households are twice as likely to set financial goals than those who have an income lower than that. The unemployed, however, have a significantly smaller chance to have financial aspirations than young adults in employment. Financial literacy and its subjective assessment do not have significant impact.



Graph 4. Measures to achieve financial goals

In order to achieve financial goals the young adults asked primarily created an action plan, many reduced costs, saved or invested money. When comparing the answers of young adults to that of older respondents it can be seen that the younger ones rather prepare an action plan or undertake new, extra work to achieve financial goals, whereas reducing costs, savings or investments were opted for by fewer. Result show clearly that the younger and the older generations apply different coping strategies.

4.5. Cluster analysis based on financial attitudes

Below we examined with a so called cluster analysis what groups may be created based on the similarity in answers given to financial habits, behaviour and attitudes. That is whether well-defined groups can be identified based on relations to money.

As a first step we conducted a factor analysis along the 12 statements examining the respondents' opinion regarding financial habits and attitudes. The 12 statements centred around four factors. The rotated factor matrix is presented in Table 3.

Table 3. Rotated matrix from the factor analysis (principal component-analysis, varimax rotation)

Statements	Factors			
	1 Anxiety & vulnerability	2 Carpe diem	3 Consciousness	4 Risk-taking
I am often worried about my ordinary living expenses	0.817	0.001	-0.036	0.099
I am satisfied with my current financial situation	-0.788	0.111	-0.005	0.164
I am restricted by my financial situation in doing things I consider important.	0.778	0.181	-0.002	-0.069
Currently I have too many debts	0.544	0.124	-0.132	0.541
Money is meant to be spent	0.074	0.836	-0.065	0.049
I rather live for a day at a time - I will manage tomorrow somehow	0.012	0.823	-0.162	0
I enjoy spending money more than saving it for later	-0.005	0.759	-0.344	0.125
I set up long-term financial goals and strive to achieve them	-0.065	-0.211	0.822	0.081
I personally and carefully monitor my finances	0.011	-0.164	0.715	0.214
I pay my bills in time etc.	-0.348	-0.274	0.541	-0.366
Before purchasing something I carefully consider whether I can afford it	0.395	-0.066	0.506	-0.376
I am willing to risk some of my money when it comes to savings or investment	-0.162	0.043	0.217	0.780

The variables centred around the following four distinctive factors: 1. anxiety and financial vulnerability, 2. carpe diem approach, 3. consciousness, 4. risk-taking. Although the last variable in this factor structure does not connect to any other, from content validity aspect we believe, it should be handled separately.

Based on the average scores on the factors we first identified the number of clusters with the help of a hierarchical cluster analysis - based on this the sample could be divided into three groups. Then we carried out the grouping using K-means cluster analysis. This clustering algorithm separates data into the best suited group based on the information the algorithm already has. Data is separated in different clusters, which are usually chosen to be far enough apart from each other spatially, in Eucledian Distance, to be able to produce effective data mining results. Each cluster has a center, called the **centroid**, and a data point is clustered into a certain cluster based on how close the features are to the centroid.

Table 4. Final clusters: Cluster centres from K-means cluster analysis (based on averages on statements belonging to the factor, 1 - strongly disagree, 5 - strongly agree)

Final cluster centres			
Mean values	*Clusters*		
	1 (N=68)	2 (N=86)	3 (N=127)
Anxiety and vulnerability	3.07	2.87	2.91
Carpe diem	3.81	2.67	2.10
Consciousness	2.89	3.81	4.05
Risk-taking	1.38	3.44	1.26

The cluster centres already indicate what kind of respondents we can typically put into certain groups, for a more accurate description, however, we examined the average scores of all the 12 attitude statements in each cluster. Scores are presented in Table 5 highlighting where the agreement with a certain statement is the strongest.

