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Understanding Financial Well-Being in the Czech Republic: The Role of Financial Knowledge, Attitudes, Behavior and Experience

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Financial well-being's benefits extend beyond the financial domain. This study examined factors of financial well-being and its dimensions—financial satisfaction, financial limitation, indebtedness, and financial anxiety—using the Czech National Representative Sample of the Adult Population. The results showed that socio-demographic variables, such as education, work status, living in an urban or rural area, and income, were related to financial well-being. Financial knowledge was related to dimensions of financial satisfaction and indebtedness. Financial attitudes were associated with higher financial well-being, characterized by lower debt and a sense of less financial limitation and anxiety. Positive financial behavior contributed to financial well-being, higher financial satisfaction, lower indebtedness, and less financial anxiety. More experience with financial products was associated with higher financial well-being and satisfaction, as well as lower financial anxiety and limitations. The results are beneficial to policymakers and financial practitioners aiming to design effective strategies and targeted interventions to improve financial well-being and its dimensions.

Keywords: financial well-being, financial knowledge, financial attitudes, financial behavior, financial experience

INTRODUCTION

Financial well-being is a crucial component of overall well-being and plays a significant role in financial therapy, as financial anxiety and stress can profoundly impact one's behavior and mindset. At the individual level, financial well-being has been linked to aspects of overall well-being, including relationship satisfaction, happiness, and mental and physical health (Brüggen et al., 2017; Netemeyer et al., 2018). Stress resulting from financial hardship or high indebtedness negatively affects physical and mental health, as well as work productivity

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(Hojman et al., 2016; Kahn & Pearlin, 2006; Kim & Garman, 2003). Such stress not only damages the individual in question but also affects their families and communities (Dunn & Mirzaie, 2016; Ponnet et al., 2016). At the societal level, financial well-being has furthermore been shown to contribute to overall welfare, since individuals can spend more and rely less on Social Security benefits (Brüggen et al., 2017).

Financial well-being has been a priority on both the international and national policy agendas of various countries. According to an international study (Organisation for Economic Cooperation and Development [OECD], 2020a), many participating countries reported decreasing well-being indicators. The following study showed that factors concerning human and social capital in the Czech Republic improved, but the financial aspects of well-being indicators did not (OECD, 2024).

While financial well-being research has expanded in recent years, the research has scarcely included European countries. To the authors' knowledge, there is currently no literature focusing on financial well-being specifically related to the Czech population at large. Furthermore, there is no systematic approach to financial therapy at either the national or regional level. Consequently, financial therapy in the Czech Republic may be regarded as a relatively new field with considerable future potential.

Financial dissatisfaction and financial anxiety can prevent individuals from managing their household finances responsibly, which can strain relationships between partners and negatively impact a family's financial well-being. This outcome stands in direct contrast to the goals of the National Strategy, which aims to support the financial well-being of individuals and their families (Czech Ministry of Finance, 2020). Additionally, evidence suggests that financial literacy, including its components such as financial knowledge, financial behaviors, and financial attitudes, is closely related to financial well-being. The present study brings into focus the question, "What are the main determinants of financial well-being in the Czech Republic?"

Studies have investigated the association of financial knowledge or financial behavior with financial well-being in OECD countries, yet such an examination is lacking for the Czech adult population. The Czech Republic has been promoting financial literacy among its citizens since 2005, with the ultimate goal of achieving financial well-being (Czech Ministry of Finance, 2024). Therefore, identifying the factors that determine financial well-being in the country is crucial to providing recommendations to improve these national efforts.

In response, this research paper adds to the literature in two ways. First, by assessing whether the following factors are related to specific dimensions of financial well-being: financial satisfaction, financial limitations, financial indebtedness, and financial anxiety. Those dimensions are part of the financial well-being measurement by the OECD International Network on Financial Education (INFE). Second, we further examine financial well-being factors within the national context of the Czech Republic to increase the generalizability of the prevailing financial well-being framework.

With these insights, financial practitioners and therapists will know what to include in their programs and interventions when aiding individuals to achieve *overall* financial well-being, as well as what factors to incorporate when focusing on a *specific dimension* of financial well-being, as stated above.

LITERATURE REVIEW

The National Context

A research study (OECD, 2017) on general well-being in the Czech Republic yielded some contradictory findings. Data on the adult population revealed high rates of educational attainment, employment, personal security, and life satisfaction. On the other hand, the study indicated lower income compared to the OECD average, decreased housing affordability, and lower self-perceived health. The data from this OECD well-being study fall within the timeframe of the present financial well-being study.

Education and financial education are priorities in many countries. The Czech Republic* was one of the first countries to have a National Strategy for Financial Education, which was approved in 2010. However, initiatives can be traced back to 2005 and 2006 with the creation of the Working Group for Financial Education (Czech Ministry of Finance, 2024). Education to improve financial literacy became compulsory at the secondary education level in 2009 and the primary education level in 2013, affecting students aged 6-18 years. Additionally, other target groups within the adult population were prioritized with the revision of the national strategy in 2020. The target groups also included socially disadvantaged people receiving social benefits, the unemployed, seniors, teachers, social workers, and certain public sector workers (Czech Ministry of Finance, 2020).

Before the economic transformation in 1989, the market economy did not exist in the Czech Republic.† The economy was influenced by politics; corporate ownership was predominantly state-controlled, while private entrepreneurship was almost non-existent (Židek, 2019). In the decade after the Velvet Revolution in 1989, the financial system underwent an extensive “reconstruction.” During this period, the Czech population needed to adapt their financial behavior accordingly and learn to navigate an entirely new financial landscape. To put this into perspective, those who were economically active at the time of the Velvet Revolution made up more than 42% of the demographic sample in this study.

The development in the 1990s also led to some negative experiences with fraud related to collective investment funds (Jílek, 2009), during which many individuals lost not only their investment assets but also their trust in the financial system and investment products. The Czech financial report (Czech Ministry of Finance, 2015, 2023) indicated that funds allocated to investment and pension funds constituted only 17% of the financial market in

* The Czech Republic can be also recognized under the name “Czechia.” In this paper, we use the formal name, the Czech Republic.

† Former Czechoslovakia. The Czech Republic was established in 1993.

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2015 and 20% in 2023. The majority of funds were held as deposits in the banks where they are protected by deposit insurance (Czech National Bank, 2024).

Currently, the Czech Republic is a developed economy located in central Europe. Its recent gross domestic product was 343 billion USD (World Bank, 2023), and it is a member of the European Union. Among OECD countries, the Czech Republic reported mixed results on different well-being factors (OECD, 2017). On average, the Czech Republic scored higher in financial knowledge, financial attitudes, and financial well-being, but lower in financial behavior compared to participating OECD countries (OECD, 2020b). Financial literacy factors in the Czech Republic included age, education, income, work situation, living in the city or rural area, and attitudes towards risk. Interestingly, the Czech national data revealed that risk-averse individuals demonstrated higher financial literacy, while gender did not significantly influence financial literacy. Moreover, men scored lower than women on financial behavior (Chmelíková, 2017).

Positive financial behavior, making sound financial decisions, and taking care of personal finances are essential for accumulating sufficient wealth in the long term and securing one's retirement. Therefore, the national strategy of the Czech Republic defines financial education as “a process to increase financial literacy to reinforce the personal responsibility of individuals for their money management” (Czech Ministry of Finance, 2020, p. 4). Financial education encompasses the behavioral aspect that enables individuals to make responsible financial decisions, thereby ensuring the financial well-being of themselves and their families (Czech Ministry of Finance, 2020).

Furthermore, numerous national strategies (OECD/INFE, 2015a) in other countries also focus on enhancing financial literacy and financial well-being (Australian Treasury, 2022; Financial Consumer Agency of Canada, 2019; New Zealand Commission for Financial Capability, 2021; OECD/INFE, 2015a; UK Money & Pensions Service, 2020; U.S. Financial Literacy and Education Commission, 2020). Therefore, this study provides valuable insights that can support policymakers in developing targeted, effective, and relevant financial well-being initiatives.

Financial Well-Being

Financial well-being is a complex, multidimensional concept with various definitions and different approaches (Fan & Henager, 2022; Garcia-Mata & Zeron-Felix, 2022; Mahendru, 2020; Nanda & Banerjee, 2021; Riitsalu & van Raaij, 2022; Salignac et al., 2020; Sorgente et al., 2022). For instance, Kempson et al. (2017) described financial well-being as the fulfillment of financial commitments and needs. This definition also encompasses the financial resilience that enables one to maintain financial stability and the ability to fulfill future commitments and needs. The OECD (2005) linked financial well-being to financial education, which facilitates financial knowledge and enhances financial skills, confidence, and sound decision-making. According to Joo (2008), financial well-being is related to having enough financial capital, access to quality healthcare, and an appropriate portfolio of financial products.

Huston (2010) indicated that financial knowledge, financial education, personal finance behavior, and financial well-being are related. Brügger et al. (2017) linked financial well-being to living standards and financial freedom, conclusions that were further expanded upon in a study by Riitsalu et al. (2024). Additionally, the financial well-being concept, as proposed by Muir et al. (2017), which builds on financial resilience, suggests that individuals can be in control of their financial situation, accompanied by a sense of financial security. Furthermore, a study by van Raaij et al. (2023) showed that higher self-control can reduce money management stress. Financial well-being can therefore be viewed as an ideal state where individuals feel financially secure, meet their financial obligations, and make decisions such that they can enjoy life (Consumer Financial Protection Bureau [CFPB], 2015a; U.S. Financial Literacy and Education Commission, 2020).

Just as there are several ways to define financial well-being, there are also various instruments used to measure it (CFPB, 2015b, 2017; OECD/INFE, 2018, 2022). In the current study, we adopted a measure developed by OECD/INFE (2015b, 2018) that includes financial well-being questions. Given the multi-dimensional nature of financial well-being, we assessed the overall measurements and specific dimensions of financial well-being (i.e., financial satisfaction, financial limitation, financial indebtedness, and financial anxiety) separately.

