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**IMPACT OF FACTORS ON FINANCIAL PLANNING FOR
RETIREMENT IN LATVIA**

DOCTORAL THESIS

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Abbreviations

OECD - the Organisation for Economic Cooperation and Development

FPR - Financial planning for retirement

GRR - Gross pension Replacement Rate

GDP - Gross Domestic Product

PIT - Personal Income Tax

TTE - Taxed, Taxed, Tax Exempt

EEE - Exempt, Exempt, Exempt

ETT - Exempt, Taxed, Taxed

TET - Taxed, Exempt, Taxed

TEE - Taxed, Exempt, Exempt

EET - Exempt, Exempt, Taxed

PRIIP - packaged retail and insurance-based investment products

PEPP - pan-European Personal Pension Product

KID - Key Information Document

HC - High capacities

LC - Low capacities

HW - High willingness

LW - Low willingness

HO - High opportunities

LO - Low opportunities

PPF - Private pension fund

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Annotation

In Latvia, as in other developed countries, the population is ageing, putting pressure on the public budget and the tax burden on people of working age. The debate on the role of private pension savings and the impact of people's financial planning for retirement decisions on their pension income level is intensifying. The fact that people's own decisions are so important in generating pension income warrants the research into the factors influencing pension planning.

The aim of the thesis is to investigate the factors of retirement financial planning and their impact on the behaviour of the Latvian population when making decisions on private pension savings, as well as to develop recommendations for improving the design of the pension system according to population characteristics and behavioural patterns. The study is based on the level of citizens' involvement in financial planning for retirement decision-making according to the need to independently choose when setting up the 2nd and 3rd Pension Pillar savings in the existing pension system in Latvia.

The research analyses the factors influencing financial planning in Latvia, testing the assumptions of the selected theory, which examines the factors in three dimensions - Capacities, Willingness and Opportunities to save. The study of demographic characteristics of each segment of the population reveals one of the factors that plays a decisive role on savings - the level of income of the population. The breakdown of the Latvian population into types of planners, as well as empirical research on people's perceptions of the design and offer of the current pension system, support the proposals for improving the provision of information. An analysis of the design of Latvia's pension system as the opportunities to save dimension in comparison with other developed countries justifies the current level of citizen participation in each of the pillars of pension funds and demonstrates the scope for improvement, particularly in the areas of existing tax incentives and greater employer involvement.

The theoretical part of the thesis is based on an analysis of the scientific literature. The analysis of legal acts, tertiary data were used in order to describe the development tendencies of the Latvian pension system in the context of the global market development. Two sample surveys have been carried out on the information to be disclosed to investors and on the opinions of experts on the methods of improving the Latvian pension system, and the answers given in the population survey have been analysed in line with the objective of the study.

Data analysis was carried out using descriptive statistics, cross-tabulations, statistical hypothesis testing with t-test and chi-square test, using the multivariate analysis methods - correlation analysis, as well as two-stage cluster analysis method.

Keywords: Pension system, Financial planning for retirement, Financial literacy, Income level

INTRODUCTION

We live in a time when the birth rate of the world's developed countries is slowing down, life expectancy is increasing, and the population is aging. If the current trend continues, it is estimated that in 2070, 43% of the Europe population will be over 65 years old and economic old-age dependency ratio ¹ will reach 71%, whereas in Latvia it will be more than 78%². This is leading to an increasing need to restructure financial resources by accumulating them for consumption in retirement. Numerous studies around the world show that current trends in pension provision may lead to unacceptably low replacement rates in the near future, as well as to inadequate levels of security. National pension policy makers attempt to equalize the sustainability and adequacy of the pension system. The rationale is the need to ensure a balance between the social budgets of the countries: their respective income and expense, resulting in a reduction in the amount of future pensions guaranteed by the State ³. Current trends in pension systems are focused on broadening them to the second and third pillars in an effort to develop a coherent pension model.

The balance would not only be achieved by creating a diversified system of pension savings that includes financial market savings options, but also by redistributing the responsibility for pension savings between the state and each individual on a personal level. The path to people becoming responsible for the adequacy of their pensions is challenging and particularly transformative in countries with experience of the Bismarckian pension system. It should be noted that the relatively recent experience of the Latvian population from the Soviet Union pension system accustomed them to generous pensions, when the state provided a pension income equal to the salary received ⁴. Although the transition to a market economy took place three decades ago, people are still not fully aware of the role of their decisions in generating retirement income.

The importance of people's decision-making in generating their own retirement income is the reason for the Academy's extensive and longstanding research on all the elements that shape retirement planning, as well as the endless surveys and data analyses carried out by pension policy makers. Research is seeking answers to questions on how to encourage more effective retirement planning that will raise saving for the future.

¹ *Economic old-age dependency ratio=Inactive population aged 65+ as a % of the employed population 20-64* according to Aging Report (2017), United Nations, Department of Economic and Social Affairs, Population Division. World Population Prospects: The 2017 Revision, DVD Edition.

² Aging Report (2017), United Nations, Department of Economic and Social Affairs, Population Division. World Population Prospects: The 2017 Revision, DVD Edition.

³ Farrar, S., Moizer, J., Lean, J., Hyde, M. (2019). Gender, financial literacy, and preretirement planning in the UK. *Journal of Women & Aging*, 31(4), 319-339.

⁴ World Bank (2007). From Red to Gray: The "Third Transition" of Aging Populations in Eastern Europe and the Former Soviet Union. *Washington, DC: World Bank*.

Financial literacy levels are widely surveyed and analysed by countries all over the world, in the knowledge that a smart society will be able to make informed and sound decisions. In this context, governments are embedding financial literacy in education programmes, not only for pupils and students, but also for lifelong learners. Regardless of the level of financial literacy education, people are either looking for opportunities to save or are less inclined to save, suggesting complementary factors affecting their behaviour. The recognition and evaluation of these determinants is essential to ensure that pension policy makers can establish a private retirement savings system that fits the current profile of the Latvian population.