Table 5. The average scores of the 12 attitude statements in each cluster (1 - strongly disagree, 5 - strongly agree)

	cluster	cluster	cluster
Before purchasing something I carefully consider whether I can afford it	3.4559	3.6860	4.2126
I rather live for a day at a time - I will manage tomorrow somehow	3.6324	2.4419	1.9528
I enjoy spending money more than saving it for later	3.7059	2.3372	1.6772
I pay my bills in time etc.	3.2500	3.9535	4.4724
I am willing to risk some of my money when it comes to savings or investment	1.3824	3.4419	1.2598
I personally and carefully monitor my finances	2.4559	3.6512	3.7953
I set up long-term financial goals and strive to achieve them	2.3971	3.9302	3.7244
Money is meant to be spent	4.0882	3.2209	2.685
I am restricted by my financial situation in doing things I consider important.	3.6912	3.3605	3.4252
I am often worried about my ordinary living expenses	3.0294	2.8372	2.874
Currently I have too many debts	2.0294	1.9767	1.6378
I am satisfied with my current financial situation	2.4559	2.686	2.3071

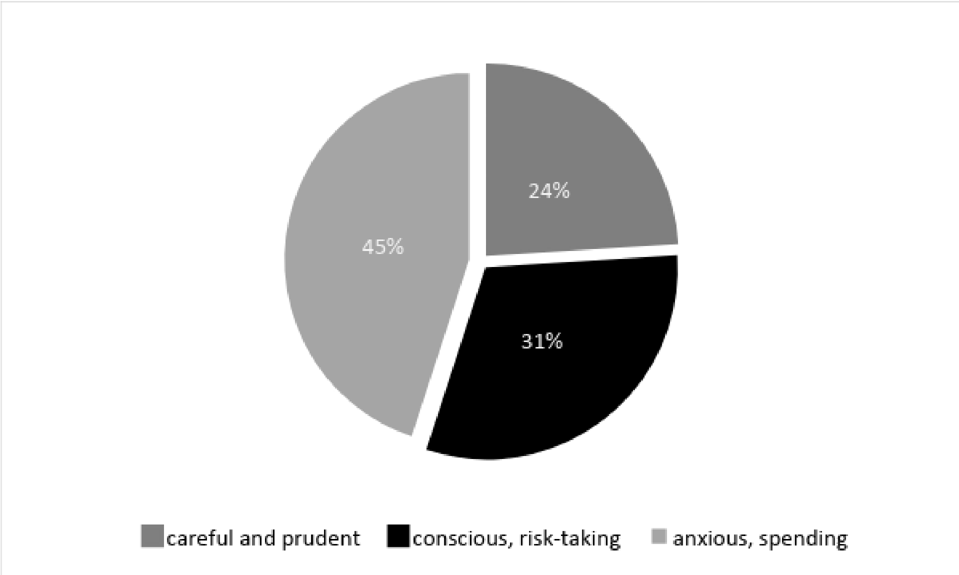
Based on Table 5 we can state that:

- The respondents characterised most by the carpe diem approach belong to **the first cluster** along with the most anxious, since their financial satisfaction is not satisfactory for them. According to our calculations they account for 24% of young adults in the society.

- The respondents most satisfied of the three groups, having long-term goals, willing to take risks fell into **the second cluster**. They are highly confident. Around 31% of the 18-35 year olds belong to this group. Regarding money-spending attitudes they are located between the two clusters.

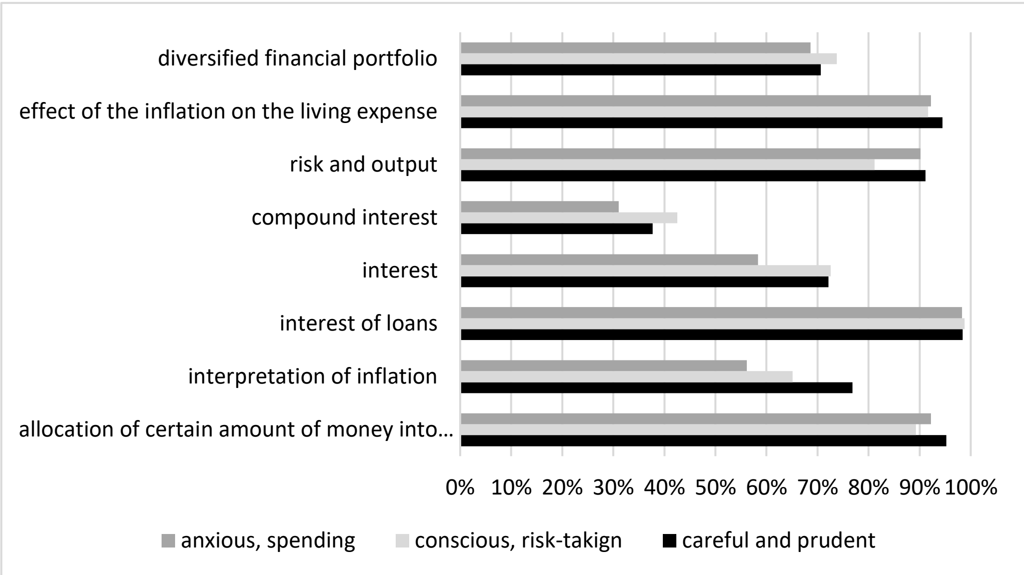
- Members of **the third cluster** are prudent, try to monitor their finances and are the least characterised by a spending approach. Otherwise this is the largest group (45%). It must be noted that although monitoring is the strongest here, it is still close to neutral.

