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Analysis of Portfolio Structure in Households: Exploring the Determinants of Investor Risk Preferences Using Slovak HFCS Data

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Contents

Abstract

Households face numerous investment opportunities in financial markets, yet participation in the stock market remains surprisingly limited.

Why is this happening? Are there any family's characteristics that can have an impact on asset allocation? And, if yes, what households are more into risky assets and what prefer safer investments? This study seeks to unravel the reasons behind this phenomenon, focusing on the diverse preferences and motivations that influence individual investment decisions in the Slovak republic.

Using data from the Household Finance and Consumption Survey (HFCS) in the Slovak Republic, this research examines how factors such as income and household size shape financial choices.

Despite the extensive literature on household finance, Central Europe remains relatively underexplored, creating a unique opportunity to broaden our understanding of investment behavior in this region.

Introduction

Navigating the labyrinth of financial markets, households encounter a myriad of investment opportunities, each with its unique characteristics and promises.

However, amidst this sea of options, a curious puzzle emerges: the limited participation of households in the stock market.

This phenomenon has captured the attention of researchers and theorists alike, sparking a surge of interest in uncovering the underlying dynamics driving household investment behavior.

Indeed, the landscape of household finance is rich and varied, reflecting the diverse preferences and motivations of individuals across the globe. From risk-averse savers to adventurous investors, each household charts its own course through the complex terrain of financial decision-making. However, understanding the factors shaping these decisions is no simple task.

At the core of household investment lies the age-old trade-off between risk and return. While there is the temptation of high returns, so too does the spectre of potential losses. Balancing these competing forces, households strive to construct portfolios that maximize expected utility while mitigating risk. Yet, this endeavor is complicated by the myriads of personal and situational factors that influence individual preferences. From personality traits to socioeconomic status, from educational backgrounds to cultural norms, the determinants of household investment behavior are as varied as the households themselves. Indeed, the interplay of these factors adds layers of complexity to the already intricate tapestry of financial decision-making.

Against this backdrop, the Household Finance and Consumption Survey (HFCS) emerges as a beacon of insight, offering a comprehensive snapshot of household finances within the Slovak Republic. Leveraging this rich dataset, this paper seeks to discover the variety of household investment preferences, exploring how income, household size, and other variables shape the choices made by individuals and families.

Yet, while the literature on household finance continues to expand, a noticeable gap remains in the context of geographic focus. Many existing studies have predominantly centred on European nations or distant countries, leaving regions such as Central Europe relatively unexplored. This presents an opportune moment to broaden our understanding of household finance dynamics within the European context, particularly in regions where empirical research may be scarce.

As such, this study aims to contribute to the burgeoning literature on household finance by examining the portfolio composition and decision-making processes of households within the Slovak Republic.

In summary, this paper embarks on a journey through the complex landscape of household finance, guided by the belief that by illuminating the drivers of investment behavior, we can pave the way towards a more prosperous and equitable financial future for all.

In the first chapter there will be the literature review of academic papers and journals which aimed to answer to similar research questions; the second chapter is aim and hypotheses in the third chapter data and methodology will be analysed, I will also briefly explain how I constructed my code. In the fourth chapter I will present results I obtained; and in the fifth and last chapter there will be final discussion of results and conclusions of my thesis.

1. Literature review

In his seminal 2006 Presidential Address to the American Financial Association, John Campbell bestowed upon the realm of financial economics a newly coined term: "Household Finance." This field, as Campbell articulated, delves into the intricate ways in which households navigate financial instruments and markets to fulfill their myriad objectives. It marks a departure from traditional finance studies that often centered on institutional or corporate behaviors, instead shining a spotlight on the nuanced financial decisions made by individuals and families.

While the roots of household finance can be traced back to the broader domain of consumer finance, its emergence as a distinct field has been marked by a growing body of research that seeks to understand the intricacies of family and personal financial behaviors. Indeed, variations such as family finance and personal finance have emerged, each emphasizing the unique financial challenges faced by households in their pursuit of financial well-being.

In recent years, the spotlight on household finance has intensified, with studies proliferating across academic journals and research institutions worldwide. This surge in scholarly attention has been instrumental in shedding light on the composition of household portfolios and the multitude of factors that influence their financial decision-making processes. (Jing Jian Xiao and Chunsheng Tao, 2020)

In studying how households manage their investments, researchers have discovered interesting trends related to who they are and how they approach risk.
Worthington (Worthington, 2009) analyses how household portfolios change composition with relation to demographic, socioeconomic and risk aversion factors.
They found that larger, older households, especially those with couples and children, tend to spread their investments across different assets, making their portfolios more varied. On the other hand, households with many children or single parents often focus on just a few investments, keeping their portfolios more concentrated.
These findings show how different household characteristics can influence the way people manage their money.
In a study conducted in the Netherlands, researchers S. Hochguertel, R. Alessie, and A. Soest (Hochguertel, Alessie et al., 1997) examined the composition of household portfolios concerning financial wealth.

Their paper analyzed the determinants influencing both the total financial wealth of households and their choices between risky assets (stocks and bonds) and risk-free assets (savings accounts).
Utilizing a Tobit model and applying it to data collected from 3077 households in the Netherlands in 1988, the researchers uncovered several key findings. Firstly, they identified that the level of financial wealth and the marginal tax rate were significant determinants influencing the allocation decision between risk-free and risky assets.
This implies that households with higher levels of financial wealth may be more inclined to allocate a portion of their assets into riskier investments, such as stocks and bonds, while also considering tax implications in their decision-making process. Conversely, households with lower levels of financial wealth may prioritize safer options, like savings accounts, to protect their assets.

In their comprehensive investigation, Haliassos (Haliassos et al., 2002) went into the intricate realm of risk aversion, employing sophisticated measures derived from the degree of concavity inherent within utility functions—a concept pioneered by Arrow (1971) and Pratt (1964). By using questionnaires probing participants' attitudes towards risk, they endeavor to unravel the nuances of risk preferences among households. Moreover, their study casts a probing gaze upon the temporal dimension of investment decisions, recognizing the role of time horizon considerations in shaping optimal portfolio structures. Indeed, they advocate for a strategic alignment of investment allocations with the time horizon, advocating that households ought to allocate a greater proportion of their resources towards longer-term risky assets. They also focus on how the time horizon is considered when choosing the optimal portfolio structure, stating the importance of foresight and strategic planning in navigating the ever-evolving landscape of financial markets. This risk aversion phenomenon that interests households has been studied a lot, as it seems to be really developed among different countries.
For instance, in their study spanning the years 1985 to 2000, Bertaut and Carol (Bertraut et al., 2000) conducted a comprehensive analysis of investment behaviors among American households. Despite the proliferation of financial products during this period, households exhibited a notable tendency towards simplicity and risk aversion in their investment portfolios. Even among higher-income families, who might be expected to engage in more sophisticated investment strategies, there was a prevailing preference for safer assets.
Interestingly, the researchers uncovered evidence suggesting that some affluent households were resorting to borrowing at high costs, despite their financial means—a phenomenon indicative of a cautious approach to managing finances. A closer examination of the data from the years 1993 to 1998 reveals a shifting landscape of investment preferences. During this period, there was a

discernible increase in the ownership of residential property, corporate equity, mutual funds, and pension funds. This growth can be attributed, at least in part, to the introduction of tax-deferred retirement accounts, which incentivized participation in these investment vehicles.
Conversely, traditional investment options such as certificates of deposit and various types of bonds experienced a decline in ownership, signaling a shift in household investment preferences towards more dynamic and potentially higher-yielding asset classes.

Christian Gollier came to a different conclusion from the one of Bertaut and McCluer is his influential study from 1999, which uncovered some key insights into how households invest their money. He found that wealthier people are more willing to take risks with their investments and tend to put a larger chunk of their money into risky assets. Additionally, Gollier discovered that richer households often increase their investments in risky assets over time. Gollier also showed that households with riskier job prospects or those struggling to manage their expenses tend to be more cautious with their investments. They're less likely to put their money into risky assets because they're worried about facing financial difficulties in the future. Looking at investment trends in the 1990s, Gollier noticed that more and more people were opting for risky investments. Older households and wealthier individuals were particularly inclined to invest in riskier assets. Overall, Gollier's findings give us valuable insights into how people make investment decisions based on their wealth, risk tolerance, and financial circumstances.
The relationship between investment decisions and job riskiness is also examined in the paper titled "Income Risk and Portfolio Choice: An Empirical Study" by Xiaohong W. Angerer and Pok-sang Lam (2009). The authors analyze how different types of labor income risks influence portfolio decisions. They focus on two key types of income risk: permanent income risk, which refers to long-term income fluctuations, and transitory income risk, which involves short-term fluctuations with no lasting impact.
Their findings reveal a significant link between permanent income risk and the allocation of risky assets in portfolios. Specifically, they observe that as the level of permanent income risk increases, individuals tend to reduce the proportion of risky assets in their portfolios. This is particularly interesting because it contrasts with what Gollier discovered in his study.
Conversely, the study finds that transitory income risk has little to no impact on portfolio allocation decisions. This suggests that individuals are less concerned with short-term income fluctuations when making investment choices.
Overall, the results of this study provide strong empirical support for economic theory, demonstrating that households adjust their portfolio compositions in response to long-term income risks. By

highlighting the relationship between income risk and portfolio choice, the authors contribute valuable insights to our understanding of investment behavior.

On the same line but analysing different data is the study “Human Capital Risk and Portfolio Choices: Evidence from University Admission Discontinuities," (Philippe d'Astous and Stephen H. Shore, 2024), in which the researchers analysed the Danish national admission system's intriguing assignment of similar applicants to programs with varying levels of earnings volatility. Here, the job’s riskiness is measured using the volatile income that is probably related to specific kins of study programm followed in universities.

Employing a rigorous methodology, the authors seek to measure the causal impact of enrolling in a high-volatility program while keeping the average program earnings and human capital betas constant. Through this approach, they aim to clearify the relationship between program choice, subsequent earnings volatility, and individuals' portfolio decisions.

Their analysis reveals interesting insights: students who enroll in programs characterized by volatile earnings tend to experience greater fluctuations in their own earnings. Moreover, these individuals display a tendency to hold less risky assets and exhibit lower levels of participation in the stock market compared to their counterparts in less volatile programs. This is in line with Gollier’s conclusions.

Further, the researchers calibrate empirical results to a portfolio choice model incorporating risky labor income. Remarkably, this model aligns well with observed behaviors, suggesting that individuals exhibit modest participation costs, engage in myopic behavior, and possess reasonable levels of risk aversion.

Crucially, d'Astous and Shore utilize the choice of program riskiness as a proxy for risk aversion, allowing them to explore the probabilities of investing in more or less risky portfolios. Their conclusions underscore the profound impact of program selection on individuals' financial behaviors, highlighting how fluctuations in earnings volatility stemming from educational choices shape subsequent portfolio decisions.

In essence, this study offers valuable insights into the complex interplay between human capital risk, educational choices, and financial decision-making.

In their recent study, Li and Qian (How does entrepreneurship influence the efficiency of household portfolios? (Rui Li and Yanhong Qian, 2021) examined how entrepreneurship impacts household investment choices in China. Their research revealed an unexpected trend: households with entrepreneurs tended to have less diversified investment portfolios compared to those without

entrepreneurs. This finding contrasts with the observations made by D'Astous and Shore in their previous research.

While D'Astous and Shore suggested that entrepreneurs, with their likely familiarity with market dynamics, would spread their investments across different assets to reduce risk, Li and Qian's study found the opposite pattern. It appears that being an entrepreneur doesn't always lead to a more varied investment approach.

This discovery challenges conventional assumptions about the relationship between entrepreneurship and investment behavior. It suggests that factors beyond market knowledge may influence how entrepreneurial households manage their finances.

By highlighting on this aspect, Li and Qian's study opens avenues for further exploration into the complexities of household financial decision-making in entrepreneurial contexts.

It is interesting to cite here the opposite discoveries made by Jia, Li et al. in the same country, China, where the researchers (Jia, Li, Bian, Gan, 2019) utilized data from the 2014 China Family Panel Studies survey (CFPS) to conduct a study titled "Financial Planning Ability, Risk Perception, and Household Portfolio Choice."

This study aimed to explore the relationship between financial planning, risk perception, and household investment decisions.

Their findings, published in the journal Emerging Markets Finance and Trade, revealed a significant trend: households that engage in financial planning tend to allocate more of their investments to financial markets. Moreover, these households demonstrate a preference for investing in riskier assets.

In simpler terms, the research suggests that when families actively engage in financial planning—such as budgeting, saving, and setting financial goals—they are more inclined to invest in financial markets. Additionally, they are willing to take on more risk with their investments, potentially seeking higher returns.

This conclusion highlights the importance of financial planning in guiding household investment decisions and suggests that it may play a crucial role in shaping investment behavior in China.

But here, the results show that people with more investment abilities tend to invest more in financial markets, stating a complete opposite thing with respect to Li and Quian, while remaining in the same country.