Public welfare policy makers and academic researchers around the world are discussing the options for the best design of public pension systems: their elements, design and arrangements. In recent years, pension systems have become increasingly relevant in the aftermath of financial crises and the need to contain public social budget expenditure. The performance of national pension systems and changes in legislation are continuously monitored by international organisations such as the Organisation for Economic Co-operation and Development (OECD), the World Bank, the European Central Bank and various European Union institutions, which carry out studies, publish data and make recommendations on possible improvements to pension systems.

The Academy has focused most of its attention on the structure of the pension system and the soundness of the first two pillars^{5 6} as well as pension funds efficiency measurements⁷ in Latvia. Some similarities can be found, however, in studies of voluntary pensions in the Central and Eastern Europe region^{8 9}, such as the very small but growing share of voluntary saving for retirement and the fact that most contributions to pension plans are made by individuals rather than employers. The researchers highlight the importance of the government's role in incentivising voluntary saving through specific income tax regimes, which vary across countries and over periods of time.

The researchers examine the key determinants of households' level of voluntary retirement saving. One of the most widely debated topics and frequently monitored factors is the financial literacy of the population. Since 2011, the World Bank has been measuring the impact of people's financial inclusion through the Global Financial Inclusion (Global Findex) database, assessing

⁵ Rajevska, O. (2016). *Adequacy and Equity of Pensions as a Function of Pension System Institutional Design: a Case of the Baltic States*, doctoral dissertation in Management science, University of Latvia.

⁶ Dundure, I. (2017). *Improving Notional Defined Contributions (NDC) Old-Age Pension Scheme for Ensuring Old-Age Pension Sustainability*, doctoral dissertation in Management science, University of Latvia.

⁷ Arefjevs, I. (2017). *Bancassurance Efficiency Assessment of Pension Fund Management Companies*, doctoral dissertation in Management science, BA School of Business and Finance.

⁸ Marcinkiewicz, E. (2016). The Changing Landscape of Voluntary Pensions In The Cee Region. Proceedings of 13th International Scientific Conference on Economic and Social Development, Barcelona, 14-16 April, 2016, pp. 455-464.

⁹ Marcinkiewicz, E. (2017). Factors Affecting the Development of Voluntary Pension Schemes in CEE Countries: A Panel Data Analysis. *Central European Economic Journal*, 3(50), 26-40.

access to bank accounts, payment, savings, borrowing and risk management ¹⁰. However, Lusardi and Mitchell ¹¹ according to their research stated that still “many people around the world are financially illiterate” and this is one of the underlying causes of the lack of capacity to take long-term financial decisions. Observing financial planning for retirement decisions from an earnings perspective, Vivel-Búa, Rey-Ares, Lado-Sestayo, Fernández-López (2019) ¹² focused on income, socioeconomic factors and personal or individual factors in Spain. It is also proposed to classify the European population into four groups according to the "social model" of the "country" regarding the decision to invest in pension savings accounts ¹³, resulting from the assessment of factors such as age, household size, income and wealth, level of formal education, work situation, health status, long-term planning horizon and reluctance to take financial risks.

Research findings indicate that the propensity for individuals to engage in voluntary retirement savings is contingent upon a constellation of pivotal factors. These encompass individuals' "soft skills," encompassing their cognitive grasp, acumen, attitudes, and comportment concerning financial deliberations ¹⁴. Furthermore, the individual's adeptness in managing their personal fiscal well-being, the attractiveness and persuasive efficacy of offerings from financial service providers, and the regulatory frameworks established by governmental entities all exert notable influence on this phenomenon. Importantly, these constituent elements exhibit intricate interdependencies. In the realm of financial literacy analysis, the World Bank ¹⁵ underscores the imperative role that governments assume in the advancement of financial inclusivity. The academy, concomitantly, underscores the obligation of nations to allocate resources towards education initiatives and public campaigns aimed at enhancing awareness among demographic segments characterized by lower levels of literacy ¹⁶. This augmentation in awareness is crucial in enabling informed determinations regarding the extent and manner of voluntary retirement savings. Conversely, OECD expounded upon the enhancement of funded pension frameworks within its 2018 Pension Outlook ¹⁷. Among its recommended policies for augmenting the architecture of these

¹⁰ Demirgüç-Kunt, A., Klapper, L., Singer, D., Ansar, S., Hess, J. (2018). The Global Findex Database 2017: Measuring Financial Inclusion and the Fintech Revolution. Washington, DC: World Bank. 151 p.

¹¹ Lusardi, A., Mitchell, O.S. (2014). The Economic Importance of Financial Literacy: Theory and Evidence. *Journal of Economic Literature*, 52(1), 5–44.

¹² Vivel-Búa, M., Rey-Ares, L., Lado-Sestayo, R., Fernández-López, S. (2019). Financial Planning for Retirement: The Role of Income. *International Journal of Bank Marketing*, 37(6), 1419-1440.

¹³ Rey-Ares, L., Fernández-López, S., Vivel, M. (2018). The Influence of Social Models on Retirement Savings: Evidence for European countries, *Social Indicators Research*, 136 (1), 247-268

¹⁴ Atkinson, A., & Messy, F. A. (2011). Assessing financial literacy in 12 countries: an OECD/INFE international pilot exercise. *Journal of Pension Economics & Finance*, 10(4), 657-665.

¹⁵ Demirgüç-Kunt, A., Klapper, L., Singer, D., Ansar, S., Hess, J. (2018). *The Global Findex Database 2017: Measuring Financial Inclusion and the Fintech Revolution*. Washington, DC: World Bank. 151 p.