Based on the above we named the clusters:
1. cluster - anxious, spending;
2. cluster - conscious, risk-taking;
3. cluster - careful and prudent.
Graph 5 presents the spread of members in each cluster in percentage.



Graph 5. Spread of clusters in percentage

The groups were also analysed along financial literacy, information regarding savings, financial goals and product recognition as well as product use.

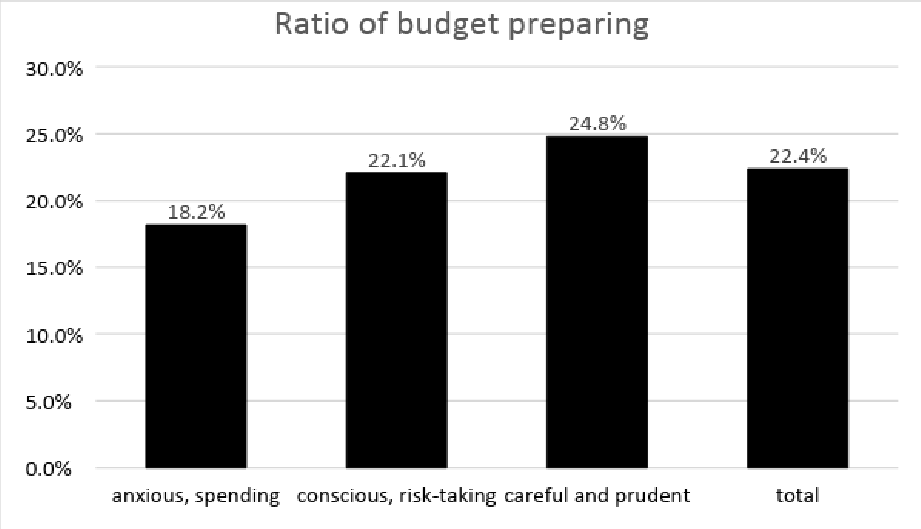


Graph 6. Rate of correct answers to questions measuring financial literacy for each cluster

As for **financial literacy** it can be stated that most correct answers were given in the conscious-risk-taking (6,0 on average) and in the careful and prudent groups (5,9 on average). The rate of correct answers is the lowest among the anxious-spenders. They performed worst on simple interest, complex interest and inflation (see Graph 6).