Several conceptual models of financial well-being have been developed. These models show the complexity and interrelations among numerous factors, such as personal financial knowledge, attitudes, psychological factors, financial behavior, socio-economic conditions, financial experience, and skills, that determine financial well-being (Carton et al., 2022; CFPB, 2015a; Fu, 2020; Hudson et al., 2022; Huston, 2010; Kempson et al., 2017; Mokhtar & Husniyah, 2017; Sabri & Falahati, 2013; Salignac et al., 2020).

Moreover, prior work already established a relation between financial well-being and financial literacy (Fernandes et al., 2014). OECD/INFE defined financial literacy as “A combination of awareness, knowledge, skill, attitude, and behavior necessary to make sound financial decisions and ultimately achieve individual financial well-being” (Atkinson & Messy, 2012, p. 14).

In the following sections, we elaborate on the relationships between financial knowledge, financial behavior, financial attitudes, financial experience, and financial well-being.

Financial Knowledge

Financial knowledge, as described by Huston (2010), refers to an individual’s ability to understand financial matters, including concepts, products, and services. This knowledge can be obtained through experience and education. Hung et al. (2009) used the term financial knowledge to refer to an understanding of financial and economic concepts of the overall financial system.

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Financial knowledge can benefit individuals' personal lives. For instance, when individuals understand financial concepts and principles, they are better equipped to navigate the financial landscape effectively. Such knowledge leads them to feel greater control over their financial circumstances. This may enable them to experience less social and psychological stress, leading to a greater sense of perceived financial well-being. Research by Y. Lee et al. (2023) confirmed that higher financial knowledge is linked with lower financial stress and anxiety (J. M. Lee et al., 2023).

Numerous research studies have shown a positive link between financial knowledge and financial well-being (Dare, 2022; Fan & Henager, 2022; Riitsalu & Murakas, 2019; Riitsalu et al., 2025; Younas et al., 2019).

Previous studies have distinguished between two types of financial knowledge: objective financial knowledge, or what individuals know about financial matters, and subjective financial knowledge, which is what they believe they know about financial matters (Hung et al., 2009; Huston, 2010; Lind et al., 2020; Nejad & Javid, 2018; Riitsalu & Murakas, 2019). The first is measured by a set of financial knowledge questions with a final score based on their correct answers (Atkinson & Messy, 2011; Fernandes et al., 2014; Lusardi & Mitchell, 2014; Robb & Woodyard, 2011; Xu & Zia, 2012). The latter is measured by self-assessment question(s) where respondents indicate their perceived level of financial knowledge (Riitsalu & Murakas, 2019; Tang & Baker, 2016). In this research, we used objective financial knowledge, assessed via the OECD/INFE (2015b, 2018) financial literacy measurement toolkit.

Financial Attitudes

Personal attitudes are an important factor in financial well-being as they not only influence how we perceive our well-being but also what actions we are inclined to take to achieve it. Eagly and Chaiken (1993), drawing from Białowolski et al. (2020, p. 192), defined attitudes as “A psychological tendency that is expressed by evaluating a particular entity with some degree of favor or disfavor.”

In international measurements (OECD, 2016, 2020b; Scott et al., 2013) and OECD/INFE (2015b, 2018) toolkits, the financial attitude score averages the scales. Financial attitudes are measured by various statements with a Likert scale ranging from ‘completely agree’ to ‘completely disagree’ (Baglioni et al., 2017; OECD, 2023; She et al., 2022). The statements are designed to detect individuals who, for instance, take care of their future by planning, developing action steps, and pursuing those plans regardless of the outcome. For example, an inclination to save rather than spend also reflects positive actions aimed at building one’s financial future, thereby contributing to financial well-being—unlike those who tend to live for today without making provisions for the future.

Additionally, we can draw a parallel between financial attitudes and the financial well-being models (Brüggen et al., 2017; Kempson et al., 2017; Utkarsh et al., 2020), which indicate that attitudes and other personal traits are among the factors influencing financial well-being. Moreover, research studies by Atkinson and Messy (2012) and She et al. (2022) have shown a connection between positive financial attitudes and financial well-being.

Financial Behavior

Xiao (2008, p. 70) defined financial behavior as “any human behavior that is relevant to money management. Common financial behaviors include cash, credit, and saving behaviors.” Saurabh and Nandan (2018) used financial behavior in their study, which linked one’s ability to manage their finances with financial satisfaction. Past research has found that a wide range of positive financial behaviors were positively associated with financial well-being (Fan & Henager, 2022; Joo, 2008; Kempson et al., 2017; Mokhtar & Husniyah, 2017; She et al., 2022; Shim et al., 2009; Xiao & Porto, 2021).

The ‘behavior’ measurement we used sums up actual or self-assessed positive financial behaviors. Those include active saving, managing debt and risk, setting goals and financial plans, budgeting, disciplined spending and tracking, avoiding compulsive buying, avoiding borrowing for essentials, selecting appropriate financial products, retirement planning, and investing in the long term (Fernandes et al., 2014; Hilgert et al., 2003; OECD/INFE, 2015b, 2018; Strömbäck et al., 2017; Xiao et al., 2011).

Financial Experience

According to Hogarth and Hilgert (2002), financial experience refers to the extent to which individuals have utilized financial products, including savings and deposit accounts, credit cards, mortgages, and investments. In her work, Moore (2003) provided numerous yes/no measurements of financial experiences, such as having a checking or savings account, a credit card, a mortgage, investments, or retirement plans. Baglioni et al. (2017) presented an index that indicates whether respondents were familiar with and used various financial instruments. Lusardi and Tufano (2015) examined financial experiences with debt products, borrowing, and investing in detail. Individuals with more financial experience are expected to know how to better manage their money (e.g., savings, investments, and credit). This experience makes them feel secure about their financial situation, thereby improving their perception of financial well-being. Previous studies have emphasized the role of financial experience (Hilgert et al., 2003; Hogarth & Hilgert, 2002).

Kempson et al. (2017) explored financial well-being and its components, including knowledge and experience with financial products and money management. This connection was also included in a study by Iramani and Lutfi (2021), which showed a positive correlation between financial experience and financial well-being. However, the literature lacks further research on the link between financial experience and financial well-being.

In line with the financial well-being model by Kempson et al. (2017), which has financial experience as one of the components, we measured financial experience based on the number of financial products held or used. This approach corresponds with the OECD/INFE (2015b, 2018) question that was used in our research to examine the link between financial experience and financial well-being.

Conceptual Framework and Hypotheses

There are various conceptual frameworks that include financial well-being. Huston (2010) compiled a model that shows how financial well-being relates to financial literacy knowledge and application, personal finance behaviors, and other external and internal influences such as socio-economic factors, behavioral biases, and attitudes.

Brüggen et al. (2017) developed a financial well-being framework that includes external contextual factors and personal factors such as socio-demographics, attitudes, traits, life events, and financial behavior. Riitsalu and van Raaij (2022) included both national context and individual factors in their conceptual model of financial well-being. Kempson et al. (2017) proposed a financial well-being model that accounts for socio-economic and psychological factors, financial knowledge and skills, financial behaviors, and financial experience.

The financial well-being factors in this research encompass not only socio-demographics, financial knowledge, behavior, and attitudes, but also financial experience, which may differ from that of other nations, given the previously described national context. Moreover, this study examines financial well-being and its dimensions, i.e. financial satisfaction, financial limitation, financial indebtedness, and financial anxiety. Based on these considerations, the following hypotheses were set:

H1: Higher financial knowledge is associated with higher financial well-being, and with each of its dimensions.

H2: Positive financial attitudes are associated with higher financial well-being and with each of its dimensions.

H3: Positive financial behavior is associated with higher financial well-being, and with each of its dimensions.

H4: More financial experience is associated with higher financial well-being, and with each of its dimensions.

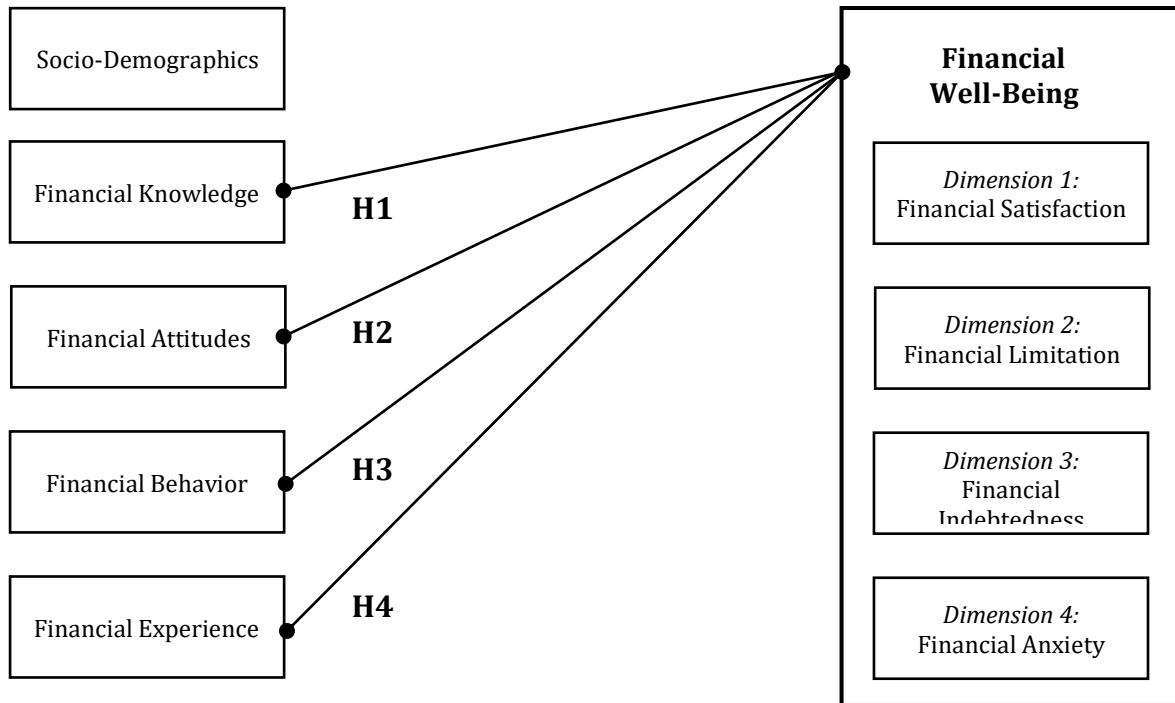
Figure 1.*Conceptual Framework of the Study.*

Figure 1 presents the conceptual framework of our study. The dependent variable is financial well-being, which is the central aim of the current study. We examine not only financial well-being as an overall concept but also its separate dimensions. Based on the literature review, the proposed factors of financial well-being and its dimensions are financial knowledge, financial attitudes, financial behavior, and financial experience. We also explored the relationship between socio-demographic factors and financial well-being, including its dimensions; however, we did not formulate separate hypotheses for these factors, given the study's aim.