¹⁶ Le Blanc, J. (2011). *The Third Pillar in Europe: Institutional Factors and Individual Decisions*. Deutsche Bundesbank Discussion Paper Series 1: Economic Studies No. 09/2011. Frankfurt am Main: Deutsche Bundesbank.

¹⁷ OECD (2018). *OECD Pensions Outlook 2018*. OECD Publishing, Paris, https://doi.org/10.1787/pens_outlook-2018-en.

arrangements, the simplification of information and decision-making processes emerged as a paramount suggestion. Proposals in this vein encompass the development of interactive web applications, optimizing information presentation, and facilitating seamless comparison of available options.

This demonstrates the complicated internal and external environment of financial planning for retirement, which means that successful pension planning decision-making depends not only on the individual's knowledge, desire, and ability to make a choice, it is also largely influenced by the availability of the financial service, its profitability, as well as the simplicity of the actions to be performed.

It is a combination of several factors that are relevant today that can provide a complete picture of the aspects of pension planning in a particular country.

The aim of the thesis is to investigate the factors of financial planning for retirement and assess their impact on the behaviour of the Latvian population when making decisions on private pension savings, as well as to develop recommendations for improving the design of the pension system according to population characteristics and behavioural patterns.

The research **object** – involvement of Latvian residents in pension financial planning decisions with the aim of creating private pension savings.

The research **subject** - factors influencing financial planning for retirement as determinants of people's engagement in private pension saving, through institutional design, their interlinkages and their manifestations.

Research questions:

- 1) What factors determine the level of citizens' involvement in financial planning for retirement decisions?
- 2) To what extent do the Latvian population need to make independent decisions when saving at levels 2 and 3 of the existing Latvian pension system?
- 3) How effectively does the design of the private pension system in Latvia encourage people to save?
- 4) What is the distribution of Latvian population in the context of factors influencing their involvement in retirement financial planning?
- 5) What principles of pension system design would encourage more involvement of the Latvian population in retirement planning?

Tasks of the research:

- 1) To analyse the academic literature and, based on it, to identify a scientific theory on the effectiveness of retirement financial planning for further research.

- 2) To develop a research model on the factors influencing retirement financial planning.
- 3) Analyse the current regulatory structure of the pension system in Latvia and assess the level of citizens' involvement in pension financial planning decisions.
- 4) To analyse the opportunities and advantages of the external environment and the pension system for the population of Latvia in comparison with Lithuania and Estonia.
- 5) To assess the impact of the factors identified in the selected research model on the participation of the Latvian population in private pension savings by population groups, to establish their demographic characteristics.
- 6) Based on the findings of the academic literature and the results of the study, make recommendations on measures to be taken to promote the involvement of the population in decision-making in financial planning for retirement in Latvia.

Hypothesis to be defended: While people's financial literacy and motivation to save for private pensions in Latvia are at the core of their behaviour, the ability to use them is conditional on a sufficient level of income.

Theses to be defended:

- 1) Financial planning for retirement in Latvia is based more on cognitive financial literacy than on psycho-emotional factors.
- 2) The availability, comprehensibility, and comparability of information about pension savings options is of decisive importance compared to the high level of detail of information disclosure.
- 3) To ensure broad coverage and higher pension levels, the design of the Latvian pension system should be based on automatic participation¹⁸ of the population in pension accumulation, making it compulsory.

The scientific novelty of the doctoral work is based on the generalization and synthesis of scientific literature and the analysis of statistical data obtained as a result of empirical research, and it manifests:

- 1) An analysis of the factors influencing financial planning in Latvia is carried out, testing the assumptions of the Hershey, Jacobs-Lawson and Austin (2013)¹⁹ model (further in text named – “Hershey model”), as well as assessing the impact of personal income level as an additional factor on pension saving, and identifying its determinant role in Latvia.
- 2) The distribution of the Latvian population into types of financial planning for retirement decision-makers is established, which allows recommendations to be made for the design of an effective pension system.

¹⁸ Automatic participation or Auto-enrollment - the action or practice of automatically enrolling someone as a member of a scheme, especially a company pension scheme, without that person's active authorization.

¹⁹ Hershey, D.A., Jacobs-Lawson, J.M., Austin, J.T. (2013). *Effective financial planning for retirement*. In M. Wang (Ed.), (pp. 402–430). Oxford University Press.

Theoretical contribution: Testing the existing theory of the Hershey model on factors influencing retirement financial planning among the Latvian population and identifying an additional relevant factor.

Practical novelty of the study results:

- 1) The study, while highlighting the importance of the concept of financial planning for pensions in increasing the size of pensions, analyses and evaluates the principles of the pension system according to the level of involvement of citizens in pension planning decisions, reflecting those elements of the pension system design where investors have to make independent decisions, so that the level of information should be the highest.
- 2) The study provides practical recommendations for improving the design of the pension system and increasing the involvement of the Latvian population in pension saving.
- 3) By demonstrating the impact of the assessed factors on the savings behaviour of the Latvian population, the study provides pension policy makers and pension managers with clarity on which population profiles should be prioritised. By understanding the characteristics of the target audience, it is possible to develop a better communication strategy for more effective information transfer and engagement of the population in the private pension system.
- 4) The empirical research carried out as part of the study on the usability of investor information documents during the preparation of the doctoral thesis has already been the basis for a document redesign initiative. It is planned that during 2023 the requirements of the document will be improved in line with the assessments and recommendations made in the study.

Research methods:

- 1) The theoretical part of the thesis is based on the analysis of scientific literature, within the framework of which the author examines the theoretical aspects of financial planning for retirement, analyses their mutual influence and their manifestation in the context of the contemporary pension system.
- 2) For the analyses of opportunities provided by existing pension system in Latvia the legislation acts analyses have been conducted. Secondary data were used with the aim of characterising the development trends of the Latvian pension system in the context of global market development.
- 3) The author used one of the primary data collection methods by conducting two sample surveys on information disclosed to investors and expert opinions on methods of improving the Latvian pension system.
- 4) As a basis for test of Opportunities, Willingness and Opportunities model the answers given in the population survey were categorised and grouped according to the aim of the study.