The next paper presented here will focus more on finance household in its relationship with macroeconomic context.

In the paper titled "Chinese Economic Policy Uncertainty and U.S. Households' Portfolio Decisions," (Lee, Jeon et Al.m, 2020) the authors look at how household investments are affected by the overall economic situation, both at home and abroad. They find that foreign economic policies, especially those of China, can have a big impact on how American households choose to invest their money.

Their research shows that it's not just domestic factors that influence investment decisions. Global economic conditions, especially uncertainty about policies in other countries, also play a significant role.

This study emphasizes the importance of considering the broader economic picture when managing investments.

A slightly different point of view of investment decisions is given by the recent study titled "Stock Market Ownership Transitions," (Yosef Bonaparte and George M. Korniotis and al., 2023) published in January 2023, in which the authors tried to explain the reasons why individuals choose to enter or exit the stock market—a crucial aspect of managing investments. They discover that this decision isn't solely dependent on age; rather, it's influenced by a variety of factors.

Drawing upon data spanning from 1999 to 2019 and using a panel probit regression alaysis, that distinguishes between different types of households—such as those invested in stocks and those relying on retirement accounts—the authors uncover fascinating insights into the decision-making process.

Their analysis reveals that individuals with higher incomes and greater wealth are less likely to withdraw from the stock market once they've entered it.

Conversely, for those who haven't previously invested, an increase in income and wealth often prompts them to start investing. This underscores the significance of financial stability in guiding investment decisions.

Even though the variables analysed are nt the same as in the previous cited studies, we can see a similarity between these conclusions and the ones of Gollier, d’Astous and Shore.

In exploring Chinese households, the article “Age structure of the population and the choice of household financial assets” (Chenyu Kang and Ridong Hu, 2021), suggests that improving the financial structure of investments could enhance the well-being of families in China.

By applying probit and tobit econometric models, the researchers investigate how the age composition of households affects their financial decisions.

For example, they found that having children tends to decrease investments in risky assets and deposits, while a higher proportion of elderly family members encourages shifting from risky assets to savings.

Furthermore, the paper examines differences in asset allocation between urban and rural Chinese households. It introduces a novel perspective by emphasizing the importance of cultural psychology in understanding variations in asset allocation strategies among households.

Using the probit model once again, the authors make several key observations: Firstly, they note that family cultural values positively influence financial asset allocation. Secondly, they find that knowledge acquisition acts as a mediator between family cultural values and financial asset allocation. Lastly, they observe that rural families with high collectivism and uncertainty avoidance exhibit a more pronounced mediating effect.

In a comprehensive analysis, the paper: International comparison of household asset allocation: Micro-evidence from cross-country comparisons by Lu, Guo et al. (2020) aims to study the differences in household asset allocation across various countries worldwide. Authors conduct a thorough examination using data from 23 countries, encompassing both developing and developed nations such as China, the USA, 20 European countries, and Australia.

The author makes intriguing observations. Firstly, they note a common trend across all countries analyzed, except the United States (housing assets often represent a significant portion of total household assets). This suggests that regardless of geographic location or economic development status, housing holds substantial value for households.

Furthermore, the analysis reveals a correlation between increasing income and heightened investment in financial assets among families in China, the USA, and several other countries. This indicates that as households experience income growth, they are more inclined to allocate a larger portion of their wealth into financial instruments.

Additionally, the study uncovers an interesting pattern concerning the age of household heads. It observes that the proportion of housing assets follows an inverted U-shaped curve as household heads age. Initially, this proportion tends to increase with age before eventually declining. This suggests that households may prioritize homeownership as they mature, but later opt to diversify their assets as they approach retirement age.

This opinion is supported in a study focused on Dutch households, “Investment Losses and Inequality” (Maximilian Longmuir and Johannes Koenig, 2019), where researchers employed a modified version of the Global Capital Asset Pricing Model (GCAPM) to assess investment

performance across five European countries. This modified model utilized categorized household portfolio data, enabling the measurement of investment performance in countries where such assessments were previously unavailable. Across all countries analyzed, households with lower levels of wealth demonstrated inferior investment performance, even after adjusting for risk. Additionally, the researchers discovered that households situated below the median wealth threshold did not experience any significant benefits from their investments.

Similarly, to the analysis of Xiaomeng Lu, Jiaojiao Guo and Li Gan, this study shows that lower income families are less likely to invest in stock exchange market, and that the interest grows along with the wealth level of families.

By identifying these disparities, policymakers and financial practitioners can better tailor strategies to address the needs of households across various wealth levels, ultimately promoting greater financial inclusion and well-being.

In the study "Household Portfolio Allocations: Evidence on Risk Preferences from the Household, Income, and Labour Dynamics in Australia (HILDA) Survey Using Tobit Models" (Khan and Ramella et al., 2022,), researchers investigated the risk-taking attitudes of partners within households and how this aspect influences their decisions regarding portfolio asset allocation. Using a Tobit model on panel data from waves 2 to 6 of the HILDA surveys (Household, Income and Labour Dynamics in Australia), they sought to understand the dynamics at play.

One of the key findings of their analysis is particularly interesting: when comparing individuals of the same risk preferences, males tend to invest more in risky assets compared to females. This suggests that, all else being equal, men are more inclined towards risk-taking in their investment decisions.

Building upon this significant finding, the researchers propose that future studies should consider adjusting household bargaining models to give greater weight to the preferences of risk-loving males. By doing so, researchers can offer additional insights into the determinants of risk-taking behavior within households.

In Australia, another noteworthy paper by Cardak and Wilkins (Cardak, Wilkins, 2009) examines the portfolio allocation of Australian households, using the same survey data as the previous study. Their focus lies on how households allocate their investments to risky financial assets.

What makes this study particularly interesting is its consideration of background risk factors such as labor income uncertainty and health risks. The researchers discovered that these factors play a crucial role in influencing asset allocation decisions.

To better understand the determinants of risky asset holdings, the authors analyze various variables including observed preferences, credit constraints, investment substitutes, retirement status, and background risks stemming from labor income uncertainty, business income, health status, and committed expenditures.
Their investigation reveals several key findings:
1. There is a significant negative impact of labor income risk on risky asset holdings.
2. Committed expenditures, such as mortgage payments, have a positive and statistically significant effect on risky asset holdings, although the economic significance of this effect is relatively small.
3. For employed households specifically, poor health status has a negative and statistically significant effect on risky asset holdings.

What stated in point n° 1 brings to our memory what stated by Philippe d'Astous and Stephen H. Shore, that is, when people have a riskier income given by their job, they are less likely to invest in stock exchange marcket.
Additionally, the study uncovers a strong positive relationship between home ownership and risky asset holdings among Australian households.
In essence, this research offers valuable insights into the factors influencing asset allocation decisions in Australian households. By considering a wide range of variables, including background risk factors, the study enriches our understanding of the complexities underlying investment choices and their implications for financial well-being.

In the paper “Household finance” (Campbell, John Y, 2006) the primary focus is on how households manage their finances to meet their goals, while also considering specific financial challenges unique to households.
One key issue addressed is the long-term perspective that families must adopt. They often invest in assets like human capital and housing, which are not easily traded, alongside dealing with the complexities of taxation and borrowing.
The paper also highlights that certain demographic factor, such as lower income and education levels, are linked to a higher likelihood of investment mistakes. Interestingly, these same households are less likely to engage in risky asset markets altogether. Some may avoid risk due to awareness of their limited investment skills, while others may choose to delegate financial decisions to professionals, albeit at a cost.

Furthermore, the presence of households prone to investment errors could hinder financial innovation. This suggests that the reluctance of some households to participate in risky asset markets may slow down the development of new financial products and services.
In the concluding remarks, the author acknowledges certain limitations and areas not fully explored in the paper, indicating the ongoing nature of research in household finance and the need for further investigation into these complex dynamics.

A different type of study is made on the reationship between households' debts and happiness.
I will present now two studies similar in ideas and results, even if the society examined are different and far away from each other.
In the paper "Consumer Debt Holding, Income, and Happiness: Evidence from China" (Jing Jian Xiao and Chengyang Yan et al., 2021), researchers utilized data from the China Household Finance Survey (CHFS) to analyze various variables and understand this connection. They measured happiness on a scale from 1 (very unhappy) to 5 (very happy) and examined debt holding through two sets of variables. The first set focused on whether households held any debt, while the second set comprised seven specific types of debt: housing, business, education, car, medical, credit card, and other debts.
Additionally, the study considered demographic variables such as gender, marital status, health, education level, employment status, party membership, and rural or urban residency. Binary variables for asset ownership, like houses, cars, businesses, and credit cards, were also included. Consistent with prior research in China and other countries, the study found a negative association between debt holding and happiness across various types of debts.
Interestingly, the results suggested that the adverse effects of debt on happiness are more pronounced among lower-income households compared to higher-income households, regardless of debt type. Furthermore, borrowing from non-bank and family sources was found to reduce happiness among consumers, implying that the source of borrowing influences its impact on household well-being. Overall, the findings highlight the complex relationship between debt, income, and happiness among Chinese households, emphasizing the need to consider various factors when analyzing the effects of debt on individuals' overall satisfaction and well-being.
Similarly, the paper "Debt and Subjective Well-being: The Other Side of the Income-Happiness Coin" (Tay, L., Batz, C., Parrigon, S. et al., 2017) aimed to explore how debt affects subjective well-being and develop a model explaining the mechanisms behind this relationship. The researchers conducted a comprehensive literature review and developed a model to elucidate the pathways through which debt influences subjective well-being. They also performed a moderated mediation

analysis using a large-scale representative sample of college graduates with internet access in the United States, focusing specifically on the effects of student loans on well-being.
The study's findings revealed that both debt and income significantly predict life satisfaction, accounting for 40% and 60% of the predicted variance, respectively. This suggests that while income is a crucial factor in determining subjective well-being, debt also substantially influences individuals' overall life satisfaction. In essence, this study sheds light on the nuanced relationship between debt, income, and subjective well-being, providing valuable insights into the factors contributing to individuals' overall happiness and life satisfaction.

In a comprehensive analysis spanning major European countries including France, Germany, Italy, the Netherlands, Sweden, and the UK the study “Household Stockholding in Europe: Where Do We Stand and Where Do We Go?” (Guiso, Jappelli,2002) explores the current landscape of stock ownership among households.
By comparing and contrasting these findings with the experience in the United States, the researchers aim to uncover whether disparities in stockholding can be attributed to differences in household characteristics. The study's conclusions yield several noteworthy insights:

1. Across all countries examined, there is a notable uptick in stock market participation, indicating a growing interest in equity investment among households.
2. Despite this overall increase, persistent disparities in stock ownership persist among the various countries. Countries like the US, the UK, and Sweden exhibit significantly higher levels of participation compared to France, Germany, and Italy.
3. A robust correlation emerges between the decision to participate in the stock market and key socioeconomic factors such as wealth and education levels within households.
This result is in line with the one from Hochguertel, Alessie et al.; investment in stock exchange markets increases along with income level and wealth of families.
4. Interestingly, while wealth and education exert some influence on the decision to invest in stocks, their impact on the proportion of assets allocated to stocks is relatively modest once participation is accounted for.
Of particular interest is the observation that even after controlling for household characteristics, substantial international differences in stock market participation persist. This suggests the presence of broader contextual factors beyond individual household attributes that shape attitudes and behaviors towards equity investment across countries.

Overall, this study provides valuable insights into the dynamics of stock ownership within European households, shedding light on the complex interplay between socioeconomic factors and investment decisions.

In the study by Fraile (Fraile, 2013) based on standard portfolio theory, it is predicted that households will always hold part of their portfolio in risky assets, the exact quantity being a function of the equity premium and the volatility of the risky assets' portfolio (see also Markowitz 1952; Tobin 1958).
Despite this, there are a lot of studies on how the majority of the population does not participate in the stock market; this paper tries to give an explanation on why households do not hold stocks.
They base their analysis on the mean-variance expected utility model with entry costs. We look at how these entry costs, whether monetary or informational, can explain the lack of participation in the stock market.
After the analysis, in which they use both the simple OLS regression model and the probit model, they conclude that households which take part in the stock exchange market is extremely low, and, more specifically, Spain is among the European countries which exhibit a lower participation rate and it is far behind the US.
this can be partially explained by the existence of monetary and informational entry costs; wealthier and more educated households have a higher probability of owning stock than others.

To better understand why the participation in stock exchange markets is so low, comes into help Miguel Ampudia Fraile's study "Stockholding in Spain," (Miguel Ampudia Fraile, 2013).
The focus is on understanding why a significant portion of the population does not engage in stock market participation, despite predictions from standard portfolio theory suggesting otherwise. According to this theory, households are expected to allocate a portion of their portfolio to risky assets, with the exact amount determined by factors such as the equity premium and the volatility of the risky assets' portfolio, as outlined by seminal works by Markowitz (1952) and Tobin (1958).