Consequently, we hypothesized that higher financial knowledge (H1), positive financial attitudes (H2), positive financial behavior (H3), and more financial experience (H4) are associated with higher overall financial well-being and greater financial satisfaction, along with feeling less financial limitation, less financial indebtedness, and less financial anxiety.

METHODOLOGY

Data and Instrument

The current study used the Czech Republic's national data from the International Financial Literacy Assessment developed by the OECD/INFE (2015b). The Czech Ministry of

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Finance initiated data collection by in-person interviews with 1,000 individuals aged 18 to 79 years in the Czech Republic in September 2015. The sample structure was representative of the Czech Republic's general adult population, using a quota sampling method that accounted for gender, age, education, and living area. The original sample size was $N = 1,000$. Due to certain missing variable cases, the sample size used in this study was $n = 988$. The sample still represented the Czech population; sample demographics are presented in Table 1.

The OECD/INFE (2015b, 2018) Financial Literacy Assessment constructs three separate scores: financial knowledge, financial attitudes, and financial behaviors, and sums these scores to create an overall financial literacy score. The present study considered the same three scores as factors, plus financial experience, and examined whether each of these components contributes to financial well-being within a representative sample of the Czech adult population. This study contributes to the literature by assessing the factors of overall financial well-being and its dimensions (financial satisfaction, financial limitation, financial indebtedness, and financial anxiety).

Variables

In this section, we present the variables used in this study, constructed according to the OECD/INFE (2015b, 2018) toolkit, with a detailed methodology for the scores regarding financial knowledge, financial attitudes, and financial behavior. The OECD (2020b) international study included Cronbach's alpha statistics, ranging from 0.61 to 0.63. Our Cronbach's alpha statistics align with those reported by the OECD.

Financial well-being and its dimensions. The OECD/INFE (2015b, 2018) measurement provided several statements to analyze financial well-being (see Appendix). Four of these statements were included in the Czech Republic national survey data and used in the present study. These statements were: *Dimension 1*: financial satisfaction—"I am satisfied with my present financial situation"; *Dimension 2*: financial limitation—"My financial situation limits my ability to do the things that are important to me"; *Dimension 3*: financial indebtedness—"I have too much debt right now"; and *Dimension 4*: financial anxiety—"I tend to worry about paying my normal living expenses."

Respondents provided answers on a five-point scale ranging from 1 (*always/completely agree*) to 5 (*never/completely disagree*). To construct the overall financial well-being score, the scale of the first statement was reverse-scored, and then all answers to the statements were averaged (OECD, 2020b, p. 53; Riitsalu & Murakas, 2019). Higher scores indicated higher financial well-being (Cronbach's alpha = 0.7). For the separate financial well-being dimensions, the single score for that specific dimension was used. Higher scores indicated greater financial satisfaction, fewer financial limitations, less financial indebtedness, and lower financial anxiety, respectively.

Independent variables in the analyses are as follows:

Financial knowledge. The Financial Literacy Toolkit (OECD/INFE, 2018) suggests using seven questions to construct the financial knowledge score. The questions covered inflation, interest, diversification, the relationship between risk and return, and the time value of money (see Appendix). Each respondent's correct answers were summed, ranging from 0 (no correct answers) to 7 (all correct answers); higher scores represented more financial knowledge (Cronbach's alpha = 0.6).

Financial attitudes. The OECD/INFE scale used three statements to examine financial attitudes (See Appendix). Respondents provided answers on a five-point scale ranging from 1 (completely) to 5 (not at all). The answers were averaged so that higher scores indicated better financial attitudes (Cronbach's alpha = 0.7).

Financial behavior. The OECD/INFE questionnaire suggested using eight items to analyze financial behavior. In the present study, we used seven of these items; the remaining items related to choosing financial products were excluded because they reduced the overall internal consistency of the financial behavior score. Consequently, the financial behavior score was calculated as a count of the number of positive behaviors regarding (1) budgeting, (2) active saving, (3) making considered purchases, (4) paying bills on time, (5) keeping track of financial affairs, (6) striving to achieve goals, and (7) avoiding borrowing to make ends meet (Cronbach's alpha = 0.6). The score ranged from 0 (no positive behavior) to 7 (all positive behaviors). Thus, higher scores indicated more positive financial behaviors.

Financial experience. The OECD/INFE (2018) measurement of financial experience utilized questions related to respondents' experience with money management and financial products. The Kempson et al. (2017) model explored key components of financial well-being, including experiences derived from products held and bought, as well as having a significant role in managing personal finances. Therefore, we assessed financial experience based on whether the respondents held or used any of the payment, savings, investment, retirement, insurance, credit, or other financial products presented to them from a list. Therefore, the financial experience score was calculated as a count of the number of financial products held, ranging from 0 (no financial products) to 14 (all kinds of financial products). Higher scores indicated more financial experience.

Socio-demographic factors. Socio-demographic variables in this study included: *Gender*—female or male; *education*—complete primary school, some secondary school, complete secondary school, beyond the secondary school/vocational education, and university education; *income*—up to 17,000 CZK, from 17,001 to 28,500 CZK, more than 28,500 CZK, and not specified; *work status*—[self]employed, unemployed/not working/unable to work, retired, student, and other; *living area*—village/rural area with less than 3,000 people, small town with 3,001 to about 15,000 people, town with 15,001 to about 100,000 people, city with 100,001 to about 1,000,000 people, and large city with over 1,000,000 people. The reference categories were female, university education, up to 17,000 CZK, [self]employed work status, and village/rural area with less than 3,000 people. Prior research (e.g., Kempson et al., 2017; Riitsalu & Murakas, 2019) has demonstrated that these socio-demographic characteristics are associated with financial well-being.

Data Analysis

To examine how the various factors (independent variables) contributed to financial well-being, we performed hierarchical multiple regression analyses. The model's assumptions were checked and met. Model I represented the baseline model, including all socio-demographic variables.[‡] Model II included financial knowledge, and Model III included financial attitudes. In Model IV, we added financial behavior. In Model V, we incorporated financial experience.

To evaluate whether the contribution of the given factors changed depending on the dimension of financial well-being, we replicated the five models separately for each dimension (financial satisfaction, financial limitation, financial indebtedness, and financial anxiety). We performed the analyses using the statistical software IBM SPSS 25.

RESULTS

In this section, we present the results of descriptive analysis, including sample characteristics, the financial well-being score, and other relevant variables. Next, we focus on the outcome of the hierarchical modeling, reporting the results on financial well-being first. Next, we present the regression results for the dimensions of financial well-being.

Descriptive Analysis Results

We analyzed the dataset to remove any missing observations due to unreported data for dependent and/or independent variables. This resulted in a final sample of 988 respondents, excluding 12 observations with missing data (see Table 1 for sample characteristics). The Czech sample was balanced in terms of gender, age, and urban-rural distribution. While levels of educational attainment varied, most respondents had at least a secondary education. The majority were economically active, and gross monthly income levels ranged from low to high. Table 1 presents the minimum and maximum scores used in the analysis, along with the mean.

Table 1.

Demographics (N = 988).

| Variable | % | <i>M (SD)</i> |
|----------|----|---------------|
| Gender | | |
| Female | 51 | |

[‡] Collinearity diagnostics detected high correlation between the socio-demographic variables age and work. Therefore, we excluded the variable age, which significantly improved the model and eliminated possible multicollinearity issues.

| | |
|---|----|
| Male | 49 |
| Age | |
| 18 - 29 years | 18 |
| 30 - 39 years | 19 |
| 40 - 49 years | 21 |
| 50 - 59 years | 15 |
| 60 - 69 years | 19 |
| 70 years and more | 8 |
| Education | |
| University level | 13 |
| Beyond secondary school/Vocational education | 2 |
| Complete secondary school | 34 |
| Some secondary school | 41 |
| Complete primary school | 10 |
| Urban | |
| A village/rural area, less than 3,000 people | 28 |
| A small town, with 3,001 to about 15,000 people | 20 |
| A town with 15,001 to about 100,000 people | 27 |
| A city, with 100,001 to about 1,000,000 people | 11 |
| A large city, with over 1 million people | 14 |
| Work | |
| Employed or self-employed | 64 |
| Unemployed, not working or unable to work | 5 |
| Retired | 22 |
| Student | 5 |
| Other | 4 |
| Income | |

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| | |
|--|-----------------|
| Up to 17,000 CZK [§] gross monthly income | 23 |
| From 17,001 CZK to 28,500 gross monthly income | 30 |
| More than 28,500 CZK gross monthly income | 37 |
| Didn't specified | 10 |
| Financial Well-Being Score (1-5 points*) | 3.25 (0.853) |
| Financial Knowledge Score (0-7 points*) | 4.46 (1.719) |
| Financial Attitudes Score (1-5 points*) | 3.07 (0.894) |
| Financial Behavior Score (0-7 points*) | 4.55 (1.658) |
| Financial Experience Score (0-14 points*) | 2.77 (1.867) |

Note. The table presents percentages for categorical variables and means for continuous variables.