- 5) The data analyses have been processed by SPSS software using indicators of descriptive statistics, cross-tabulations, testing of statistical hypotheses with t-test and chi-square test, application of one of multivariate analysis method - correlation analysis as well as a two-step cluster analyses method.

Limitations of the study:

In exploring the factors affecting financial planning for retirement, the author highlights the ability and capacity of stakeholders to save, pointing to the importance of designing a retirement ecosystem that is appropriate to the current structure of investors in terms of composition. Due to the limitations of the study, the author bases her research on the investment decisions made by the population in funded capital savings - within the public funded pension scheme and in private pension funds - and does not include other forms of saving such as life insurance with savings, term deposits in a credit institution or direct investments in investment funds.

Given the focus of this study on voluntary decisions of citizens, the analysis of the pension system covers all decisions taken by citizens to build up a larger amount of pension, including the 2nd and 3rd pillars. However, the Opportunities, Willingness and Opportunities test developed in Chapter 3 is based on the involvement of people at 3rd pension pillar only. This enables the analysis to distinguish more clearly between those decisions that are occasional and those that are entirely dependent on the investor.

Approbation of results of research (publications, conferences)

In the period from 2019 to 2023, the research has been **approbated** in Latvia, Estonia, Lithuania, Slovakia, Poland, Bulgaria, Northern Macedonia and Croatia in **10 internationally peer-reviewed scientific journals**, 4 of which have been indexed in *Scopus* and *Web of Science*, as well as one of the topics has been included in a monograph awarded with the diploma of the Latvian Academy of Sciences "The best achievement of Latvian science in 2022" and **18 scientific international conferences**.

Author's scientific publications in 10 internationally peer- reviewed scientific journals:

- 1) Dundure E. (2022). "Voluntary pension savings development factors". MONOGRAPH "The Strengths of Latvia for the Long-term Development", Project Challenges for the Latvian State and Society and the Solutions in International Context (Interframe-LV) National research programme Latvian Heritage and Future Challenges for the Sustainability of the State (2018–2022), *Latvian Academy of Sciences, Latvia University of Life Sciences and Technologies*, 2022, ISBN 978-9984-48-394-8, pp. 201-206. The monograph was awarded with the diploma of the Latvian Academy of Sciences "The best achievement of Latvian science in 2022".

- 2) Dundure E., Sloka B. (2022). Choice architecture as a basis for pension savings decisions, The Proceedings of 14th international scientific conference "New Challenges in Economic and Business Development – 2022: Responsible Growth", Organised by the Faculty of Business, Management and Economics, University of Latvia May 13, 2022 Riga, pp. 102-106.
- 3) Dundure E., Sloka B. (2021). Financial Literacy Self-Evaluation of Young People in Latvia, *European Integration Studies*, 15, 160-169, **Indexed in Web of Science**.
- 4) Dundure E., Sloka B. (2021). Financial Literacy Influencing Factors Analysis: Estonia, Latvia, and Lithuania Case, Grima, S., Özen, E. and Boz, H. (Ed.) Contemporary Issues in Social Science (Contemporary Studies in Economic and Financial Analysis, Vol. 106), *Emerald Publishing Limited*, Bingley, pp. 251-262, **Indexed in Scopus**.
- 5) Dundure E., Sloka B. (2020). Formation of private pension savings in the situation of industry 4.0 and various forms of employment. Proceedings of scientific papers from the international scientific conference The impact of industry 4.0 on job creation 2020, organized by Trenčín Slovak Republic Alexander Dubček University in Trenčín, Faculty of Social and Economic Relations, 12.11.2020.
- 6) Dundure E. (2020). Self-Employed Ones Deserve a Pension Too! The Regulation Background of the Pension Savings for the Self-Employed Persons in Latvia, *Balkan and Near Eastern Journal of Social Sciences*, 06(04), 14-21.
- 7) Dundure E., Sloka B. (2020). Tax Incentives as a Part of Governments' Applied Mechanisms for the Third Pension Pillar in Estonia, Latvia, and Lithuania, *European Integration Studies* 14, 144-155, Indexed in **Web of Science**.
- 8) Dundure, E., Sloka, B. (2020), Voluntary pension funds contribution in the pension system of Latvia in comparison with Estonia and Lithuania. 12th International Scientific Conference of University of Latvia "New Challenges in Economic and Business Development – 2020: Economic Inequality and Well-Being" on October 2, 2020, Indexed in **Web of Science**.
- 9) Dundure, E., Sloka, B. (2019). Voluntary private investments role in pension system in Latvia, *Regional Formation and Development Studies*, 29(3), 43-52.
- 10) Dundure, E., Sloka, B. (2019). Sales channels and media digitalization impact on people voluntary savings for retirement, Economic and Social Development (Book of Proceedings), 49th International Scientific Conference on Economic and Social Development – "Building Resilient Society. Book of Proceedings is available at: https://www.esd-conference.com/upload/book_of_proceedings/Book_of_Proceedings_esdZagreb2019_Online.pdf

The list of **scientific conferences** the research were presented and discussed at:

- 1) Dundure E., Investor disclosures – a valuable guide for retirement planning decisions, 81st International Scientific Conference of the University of Latvia: Different Aspects of Entrepreneurship and Management, University of Latvia 16.02.2023.
- 2) Dundure E., Sloka B. Organisation of survey on financial literacy aspects related to voluntary pension savings and challenges in the realisation of survey. BNU Workshop on Survey Statistics 2022, organized by the Baltic-Nordic-Ukrainian (BNU) Network on Survey Statistics in cooperation with partner universities and several national statistical institutes and associations, 22.-26.08.2022, Tartu, Estonia.
- 3) Dundure E., Sloka B. Role of financial literacy for contribution to voluntary pensions as tool in possible income inequalities reduction. V International Economic Forum “The crises as an incentive to change: Human being. Nature. Entrepreneurship.” Latvian Academy of Science 30.06.2022
- 4) Dundure E., Sloka B. Choice architecture as a basis for pension savings decisions. Virtual International Scientific Conference New Challenges in Economic and Business Development – 2022: Responsible Growth, University of Latvia 13.05.2022
- 5) Dundure E. Challenges to the Financial Literacy of the Latvian Population in Pension Planning Caused by the Pandemic Crisis, 80th International Scientific Conference of the University of Latvia XXI Century. Finance: Trends, Challenges and Prospects, University of Latvia, 25.02.2022
- 6) Dundure E. The role of government in the transformation process of the third pillar of pensions, The 8th 2021 NoRSA-ESPON conference Post – Covid-19 sustainable development and regional restructuring in the Baltic Sea region, Parnu, Estonia, 13.-14.10.2021
- 7) Dundure E. Latvian youth's ability to create pension savings, LU New Technologies and Innovations Day, Knowledge Agora 2021, 24.09.2021
- 8) Dundure E., Sloka B. Tax Incentives for the Third Pension Pillar in Estonia, Latvia, and Lithuania, ICEP 2021 – 18th International Conference on European Processes, Kaunas University of Technology, Lithuania, 23.04.2021
- 9) Dundure E., Aspect of Financial Literacy in Reviving the Savings Tradition in Latvia. 79th International Scientific Conference of the University of Latvia 11.03.2021
- 10) Dundure E., Sloka B. Formation of private pension savings in the situation of Industry-4.0 and various forms of employment. International conference Impact of Industry 4.0 on job creation 2020, Trenčín Slovak Republic Alexander Dubček University in Trenčín, Faculty of Social and Economic Relations, 12.11.2020.

- 11) Dundure E., Sloka B. Financial Literacy – Driving Factor and Catalysator of Development of the Economy, International Conference of Applied Business and Economics (ICABE), University of Szczecin, Poland. 7.-9.10.2020.
- 12) Dundure, E., Sloka, B. Voluntary pension funds contribution in the pension system of Latvia in comparison with Estonia and Lithuania. 12th Annual International Scientific Conference of University of Latvia New Challenges in Economic and Business Development – 2020: Economic Inequality and Well-Being, 02.10.2020.
- 13) Dundure E. Self-Employed Ones Deserve a Pension Too! The Regulation Background of the Pension Savings for the Self-Employed Persons in Latvia. IBANESS Congresses Series on Economics, Business and Management- Organized by IBANESS, University of Agribusiness and Rural Development/Bulgaria University “St. Kliment Ohridski”, Faculty of Economics – Prilep/Republic of North Macedonia, 26-27.09.2020.
- 14) Dundure E. Pension savings opportunities for self-employed persons in Latvia. International conference “Today’s experience for future business”, College of Business Administration, 26-28.08.2020.
- 15) Dundure E., Sloka B. Government incentives for the 3rd pension pillar in Latvia, The 78th International Scientific Conference of the University of Latvia “Challenges and Solutions of the Latvian State and Society in the International Context”, 10.03.2020.
- 16) Dundure E., Sloka B. Sales channels and media digitalization impact on people voluntary savings for retirement, 49th International Scientific Conference on Economic and Social Development - "Building Resilient Society", Zagreb, Croatia, 13-14.12.2019.
- 17) Dundure E. How voluntary pension savings are influenced by their representation on digital sales platforms and social media in Latvia compared to Lithuania and Estonia. III International Economic Forum Business Support: Critical Points, Science – Based Solutions & International Cooperation, Institute of Economics of the Latvian Academy of Sciences, 01.11.2019.
- 18) Dundure E. How the Three Baltic Countries People Make Voluntary Savings for Retirement? International Conference “Smithy of Ideas 2019” Vilnius Gediminas Technical University and Lithuanian Society of Young Researchers, 02.10.2019.

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Chapter 1. FINANCIAL PLANNING FOR RETIREMENT: DECISION-MAKING FACTORS AND VALUATION MODELS

Post-retirement income has long played an important role in academic discussions of personal financial planning²⁰, as it has been an equal consideration with earning income today, as well as the ability to meet financial obligations during working life.

Financial planning for retirement (further in text - FPR) is analysed as part of a process within the broader concept of personal financial planning, as personal financial planning according to Altfest (2004)²¹ is a multidimensional process involving important financial issues in an individual's life, such as paying taxes, balancing income and expenditure, investing for major purchases, mitigating unplanned risks through insurance or other preventive measures, the financial aspects of real estate, and planning for income when work-related income ends - financial planning for retirement. Furthermore, FPR was suggested as part of pension planning issues as early as 1989, when Ekerdt²² included it in the list of tips for retirement planning. Among the 31 topics of retirement planning, in addition to health care, choice of residence, occupation and leisure planning, pension provisions, savings and investments are also singled out.

The nature of FPR is often formulated by looking at the goals and ways of the implementation²³. On the one hand, the simplicity of the purpose of the FPR is emphasized, as it is to provide financial protection for oneself and the close ones who are financially dependent. A deeper discussion begins when the ways to provide protection are described - emphasizing conscious and active action, knowing the available assets or planned income during retirement, and the possible spending when the active careers are over. Inevitably, the psycho-socio-economic factors of people are recognized, which play a significant role not only in the development of the FPR process, but also in the need to create different FPR strategies according to a specific type of pension income planner.