Despite these theoretical expectations, empirical evidence suggests that many households refrain from stock market participation. Fraile's study seeks to provide insights into this phenomenon by analyzing the mean-variance expected utility model with entry costs. These entry costs, whether monetary or informational, are examined to understand their role in explaining the low participation rates observed in the stock market.

Through the utilization of both simple OLS regression and probit models, the study concludes that the level of stock market participation among households is indeed remarkably low. Specifically, Spain stands out among European countries with particularly low participation rates, trailing behind the United States significantly.

One key finding of the analysis is that the presence of entry costs, whether in the form of monetary expenses or informational barriers, contributes to the reluctance of households to engage in stock market activities.

Moreover, the study reveals that wealthier and more educated households are more likely to own stocks, suggesting that socioeconomic factors play a significant role in determining stock ownership.

In Sonia Muñoz's paper "Habit Formation and Persistence in Individual Asset Portfolio Holdings: The Case of Italy," (Munoz, 2006), a comprehensive analysis is conducted using six waves of the Bank of Italy Survey of Households Income and Wealth.

The primary objective of the study is to investigate the dynamics of asset portfolio ownership in Italy and to understand the reasons behind the infrequent changes observed in portfolio allocations.

Despite the paper's age, its detailed analysis provides valuable insights into the choices made by Italian households regarding financial assets. Notably, the study is conducted using the Italian lire as the currency, predating the adoption of the euro.

Muñoz categorizes financial asset holdings into three main types:

1. Safe financial assets (SF): Including checking accounts, savings deposits, certificates of deposit, postal deposits, postal bonds, treasury bills, and floating-rate Treasury credit certificates.
2. Risky financial assets (RK): Encompassing long-term government bonds, corporate bonds, foreign bonds, investment fund units, domestic and foreign stocks, and shareholdings in limited companies and partnerships.
3. No financial assets (NOA)

The analysis considers various demographic variables, such as marital status, gender, and family size, along with measures of initial endowment like real labor income, real financial wealth, and housing equity. Additionally, factors like self-employment, unemployment rates, age, education, and household indebtedness are considered.

The study employs sophisticated statistical models, including Probit models with autoregressive errors, Multiperiod multinomial Probit models, and Nested multinomial logit models.

The results indicate that household portfolio behavior is influenced more by infrequent decisions than continuous adjustments predicted by standard theory.

Habit formation emerges as a significant driver of household behavior, suggesting that households develop preferences for certain assets and tend to maintain relatively stable portfolios over time.

In summary, Muñoz's study offers valuable insights into the dynamics of asset portfolio ownership in Italy, highlighting the role of habit formation in shaping household investment decisions. These findings contribute to a deeper understanding of financial behavior and have implications for policymakers and financial advisors seeking to promote informed investment strategies among households.

Expanding upon the groundwork laid by the earlier study, subsequent research has delved deeper into understanding stock market participation dynamics.

In this follow-up investigation, researchers developed a dynamic model to explore the factors influencing individuals' decisions to enter the stock market, with a particular emphasis on the costs associated with participation.

Through this extended analysis, it was revealed that, on average, the cost of participating in the stock market equates to approximately 5% of an individual's labor income. However, it was observed that these costs vary significantly across different stages of individuals' lives.

In their study “Are Household Portfolios Efficient? An Analysis Conditional on Housing” (Weber, Pelizzon, 2003) centered on Italian households, the authors undertake an intriguing investigation into whether the effectiveness of portfolios might be compromised due to the oversight of illiquid assets, particularly housing.

They posit that housing holds a pivotal position as an illiquid asset for households and argue that disregarding its presence could introduce bias in our assessment of portfolio efficiency, especially concerning financial assets.

To put their hypothesis to the test, the researchers meticulously gather household portfolio data from SHIW 1998 and pair it with comprehensive time series data on returns from both financial assets and housing stocks.

With this rich dataset, they do a meticulous examination to understand whether the portfolios individuals actually hold exhibit signs of efficiency.

Initially, they scrutinize portfolios consisting exclusively of financial assets before expanding their analysis to include portfolios that incorporate housing stock as an additional asset.

Subsequently, they delve into the consequences of treating housing stock as a fixed component and explore how this impacts the evaluation of portfolio efficiency within this revised framework.

Through their rigorous empirical analysis, the researchers unearth compelling evidence to support their hypothesis.

They find that the presence of illiquid assets, particularly homeownership, exerts a notable influence on the efficiency of portfolios selected by individuals.
This revelation underscores the critical importance of accounting for illiquid assets, such as housing, in portfolio analysis to ensure a more accurate understanding of portfolio efficiency and, by extension, informed financial decision-making.

In this paper focusing on continuation of the exploration into household dynamics within the same Italian households, titled "A Discrete Choice Analysis of the Household Shares of Risky Assets" (Graciela Sanroman, 2002) the researcher delves into how households decide to participate in risky financial markets and where they choose to invest. Using a unique dataset, they examine these decisions closely.
The study uses a model with two types of financial assets—risky and riskless—and considers participation costs.
By estimating the probability distribution function for households' allocations to risky assets, the researcher aims to understand their decision-making process.
Through this investigation, the study aims to uncover the factors influencing households' preferences in financial markets.

In Germany, researchers examined how the self-declared risk aversion of private investors influences their decision to build diversified portfolios of financial assets. (Barasinska
Schafer et Al., 2010)
They conducted this analysis using data from the German Socioeconomic Panel (SOEP), a trusted source that gauges individual attitudes toward financial risk.
Their findings indicate that households with higher levels of risk aversion tend to opt for incomplete portfolios, primarily made up of a few risk-free assets.
This suggests that the extent of risk aversion significantly shapes the investment strategies of private investors in Germany.
Additionally, the researchers discovered that the inclination to diversify is strongly influenced by whether liquidity and safety needs are met. In essence, households seem to view the absence of liquidity and safety as a trade-off for diversification, outweighing the potential benefits of reducing overall investment risk.

These studies collectively aim to give light to some results:

- There is an impact of debt on happiness, which increases disparities across income levels and souces of borrowing; disparities are always present when we talk ab out stock ownership among households, because families differ from each other by extremely relevant economic factors like wealth and education state of members.
- There is a need of a comprehensive analysis and a better knowledge of ste possibilities existing on the stock exchange market, as there is still a high influence of illiquid assets like housing on portfolio efficiency; about this, we have seen that in german households there is an interplay between risk aversion, portfolio diversification, and the pursuit of liquidity and safety in investments decisions
- In some countries like Spain, is extremely evident the role of entry cost in stock market partecipation
- Habit formation play an important role in shaping household investment decisions, as evidenced by stable portfolio allocations over time

2 Aim of the thesis

The main aim of the thesis is to investigate the relationship between portfolio characteristics preferred by Slovak families and household types.
Through this study, I aim to understand the most influential factors shaping portfolio preferences while also identifying those that hold less significance. Additionally, I will conduct a comparative analysis using data from the two most recent waves of the Household Finance and Consumption Survey (HFCS) to understand whether there have been notable shifts in investor behavior within stock exchange markets over time.

Based on extensive literature review we formulate these hypotheses:
H1: Slovak family will have differences in their portfolio decisions depending on the level of income and wellbeing.

H2: There is an increase in the numbers of investors between year 2017 and 2021

H3: Having more children will negatively affect the asset ownership and especially the riskiness of the portfolio.

H4: Richer families will be more likely to own riskier assets like shares and mutual funds.

3. Data and methodology

I used the HFCS data provided me from the national Slovak bank.

The population studied is a set of households, with different demographic characteristics, abilities, and interests. The data for this survey is collected by National Bank of Slovakia every four years; here, I used data from two waves: 2017 and 2021.

The data used are panel data, meaning that the same household is included in both waves, allowing us to follow the evolution of household behavior over time.

The answers to the questionnaires are collected by a face-to-face interview, that last 60 min per person. Although this method is the most expensive, it is also the most precise and least biased.

The number of interviewers required for this work is approximately 130 analysts, each with many years of experience (mostly 25-30 years).

I selected, among all the data collected, the ones that I needed to define variables for models and to describe and analyse behaviour of households. The variables used follow.

[note: * symbol means that the code is the same for data from 2017 and 2021]

FINANCIAL ASSETS	Description	Values
Total financial assets	excl. public and occupational pension plans	1 – yes; 0 – no
Deposits	Sight accounts	1 – yes; 0 – no
Mutual funds		1- yes; 0 - no
Bonds		1 – yes; 0 – no
Shares		1 – yes; 0 – no
Insurance	Voluntary pension and Whole life insurance	1 – yes; 0 – no
Labor status	Of reference person	1, 2, 3, 4, 5
Number of children in household	< 13 y.o.	
Value of household's main residence		

Gender	of reference person	1 – male; 2- female
Degree of urbanisation		1; 2; 3
Education		1 - ISCED 0 / 1, 2 - ISCED 2/3/4 3 - ISCED 5/6/7/8

Analysis limitations

The main problem of this analysis is given from the granularity of data used in the probit models, given from the low percentages of people investing in both risky and non risky financial assets. For this reason, I often had to aggregate different types of financial assets in order to have more statistically significant results but reduces the amount of granularity that could have been obtained from the study.

Also, there is no information in datas about amount of taxes for each type of financial instrument which can have a high influence in driving household decisions, like Hochguertel, Alessie et al. (Hochguertel, Alessie et al., 1997) found out.

Also, it would be interesting to have a panel database in order to follow the same family over the years to understand wheter there have been significant changes in portfolio asset allocation.

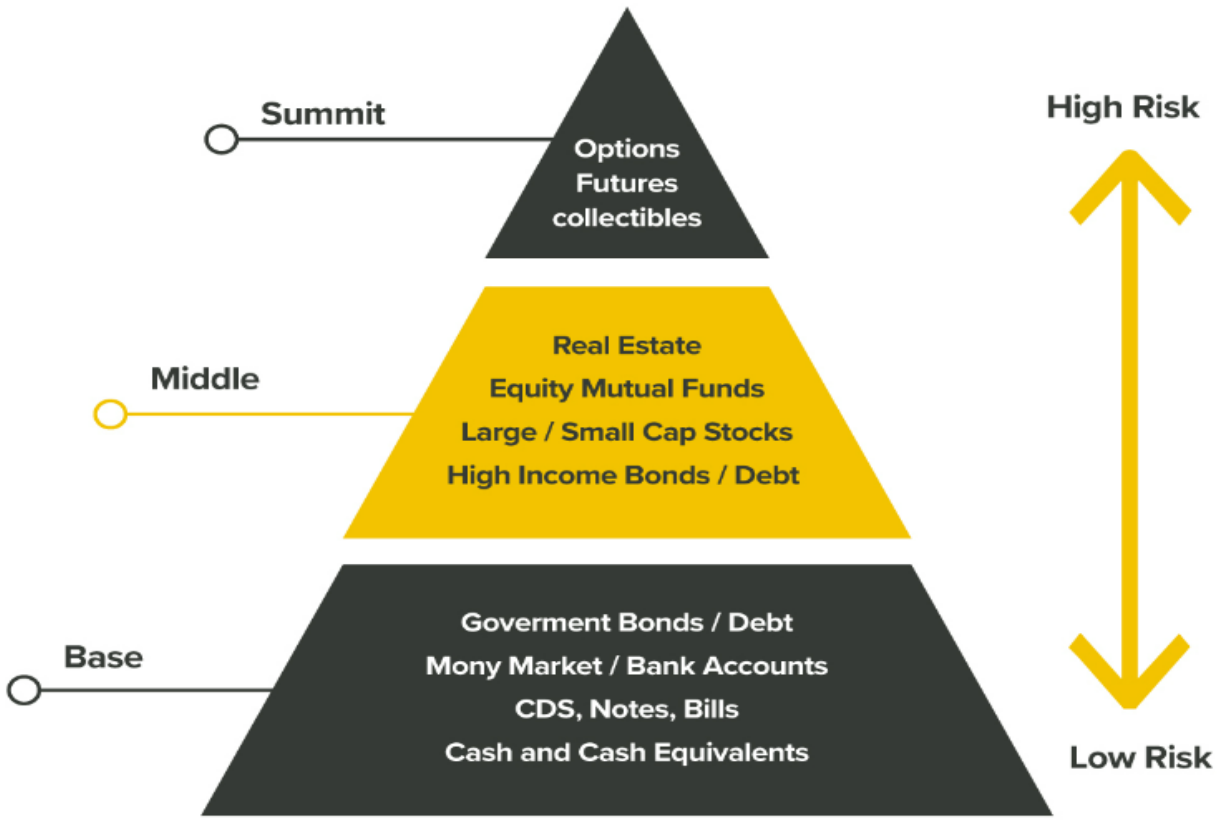
Another problem given to HFCS data is that they are based on participants' self-reports, which may be subject to errors of memory, comprehension or social desirability.

Methodology

To study the eventual relationship between household characteristics and preferences of portfolio's riskiness, we have as first to explain which assets correspond to different levels of risk.