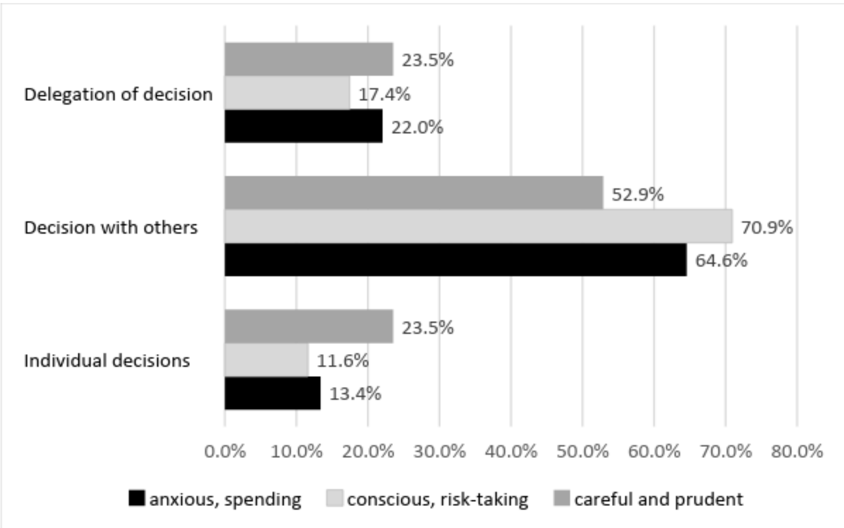
The satisfied-risk-taking group assessed their financial literacy the highest, we can therefore say that they are to be considered the most confident cluster. This confidence can be identified at another question as well, as to the question how sure they are about their financial plans for retirement this group's answers showed the highest confidence. The anxious-spending cluster is the most insecure group.

Examining **the financial behaviour of the clusters** it can be stated that preparing a budget is the least present among the anxious-spenders and is the most characteristic of the careful and prudent cluster (see Graph 7).



Graph 7. Rate of budget preparers in each cluster

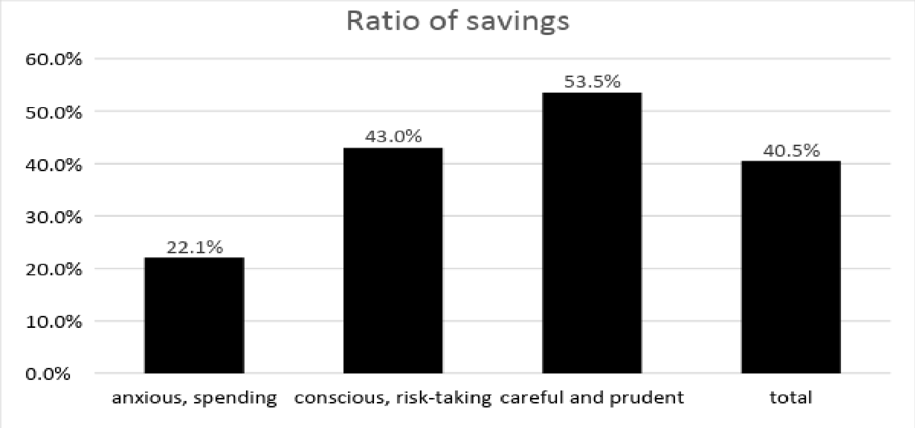
Regarding **financial decisions** we found that group decisions are the strongest in the conscious-risk-taking cluster and the weakest in the anxious-spending group. In the anxious-spending group the rate of individual decision-makers or decision-delegators is the highest compared to the other two clusters (Graph 8).



Graph 8. Types of financial decisions in each cluster

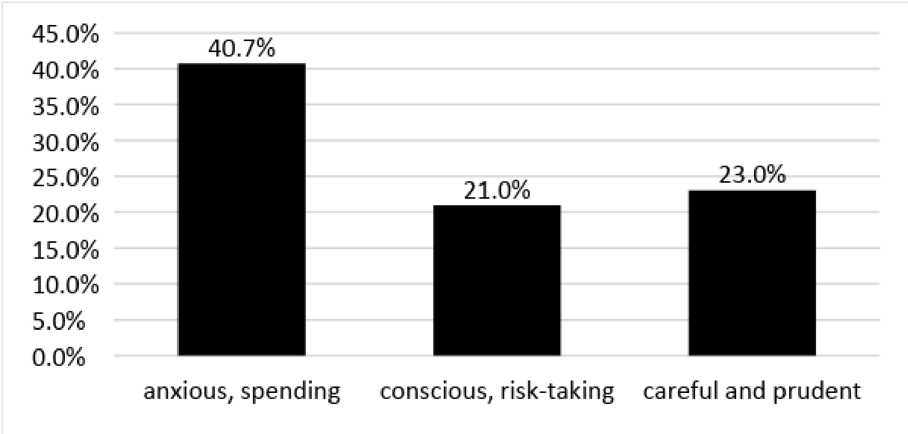
This group differs significantly regarding financial goals as well, since only 28.4% claims to have a financial goal, while this rate is above 60% in the other two groups.