Therefore, the Warschauer (2002)²⁴ suggested definition of Financial Planning demonstrate the interlinkages of characteristic of the beneficiary and applied planning strategies: “Financial Planning is the process that takes into account the client’s personality, financial status and the socio-economic and legal environments and leads to the adoption of strategies and use of financial tools that are expected to aid in achieving the client’s financial goals.” This definition is part of a broader

²⁰ Borah, G. F. (1936). Personal Financial Planning. *The American Journal of Nursing*, 36(1), 21–23.

²¹ Altfest, L. (2004), Personal financial planning: origins, developments and a plan for future direction, *The American Economist*, V48(2), 53-60.

²² Ekerdt, D. J. (1989). Retirement preparation. *Annual Review of Gerontology and Geriatrics*, 9(1), 321-356.

²³ Kelly, H. M. (1958). Financial Planning for Retirement. *The Journal of Educational Sociology*, 31(8), 306–317.

²⁴ Warschauer (2002). The Role of Universities in the Development of the Personal Financial Planning Profession, *Financial Services Review*, 11, 201-216.

study looking at planning carried out by a third-party financial planning consultant, thus analysing the factors influencing planning from their perspective.

Since private contributions are an essential component of pension systems in the world's major developed countries, requiring significant involvement of individuals in planning, saving and active retirement planning decisions, pension policy makers have placed a strong emphasis on investor education and advice. In particular, the adequacy of training programmes and the availability of advisers have been analysed ²⁵ in order to facilitate people's involvement in the FPR process. At a time when pension savings were still dominated by investments in company shares, the level of investors' knowledge of their financial situation was studied ²⁶ and it was concluded that unfortunately most individuals do not read, so do not get information from companies' annual reports, preferring other simple sources. The question arose as to whether they were not reading because they did not understand or were not inclined to read such content. Academic research ²⁷ showed that investors most often do not follow the pragmatic decision-making sequence ²⁸ established by classical theory: gathering information, checking preferences, calculating a scenario, seeking advice, and deciding on the most appropriate pension investment plan. The realisation that such decision-making is based on full access to, and sufficient understanding of information explains the higher saving rates in countries where a strong emphasis was placed on the availability of financial advisers.

This explains why, for a long time, the central research factor influencing the decision making in FPR was the level of knowledge on the subject or, as it is widely called, the financial literacy of individuals. Moreover, financial literacy expanded over the time of its exploration, revealing not only knowledge about financial planning for retirement, but also the skills and abilities to use it. In specially designed education programmes ²⁹ Financial literacy is defined as “the ability to read, analyse, manage, and communicate about the personal financial conditions that affect material well-being. It includes the ability to discern financial choices, discuss money and financial issues without (or despite) discomfort, plan for the future, and respond competently to life events that affect every day financial decisions, including events in the general economy” revealing the multidimensional

²⁵ Hilgert, M.A., Hogarth, J.M., Beverly, S.G. (2003). Household financial management: The connection between knowledge and behavior. *Federal Reserve Bulletin*, 89, 309.

²⁶ Mason, C., Wilson, R. (2000). Conceptualising financial literacy (Research Series Paper 2000: 7). London: Loughborough University, Business School. 2000-7.

²⁷ Jennings, M, Nelson, E., Boucher A. (1997). Financial Literacy: the cost of ignorance, *RSA Journal*, March pp 31-35.

²⁸ Bernheim, D.D. (1998). *Financial illiteracy, education, and retirement saving* (No. 96-7). Wharton School Pension Research Council, University of Pennsylvania.

²⁹ Anderson, C., Kent, J., Lyter, D.M., Siegenthaler, J.K., Ward, J. (2000). Personal finance and the rush to competence: Financial literacy education in the US. *Journal of Family and Consumer Sciences*, 107(2), 1-18.

and all-encompassing meaning of the concept. The OECD ³⁰, on the other hand, bases their recent research on financial literacy on the definition that, which states that “Financial literacy: a combination of financial awareness, knowledge, skills, attitudes and behaviours necessary to make sound financial decisions and ultimately achieve individual financial well-being” emphasising the ability and opportunity to apply existing knowledge to achieve financial well-being.

While extensive research has provided evidence that higher levels of financial literacy often correlate with higher living standards and well-being ^{31 32}, it has also shown that it is not only financial literacy that can play an important role in retirement planning decisions. The research path through aspects of behavioural theories ³³ shed light on the impact of external conditions or the choice architecture of the options offered on FPR decisions. In this way, researchers have placed the offer of pension policy makers on a level with the cognitive, behavioural, and psychological aspects of FPR planners, highlighting the importance of all these components in FPR decision-making.

1.1. Behavioural theories growing role in decision making models

Scientists, in close cooperation with pension policy makers, have throughout the century been looking for answers to the question - what justifies citizens' long-term financial planning decisions. Recently, special attention of academics has been focused on the analysis of the influence of Behavioural Theory factors in financial decision-making^{34 35 36}. However, this does not mean that the assessment of citizens' cognitive abilities and financial knowledge would be neglected³⁷. On the contrary, it is the comparison of these two groups of factors that provides an opportunity to create prediction models for scenarios of citizens' actions, as well as to test them.

Given the still-emphasised level of financial literacy, it is worth noting the assumption that people could make rational decisions based on available information, objective evaluation of

³⁰ OECD (2020). Recommendation of the Council on Financial Literacy. OECD/LEGAL/0461 Source: Compendium of Legal Instruments of the OECD <https://legalinstruments.oecd.org>

³¹ Altman, M. (2020). Why Financial Literacy Matters for Socio-economic Wellbeing. In *Smart Economic Decision-Making in a Complex World*, pp. 211-242.

³² Lusardi, A., Mitchell, O.S. (2011). *Financial literacy and planning: Implications for retirement wellbeing* (No. w17078). National Bureau of Economic Research.