Typically, the level of riskiness of different assets is defined like following:

Figure 1: Pyramid "level of risk"



The pyramid in the figure is describes three levels of assets riskiness. Different types of assets are located in different positions in the pyramid depending on their level of risk.

This pyramid is an asset allocation tool that investors can use to diversify their portfolios according to the risk profile of each security type. Located on the upper portion of this chart are investments that have higher risks but might offer investors a higher potential for above-average returns. On the lower portion are much safer investments, but these investments have a lower potential for high returns.

There are three distinct tiers:

- **The Base of the Pyramid**: The foundation of the pyramid represents the strongest portion, which supports everything above it. This area should consist of investments that are low in risk and have foreseeable returns. It is the largest area and comprises the bulk of your assets.
- **Middle Portion**: This area should be made up of medium-risk investments that offer a stable return while still allowing for capital appreciation. Although riskier than the assets creating the base, these investments should still be relatively safe.
- **Summit**: Reserved specifically for high-risk investments, this is the smallest area of the pyramid (portfolio) and should consist of money you can lose without any serious repercussions. Furthermore, money in the summit should be disposable so you do not have to sell prematurely in instances where there are capital losses.

I apply this philosophy in the analysis and consider deposits account and pension funds to be not risky or at base level of risk; and debt financial instruments, stock share and mutual funds to be risky ones.

Regression analysis

The HFCS survey data and the variables created for the analysis are in the form of binary information; for instance: does the person own a share or not? Does the person own a bond? Etc.
In econometrics, binary variables are most commonly called dummy variables. (Wooldridge, 2012).
The real benefit of capturing qualitative information using zero-one variables is that it leads to regression models where the parameters have very natural interpretations; we use the dummy explanatory variable adding it as an independent variable in the equation.
When we have binary independent variables, we need to use probability models, which give us the probability of success of the dependent variable.
Two types of binomial choice models are most common and used in practice: the logit and the probit models. The logit model assumes a logistic distribution of errors, and the probit model assumes a normal distributed errorsLogit and probit models are very similar, the difference is in the distribution:
• Logit – Cumulative standard logistic distribution (F)
• Probit – Cumulative standard normal distribution (Φ)

Both, the probit model and the logit model deliver only approximations to the unknown population regression function $E(Y|X)$. It is not obvious how to decide which model to use in practice. The linear probability model has the clear drawback of not being able to capture the nonlinear nature of the population regression function and it may predict probabilities to lie outside the interval [0,1]. Both models produce predictions of probabilities that lie inside the interval [0,1].
Predictions of all two models are often close to each other.
In this case, for the regressions that we need here, I will use the ordered probability model; by using this model, in fact, we can measure the probability of investing in more risky assets given the characteristics of the families.
To obtain this, it is important to remember to compute also margins after running the probit regression.
Marginal effects provide a more intuitive interpretation compared to the coefficients of the probit model. Marginal effects tell us how a one-unit change in an independent variable affects the probability of the event occurring, holding other variables constant.
Comparing effects directly without computing margins is not possible, as the coefficients from a probit model alone do not provide a straightforward interpretation of the impact of independent variables on the probability of the event occurring. Marginal effects derived from the model provide a more direct and interpretable measure of the effect of each independent variable on the outcome.

4. Results

Descriptive statistics

Starting from the descriptive statistics, is important to signal that the difference in the number of observations between the "da" variable and the "variables" ending with "i" (its binary component) corresponds to the number of zero observations, which means, those data are missing because those families do not own that particular financial instrument.

Table 1: Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Value of residence	11424	100442.3	64967.776	2615	613270
n°of children	13044	.243	.631	0	5
education	13019	3.374	.969	1	5
urbanisation	13044	2.189	.795	1	3
labor status	13005	2.536	1.441	1	5
gender	12943	1.445	.497	1	2
income	12597	17566.413	13190.022	0	126905

Looking at the da variables, it is useful to spend some time in analysing the ones with the highest percentage of instrument' holders.

As we can see from the table above, while we can see that almost the total group of households has somen kind of financial asset (90,8%).

A lot of families also own sight account deposits (89,236%) and a part of them- lower, but still considerable- (28,565%) has saving accounts deposits; lastly, we notice 11,822% of owners of insurances for pensions or whole life.

Looking at financial investments, the percentages are extremely low.

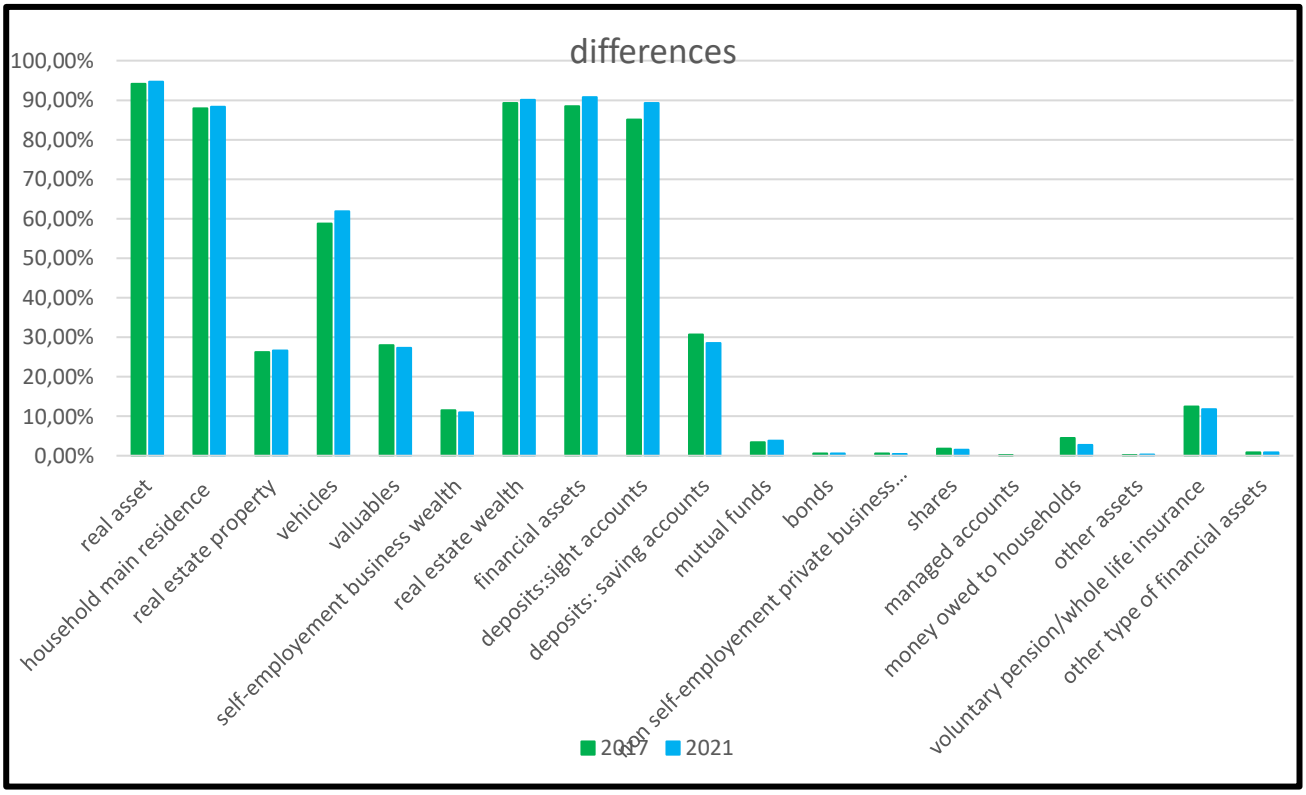
Only 3,864% of families invest in mutual funds; only 0,598% own bonds; only 1,518% have shares and no one (0,0%) has managed accounts; 0,782% has other type of financial assets.

As we can see, apparently Slovak families prefer safer assets, they do not like to invest on the stock exchange market. Most families leave the money in deposits, and a part own only insurance.

As the investments in the market are still low in Slovakia, it can be useful to have a look at the data referring to the past years, in order to see if there is a growing trend or not, keeping in mind that, in the period of time between the 2 year analysed, a global pandemic has taken place, and this could have changed inhabitants' investments decisions.

Let us focus on the differences:

Figure 2: differences in asset ownership



This figure shows a representation of changing in asset ownership between the year 2017 and 2021.

Table 2

variable	2017 owners	2021 owners	differences 2021-2017
real asset	94,07%	94,71%	0,644%
household main residence	87,90%	88,32%	0,414%
real estate property	26,26%	26,63%	0,368%
vehicles	58,79%	61,91%	3,128%
valuables	28,01%	27,33%	-0,681%
self-employement business wealth	11,45%	10,90%	-0,552%
real estate wealth	89,28%	90,02%	0,736%
financial assets	88,52%	90,80%	2,282%
deposits:sight accounts	85,14%	89,24%	4,094%
deposits: saving accounts	30,65%	28,56%	-2,088%
mutual funds	3,42%	3,86%	0,442%
bonds	0,55%	0,60%	0,046%
non-self-employement private business wealth	0,60%	0,46%	-0,138%
shares	1,84%	1,52%	-0,322%
managed accounts	0,05%	0,00%	-0,046%
money owed to households	4,48%	2,71%	-1,766%
other assets	0,18%	0,32%	0,138%
voluntary pension/whole life insurance	12,50%	11,82%	-0,681%
oither type of financial assets	0,83%	0,78%	-0,046%

Financial assets have grown of the 2,282% between 2017 and 2021.

We cannot say something really interesting about deposits, as the number of sight account owner has increased by 4,994% but saving accounts owners have decreased by 2,088%.

With respect to the other types of financial assets analysed, there has been a small growth in both mutual funds (0,442%), bonds (0,046%) and other assets (0,138%).

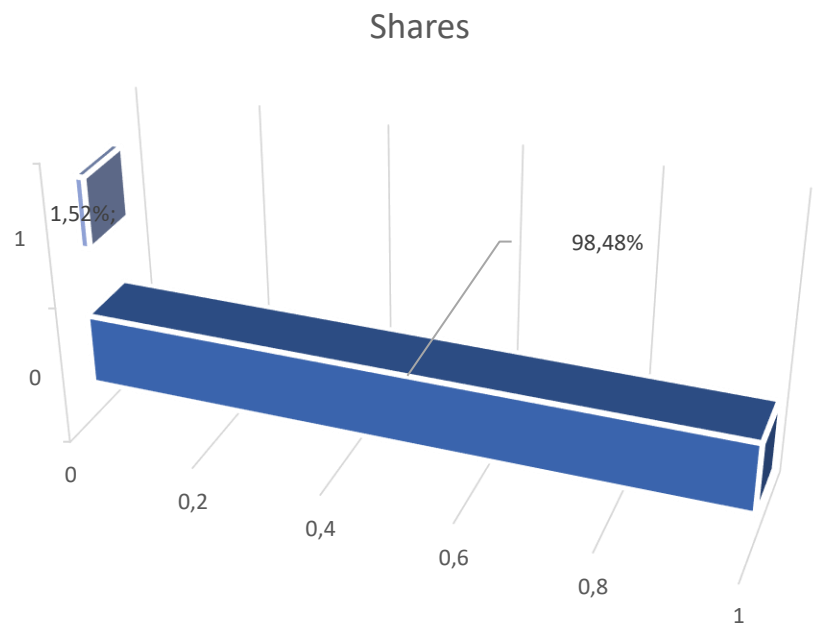
However, the number of shares and managed accounts owners has decreased, respectively by 0,322% and 0,046%.

In the meantime, also the percentages of the macrocathegoria of real asset have increased: 0,644% for real asset, 0,414% for household main residence, 0,368% for real estate property and 3,128% for vehicles.

These results show us that people tend to invest more in financial assets, but always preferring the less risky (and less profitable) ones.

As my research question is related to the amount of risky assets hold by each family, I studied three types of assets that we consider risky, and I looked at their percentages.