Regarding savings 40.5% of the age group 18-35 had savings in the last year. This is very different by clusters, though. It is the careful and prudent group where 53.5% of the respondents had savings, it was, however, only 22.1% in the anxious-spending group (Graph 9).



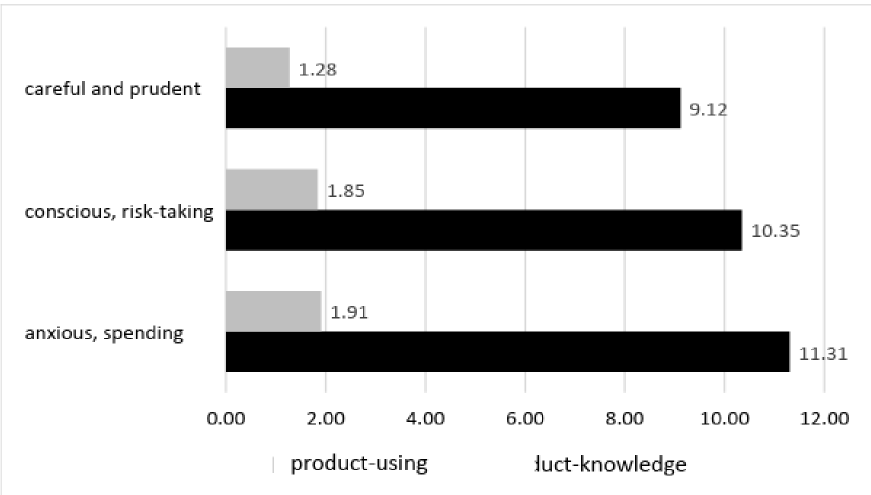
Graph 9. Rate of individuals with savings in each cluster

Having financial problems was the most typical of the anxious-spending cluster and the least typical of the satisfied-risk-taking cluster (Graph 10).



Graph 10. Rate of having financial problems in each cluster

The level of product recognition and product use is the lowest in the anxious and spending cluster. They recognise 9.12 products and use 1.28 financial products on average. This rate is the highest in the careful and prudent cluster as they recognise 11.31 products and use 1.91 products on average (see Graph 11).



Graph 11. Level of product recognition and product use in each cluster

4.6. Financial vulnerability

Identifying the so called anxious-spending group is an important result regarding financial vulnerability. What characterises this group? For one thing they are characterised by having struggled with financial problems in the last 12 months. Worrying and anxiety regarding finances are continuously present in their lives. Although they struggle with financial problems and typically have no savings, when they get hold of money they tend to spend it, which makes this group especially vulnerable.

Summary of the characteristics of the financially vulnerable group of young adults:

- they possess lower level of financial literacy and skills,
- they recognise and use fewer products,
- they make their financial decisions alone or these are made for them by others, group decision making is not typical of them,
- significantly fewer of them prepare budgets,
- they rather live a day at a time,
- if there is a chance they spend, they do not save money,
- they exacerbate their getting by with financial problems, thus, often feel anxious,
- live in smaller settlements,
- have lower income and
- are not characterised by having financial goals.

5. Discussion and conclusions

According to our results the level of young adults' financial literacy does not differ significantly from that of older generations. The level of financial literacy of the age group 18-35 is equally influenced by education, income and types of settlement. These findings are in accordance with results of De Beckker et al. (2018). This means that the financial literacy of individuals who possess higher level of education, have a better income situation and live in a city is higher.

Our results show that young adults often do not assess their financial literacy realistically or in line with their real financial knowledge. Only 2.3% of the young adults considered their financial literacy very good, most of them assessed it average. All in all more assessed their financial literacy worse than average than better than average. Young adults' confidence regarding their financial literacy grows with an increase in age, education and real financial literacy

Compared to the older generations when it comes to financial attitudes young adults are rather characterised by setting long-term goals, having a carpe diem life approach and taking risks, however, financial prudentiality is less typical of them.