³³ Thaler, R. H., Sunstein, C. R., Balz, J. P. (2010). Choice architecture (SSRN Working Paper Series No. 1583509). Retrieved from *the Social Science Research Network* website: <http://ssrn.com/abstract=1583509> [accessed 12.02.2022].

³⁴ Compen, B., Pitthan, F., Schelfhout, W., De Witte, K. (2022). How to elicit and cease herding behaviour? On the effectiveness of a warning message as a debiasing decision support system. *Decision Support Systems*, 152, 113652.

³⁵ Muñoz-Céspedes, E., Ibar-Alonso, R., de Lorenzo Ros, S. (2021). Financial literacy and sustainable consumer behavior. *Sustainability*, 13(16), 9145.

³⁶ James, H. (2021). Individual pension decision-making in a financialised landscape: a typology of everyday approaches. *Journal of Cultural Economy*, 14(6), 627-643.

³⁷ Nam, Y., Loibl, C. (2021). Financial capability and financial planning at the verge of retirement age. *Journal of Family and Economic Issues*, 42(1), 133-150.

existing alternatives and optimal choice making, as proposed by the founder ³⁸ of this theory. Considering the long-term dimension of FPR decisions, as well as some uncertainty in its monetary outcome, it is logical ³⁹ that people tend to choose the alternative with the highest expected utility. The extensive research ⁴⁰ on the limited information available to the decision-maker, bringing together all the latest theories and analysing aspects of decision-making and ways to reduce constraints, proves the irrationality of people's actions. In most cases, the decision-making process is influenced by personal preferences caused by habits, psychological differences and social roles and pressures. New challenges to decision-making theories ⁴¹ have led to the consideration of physical environmental factors as well as to the consideration of human behaviour in multiple choice situations, and this has meant modelling decision-making in a real-world situation where the decision-making process has been analysed as a process influenced by many and sometimes conflicting factors simultaneously.

When questioning people's ability to make rational decisions, decision-makers make “satisfactory” decisions rather than optimal ones, thus making these decisions more opportunistic than rational. Due to limited knowledge, the human mind is able to exercise a limited degree of rationality, which leads to simplified decision-making based on past experience, inherent skills, habits, values and perceptions ⁴². Because so many influencing factors complicate the decision-making process, the “satisfaction” rule as one of the empirical and realistic substitutes for the “maximization rule” at the core of classical theory and neoclassical theories.

An explanation can be found in the extension of the theory of bounded rationality proposed by psychologists Amos Tversky and Daniel Kahneman ⁴³ to include three heuristics that play an important role in intuitive judgements about probabilities, quantities, and frequencies: representativeness, affordances, and reinforcement, explaining the tendency of humans to simplify decision-making and thereby simplify complex tasks and judgements by relying on a limited number of heuristics. Prospect Theory ⁴⁴ demonstrates a surprising effect of externalities by showing that most people are risk averse in order to make a profit and are willing to take risks in order to make a loss, thus avoiding the best decisions. This explains the impact of the framing effect on decision-making, whereby decisions made can be contradictory depending on how the

³⁸ Smith, A. (1776). *An Inquiry into the Nature and Causes of the Wealth of Nations*, published in 1776.

³⁹ Friedman, M., Savage, L.J. (1952). The expected-utility hypothesis and the measurability of utility. *Journal of Political Economy*, 60(6), 463-474.

⁴⁰ Grunig, J. E. (1966). The Role of Information in Economic Decision Making. *Journalism and Communication Monographs*, 3.

⁴¹ Simon, H. A. (1956). Rational choice and the structure of the environment. *Psychological Review*, 63(2), 129.

⁴² Simon, H.A. (1976), *Administrative Behavior*, 3rd ed., The Free Press, New York, NY

⁴³ Tversky, A., Kahneman, D. (1974). Judgment under Uncertainty: Heuristics and Biases. *Science*, 185(4157), 1124–1131.

⁴⁴ Kahneman, D., Tversky, A. (1979). Prospect Theory: An Analysis of Decision under Risk. *Econometrica*, 47(2), 263–291.

alternative is presented. In addition, aspects ⁴⁵ such as the life-cycle model, existing incentive mechanisms and the default plan choice architecture also play an important role, highlighting both the saving aspects and the cognitive difficulties and self-control problem of savers. This in turn allows for a structured approach to financial behaviour planning with practical implications for policy makers, based on an understanding of how individual investors build their investment portfolios, including in long-term investments.

A comparison created by Altman back in 2012⁴⁶ is useful when presenting the theoretical explanation for a transformative development of research of decision making in FPR. It has become the basis for many current studies because it provides clear theoretical implications directly for long-term financial planning decision-making. In the Table 1 the Altman proposed theories model has been developed by the author by adding the factors of influencing the decision making in the way the described theories apply to them. According to it the Conventional economic theory, Bounded rationality approach by Simon, and Errors and Biases approach by Kahneman – Tversky approach with the focus on public policy implications on savings for retirement enhancement demonstrating the significant impact of the solutions proposed by behavioural theories.

Table 1.1 Comparison of factors influencing the decision making according to Economic theories

Factors influencing the decision making	Conventional economic theory	Behavioural economics: Simon, Bounded rationality, rational individuals' approach	Behavioural economics: Kahneman–Tversky, Errors and Biases Approach
Rationality	Fully rational	Rational with the limitations stated by environment and other given situation factors	Irrational, error-prone decisions, which are eventually regretted
Role of information	Critically important to have information	Limited amount of available information for considerations	Errors and biases in information processing reduce its importance
Education	Education and training are regarded as highly important	Education can have important effects on decision making	Having an education can help to improve decision-making
Environment	Assumed to be an ideal environment for decision-making assumed	Less than ideal institutional environment which can be improved	Less than an ideal institutional environment that is considered and cannot be significantly changed
Government role	Government intervention is not necessary	Government is responsible for institutional environment and should not intervene in rational individual choices	Government intervention provides the basis for ideal choices that reduce bias and error-prone decision-making

Source: the author's construction based on literature review

⁴⁵ Mullainathan, S., Thaler, R.H. (2000). Behavioral Economics. Available at SSRN 245733.