Figure 3: Shares holders



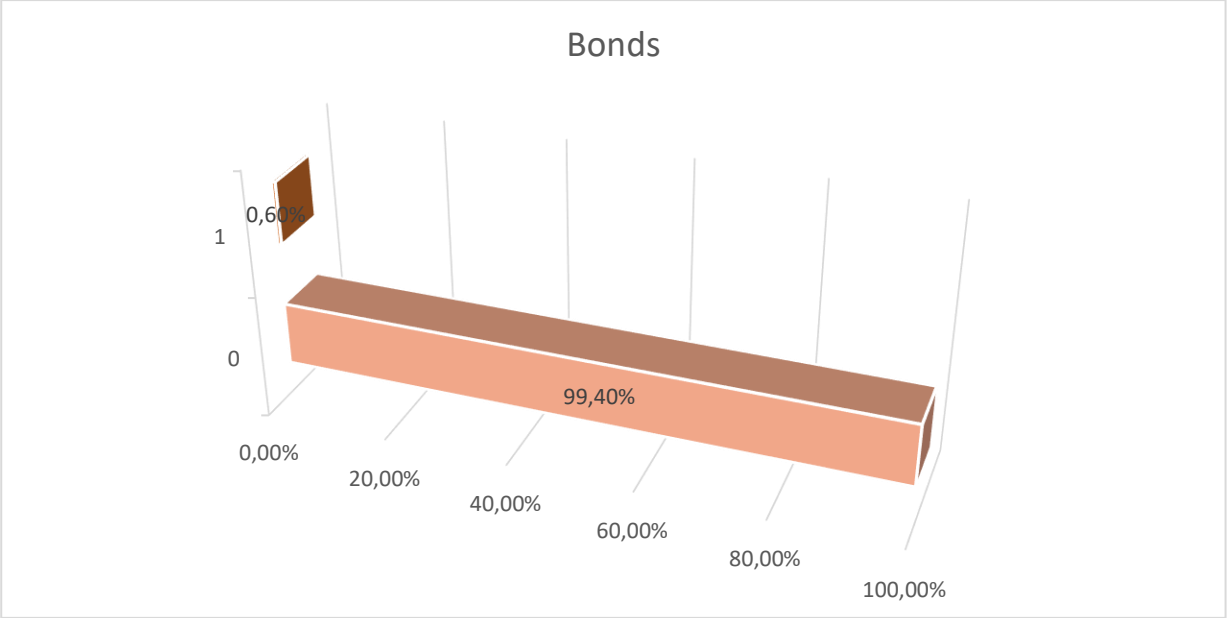
The bar chart above shows the proportion of shares holders (1) and not holders (0)

Tabulation of da2105i

DA2105i Has shares (publicly traded)	Freq.	Percent	Cum.
0	12846	98.48	98.48
1	198	1.52	100.00
Total	13044	100.00	

On a total amount of 13 044 households, only 198 own shares, which represent a percentage of only 1.52%.

Figure 4: Bonds holders



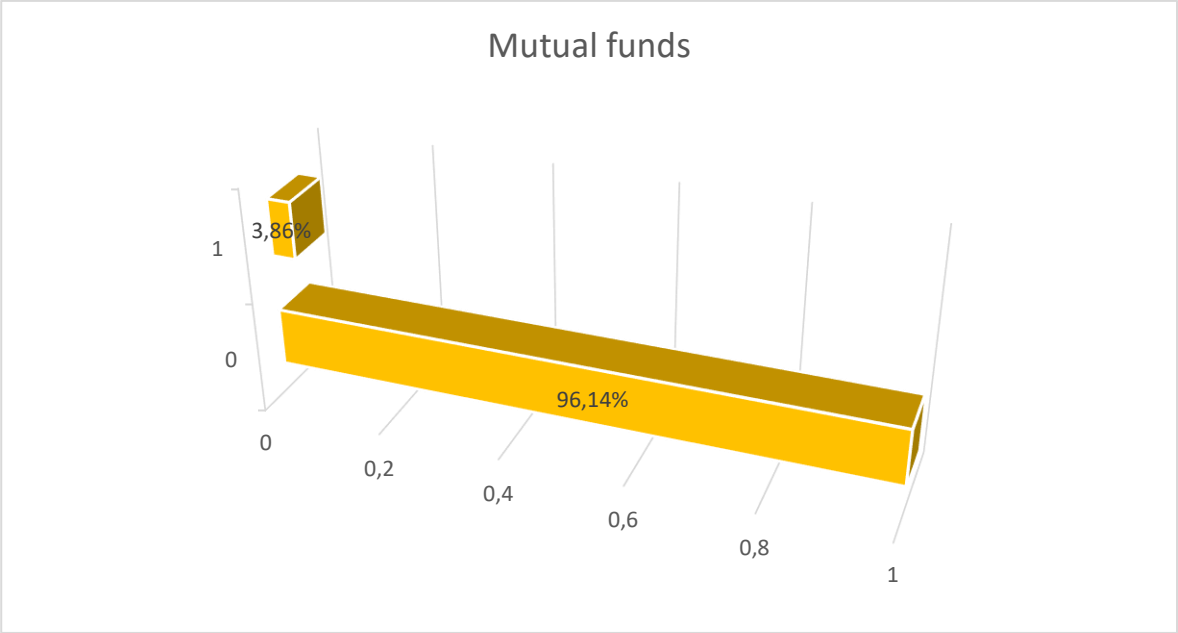
The bar chart above shows the proportion of bonds holders (1) and not holders (0)

Tabulation of da2103i

DA2103i Has bonds	Freq.	Percent	Cum.
0	12966	99.40	99.40
1	78	0.60	100.00
Total	13044	100.00	

On the other side, even a small number, only seventy-eight families (0,60%), invest in bonds.

Figure 5: Mutual funds holders



The bar chart above shows the proportion of mutual funds holders (1) and not holders (0)

Tabulation of da2102i

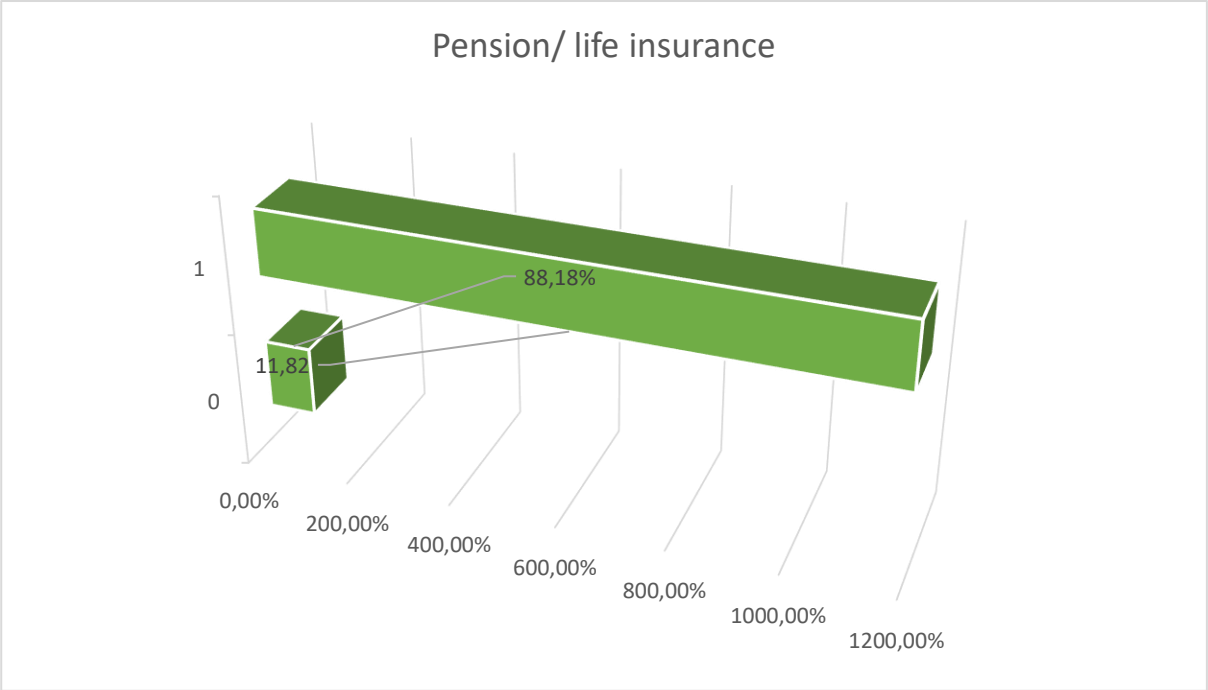
DA2102i Has mutual funds	Freq.	Percent	Cum.
0	12540	96.14	96.14
1	504	3.86	100.00
Total	13044	100.00	

The biggest amount of risky asset that is detained by the Slovak households analysed is represented by mutual fund, which represent the 3,86%.

As the number here reported are extremely low, it looked to me almost useless to make an analysis on every single instrument, then I decided to combine shares, bonds, and mutual funds, in one new category which I called “risky assets,” which contains all three of them.

In figure 6 and 7 I will focus on non risky assets.

Figure 6: Pension/life insurance holders



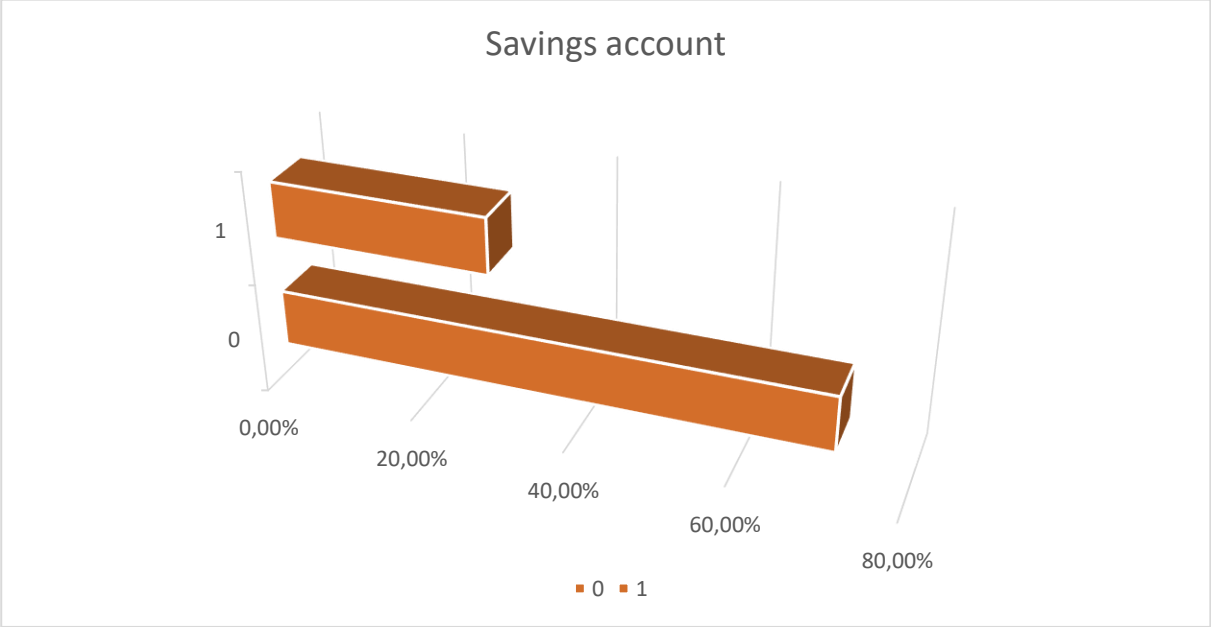
The bar chart above shows the proportion of pension/life insurance holders (1) and not holders (0)

Tabulation of da2109i

DA2109i Has voluntary pensions/whole life insurance	Freq.	Percent	Cum.
0	11502	88.18	88.18
1	1542	11.82	100.00
Total	13044	100.00	

We analyse now the variable indicated by the code "da2109i", which tells us how many households own voluntary pensions or whole life insurance, which, once again, represent non risky asset owners. In this case, the asset owners are represented by 1 542 on a total of 13 044 households, which is the 11,82 %.

Figure 7: Saving accounts holders



The bar chart above shows the proportion of savings account holders (1) and not holders (0)

Tabulation of da21012i

DA21012i Has saving accounts	Freq.	Percent	Cum.
0	9318	71.44	71.44
1	3726	28.56	100.00
Total	13044	100.00	

Last, we analyse the variable "da21012i", which indicates the number of households which own saving accounts.

As we can see from the table above, they are a lot more than the holders of risky assets, even though also here they do not represent even the half of families.

The one category has the frequency of 3 726 households on 13 044, which represent the 28,56%.

Probit Independent variables

Table 3: Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Residence's value	11424	100442.3	64967.776	2615	613270
N° of children	13044	.243	.631	0	5
Education level	13019	3.374	.969	1	5
Urbanisation degree	13044	2.189	.795	1	3
Working position	13005	2.536	1.441	1	5
Gender	12943	1.445	.497	1	2
Income	12597	17566.413	13190.022	0	126905

We can start looking at simple descriptive statistics, like number of observations, mean, standard deviation, minimum and maximum value.

The mean value of household main residence (da1110) is 100442,3 euros, with a maximum of 613270 and a minimum of 2615.

The second variable (dhn013) indicates the number of dependent children under the age of thirteen, and it is interesting to see that the mean value is not even 1 child per household.

Dheduh1 indicates the education level of reverence household's person, and the mean level in Slovakia appears to be upper secondary level (third category)

Regarding the degree of urbanisation of household's settlement, the mean value indicates a number a bit higher than two, representing Intermediate populated area (towns and suburbs/small urban area).

The medium value of main labour status of reference person (dhemph1) is around two categories, which indicates the self-employed people.

Regarding the total household gross income (di2000), as we can see an extreme difference between maximum and minimum level, precisely 126 905, there is a high standard deviation, which reaches value 13190,02. The household medium gross income is 17566,41.