Having financial goals is more characteristic of the young. When comparing the coping strategies applied to reach financial goals differences can be traced: the younger ones rather prepare an action plan or undertake new, extra work to achieve financial goals, whereas reducing costs, savings or investments are opted for by fewer.

Based on the answers to the 12-item-long financial attitude scale we distinguished 3 adult groups.

The satisfied risk-takers are located between the other two clusters regarding both their financial attitudes and their financial behaviour. Their self-confidence is, however, outstanding, we measured the highest level of confidence regarding both their literacy and future plans. This group is characterised the least by having financial problems, which may be connected to their self-confidence. It can also be stated that they are satisfied with their financial status and are the least concerned about it.

Members of the **careful and prudent cluster** also perform well regarding financial literacy, product recognition and product use. They are characterised the most by planning, monitoring finances and preparing budgets, furthermore, this groups is the most likely to have savings.

As for **the anxious spending group**, we can state the following: they struggle most typically with financial problems, whereas they are the least likely to have savings. As for emotions worrying and anxiety are present in their lives and they also tend to spend their money at the same time. Their financial literacy, product recognition and product use are generally lower compared to the other two groups. It is typical of them that they do not have a control over their finances as they fail to make budgets. Compared to others they are more likely to make decisions completely alone or forgo their control over these decisions. This group is not confident regarding their financial literacy or their future, either. Based on the results of previous research it can be stated that this cluster is closest to the "What goes around, comes around" approach (Németh et al., 2016). All the above features result in financial vulnerability and helplessness in everyday life. Be in tune with results of Grohs-Müller and Greimel-Fuhrmann (2018) anxious spenders decisions are more emotionally and anxiety attitudes relate positively to gambling behavior (Larimer, 2018). Therefore young people should be considered as a crucial target group of financial education, their purchase behaviour and access to money have changed remarkably during the last few decades (Fraczek and Klimontowicz, 2018).

Based on the results it can be stated that although young adults differ from older generations in a number of aspects regarding financial attitudes and behaviour, they themselves form a quite heterogeneous group. This statement is in accordance with findings of Sinha et al. (2018) or De Beckker et al. (2019), who also emphasize the importance of different groups in the same age-group. We may further deepen the picture and knowledge about them if we divide them into smaller groups, thus, create segments. The characteristics of the three clusters created in the present study (anxious spending, satisfied risk-taking, careful and prudent) probably require different approaches, whether the communication of financial products or financial education is concerned.

Our study has shed light upon a rather vulnerable group of Hungarian youngsters. It is a new finding that although there are several factors behind vulnerability, attitudes influencing financial behaviour are of crucial importance. Correction of behavioural and attitude-related factors must therefore also be paid attention to in financial education. There is a need for developing competencies such as the skill of setting financial goals, creating strategies connected to them and prolonging desires. In order to implement the above skills such as preparing budgets, calculation skills or product recognition and product use need to be developed. In accordance with findings of Sinha et al. (2018) deeper understanding of patterns in financial behaviors of emerging adults can lead to better design of need-based programs and products.

Acknowledgement

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Appendix

Table 1. The results of the regression analysis of financial literacy and its subjective assessment

	Financial literacy		**Subjective assessment of financial literacy**	
	B	Sig.	B	Sig.
constant	3,93	7,95E-08	4,31	9,61E-27
sex (0-female, 1-male)	0,12	0,578	-0,15	0,126
age	0,01	0,594	-0,02	0,034
small town (3000-15000 inhabitants)	0,58	0,028	-0,06	0,605
medium-sized town (15000-100000 inhabitants)	0,78	0,009	0,15	0,302
bigger town (100000-1000000 inhabitants)	1,02	0,002	-0,20	0,194
city (>1000000 inhabitants)	0,38	0,200	0,20	0,141
higher education	1,06	0,005	-0,55	0,002
secondary education with graduation	0,75	0,015	-0,24	0,100
secondary education without graduation	0,10	0,750	-0,06	0,711
between 75% and 125% of the income median of household	0,52	0,027	-0,14	0,198
over 125% of the income median of household	0,43	0,103	-0,20	0,109
self-employed	-0,07	0,925	-0,19	0,551
trainee	0,62	0,573	0,01	0,981
housekeeping	-0,38	0,350	0,00	0,992
unemployed	0,21	0,551	0,24	0,147
disable	-1,14	0,295	0,08	0,873
other inactive	0,73	0,267	0,27	0,377
student	0,22	0,551	0,08	0,644
other	1,05	0,060	0,27	0,302
financial literacy			-0,05	0,074