* Points show the minimum and maximum possible score points.

Hierarchical Regression Analysis Results

In this section, we present the hierarchical regression analysis results for financial well-being (Table 2), which is measured as a composite score (see the Methodology section). The direction of the coefficient indicates the direction of the association (positive or negative), while the significance level indicates whether this association is significant.

After analyzing financial well-being, we developed regression models for each of its dimensions, i.e., dependent variables: financial satisfaction, financial limitation, financial indebtedness, and financial anxiety. Tables with hierarchical regression results for these dependent variables are available in the Appendix.

For all these dependent variables, we conducted hierarchical modeling. The baseline model (Model I) started with the socio-demographic variables. Subsequent models added the following variables: financial knowledge (Model II), financial attitudes (Model III), financial behavior (Model IV), and financial experience (Model V).

Financial Well-Being

The regression results for financial well-being, the dependent variable, are presented in Table 2. In Model I, financial well-being was positively associated with higher income levels and retirement status. Conversely, financial well-being was significantly negatively associated with lower levels of education (except for beyond secondary education)

[§] The exchange rate: 1 USD = 21.95 CZK. Data by the Czech National Bank as of April 25th, 2025 retrieved from < <https://www.cnb.cz/cs/financni-trhy/devizovy-trh/kurzy-devizoveho-trhu/kurzy-devizoveho-trhu/>>.

compared to university-level education. Lower financial well-being was also associated with being unemployed, unwilling, or unable to work compared to being (self)employed. Place of residence emerged as a statistically significant predictor of financial well-being, indicating that people living in more populated urban areas—especially in small towns, towns, or cities—tended to have lower financial well-being compared to those living in villages.

In Model II, financial knowledge was not a significant predictor of financial well-being. In Model III, the financial attitudes variable was statistically significant, indicating that positive financial attitudes were associated with higher financial well-being. Model IV showed that engaging in more positive financial behaviors was associated with higher financial well-being.

In Model V, the associations between socio-demographic factors, financial knowledge, financial attitudes, financial behavior, and financial well-being remained consistent with those in Models I through IV. The only exception was that having an income between 17,000 CZK and 28,500 CZK was no longer a significant predictor of financial well-being when compared to the reference group (income below 17,000 CZK). The financial experience variable indicated that having more financial experience was associated with greater financial well-being.

Table 2.

Regression Results with Financial Well-Being as the Dependent Variable.

| Variable | Model I Estimate (SE) | Model II Estimate (SE) | Model III Estimate (SE) | Model IV Estimate (SE) | Model V Estimate (SE) |
|-------------------------------------|-----------------------------|------------------------------|----------------------------|---------------------------|--------------------------|
| Intercept | 3.397 (0.108) *** | 3.274 (0.130) *** | 2.612 (0.155) *** | 2.327 (0.156) *** | 2.206 (0.156) *** |
| Male | -0.004 (0.051) | -0.006 (0.051) | 0.024 (0.050) | 0.062 (0.049) | 0.065 (0.048) |
| Education (ref.: university) | | | | | |
| Beyond secondary | -0.354 (0.188) | -0.328 (0.188) | -0.290 (0.183) | -0.204 (0.179) | -0.164 (0.177) |
| Complete secondary | -0.274 (0.083) *** | -0.269 (0.082) ** | -0.240 (0.080) ** | -0.220 (0.078) ** | -0.205 (0.078) ** |
| Some secondary | -0.286 (0.081) *** | -0.269 (0.081) *** | -0.262 (0.079) *** | -0.212 (0.078) ** | -0.172 (0.077) * |
| Primary | -0.630 (0.117) *** | -0.610 (0.118) *** | -0.550 (0.115) *** | -0.463 (0.113) *** | -0.395 (0.112) *** |
| Urban (ref.: village/rural) | | | | | |
| Small town | -0.250 (0.074) *** | -0.244 (0.074) ** | -0.198 (0.073) ** | -0.185 (0.071) ** | -0.172 (0.070) * |
| Town | -0.276 (0.068) *** | -0.267 (0.068) *** | -0.235 (0.066) *** | -0.242 (0.065) *** | -0.261 (0.064) *** |
| City | -0.309 (0.090) *** | -0.321 (0.090) *** | -0.277 (0.088) ** | -0.227 (0.086) ** | -0.210 (0.085) * |
| Large city | -0.138 (0.084) | -0.143 (0.084) | -0.134 (0.082) | -0.094 (0.080) | -0.112 (0.079) |
| Work (ref.: [self-employed]) | | | | | |
| Unemployed | -0.636 (0.119) *** | -0.627 (0.119) *** | -0.629 (0.116) *** | -0.539 (0.113) *** | -0.495 (0.113) *** |
| Retired | 0.306 (0.070) *** | 0.299 (0.070) *** | 0.218 (0.069) ** | 0.188 (0.068) ** | 0.266 (0.069) *** |
| Student | -0.153 (0.128) | -0.165 (0.128) | -0.007 (0.127) | 0.074 (0.124) | 0.159 (0.124) |
| Other_ | 0.066 (0.131) | 0.065 (0.131) | 0.081 (0.128) | 0.129 (0.125) | 0.133 (0.123) |
| Income (ref.: less than 17,000 CZK) | | | | | |
| From 17,000 to 28,500 CZK | 0.210 (0.072) ** | 0.211 (0.072) ** | 0.183 (0.070) ** | 0.145 (0.069) * | 0.117 (0.068) |
| More than 28,500 CZK | 0.513 (0.077) *** | 0.500 (0.077) *** | 0.475 (0.075) *** | 0.402 (0.074) *** | 0.350 (0.074) *** |
| Not specified | 0.283 (0.102) ** | 0.299 (0.103) ** | 0.312 (0.100) ** | 0.284 (0.097) ** | 0.260 (0.096) ** |

| | | | | | |
|----------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|
| Financial knowledge | - | 0.026 (0.015) | 0.018 (0.015) | 0.008 (0.015) | 0.001 (0.015) |
| Financial attitudes | - | - | 0.217 (0.029) *** | 0.135 (0.031) *** | 0.140 (0.030) *** |
| Financial behavior | - | - | - | 0.121 (0.017) *** | 0.104 (0.017) *** |
| Financial experience | - | - | - | - | 0.071 (0.015) *** |
| Adjusted R-square | .143 | .144 | .190 | .230 | .247 |
| Model F statistics | F(16, 971) = 11.27 *** | F(17, 970) = 10.80 *** | F(18, 969) = 13.88 *** | F(19, 968) = 16.53 *** | F(20, 967) = 17.18 *** |

Note. SE is the Standard Error. Ref. is the reference category. * $p < .05$, ** $p < .01$, *** $p < .001$

Financial Satisfaction

The hierarchical regression results for financial satisfaction are available in the Appendix. Those with primary education, some secondary education, completed secondary education, and beyond secondary education reported lower financial satisfaction than those with a university education. In Model V alone, education beyond secondary level became insignificant as a predictor of financial satisfaction.

Individuals living in more urbanized areas reported significantly lower financial satisfaction than those living in villages or rural areas. Regarding work status, retirees indicated higher financial satisfaction than (self)employed respondents, except in Model IV. Conversely, the unemployed and those not working or unable to work reported lower financial satisfaction.

Respondents with higher incomes reported more financial satisfaction (Models I-II). For models with additional variables (Models III-V), significance remained only for the highest income category.

Based on the regression results, having more financial knowledge was associated with lower financial satisfaction. Financial attitudes did not show a significant relationship with financial satisfaction. However, higher financial satisfaction was associated with positive financial behavior. Model V revealed that having more financial experience was associated with higher financial satisfaction.

Financial Limitation

The regression results (see Appendix) showed that significant factors of perceived financial limitation included education, living area, unemployed work status, and income. Specifically, respondents with lower education levels (primary and complete secondary) reported more financial limitations than those with a university education. Also, respondents living in a town or city reported more financial limitations than those living in villages.

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Unemployed respondents reported higher financial limitations compared to (self) employed respondents (Model II-V). Similar results were found for students in Models I and II. However, this became insignificant in later models, which included additional variables. The highest income group, as well as those who did not specify their income, reported fewer financial limitations compared to the lowest income group.

The variables financial knowledge (Models II-V) and financial behavior (Models IV-V) were not significantly associated with financial limitations. However, the financial attitudes score (included in Models III-V) was a statistically significant factor, indicating that individuals with positive and long-term-oriented financial attitudes perceived fewer financial limitations. The same applied to respondents with greater financial experience (added in Model V); having more financial experience was related to lower financial limitations.

In summary, positive financial attitudes and greater financial experience were associated with lower financial limitations, whereas financial knowledge and engaging in positive financial behaviors did not show a significant relationship.

Financial Indebtedness

Data analysis focused on indebtedness revealed that feeling overwhelmed by financial debt was associated with work status and income, as well as financial knowledge, attitudes, and behaviors. The regression results with financial indebtedness as the dependent variable are presented in the Appendix.

The analysis (Models I-V) revealed that respondents in the highest income group felt less overwhelmed by debt than those from the lowest income group. Similar results were observed for individuals who did not specify their income (Models II-V).

Respondents living in a small town (Models I-V) and a town (Models I-II) tended to exhibit a higher debt burden than those in villages or rural areas. The unemployed experienced significantly more debt-related pressure compared to those in paid or self-employment (Models I-III). However, this factor became insignificant after including financial behavior in Models IV-V. Retirees and students reported significantly less financial indebtedness than (self) employed respondents.