Going deeper into analysis with statistics related to percentiles, we can understand the amount of value that lies under a certain percentage, which can be extremely useful for some variables but useless for others, like binary ones.
Starting, once again, from the value of household's main residence, we can understand that the 50% of household have a value less than 90 000; at the meantime, the 25% of household have value less than 60 000, while only 10% of slovak families have the main residence with value greater or equal than 180 000.

Summary statistics

	p25	Median	p75	p90
Residence's value	60000	90000	130000	180000

With respect to level of education, the 50% of reference people have three or less as category, which mean upper secondary education or less. Only the 10% of population indicating the household reference people have a high level of education, 5, which stays for tertiary education, bachelor's or master's degree and PhD.

Summary statistics

	p25	Median	p75	p90
Education level	3	3	3	5

With respect to the degree of urbanisation, the 50% of household are located in a suburban area / town or in a city, while the other half is located in rural areas.

Summary statistics

	p25	Median	p75	p90
Urbanisation degree	2	2	3	3

50% of reference people are employee or self-employed people, but the 75th percentile tells us that the 25% of reference household's people are retired or in the "other" category.

Summary statistics

	p25	Median	p75	p90
Working position	1	2	4	4

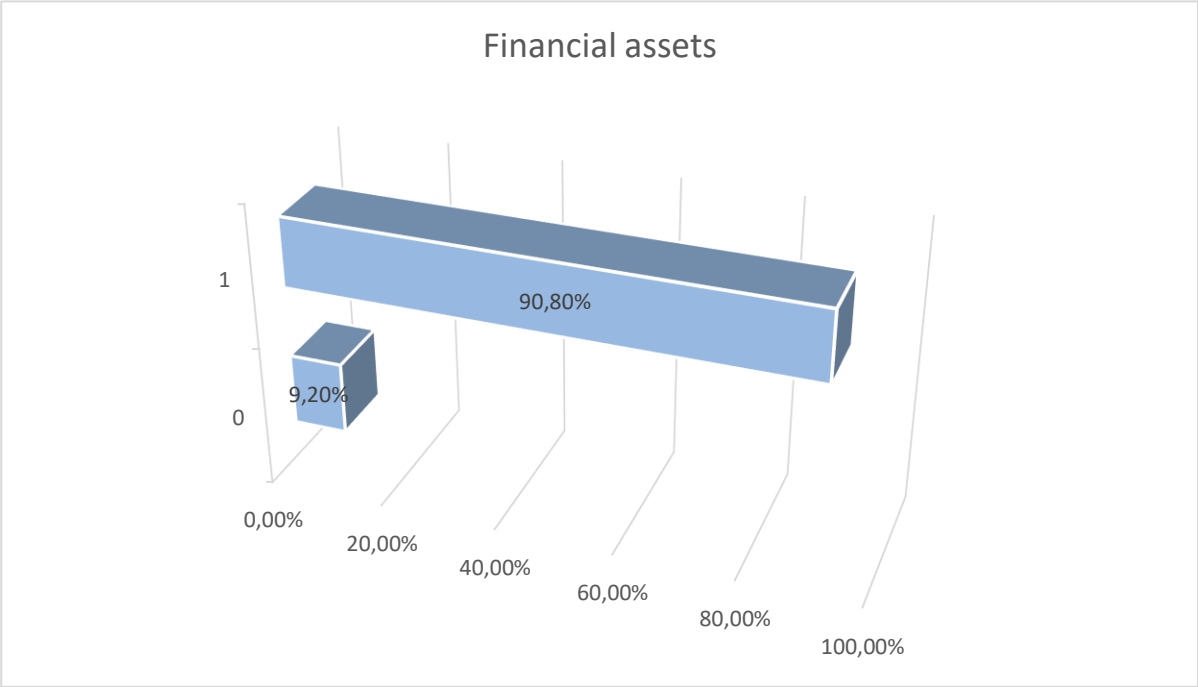
Focusing now, as last, on total gross income, we notice that 50% of Slovak households have a total gross income which is equal or less to 13921 euros. At the same time, we can see a more reassuring value, which is the 25% of population have more than 23295 $ of gross income. By the way, only 10 percent of the Slovak families have an income equal or greater than 34 437.

Summary statistics

	p25	Median	p75	p90
Income	8143	13921	23295	34437

Probit dependent variables

Figure 8: Financial assets holders



The bar chart above shows the proportion of financial assets holders (1) and not holders (0)

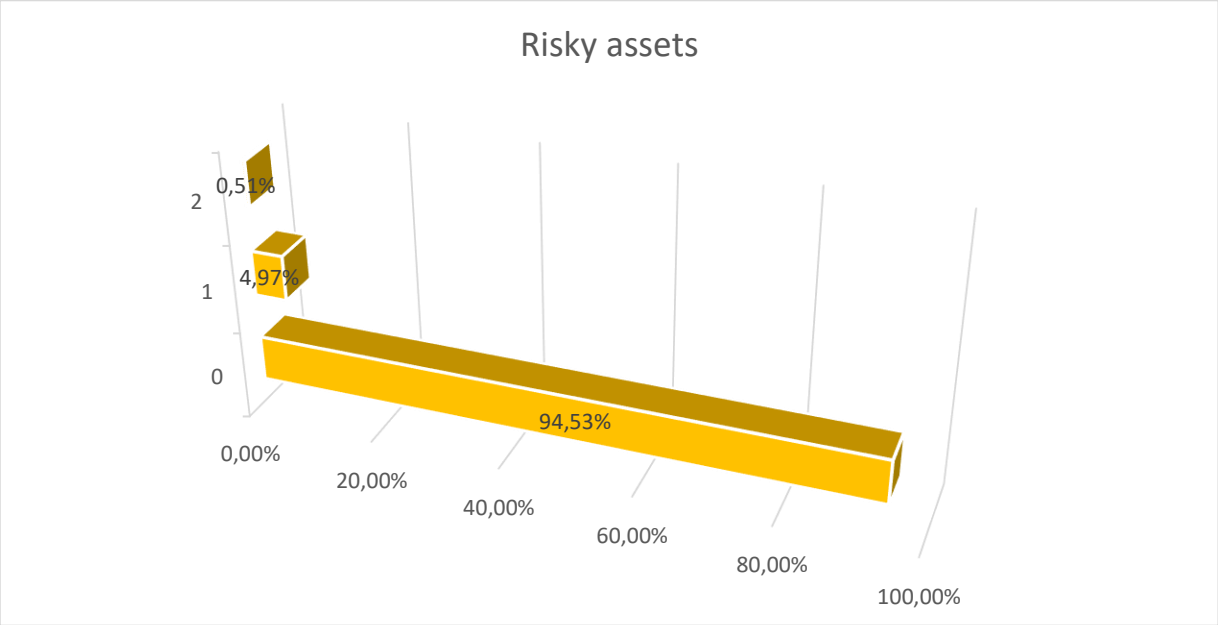
Tabulation of da2100i

DA2100i Has financial assets	Freq.	Percent	Cum.
0	1200	9.20	9.20
1	11844	90.80	100.00
Total	13044	100.00	

The variable "da2100i" indicates the number of households holding a financial asset; this category includes non-self-employment private businesses, sight accounts, saving accounts, mutual funds, bonds, shares, managed accounts, 'other' assets, private lending, voluntary pension plans or whole life insurance contracts.

As it includes a lot of different instruments, the percentage of owners is higher than for the other variables analysed. Here the financial assets owners, represent the 90,80 % of all families in the summary.

Figure 9: risky assets holders



The bar chart above shows the proportion of risky assets holders: 0 bar - 0 risky asset; 1 bar- 1 risky asset; 2 bar- 2 risky assets

Tabulation of risky_assets

	Freq.	Percent	Cum.
0	12330	94.53	94.53
1	648	4.97	99.49
2	66	0.51	100.00
Total	13044	100.00	

Let us now take a look at the dependent variables that I will use in my analysis.

As I explained before, as the number of households investing only in one category between shares, bonds and mutual funds are extremely low, I created one variable which included all of them, and I called it “risky assets.”

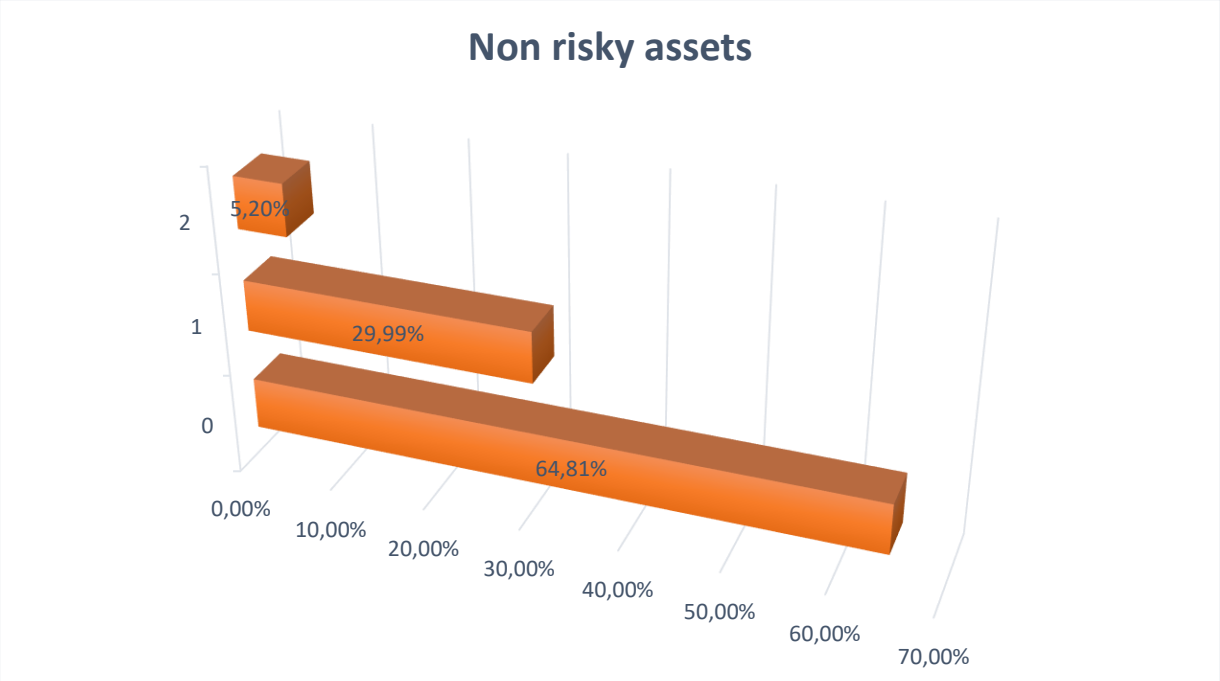
In the table above, the frequencies and percentages of each created category of risky assets are indicated.

The number 0 stays for those family who do not own any of the risky assets mentioned, and, as we can see, the y represent the majority of household, more specifically the 94,53%:

One stay for those households which own 1 risky asset between bonds, shares, and mutual funds, and they are only 648 out of 13,044 households analysed, which represent the 4,97%.

Last, we have the two categories, which represents the number of households which own 2 risky assets between the mentioned category, and they represent the less amount, only 66 households out of 13 044 family analysed, it represents only the 0,51%.

Figure 10: non risky assets holders



The bar chart above shows the proportion of non risky assets holders: 0 bar - 0 non risky asset; 1 bar- 1 non risky asset; 2 bar- 2 non risky assets

Tabulation of non_riskyassets

	Freq.	Percent	Cum.
0	8454	64.81	64.81
1	3912	29.99	94.80
2	678	5.20	100.00
Total	13044	100.00	

I created a new variable to indicate the non-risky asset holders, which refers to deposits (saving accounts) and voluntary pension / whole life insurance.

Zero indicates those households who do not own any of the non-risky assets; 1 indicates the owners of only one asset between saving accounts and voluntary pension / whole life insurance; 2 indicates the households who invest in both.

The biggest percentage is once again represented by the zero category, it is composed of 8 454 households over a total of 13 044, the 64,81%; family who hold only 1 non risky asset are the 29,99%, while the lower percentage is 5,20% which indicates the owners of both non risky assets.

Analysis and results

In this chapter the results from the probit model will be described.

There will be three tables showing the results obtained: the first one shows the effects of the family characteristics (independent variables used) on the probability of holding any type of financial assets (dependent variable); the second one illustrates the influence on "risky asset" ownership, and the third and last one has "non risky asset" as dependent variable.

I will describe just the statistically significant results, both at 1% and 5% level.