Table 2. Logistical regression results for financial behavior

	Does the household make a buget? (0-no, 1-yes)		**Have you had savings in the last 12 months? (0-yes, 1-no)**		**Do you have financial goals? (0-no, 1-yes)**	
	Exp(B)	Sig.	Exp(B)	Sig.	Exp(B)	Sig.
constant	0,02	0,038	12,87	0,412	0,61	0,738
sex (0-female, 1-male)	0,35	0,004	0,77	0,174	1,00	0,994
age	1,08	0,076	0,95	0,765	1,01	0,677
small town (3000-15000 inhabitans)	2,47	0,094	0,89	0,09	2,85	0,012
medium-sized town (15000-100000 inhabitants)	1,74	0,371	0,46	0,27	1,11	0,813
bigger town (100000-1000000 inhabitants)	1,42	0,601	0,58	0,087	0,89	0,804
city (>1000000 inhabitants)	4,52	0,007	2,25	0,009	1,32	0,524
higher education	1,62	0,464	0,20	0,437	1,35	0,613
secondary education with graduation	0,47	0,217	0,69	0,898	0,52	0,154
secondary education without graduation	1,23	0,741	1,07	0,775	0,86	0,766
between 75% and 125% of the income median of household	1,53	0,332	0,90	0,248	2,16	0,028
over 125% of the income median of household	1,54	0,369	0,63	0,472	2,18	0,049
self-employed	1,39	0,789	2,42	0,999	0,53	0,531
trainee	2,01	0,645	0,00	0,566	0,23	0,347
housekeeping	0,42	0,253	1,45	0,316	1,20	0,762
unemployed	0,95	0,942	1,81	0,999	0,29	0,034
disable	12,41	0,301	0,01	0,843	1,35	0,868
other inactive	0,00	0,999	1,22	0,613	0,58	0,572
student	2,74	0,122	0,76	0,302	0,96	0,944
other	0,75	0,755	2,59	0,091	0,91	0,912
financial literacy	1,20	0,145	0,84	0,219	1,21	0,051
subjective assessment of financial literacy	0,72	0,230	1,33	0,103	0,69	0,089

Table 3. Linear regression results for financial behavior

	How many financial products do you know?		How many financial products do you use?	
	B	**Sig.**	**B**	**Sig.**
constant	4,93	0,058	0,42	0,571
sex (0-female, 1-male)	-0,19	0,738	0,12	0,470
age	0,11	0,091	0,02	0,230
small town (3000-15000 inhabitants)	-0,46	0,520	0,36	0,079
medium-sized town (15000-100000 inhabitants)	-0,72	0,379	0,26	0,273
bigger town (100000-1000000 inhabitants)	-0,76	0,393	-0,04	0,881
city (>1000000 inhabitants)	-0,28	0,723	0,16	0,488
higher education	0,45	0,663	1,45	0,000
secondary education with graduation	1,68	0,053	0,52	0,010
secondary education without graduation	0,72	0,410	0,38	0,040
between 75% and 125% of the income median of household	-0,20	0,748	0,63	0,001
over 125% of the income median of household	-0,17	0,813	0,65	0,002
self-employed	-1,83	0,317	-0,69	0,189
trainee	2,08	0,474	0,16	0,846
housekeeping	0,78	0,472	0,05	0,882
unemployed	0,44	0,648	-0,55	0,046
disable	-1,86	0,518	1,56	0,060
other inacticve	-1,19	0,492	0,57	0,256
student	0,51	0,594	-0,48	0,086
other	-0,71	0,635	-0,26	0,548
financial literacy	0,84	0,000	0,05	0,297
subjective assessment of financial literacy	-0,90	0,016	-0,20	0,064