Financial knowledge (Models II-V) was a statistically significant predictor, with higher financial knowledge scores linked to feeling lower debt pressure. Similarly, positive financial attitudes (Models III-V) and responsible financial behaviors (Models IV-V) were associated with lower financial indebtedness. In contrast, financial experience was not significantly related to financial indebtedness.

Financial Anxiety

The results (see Appendix) on financial anxiety indicated that lower financial anxiety contributed to greater financial well-being. Regression analysis showed that respondents

with lower educational levels (primary and secondary) experienced more anxiety about paying living expenses than those with a university education (Models I-III). Similarly, respondents with lower income reported greater financial anxiety than those in higher income groups (Models I-IV). However, in Model V, only the highest income category and those who did not specify their income remained significantly less anxious compared to the lowest income group.

Individuals living in towns reported higher levels of financial anxiety than those in villages or rural areas (Models I-V). Unemployed respondents worried significantly more about covering living expenses than those who were working. Retirement was associated with lower financial anxiety, implying that retired respondents worried less about paying living expenses (Models I, II, V).

Financial knowledge was significantly related to lower financial anxiety in Models I to III, but became insignificant after adding financial behavior and experience variables (Models IV-V). In contrast, positive financial attitudes, financial behavior, and greater financial experience were consistently associated with lower financial anxiety. Nevertheless, having more financial knowledge did not have a significant relationship with financial anxiety.

Results Summary

Table 3 presents overall regression results from Models V across all dependent variables, namely financial well-being and its dimensions: financial satisfaction, financial limitation, financial indebtedness, and financial anxiety.

Higher financial knowledge was associated with lower financial satisfaction and lower financial indebtedness. Positive financial attitudes were significantly related to higher financial well-being, as well as lower indebtedness and feelings of lower financial limitation and anxiety. Positive financial behavior was associated with higher financial well-being, higher financial satisfaction, lower financial indebtedness, and lower anxiety. Having more financial experience was positively linked to higher financial well-being, increased financial satisfaction, and decreased sense of financial limitation and anxiety.

Table 3.

Regression Results with Financial Well-Being and its Dimensions as the Dependent Variable.

| Models V Variable: | Financial Well-Being Estimate (SE) | Financial Satisfaction Estimate (SE) | Financial Limitations Estimate (SE) | Financial Indebtedness Estimate (SE) | Financial Anxiety Estimate (SE) |
|--|---|---|--|--|---------------------------------------|
| Intercept | 2.206 (0.156) *** | 2.369 (0.222) *** | 2.040 (0.225) *** | 2.423 (0.239) *** | 1.994 (0.242) *** |
| Male | 0.065 (0.048) | 0.050 (0.069) | 0.037 (0.070) | 0.053 (0.074) | 0.120 (0.075) |
| Education (ref.: university) | | | | | |
| Beyond secondary | -0.164 (0.177) | -0.486 (0.252) | 0.244 (0.255) | -0.413 (0.271) | -0.001 (0.275) |
| Complete secondary | -0.205 (0.078) ** | -0.350 (0.110) ** | -0.256 (0.112) * | -0.012 (0.119) | -0.204 (0.120) |
| Some secondary | -0.172 (0.077) * | -0.449 (0.110) *** | -0.094 (0.111) | 0.011 (0.118) | -0.156 (0.120) |
| Primary | -0.395 (0.112) *** | -0.669 (0.160) *** | -0.413 (0.162) * | -0.139 (0.172) | -0.359 (0.174) * |
| Urban (ref.: village/rural) | | | | | |
| Small town | -0.172 (0.070) * | -0.231 (0.100) * | -0.125 (0.101) | -0.257 (0.107) * | -0.075 (0.109) |
| Town | -0.261 (0.064) *** | -0.302 (0.091) *** | -0.357 (0.092) *** | -0.181 (0.098) | -0.204 (0.100) * |
| City | -0.210 (0.085) * | -0.321 (0.121) ** | -0.256 (0.122) * | -0.146 (0.130) | -0.116 (0.132) |
| Large city | -0.112 (0.079) | -0.396 (0.112) *** | -0.097 (0.114) | 0.085 (0.121) | -0.041 (0.122) |
| Work (ref.: [self- employed]) | | | | | |
| Unemployed | -0.495 (0.113) *** | -0.425 (0.160) ** | -0.568 (0.162) *** | -0.329 (0.172) | -0.660 (0.175) *** |
| Retired | 0.266 (0.069) *** | 0.252 (0.098) *** | 0.110 (0.099) | 0.453 (0.105) *** | 0.251 (0.107) * |
| Student | 0.159 (0.124) | 0.074 (0.176) | -0.148 (0.178) | 0.639 (0.190) *** | 0.069 (0.192) |
| Other_ | 0.133 (0.123) | -0.065 (0.175) | 0.181 (0.177) | 0.305 (0.189) | 0.108 (0.191) |
| Income (ref.: less than 17,000 CZK) | | | | | |
| From 17,000 to 28,500 CZK | 0.117 (0.068) | 0.101 (0.097) | 0.063 (0.098) | 0.113 (0.105) | 0.190 (0.106) |
| More than 28,500 CZK | 0.350 (0.074) *** | 0.302 (0.105) ** | 0.488 (0.106) *** | 0.307 (0.113) ** | 0.303 (0.114) ** |
| Not specified | 0.260 (0.096) ** | 0.030 (0.137) | 0.298 (0.139) * | 0.315 (0.147) * | 0.397 (0.150) ** |

| | | | | | |
|----------------------|---------------------------|---------------------------|--------------------------|--------------------------|---------------------------|
| Financial knowledge | 0.001 (0.015) | -0.058 (0.021) ** | -0.020 (0.021) | 0.054 (0.022) * | 0.028 (0.023) |
| Financial attitudes | 0.140 (0.030) *** | 0.062 (0.043) | 0.194 (0.043) *** | 0.184 (0.046) *** | 0.119 (0.047) * |
| Financial behavior | 0.104 (0.017) *** | 0.152 (0.024) *** | 0.003 (0.025) | 0.128 (0.026) *** | 0.132 (0.026) *** |
| Financial experience | 0.071 (0.015) *** | 0.079 (0.021) *** | 0.101 (0.021) *** | -0.012 (0.023) | 0.115 (0.023) *** |
| Adjusted R-square | .247 | .172 | .142 | .129 | .159 |
| Model F statistics | F(20, 967) = 17.18 *** | F(20, 967) = 11.23 *** | F(20, 967) = 9.16 *** | F(20, 967) = 8.33 *** | F(20, 967) = 10.31 *** |

Note. SE is the Standard Error. Ref. is the reference category. * $p < .05$, ** $p < .01$, *** $p < .001$

DISCUSSION

Financial dissatisfaction, excessive debt, difficulty covering essential expenses, and persistent money-related worries can create financial disharmony, leading to unhealthy financial behaviors that affect not only an individual's financial well-being but also that of their family. Consequently, such financial challenges should be addressed in financial therapy.

Previous research on financial well-being has primarily focused on factors that determine it, such as socio-demographics, financial knowledge, financial behavior, financial attitudes, and environment (Brüggen et al., 2017; Kempson et al., 2017; Riitsalu & Murakas, 2019; Utkarsh et al., 2020). Nevertheless, to our knowledge, no research has studied whether these factors differ among the financial well-being dimensions in question. The present study, therefore, examined possible factors affecting overall financial well-being and its dimensions among a nationally representative sample of adults in the Czech Republic.

The factors included in this study were: (a) socio-demographic factors, (b) financial knowledge, (c) financial attitudes, (d) positive financial behavior, and (e) financial experience.

Overall regression results (summarized in Table 3) indicate that financial well-being is associated with educational attainment, the area of residence, work situation, income level, financial attitudes, financial behavior, and financial experience.

When we examine the individual socio-demographic factors in relation to financial well-being and its dimensions, we see that educational attainment is significant for financial satisfaction and financial limitation as dependent variables, less significant for financial anxiety, and not significant for financial indebtedness. Financial well-being was lower among individuals with lower education levels compared to those with university-level education, except for those with post-secondary technical or vocational education.

The area where people live was also statistically significant. Data indicated that people living in more populated or urban areas, such as towns or cities, tended to report lower financial well-being than those living in villages or rural areas.

Based on the regression results, retired respondents reported greater financial well-being than respondents who were employed or self-employed. Higher financial satisfaction was associated with people in retirement. Also, retired respondents indicated less financial indebtedness and less financial anxiety in comparison with the (self) employed respondents. It may be that retired individuals have accumulated capital throughout their working years, thereby providing them with greater financial security. Also, retired individuals may enjoy more leisure without experiencing stress related to work. The highest income category consistently showed higher financial well-being compared to the lowest income category across all financial well-being dimensions.

The financial knowledge tested in hypothesis H1 was not related to overall financial well-being, which contrasts with studies by Fan and Henager (2022), Riitsalu and Murakas (2019), and Younas et al. (2019). However, our results corresponded with the studies of Mokhtar and Husniyah (2017) and Utkarsh et al. (2020). We can infer that having positive financial attitudes, engaging in more responsible financial behaviors, and having more financial experience are more germane to overall financial well-being than solely financial knowledge. The contribution of financial knowledge varied depending on the dimension of financial well-being. For example, financial knowledge was negatively related to financial satisfaction. This finding corroborates previous work (Dare et al., 2020; Mugenda et al., 1990) and can be explained by deducing that financially knowledgeable individuals are more aware of the extent to which their financial situation still requires improvement. Consequently, these individuals may feel less satisfied with their current financial situation and in need of financial therapy. On the other hand, higher financial knowledge was associated with lower financial indebtedness, suggesting that individuals with greater financial knowledge tend to have less debt. That would be beneficial in financial therapy sessions, where individuals can be further educated to improve their financial situation and manage excessive debt.