Table 4

VARIABLES	(1) financial assets coefficients	(2) financial assets marginal effects
Residence's value	3.15e-09***	4.01e-10***
	(4.56e-10)	(5.81e-11)
1.n°of children	0.395***	0.0412***
	(0.129)	(0.0106)
2. n°of children	0.129	0.0157
	(0.145)	(0.0165)
3. n°of children	0.0670	0.00841
	(0.241)	(0.0292)
4 n°of children	-	-
2.education	1.000***	0.209***
	(0.251)	(0.0693)
3.education	1.398***	0.253***
	(0.261)	(0.0697)
2.urbanisation level	0.0750	0.00799

	(0.0624)	(0.00676)
3. urbanisation level	-0.312***	-0.0416***
	(0.0595)	(0.00738)
2.working position	0.372**	0.0199***
	(0.164)	(0.00681)
3. working position	-0.706***	-0.0857***
	(0.109)	(0.0180)
4. working position	-0.639***	-0.0742***
	(0.0569)	(0.00589)
5. working position	-0.678***	-0.0808***
	(0.128)	(0.0208)
2. gender	-0.159***	-0.0203***
	(0.0415)	(0.00532)
Income	2.94e-07***	3.75e-08***
	(3.08e-08)	(3.96e-09)
Constant	0.279	
	(0.264)	
Observations	11,038	11,038

Column 1: coefficients; column 2: probit model average marginal effect – financial assets holders.
The dependent variable assumes values 0 – 1

Starting from the general category "has financial assets" (da1110i), we can study the probability of investing in employment private businesses, sight accounts, saving accounts, mutual funds, bonds, shares, managed accounts, 'other' assets, private lending, voluntary pension plans or whole life insurance contracts.

This category includes both risky assets like bonds, shares and mutual funds, and non-risky assets like sight and saving accounts or voluntary pension plans and life insurance contracts.

All the variables used are statistically significant at 1% (except for n°of children that is significant only at 5% level).

On a total n° of observations of 11 038 households, by looking at the average margins, we can see that when the household residence value increases of 1 point (we are considering one point=1000 euros), the household probability of having a financial asset increases of 4,01 10^-6 percentage points;

if the n° of dependent children increases of 1 unit (1 child more with respect to base cathegory 0 child), the probability of having a financial asset increases of 4,12 percentage points with respect to base cathegory; if the level of education of the household reference person increases from primary level to secondary one, the probability of having a financial asset increases of 20,9 p.p., while when it goes from primary level to tertiary one, it increases of 25,3 p.p.

If the household's main residence is located in a rural area, the probability of having a financial asset increases of 4,16 percentage points more than if it was located in the city.

Focusing now on work, if the household reference person is self employed, the probability of having a financial asset increases of 1,99 p.p., if he is non employed it decreases of 8,57p.p. , if he is retired it diminishes of 7,42 p.p. and it diminishes of 8,08 p.p if he is included in the "other" cathegory (all these values are related to the base category "employeed").

Last, if the reference household person is a woman, the probability of holding a financial asset decreases of 2,03 p.p. and when the gross household income increases of 1 unit (1 unit=100euros), the probability of having a financial asset increases of 3,8 * 10 ^-8p.p.

Risky assets

Table 5

VARIABLES	(1) risky assets coefficients	(2) risky assets marginal effects	(3) risky assets marginal effects	(4) risky assets marginal effects
Residence's value	1.71e-09***	-1.71e-10	1.46e-9***	2.49e-11***
	(2.98e-10)	(0)	(2.56e-11)	(5.16e-12)
1.n° of children	-0.0367	0.00355	-0.00305	-0.000500
	(0.0717)	(0)	(0.00585)	(0.000948)
2. n° of children	0.186**	-0.0212	0.0179**	0.00328**
	(0.0762)	(0)	(0.00805)	(0.00160)
3. n° of children	-0.267	0.0218	-0.0190	-0.00283
	(0.234)	(0)	(0.0137)	(0.00182)
4. n° of children	-3.700	0.0545	-0.0489***	-0.00560***
	(233.7)	(0)	(0.00228)	(0.000717)

2.education	3.117	-0.0387		
	(167.5)	(0)		
3.education	3.587	-0.0931		
	(167.5)	(0)		
2. urbanisation level	-0.250***	0.0270	-0.0230***	-0.00392***
	(0.0544)	(0)	(0.00518)	(0.000959)
3. urbanisation level	-0.226***	0.0248	-0.0211***	-0.00364***
	(0.0525)	(0)	(0.00512)	(0.000951)
2. working position	0.158***	-0.0201	0.0170**	0.00309**
	(0.0608)	(0)	(0.00695)	(0.00136)
3. working position	-0.685***	0.0473	-0.0419***	-0.00544***
	(0.266)	(0)	(0.00909)	(0.00106)
4. working position	-0.263***	0.0247	-0.0215***	-0.00320***
	(0.0531)	(0)	(0.00428)	(0.000697)
5. working position	0.145	-0.0182	0.0154	0.00278
	(0.190)	(0)	(0.0219)	(0.00423)
2.gender	-0.136***	0.0135	-0.0115***	-0.00193***
	(0.0440)	(0)	(0.00369)	(0.000641)
Income	6.13e-8***	-6.15e-9	5.25e-9***	8.93e-10***
	(1.53e-8)	(0)	(1.31e-9)	(2.45e-10)
/cut1	4.905			
	(167.5)			
/cut2	5.951			
	(167.5)			
Observations	11,055	11,055	11,055	11,055

Column 1: coefficients; column 2: probit model average marginal effect – 0 risky assets holders; column 3: probit model average marginal effect - 1 risky assets holders; column 4: probit model average marginal effect - 3 risky assets holders

The dependent variable assumes values 0 - 1

For the generated variable “risky assets”, the ordered probability model shows the increased or decreased probability to hold a risky asset given by family type on each cathegory of the variable created, which means for those families who hold 0 risky assets, only 1 between shares, bond and mutual funds, two among cathegories or all three types of risky assets.
Only the results that are statistically significant will be described.

0 risky asset holders:

In the 2nd column, indicating the results for the dependent variable “0 risky assets holders”, there is no statistical significant result, therefore I will not describe them.

1 risky asset holders

If the household’s main residence value increases of 1 point (=1000 euros), then the probability of holding 1 risky asset increases of 0,146 percentage points.
If the number of children under the age of 13 living in the houshold increases from 0 to 2, the probability of holding 1 risky asset increases of 1,79 p.p., while when the n° of children goes from 0 to 4, the probability decreases of 4,89 p.p.
If the household main residence is located in a suburban area/town, the probability of holding 1 risky asset decreases of 2,3 p.p. while when is located in a rural area it decreases of 2,11p.p. whith respect to the base level (household main residence located in a densly populated area/city).
If the reference household person is self-employed, the probability of holding 1 risky asset increases of 1,7 p.p., if he is not working it decreases of 4,2 p.p. and if he is retired it decreases of 2,15 p.p. with respect to the base level (employeed).
If the reference household person is a woman, the probability of holding 1 risky asset decreases of 1,15 p.p. more than if he was a man.
If the household gross income increases of one unit, the probability of holding 1 risky asset decreases of 5,25*10^-3 p.p.

2 risky assets holders

If the household's main residence value increases of 1 point (=1000 euros), then the probability of holding 2 risky asset increases of 2,49 *10^-3 percentage points.

If the number of dependent children in household increases from 0 to 2, the probability of holding 2 risky assets increases of 0,328 p.p., while if it goes from 0 to 4, the probability decreases of 0,56 p.p.

If the household main residence is located in a suburban area/town, the probability of holding 2 risky assets decreases of 0,39 p.p., while when is located in a rural area it decreases of 0,36 p.p. with respect to the base level (household main residence located in a densly populated area/city).

If the reference household person is self-employed, the probability of holding 2 risky assets increases of 0,31p.p., if he is not working it decreases of 0,55 p.p. and if he is retired it decreases of 0,32p.p. with respect to the base level (employeed).

If the reference household person is a woman, the probability of holding 2 risky assets decreases of 0,19 p.p. more than if he was a man.

If the household gross income increases of one unit (=100 euros), the probability of holding 2 risky assets decreases of 8,93 * 10^-4 p.p.

Non risky assets

Table 6

	(1)	(2)	(3)	(4)
VARIABLES	non_riskyassets coefficients	non_riskyassets marginal effects	non_riskyassets marginal effects	non_riskyassets marginal effects
Residence's value	1.37e-9***	-4.83e-10	3.46e-10***	1.37e-10***
	(2.04e-9)	(0)	(5.15e-11)	(2.09e-11)
1. n° of children	0.0592	-0.0211	0.0150	0.00617
	(0.0429)	(0)	(0.0108)	(0.00463)
2. n° of children	0.0470	-0.0168	0.0119	0.00485
	(0.0521)	(0)	(0.0132)	(0.00554)
3. n° of children	-0.420***	0.135	-0.105***	-0.0302***
	(0.132)	(0)	(0.0310)	(0.00659)
4. n° of children	0.416	-0.154	0.0981*	0.0564
	(0.270)	(0)	(0.0551)	(0.0472)
2.education	4.481	-0.348	0.300***	0.0486***
	(113.8)	(0)	(0.00482)	(0.00215)
3.education	4.621	-0.399	0.335***	0.0634***
	(113.8)	(0)	(0.00745)	(0.00338)
2. urbanisation level	0.274***	-0.0949	0.0692***	0.0257***
	(0.0336)	(0)	(0.00844)	(0.00313)
3. urbanisation level	0.208***	-0.0714	0.0528***	0.0186***
	(0.0333)	(0)	(0.00838)	(0.00289)
2. working position	0.159***	-0.0595	0.0400***	0.0195***

	(0.0405)	(0)	(0.0100)	(0.00540)
3. working position	-0.271***	0.0951	-0.0710***	-0.0241***
	(0.0909)	(0)	(0.0236)	(0.00659)
4. working position	-0.179***	0.0640	-0.0469***	-0.0171***
	(0.0298)	(0)	(0.00792)	(0.00285)
5. working position	-0.143	0.0513	-0.0374	-0.0140
	(0.110)	(0)	(0.0289)	(0.00967)
2.gender	-0.00893	0.00316	-0.00226	-0.000898
	(0.0250)	(0)	(0.00634)	(0.00251)
Income	1.38e-7***	-4.88e-8	3.49e-08***	1.39e-08***
	(1.07e-8)	(0)	(2.68e-09)	(1.15e-09)
/cut1	5.382			
	(113.8)			
/cut2	6.723			
	(113.8)			
Observations	11,055	11,055	11,055	11,055

Column 1: coefficients; column 2: probit model average marginal effect – 0 non risky assets holders; column 3: probit model average marginal effect - 1 non risky assets holders; column 4: probit model average marginal effect - 3 non risky assets holders

The dependent variable assumes values 0 - 1

In the table above, the probability of howning zero, one, or both types of non risky assets is shown. The non risky assets included in the analysis are deposits (saving accounts) and voluntary pension/whole life insurance.

Zero non risky assets

The results shown in the 2nd column of the table above are not statisticallyu significant, therefore I will not describe them.

One non risky asset

If the household's main residence value increases of 1 point (=1000 euros), then the probability of holding one type of non risky asset increases of 3,46*10^-8 percentage points.

If the number of dependent children under the age of thirteen living in the household increases from 0 to 3, then the probability of holding one type of non risky asset decreases of 10,5 p.p., while when the number of children goes from 0 to 4, the probability decreases of 9,81 p.p.

If the educational level of reference person in the household increases from primary to secondary, the probability of owning 1 non risky asset increases of 30 p.p. at the same time, when the level rises from primary to tertiary, the impact is even bigger, and it increases the probability of having 1 type of non risky assets of 33,5 p.p.

If the household main residence is located in a suburban area/town, the probability of holding 1 non risky asset increases of 6,92 p.p., while when is located in a rural area it still increases, but a bit less, only of 5,28 p.p., whith respect to the base level (household main residence located in a densly populated area/city).

If the reference household person is self-employed, the probability of holding 1 type of non risky assets increases of 4 p.p., if he is not working it decreases of 7,1 p.p. and if he is retired it decreases of 7,1 p.p. with respect to the base level (employeed).

If the household gross income increases of one unit (= 100 euros), the probability of holding 1 non risky asset increases of 3,49*10^-6 p.p.

Two non risky asset

If the household's main residence value increases of 1 point (= 1000 euros), then the probability of holding both types of non risky asset increases of 1.37e-10p.p.

If the number of dependent children under the age of thirteen living in the household increases from 0 to 3, then the probability of holding one type of non risky asset decreases of 3,02 p.p.

If the educational level of reference person in the household increases from primary to secondary, the probability of owning 2 types of non risky assets increases of 4,86 p.p., at the same time, when the level rises from primary to tertiary, there is a strongest impact, and it increases the probability of having both types of non risky assets of 6,34 p.p.

If the household main residence is located in a suburban area/town, the probability of holding 2 non risky assets increases of 2,57 p.p., while when is located in a rural area it still increases, but a bit less,

only of 1,87 p.p. whith respect to the base level (household main residence located in a densly populated area/city).

If the reference household person is self-employed, the probability of holding 2 types of non risky assets increases of 1,95 p.p., if he is not working it decreases of 2,41p.p. and if he is retired it decreases of 1,71 p.p. with respect to the base level (employeed).

If the household gross income increases of one unit, the probability of holding both a deposit and a voluntary pension/ life insurance increase of 1.39e-08 p.p.