Financial attitudes were positively associated with overall financial well-being (H2), a finding consistent with other studies (Atkinson & Messy, 2012; She et al., 2022). Positive financial attitudes were also associated with several well-being dimensions, including fewer financial limitations, lower indebtedness, and reduced financial anxiety. For this reason, targeted financial therapy sessions would support individuals in their financial journey and enhance their well-being. Someone with a positive money mindset is more likely to think about the future and save for their goals, rather than borrowing out of necessity. Hence, it would lower their anxiety about paying their living expenses, and they may feel fewer financial limitations in pursuing the things that are important to them.

Financial behavior was positively related to overall financial well-being (H3), as shown in other research studies (Fan & Henager, 2022; Kempson et al., 2017; Mokhtar & Husniyah, 2017; Riitsalu & Murakas, 2019; She et al., 2022; Xiao & Porto, 2021). Financial behavior was significantly associated with the individual dimensions of financial well-being, except for financial limitation. Examples of desired financial behaviors included paying financial obligations on time, tracking expenses, and actively saving. Therefore, supporting these behaviors in financial therapy can help consumers prevent high levels of financial indebtedness and financial anxiety, and contribute to their financial satisfaction and well-being.

Likewise, financial experience was positively related to overall financial well-being (H4), as suggested by Iramani & Lutfi (2021) and Kempson et al. (2017). Our results indicated that individuals with more experience in financial products (as measured by the products they currently held) tended to score higher in financial well-being. Furthermore, financial well-being dimensions—except for financial indebtedness—were positively associated with financial experience. Consumers with more financial experience and who use a wide range of financial products reported higher financial satisfaction, feeling less limited by their financial situation, and less financial anxiety about paying their living

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expenses. Financial therapists can expertly encourage clients to explore the financial products suited for their circumstances, which can positively contribute to their financial well-being.

Implications

In financial therapy, individuals and couples experiencing financial stress, debt burden, anxiety, or a sense of limitation by their finances can benefit from targeted financial therapy sessions to address the aspects, attitudes, and behaviors mentioned in the previous section. Financial well-being is valuable from both an individual and societal standpoint, with its impact reaching beyond the financial domain into areas such as mental health, relationships, family well-being, and overall quality of life. Also, consumer motivation to participate in financial markets, by selecting and using financial products and services, is often driven by a desire to maximize their financial well-being. Therefore, financial therapists, financial practitioners, and policymakers should understand the determinants of financial well-being and its dimensions so they can design effective strategies and personalized interventions.

In particular, the experience of Czech citizens with the turbulent transition from a centrally planned economy to a market-based system in the 1990s likely influenced their perceptions of the economic situation, attitudes toward money, and level of trust in financial institutions. National data further revealed that risk-averse individuals demonstrated higher levels of financial literacy (Chmelíková, 2017). The historical context may also continue to shape individuals' engagement with the financial market and their selection of financial products. Notably, investment asset holdings in the Czech Republic remain relatively low to this day (Czech Ministry of Finance, 2023).

In this study, financial experience was found to be positively associated with financial well-being. Financial experience was measured by the number of financial products held by respondents. This finding suggests that individuals who actively use a greater number of financial products are more engaged in financial planning to secure their future, which in turn contributes to their overall financial well-being.

The Czech National Strategy introduced compulsory financial education in secondary schools in 2009 and in primary schools in 2013 (Czech Ministry of Finance, 2020). Notably, no significant positive relationship was identified between financial knowledge and financial well-being. This raises a question: what type of financial knowledge, if any, can ultimately contribute to achieving greater financial well-being? The findings may also suggest that financial knowledge alone may be insufficient to enhance financial well-being, which likely requires additional effort and consistent action. This can be supported by continuous financial programs that involve not only encouraging 'knowledge' but also 'action' or 'support' in the form of financial coaching or financial therapy.

Furthermore, the positive association between financial behavior and financial well-being also suggests that financial education should extend beyond the cognitive dimension and incorporate practical, behavior-oriented elements included in financial therapy.

Ongoing financial difficulties experienced by individuals may be more effectively addressed through the involvement of financial therapists, who can offer strategies tailored to specific needs and situations. As previously noted, the practice of financial therapy remains limited in the Czech Republic, indicating substantial potential for further development in this area.

Limitations and Future Directions

Although our study suggests interesting associations that contribute to the literature and can be useful for policymakers and financial practitioners, some limitations warrant attention. The cross-sectional nature of the present survey data prevents us from drawing causal conclusions. To investigate whether the different studied factors causally affect financial well-being, future research could carry out longitudinal studies, e.g., Sorgente et al. (2022) or van Doorn and Mende (2015).

In addition, we used self-reported data to construct the financial behaviors score; this approach is often used internationally on a large scale (OECD/INFE, 2022) and in the literature (Carton et al., 2022; Kempson et al., 2017; Riitsalu & Murakas, 2019). However, it would be interesting to test whether our results align with actual financial behavior data (Comerton-Forde et al., 2022).

The representative Czech national data provided quality information. However, we acknowledge that more data and question items regarding financial well-being and its dimensions would help to enrich the analysis and lead to more detailed interpretations. Additionally, it would be interesting to include personality traits, self-control, and other variables that capture the individual characteristics of the respondent in the national data collection.

Future research should also consider replicating our study, which used a nationally representative sample of adults in the Czech Republic, in other social, cultural, and economic contexts to broaden the international generalizability of our results.

CONCLUSION

This study's findings offer valuable insights for financial therapists and practitioners, highlighting the association between various dimensions of financial well-being and financial attitudes, behaviors, knowledge, and experience. The findings can help to develop strategies for therapy sessions aimed at improving financial well-being.

The results also demonstrate the relevance of financial therapy in enhancing financial satisfaction by targeting financial behavior and fostering financial experience. Regarding consumers' feelings of financial limitation, it appears that financial attitudes and financial experience are the most significant factors. Regarding financial indebtedness, it may be beneficial to educate clients further with relevant financial knowledge and support positive financial attitudes and behaviors. To mitigate financial anxiety, it might be best to work on behavioral and attitudinal change, together with expanding financial experience.

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Overall, fostering positive financial attitudes and behaviors, along with gaining relevant financial experience, is key to improving financial well-being.

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APPENDIX

Financial Well-Being Questions

| Questions/Statements - Please indicate to what extent do you agree with the statement or how often it applies to you: | Answers | Value towards final score |
|---|---|---|
| I am satisfied with my present financial situation.* | 5-point Likert scale: 1 = completely agree; 5 = completely disagree; or 1 = always; 5 = never; | The financial well-being score is computed as the sum of the 5-point Likert scale values for the four statements and then divided by four (it is the average). Therefore, the financial well-being score ranges from 1 (low financial well-being) to 5 (high financial well-being). |
| My financial situation limits my ability to do the things that are important to me. | | |
| I have too much debt right now. | | |
| I tend to worry about paying my normal living expenses. | | |

Note. *Items were reverse coded.
 Source: Based on OECD/INFE Toolkit for Measuring Financial Literacy and Financial Inclusion (2015b, 2018)

Financial Knowledge Questions

| Questions | Answers | Value towards final score |
|--|---|--|
| 1. Five brothers are going to be given a gift of 1,000 CZK in total to share between them. Now imagine that the brothers have to wait for one year to get their share of the 1,000 CZK and inflation stays at 2 percent. In one year's time will they be able to buy: | <ul style="list-style-type: none"> • More with their share of the money than they could today • The same amount • Less than they could buy today • It depends on the types of things that they want to buy • Don't know • Didn't answer | 1 for correct answer. 0 otherwise. |
| 2. You lend 500 CZK to a friend one evening and he gives you 500 CZK back the next day. How much interest has he paid on this loan? | <ul style="list-style-type: none"> • Open-end answer • Don't know • Didn't answer | 1 for correct answer. 0 otherwise. |
| 3. Imagine that someone puts 100 CZK into a no fee, tax free savings account with a guaranteed interest rate of 2% per year. They don't make any further payments into this account and they don't withdraw any money. How much would be in the account at the end of the first year, once the interest payment is made? | <ul style="list-style-type: none"> • Open-end answer • Don't know • Didn't answer | 1 for correct answer. 0 otherwise. |
| 4. Following up the previous question. And how much would be in the account (no fees, no tax deductions) at the end of five years? Would it be: | <ul style="list-style-type: none"> • More than 100 CZK • Exactly 100 CZK • Less than 100 CZK • Impossible to tell from the information given • Don't know • Didn't answer | 1 for correct answer only if the answer to the previous question was also correct. 0 otherwise. |
| 5. If someone offers you the chance to make a lot of money it is likely that there is also a chance that you will lose a lot of money. | <ul style="list-style-type: none"> • True • False • Don't know • Didn't answer | 1 for correct answer. 0 otherwise. |
| 6. High inflation means that the cost of living is increasing rapidly. | <ul style="list-style-type: none"> • True • False • Don't know | 1 for correct answer. 0 otherwise. |

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| | | |
|--|---|---------------------------------------|
| | <ul style="list-style-type: none">• Didn't answer | |
| 7. It is less likely that you will lose all of your money if you save it in more than one place. | <ul style="list-style-type: none">• True• False• Don't know• Didn't answer | 1 for correct answer. 0 otherwise. |

Source: Based on OECD/INFE Toolkit for Measuring Financial Literacy and Financial Inclusion (2015b, 2018)

Financial Behavior Questions

| | Questions | Value towards final score |
|--|--|--|
| Responsible and has a (household) budget | 1. Who is responsible for making day-to-day decisions about money in your household? Do you or your household have a budget? List of answer options based on the OECD/INFE (2015, 2018). | 1 point if personally or jointly responsible for money management and household has a budget. 0 otherwise. |
| Active saving | 2. In the past 12 months, have you been [personally] saving money in any of the following ways, whether or not you still have the money? List of answer options based on the OECD/INFE (2015, 2018). | 1 point for any type of active saving. 0 otherwise. |
| Making considered purchases | 3. How much you agree or disagree that the following statement applies to you: Before I buy something, I carefully consider whether I can afford it. | 1 point for points 1 or 2 on the 5-point scale ranging from 1 (<i>strongly agree</i>) to 5 (<i>strongly disagree</i>). 0 otherwise. |
| Paying bills on time | 4. How much you agree or disagree that the following statement applies to you: I pay my bills on time. | 1 point for points 1 or 2 on the 5-point scale ranging from 1 (<i>strongly agree</i>) to 5 (<i>strongly disagree</i>). 0 otherwise. |
| Keeping track of financial affairs | 5. How much you agree or disagree that the following statement applies to you: I keep a close watch on my financial affairs. | 1 point for points 1 or 2 on the 5-point scale ranging from 1 (<i>strongly agree</i>) to 5 (<i>strongly disagree</i>). 0 otherwise. |
| Long-term financial goal setting and striving to achieve goals | 6. How much you agree or disagree that the following statement applies to you: I set long-term financial goals and strive to achieve them. | 1 point for points 1 or 2 on the 5-point scale ranging from 1 (<i>strongly agree</i>) to 5 (<i>strongly disagree</i>). 0 otherwise. |
| Not borrowing to make ends meet | 7. Sometimes people find that their income does not quite cover their living expenses. In the last year, has this happened to you? What did you do to make ends meet the last time this happened? List of answer options based on the OECD/INFE (2015, 2018). | 1 point if the respondent did not borrow to make ends meet; or did not face a shortfall. 0 points if the respondent borrowed to make ends meet. |

Source: Based on OECD/INFE Toolkit for Measuring Financial Literacy and Financial Inclusion (2015b, 2018)

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Financial Attitudes Questions

| Questions | Answers | Value towards final score |
|---|--|---|
| How much you agree or disagree that the following statement applies to you: I tend to live for today and let tomorrow take care of itself. | 5-point Likert scale; 1 = completely agree; 5 = completely disagree; | The financial attitudes score is computed as the sum of the 5-point Likert scale values for the three statements and then divided by three (it is the average). The financial attitudes score, therefore, ranges from 1 to 5. |
| How much you agree or disagree that the following statement applies to you: I find it more satisfying to spend money than to save it for the long term. | 5-point Likert scale; 1 = completely agree; 5 = completely disagree; | |
| How much you agree or disagree that the following statement applies to you: Money is there to be spent. | 5-point Likert scale; 1 = completely agree; 5 = completely disagree; | |

Source: Based on OECD/INFE Toolkit for Measuring Financial Literacy and Financial Inclusion (2015b, 2018)

Regression Results with *Financial Satisfaction* as the Dependent Variable

| Model | Model I | Model II | Model III | Model IV | Model V |
|-------------------------------------|--------------------------|--------------------------|--------------------------|---------------------------|---------------------------|
| Variable: | Estimate (SE) | Estimate (SE) | Estimate (SE) | Estimate (SE) | Estimate (SE) |
| Intercept | 3.292 (0.150) *** | 3.433 (0.181) *** | 2.906 (0.219) *** | 2.503 (0.221) *** | 2.369 (0.222) *** |
| Male | -0.034 (0.071) | -0.031 (0.071) | -0.007 (0.071) | 0.047 (0.069) | 0.050 (0.069) |
| Education (ref.: university) | | | | | |
| Beyond secondary | -0.653 (0.261) * | -0.683 (0.261) ** | -0.652 (0.259) * | -0.531 (0.253) * | -0.486 (0.252) |
| Complete secondary | -0.412 (0.115) *** | -0.418 (0.115) *** | -0.395 (0.114) *** | -0.367 (0.111) ** | -0.350 (0.110) ** |
| Some secondary | -0.551 (0.113) *** | -0.570 (0.113) *** | -0.564 (0.112) *** | -0.494 (0.110) *** | -0.449 (0.110) *** |
| Primary | -0.893 (0.163) *** | -0.916 (0.164) *** | -0.868 (0.163) *** | -0.744 (0.159) *** | -0.669 (0.160) *** |
| Urban (ref.: village/rural) | | | | | |
| Small town | -0.294 (0.103) ** | -0.301 (0.103) ** | -0.264 (0.103) * | -0.245 (0.100) * | -0.231 (0.100) * |
| Town | -0.287 (0.094) ** | -0.297 (0.095) ** | -0.271 (0.094) ** | -0.280 (0.092) ** | -0.302 (0.091) *** |
| City | -0.458 (0.125) *** | -0.445 (0.125) *** | -0.410 (0.124) *** | -0.340 (0.121) ** | -0.321 (0.121) ** |
| Large city | -0.445 (0.116) *** | -0.439 (0.116) *** | -0.432 (0.115) *** | -0.376 (0.113) *** | -0.396 (0.112) *** |
| Work (ref.: [self-]employed) | | | | | |
| Unemployed | -0.590 (0.165) *** | -0.600 (0.165) *** | -0.601 (0.164) *** | -0.473 (0.161) ** | -0.425 (0.160) ** |
| Retired | 0.262 (0.097) ** | 0.271 (0.098) ** | 0.207 (0.098) * | 0.164 (0.096) | 0.252 (0.098) *** |
| Student | -0.274 (0.178) | -0.260 (0.179) | -0.135 (0.180) | -0.019 (0.176) | 0.074 (0.176) |
| Other_ | -0.150 (0.182) | -0.149 (0.182) | -0.137 (0.181) | -0.069 (0.177) | -0.065 (0.175) |
| Income (ref.: less than 17,000 CZK) | | | | | |
| From 17,000 to 28,500 CZK | 0.211 (0.101) * | 0.209 (0.100) * | 0.187 (0.100) | 0.133 (0.098) | 0.101 (0.097) |
| More than 28,500 CZK | 0.469 (0.106) *** | 0.484 (0.107) *** | 0.463 (0.106) *** | 0.360 (0.104) *** | 0.302 (0.105) ** |
| Not specified | 0.104 (0.142) | 0.086 (0.143) | 0.096 (0.141) | 0.057 (0.138) | 0.030 (0.137) |
| Financial knowledge | | -0.030 (0.021) | -0.036 (0.021) | -0.050 (0.021) * | -0.058 (0.021) ** |
| Financial attitudes | | | 0.172 (0.041) *** | 0.056 (0.043) | 0.062 (0.043) |
| Financial behavior | | | | 0.171 (0.024) *** | 0.152 (0.024) *** |
| Financial experience | | | | | 0.079 (0.021) *** |
| Adjusted R-square | .101 | .102 | .117 | .161 | .172 |
| Model F statistics | F(16, 971) = 7.94 *** | F(17, 970) = 7.60 *** | F(18, 969) = 8.28 *** | F(19, 968) = 10.95 *** | F(20, 967) = 11.23 *** |

Note. SE is the Standard Error. Ref. is the reference category. * $p < .05$, ** $p < .01$, *** $p < .001$

Understanding Financial Well-Being

Regression Results with *Financial Limitations* as the Dependent Variable

| Model | Model I | Model II | Model III | Model IV | Model V |
|-------------------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Variable: | Estimate (SE) | Estimate (SE) | Estimate (SE) | Estimate (SE) | Estimate (SE) |
| Intercept | 2.903 (0.149) *** | 2.903 (0.180) *** | 2.275 (0.217) *** | 2.211 (0.224) *** | 2.040 (0.225) *** |
| Male | -0.005 (0.071) | -0.005 (0.071) | 0.024 (0.070) | 0.032 (0.070) | 0.037 (0.070) |
| Education (ref.: university) | | | | | |
| Beyond secondary | 0.131 (0.259) | 0.131 (0.260) | 0.168 (0.257) | 0.187 (0.258) | 0.244 (0.255) |
| Complete secondary | -0.308 (0.114) ** | -0.308 (0.114) ** | -0.281 (0.113) * | -0.277 (0.113) * | -0.256 (0.112) * |
| Some secondary | -0.169 (0.112) | -0.169 (0.113) | -0.162 (0.111) | -0.151 (0.112) | -0.094 (0.111) |
| Primary | -0.587 (0.162) *** | -0.587 (0.163) *** | -0.529 (0.161) ** | -0.510 (0.162) ** | -0.413 (0.162) * |
| Urban (ref.: village/rural) | | | | | |
| Small town | -0.190 (0.103) | -0.190 (0.103) | -0.147 (0.102) | -0.143 (0.102) | -0.125 (0.101) |
| Town | -0.358 (0.094) *** | -0.358 (0.094) *** | -0.328 (0.093) *** | -0.329 (0.093) *** | -0.357 (0.092) *** |
| City | -0.334 (0.124) ** | -0.334 (0.124) ** | -0.293 (0.123) * | -0.281 (0.123) * | -0.256 (0.122) * |
| Large city | -0.088 (0.116) | -0.088 (0.116) | -0.080 (0.114) | -0.071 (0.115) | -0.097 (0.114) |
| Work (ref.: [self-]employed) | | | | | |
| Unemployed | -0.649 (0.164) | -0.649 (0.164) *** | -0.650 (0.162) *** | -0.630 (0.163) *** | -0.568 (0.162) *** |
| Retired | 0.081 (0.097) | 0.081 (0.097) | 0.005 (0.097) | -0.002 (0.097) | 0.110 (0.099) |
| Student | -0.435 (0.177) * | -0.435 (0.178) * | -0.286 (0.178) | -0.268 (0.179) | -0.148 (0.178) |
| Other_ | 0.150 (0.181) | 0.150 (0.181) | 0.165 (0.179) | 0.176 (0.179) | 0.181 (0.177) |
| Income (ref.: less than 17,000 CZK) | | | | | |
| From 17,000 to 28,500 CZK | 0.138 (0.100) | 0.138 (0.100) | 0.112 (0.099) | 0.103 (0.099) | 0.063 (0.098) |
| More than 28,500 CZK | 0.603 (0.106) *** | 0.603 (0.106) *** | 0.578 (0.105) *** | 0.562 (0.106) *** | 0.488 (0.106) *** |
| Not specified | 0.327 (0.141) * | 0.327 (0.142) * | 0.339 (0.140) * | 0.333 (0.140) * | 0.298 (0.139) * |
| Financial knowledge | | 0.000 (0.021) | -0.008 (0.021) | -0.010 (0.021) | -0.020 (0.021) |
| Financial attitudes | | | 0.205 (0.041) *** | 0.187 (0.044) *** | 0.194 (0.043) *** |
| Financial behavior | | | | 0.027 (0.024) | 0.003 (0.025) |
| Financial experience | | | | | 0.101 (0.021) *** |
| Adjusted R-square | .102 | .101 | .123 | .123 | .142 |
| Model F statistics | F(16, 971) = 8.01 *** | F(17, 970) = 7.53 *** | F(18, 969) = 8.70 *** | F(19, 968) = 8.31 *** | F(20, 967) = 9.16 *** |