3. Conclusions

The aim of these thesis is to understand whether there is or not a link between the riskiness of the portfolio chosen by households and its demographic characteristics.

What I obtained my analysis is that for sure Slovakia is still a country in chich people are still reluctant in investing, both in risky and non risky assets. In particular, the idea of owning risky assets is not shared by lot of households, but, as I said in the predictions, we have to keep in mind the recent development of free stock exchange market in this country.

Another thig which comes up to our minds, is hat household portfolios, even for those families who own risky assets, are extremely low diversified, thing which shows that the majority of Slovak people probably don't have a high level of financial knowledge.

From the table showing differences in investments amount between 2017 and 2021, we can see that there has been a growth in amount of money invested in certain types of safe assets - like real estate properties and sight accounts – and also in mutual funds and bonds, but there has been a decrease in riskier assets like shares.

More specifically, when we talk about risky assets, the amount of household which don't own even one of them is still represented by the 94,53% of summary population.

At the same time, also the number of families which don't own non – risky assets still represent the majority, but in this case, there is a bigger proportion of people owning 1 or 2 between saving accounts and voluntary pension / whole life insurance.

Now let us analyse the probit model results differenciating between general category, risky and non risky assets.

- Financial assets: this general cathegory which includes both risky and non risky assets, helps us to see what are some reasons that family can have to invest their money.

  We can observe the biggest positive relationship with the education level of reference person (the higher the level of education, the higher the probability to invest), and with self employed people.

  On the other side, the biggest negative relationships are given by the not employed and retired people.
- Risky assets:

  For this cathegory we need to split the analysis of results in two, in order to analyse what influence the most the ownership of no risky assets and, on the opposite side, the property of them.

from the oprobit model, we can see that the most important results obtained are given by the independent variables education and job position.

We can see that the highest is the education level of reference person, the lowest is the probability of having no risky assets; on the opposite side, there Is a strong positive correlation between not owning risky assets and nonworking people (both because of retirement and not occupational situations – the last ones have a stronger influence).

If we look at the columns indicating the ownership of 1 or 2 types of risky assets, the results signs correspond; the most important results are given by the negative relationship between the less populated areas and the probability of having non risky assets and the one with not working people.

It is interesting to see that female seem to invest less in risky assets than men.

-Non-risky assets:

Also in this case, we need to split the reading of the results in 2: between people who don't non risky assets and between those who own one or two of them.

Among the independent variables used, those who influence the ownership of 0 non-risky assets are the ones referring to the educational level; in fact, themore people have a higher level of education, the less they are likely not to have a non risky asset. This result is shown in the last two columns, where we can see that the higher the educational level, the higher the positive relationship with the non risky assets ownership.

Also, we can notice that the more people are living in a less densely populated area, suburban or rural, the more they are likely to own non risky assets.

There is a positive relationship between working people and investments in non risky assets, while, on the other hand, there is a negative relationship with non employed people.

Overall, I firmly think that there is still a strong common belief that investing in stock exchange market is not for everyone and that is more risky than useful. Of course, holding a certain amount of financial assets can never exclude all the risks and you always must keep in mind that a more profitable asset brings with itself a greater risk. But families are, in my opinion, still too reluctant on deciding to invest, even though they can handle risks and it would be profitable for them.

With particular reference to Slovakia, I think that we should also keep in mind the politics of the country in the last years.

Nowadays Slovakia is a parliamentary representative democratic republic, but this country has a recent history, which I am convinced can have influenced investment decisions of its citizens.

The assumption of the reins of Government by the Communist Party in February 1948 had brought the State under the area of the Soviet influence; The downfall of the Communist regime occurred only in November 1989.

Since then, the WSE has evolved from a stock exchange dominated by big firms formerly owned by the state towards one that is open to SMEs, that is precisely the kind of companies that need capital financing to grow.

Because of this I believe that, comparing the data between year 2017 and 2021, the numbers of investors has increased, as I think that going on in the future, the number of people taking part in the stock exchange market will increase, as always more people will have more economics knowledge and will be aware of the benefits that investing in stock exchange market can bring to people.

Similarly to the results obtained by Worthington (Worthington, 2009), families with more dependent children have less probabilities of investing in financial assets, especially in more risky ones.

Also, as Hochguertel, Alessie et al. Found out ((Hochguertel, Alessie et al., 1997), wealthier families tend to invest more in more risky assets like shares and mutual funds.

However, as I expressed above, similarly to the study "Stockholding in Spain," (Miguel Ampudia Fraile, 2013) found out, even nowadays the majority of Slovak households are not disposed in investing in risky assets, because still a lot of progress in innovating the mentality of people needs to be done everywhere.

As Bertaut and Carol (Bertraut et al., 2000) found out, in fact, even high-income families don’t invest a lot in financial assets.

In conclusion, there are some indicators in Slovak households that can influence the portfolio structure of families. The most influent ones are those related to educational level, degree of urbanisation of residence area and working positions. On the contrary, the number of dependent children, which I expected to have some influence on assets ownership, is not influent, and also the gender of the reference household person does not have a great impact on portfolio structure.

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Appendix

Codes for variables used:

DA2100 1 (excl. public and occupational pension plans)

- DA2100 = DA2101 + DA2102 + DA2103 + DA2104 + DA2105 + DA2106 + DA2107 + DA2108 + DA2109

DA2100i: Has financial assets Coding:

DEPOSITS: *

DA2101

Deposits DA2101 = HD1110 + HD1210

DA21011 Deposits: sight accounts

DA21011 = HD1110

DA21011i Has sight accounts

Coding: 1 – yes; 0 – no

Mutual funds *

DA2102 Mutual funds, total

total DA2101 = HD1330 or Sum of (HD1320a-g)

DA2102i Has mutual funds

BONDS*

DA2103 Bonds

- DA2103 = HD1420

DA2103i Has bonds

SHARES *

DA2105 Shares, publicly traded

- DA2105 = HD1510

DA2105i Has shares (publicly traded)

MANAGED ACCOUNTS *

DA2106 Managed accounts

DA2106 = HD1620

DA2106i Has managed accounts.

LIFE INSURANCE *

DA2109 Voluntary pension/whole life insurance

DA2109 = sum of (PFA080x if PFA020x = 3 or 4) over household members

DA2109i Has voluntary pensions/whole life insurance

DA2199 Other types of financial assets *

DA2199 = DA2104+DA2106+DA2108

DA2199i Has other types of financial assets

DHEDUH Education of reference person

Coding: (* but different coding numbers)

2021:

0 - No formal education or below ISCED 1

1 - ISCED 1: Primary education

2 - ISCED 2: Lower secondary or second stage of basic education

3 - ISCED 3: Upper secondary

4 – ISCED 4: Post-secondary

5 - ISCED 5: Short-cycle tertiary education

6 - ISCED 6: Bachelor's or equivalent level

7 - ISCED 7: Master's or equivalent level

8 - ISCED 8: Doctoral or equivalent level

DHEMPH Main labour status of reference person (*, in 2021: DHEMPH1)

Coding:

1 - Employee

2 - Self-employed

3 - Unemployed

4 - Retired

5 – Other

DHGENDERH Gender of reference person (*, in 2021 DHGENDER1)

Coding:

1 - male

2 – female

DHN013 Number of children in household (0-13) *

DA1110 Value of household's main residence

DHDEGURBA Degree of urbanisation for responding households

Coding:

1 - Densely populated area (cities/large urban area)

2 - Intermediate populated area (towns and suburbs/small urban area)

3 - Thinly populated area (rural area)

For the variable dheduh1, indicating the educational level of reference household person, there were lot of categories, with small number of people for each. For this reason, I decided to group some categories together, having in the and only 3 of them, indicating primary, secondary, and third level of education.

In the end, I got:

Education = 1 if dheduh1 = 0 / 1

Education = 2 if dheduh1 = 2/3/4

Education = 3 if dheduh1 = 5/6/7/8

Variations in asset owners between 2021 - 2017

2021

instrument	variable	owners	total	owners' percentage
da1000i	real asset	10295,00	10870,00	94,710%
da1110i	household main residence	9,60	10870,00	0,088%
da1120	real estate property	2,90	10870,00	0,027%
da1130i	vehicles	6,73	10870,00	0,062%
da1131i	valuables	2,97	10870,00	0,027%
da1140i	self-employement business wealth	1,19	10870,00	0,011%
da1400i	real estate wealth	9,79	10870,00	0,090%
da2100i	financial assets	9870,00	10870,00	90,800%
da21011i	deposits:sight accounts	9700,00	10870,00	89,236%
da21012	deposits: saving accounts	3105,00	10870,00	28,565%
da2102i	mutual funds	420,00	10870,00	3,864%
da2103i	bonds	65,00	10870,00	0,598%
da2104i	non self-employement private business wealth	50,00	10870,00	0,460%
da2105i	shares	165,00	10870,00	1,518%
da2106i	managed accounts	0,00	10870,00	0,000%
da2107i	money owed to households	295,00	10870,00	2,714%
da2108i	other assets	35,00	10870,00	0,322%
da2109	voluntary pension/whole life insurance	1285,00	10870,00	11,822%
da2199i	ither type of financial assets	85,00	10870,00	0,782%

instrument	variable	owners	total	owners' percentage
da1000i	real asset	10295,0	10870,0	94,710%
da1110i	household main residence	9600,0	10870,0	88,316%
da1120	real estate property	2895,0	10870,0	26,633%
da1130i	vehicles	6730,0	10870,0	61,914%

da1131i	valuables	2971,0	10870,0	27,332%
da1140i	self-employement business wealth	1185,0	10870,0	10,902%
da1400i	real estate wealth	9785,0	10870,0	90,018%
da2100i	financial assets	9870,0	10870,0	90,800%
da21011i	deposits:sight accounts	9700,0	10870,0	89,236%
da21012	deposits: saving accounts	3105,0	10870,0	28,565%
da2102i	mutual funds	420,0	10870,0	3,864%
da2103i	bonds	65,0	10870,0	0,598%
da2104i	non self-employement private business wealth	50,0	10870,0	0,460%
da2105i	shares	165,0	10870,0	1,518%
da2106i	managed accounts	0,0	10870,0	0,000%
da2107i	money owed to households	295,0	10870,0	2,714%
da2108i	other assets	35,0	10870,0	0,322%
da2109	voluntary pension/whole life insurance	1285,0	10870,0	11,822%
da2199i	ither type of financial assets	85,0	10870,0	0,782%

2017:

instrument	variable	owners	total	owners' percentage
da1000i	real asset	10225,0	10870,0	94,07%
da1110i	household main residence	9555,0	10870,0	87,90%
da1120	real estate property	2855,0	10870,0	26,26%
da1130i	vehicles	6390,0	10870,0	58,79%
da1131i	valuables	3045,0	10870,0	28,01%
da1140i	self-employement business wealth	1245,0	10870,0	11,45%
da1400i	real estate wealth	9705,0	10870,0	89,28%
da2100i	financial assets	9622,0	10870,0	88,52%

da21011i	deposits:sight accounts	9255,0	10870,0	85,14%
da21012	deposits: saving accounts	3332,0	10870,0	30,65%
da2102i	mutual funds	372,0	10870,0	3,42%
da2103i	bonds	60,0	10870,0	0,55%
da2104i	non self-employement private business wealth	65,0	10870,0	0,60%
da2105i	shares	200,0	10870,0	1,84%
da2106i	managed accounts	5,0	10870,0	0,05%
da2107i	money owed to households	487,0	10870,0	4,48%
da2108i	other assets	20,0	10870,0	0,18%
da2109	voluntary pension/whole life insurance	1359,00	10870,00	12,50%
da2199i	ither type of financial assets	90,00	10870,00	0,83%

instrument	variable	owners	total	owners' percentage
da1000i	real asset	10225,0	10870,0	94,07%
da1110i	household main residence	9555,0	10870,0	87,90%
da1120	real estate property	2855,0	10870,0	26,26%
da1130i	vehicles	6390,0	10870,0	58,79%
da1131i	valuables	3045,0	10870,0	28,01%
da1140i	self-employement business wealth	1245,0	10870,0	11,45%
da1400i	real estate wealth	9705,0	10870,0	89,28%
da2100i	financial assets	9622,0	10870,0	88,52%
da21011i	deposits:sight accounts	9255,0	10870,0	85,14%
da21012	deposits: saving accounts	3332,0	10870,0	30,65%

da2102i	mutual funds	372,0	10870,0	3,42%
da2103i	bonds	60,0	10870,0	0,55%
da2104i	non self-employement private business wealth	65,0	10870,0	0,60%
da2105i	shares	200,0	10870,0	1,84%
da2106i	managed accounts	5,0	10870,0	0,05%
da2107i	money owed to households	487,0	10870,0	4,48%
da2108i	other assets	20,0	10870,0	0,18%
da2109	voluntary pension/whole life insurance	1359,00	10870,00	12,50%
da2199i	ither type of financial assets	90,00	10870,00	0,83%