Note. SE is the Standard Error. Ref. is the reference category. * $p < .05$, ** $p < .01$, *** $p < .001$

Regression Results with *Financial Indebtedness* as the Dependent Variable

| Model | Model I | Model II | Model III | Model IV | Model V |
|-------------------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Variable: | Estimate (SE) | Estimate (SE) | Estimate (SE) | Estimate (SE) | Estimate (SE) |
| Intercept | 3.868 (0.161) *** | 3.523 (0.192) *** | 2.698 (0.231) *** | 2.403 (0.236) *** | 2.423 (0.239) *** |
| Male | -0.017 (0.076) | -0.024 (0.076) | 0.014 (0.074) | 0.053 (0.074) | 0.053 (0.074) |
| Education (ref.: university) | | | | | |
| Beyond secondary | -0.616 (0.279) * | -0.543 (0.278) | -0.495 (0.273) | -0.406 (0.271) | -0.413 (0.271) |
| Complete secondary | -0.080 (0.123) | -0.066 (0.122) | -0.030 (0.120) | -0.009 (0.119) | -0.012 (0.119) |
| Some secondary | -0.089 (0.120) | -0.043 (0.121) | -0.034 (0.118) | 0.018 (0.117) | 0.011 (0.118) |
| Primary | -0.347 (0.174) * | -0.293 (0.174) | -0.217 (0.171) | -0.127 (0.170) | -0.139 (0.172) |
| Urban (ref.: village/rural) | | | | | |
| Small town | -0.343 (0.111) ** | -0.326 (0.110) ** | -0.269 (0.108) * | -0.255 (0.107) * | -0.257 (0.107) * |
| Town | -0.241 (0.101) * | -0.218 (0.101) * | -0.178 (0.099) | -0.185 (0.098) | -0.181 (0.098) |
| City | -0.217 (0.133) | -0.249 (0.133) | -0.194 (0.131) | -0.143 (0.130) | -0.146 (0.130) |
| Large city | 0.044 (0.124) | 0.030 (0.124) | 0.041 (0.122) | 0.082 (0.120) | 0.085 (0.121) |
| Work (ref.: [self-]employed) | | | | | |
| Unemployed | -0.437 (0.177) * | -0.413 (0.176) * | -0.414 (0.173) * | -0.321 (0.172) | -0.329 (0.172) |
| Retired | 0.620 (0.104) *** | 0.599 (0.104) *** | 0.498 (0.103) *** | 0.467 (0.102) *** | 0.453 (0.105) *** |
| Student | 0.405 (0.191) * | 0.373 (0.190) * | 0.569 (0.189) ** | 0.653 (0.188) *** | 0.639 (0.190) *** |
| Other_ | 0.238 (0.195) | 0.237 (0.194) | 0.256 (0.190) | 0.306 (0.188) | 0.305 (0.189) |
| Income (ref.: less than 17,000 CZK) | | | | | |
| From 17,000 to 28,500 CZK | 0.177 (0.107) | 0.182 (0.107) | 0.148 (0.105) | 0.108 (0.104) | 0.113 (0.105) |
| More than 28,500 CZK | 0.441 (0.114) *** | 0.406 (0.114) *** | 0.374 (0.112) *** | 0.298 (0.111) ** | 0.307 (0.113) ** |
| Not specified | 0.278 (0.152) | 0.323 (0.152) * | 0.339 (0.149) * | 0.310 (0.147) * | 0.315 (0.147) * |
| Financial knowledge | | 0.073 (0.023) ** | 0.063 (0.022) ** | 0.053 (0.022) * | 0.054 (0.022) * |
| Financial attitudes | | | 0.270 (0.043) *** | 0.185 (0.046) *** | 0.184 (0.046) *** |
| Financial behavior | | | | 0.125 (0.025) *** | 0.128 (0.026) *** |
| Financial experience | | | | | -0.012 (0.023) |
| Adjusted R-square | .066 | .074 | .109 | .130 | .129 |
| Model F statistics | F(16, 971) = 5.32 *** | F(17, 970) = 5.67 *** | F(18, 969) = 7.72 *** | F(19, 968) = 8.76 *** | F(20, 967) = 8.33 *** |

Note. SE is the Standard Error. Ref. is the reference category. * $p < .05$, ** $p < .01$, *** $p < .001$

Regression Results with *Financial Anxiety* as the Dependent Variable

| Model | Model I | Model II | Model III | Model IV | Model V |
|-------------------------------------|--------------------------|--------------------------|--------------------------|--------------------------|---------------------------|
| Variable: | Estimate (SE) | Estimate (SE) | Estimate (SE) | Estimate (SE) | Estimate (SE) |
| Intercept | 3.526 (0.165) *** | 3.238 (0.198) *** | 2.567 (0.238) *** | 2.190 (0.242) *** | 1.994 (0.242) *** |
| Male | 0.040 (0.078) | 0.035 (0.078) | 0.066 (0.077) | 0.115 (0.076) | 0.120 (0.075) |
| Education (ref.: university) | | | | | |
| Beyond secondary | -0.280 (0.286) | -0.218 (0.286) | -0.180 (0.283) | -0.066 (0.278) | -0.001 (0.275) |
| Complete secondary | -0.295 (0.126) * | -0.283 (0.125) * | -0.254 (0.124) * | -0.228 (0.122) | -0.204 (0.120) |
| Some secondary | -0.333 (0.123) ** | -0.295 (0.124) * | -0.288 (0.122) * | -0.221 (0.121) | -0.156 (0.120) |
| Primary | -0.692 (0.178) *** | -0.646 (0.179) *** | -0.585 (0.177) *** | -0.470 (0.175) ** | -0.359 (0.174) * |
| Urban (ref.: village/rural) | | | | | |
| Small town | -0.174 (0.113) | -0.160 (0.113) | -0.114 (0.112) | -0.096 (0.110) | -0.075 (0.109) |
| Town | -0.216 (0.103) * | -0.197 (0.103) | -0.164 (0.102) | -0.173 (0.101) | -0.204 (0.100) * |
| City | -0.228 (0.137) | -0.254 (0.137) | -0.210 (0.135) | -0.145 (0.133) | -0.116 (0.132) |
| Large city | -0.061 (0.128) | -0.073 (0.127) | -0.064 (0.126) | -0.011 (0.124) | -0.041 (0.122) |
| Work (ref.: [self-]employed) | | | | | |
| Unemployed | -0.869 (0.181) *** | -0.849 (0.181) | -0.850 (0.179) *** | -0.731 (0.176) *** | -0.660 (0.175) *** |
| Retired | 0.262 (0.107) * | 0.244 (0.107) * | 0.163 (0.107) | 0.122 (0.105) | 0.251 (0.107) * |
| Student | -0.309 (0.195) | -0.336 (0.195) | -0.177 (0.196) | -0.068 (0.193) | 0.069 (0.192) |
| Other_ | 0.024 (0.200) | 0.023 (0.199) | 0.039 (0.197) | 0.102 (0.194) | 0.108 (0.191) |
| Income (ref.: less than 17,000 CZK) | | | | | |
| From 17,000 to 28,500 CZK | 0.311 (0.110) ** | 0.316 (0.110) ** | 0.287 (0.109) ** | 0.237 (0.107) * | 0.190 (0.106) |
| More than 28,500 CZK | 0.539 (0.116) *** | 0.510 (0.117) *** | 0.484 (0.115) *** | 0.387 (0.114) *** | 0.303 (0.114) ** |
| Not specified | 0.423 (0.156) | 0.460 (0.156) ** | 0.473 (0.154) ** | 0.437 (0.151) ** | 0.397 (0.150) ** |
| Financial knowledge | | 0.061 (0.023) ** | 0.053 (0.023) * | 0.040 (0.023) | 0.028 (0.023) |
| Financial attitudes | | | 0.220 (0.045) *** | 0.111 (0.047) * | 0.119 (0.047) * |
| Financial behavior | | | | 0.160 (0.026) *** | 0.132 (0.026) *** |
| Financial experience | | | | | 0.115 (0.023) *** |
| Adjusted R-square | .079 | .085 | .106 | .138 | .159 |
| Model F statistics | F(16, 971) = 6.30 *** | F(17, 970) = 6.37 *** | F(18, 969) = 7.49 *** | F(19, 968) = 9.32 *** | F(20, 967) = 10.31 *** |

Note. SE is the Standard Error. Ref. is the reference category. * $p < .05$, ** $p < .01$, *** $p < .001$