⁴⁶ Altman, M. (2012). Implications of behavioural economics for financial literacy and public policy. *The Journal of Socio-economics*, 41(5), 677-690.

Therefore, a clear narrative of development emerges in the various factors that influence and result from decision-making. As the perception of a person's ability to make rational and balanced decisions in financial planning for retirement decreases, the role of pension policy makers in the effective decision-making process increases. The question arises as to whether, following the development of theories, people make all decisions unconsciously and in accordance with the external environment. And does this mean that these pension planning decisions have to be made at the governmental level and that the people just carry out the activities offered to them for their own well-being? Understandably, the answer is ambiguous. Academics are also looking for ways to combine the findings of all these theories to apply them to different decision-making models. **Nudge theory**⁴⁷ is one of the most widely discussed behavioural theories applicable to the field of our interest in recent times. It is therefore useful to analyse the nature of Nudge Theory and how it can be applied to decision-making in FPR and in particular to the design of choice architectures.

1.2. The Nudge theory implications on pension policy design

Based on an analysis of economic decision-making and focusing on three psychological factors inherent in humans: the tendency not to act rationally, perceptions of fairness and reasonableness, and a lack of self-control, Nudge Theory, developed by Richard Thaler⁴⁸, defines choice architecture as a toolbox that shapes the context in which people make decisions. Thus, the pivotal role of a supportive environment that facilitates an expedient and comfortable decision-making process within the target audience is underscored. This necessitates the establishment of a "choice architecture" framework to guide the trajectory of decision-making towards the intended course, all the while concurrently upholding the individual's capacity for autonomous agency. Rooted in Nudge theory, the approach hinges on the alteration of extant "choice architecture". For instance, by modifying default options to leverage individuals' propensity to passively accept default settings or "defaults." This stands in contrast to conventional instruments that induce behavioural changes through mandates or prohibitions, or financial incentives inherently tied to direct financial considerations.

It is imperative to acknowledge that the deficiencies highlighted by critics of "stimulus theories" can compel planners to make decisions regarding FPR that contradict their interests. Facilitating specific choices may result in a transfer of responsibility from the investor to pension

⁴⁷ Thaler, S., Sunstein, C.R. (2009). *Nudge: Improving decisions about health, wealth, and happiness* / Richard H. Thaler and Cass R. Sunstein. Penguin books.

⁴⁸ Thaler, R.H., Sunstein, C.R., Balz, J.P. (2010). Choice architecture (SSRN Working Paper Series No. 1583509). Retrieved from *the Social Science Research Network* website: <http://ssrn.com/abstract=1583509> [accessed 12.10.2021].

policy and offering planners. The proponents maintain⁴⁹ that the intrinsic libertarian paternalism of Nudge theory should be selectively employed, contingent upon its capacity to positively influence the choices of engaged stakeholders. Consequently, when specifying default payment magnitudes, the chosen value might exhibit a lack of proportionality to individual circumstances, potentially dissuading contributions and the establishment of private pension accumulations^{50 51}. An essential facet in the establishment of an unbiased choice architecture pertains to whether the designers of the schemes are susceptible to behavioural biases. This factor also underscores why methods derived from Nudge theory may be employed exclusively to incentivize well-established and validated desired behaviours.

For the methods of Nudge theory to be effective, they necessitate consistent application⁵², entailing that campaign-style stimuli possess a unique character with a vital yet transient impact. To ensure enduring viability within an ongoing nudge system, digital tools yield a favourable impact, serving not solely as sources of information, but also as platforms for comparative analysis and facilitating access to personalized information pertaining to individuals' pension accumulations. This is contingent upon the digital tools aligning with the requisites of lightweight, convenient, and user-friendly functionality.

The phenomenon wherein individuals, during the process of decision-making concerning accumulations, veer away from predictions aligned with the rational agent model and instead are influenced by ostensibly trivial elements, serves as evidence of the escalating significance of non-financial stimuli in the sphere of decision-making⁵³. This engenders novel challenges for regulators, engendering requirements concerning disclosure of information documents to investors as well as the presentation of pension plan offerings⁵⁴. It becomes apparent that the method of delivering information takes precedence over its substance, potentially causing elements such as investment returns, risk evaluation, and investment strategies to take a secondary position in relation to the availability of plans and the ease of decision-making^{55 56 57}.

⁴⁹ Thaler, R., Sunstein, C. (2003). Libertarian Paternalism, *The American Economic Review*, 93, 175-179.

⁵⁰ Beshears, J., Benartzi, S., Mason, R., Milkman, K.L. (2017). How do consumers respond when default options push the envelope? *Social Science Research Network SSRN Electronic Journal*, No. 3050562.

⁵¹ Goldin, J., Homonoff, T., Tucker-Ray, W. (2017). Retirement Contribution Rate Nudges and Plan Participation: Evidence from a Field Experiment. *American Economic Review*, 107(5), 456-61.

⁵² Cronqvist, H., Thaler, R.H., Yu, F. (2018). When Nudges are Forever: Inertia in the Swedish Premium Pension Plan. *AEA Papers and Proceedings*, 108.

⁵³ Kim, D. (2020). Worker retirement responses to pension incentives: Do they respond to pension wealth? *Journal of Economic Behavior & Organization*, 173, 365-385.

⁵⁴ Benartzi, S., Thaler, R. (2007). Heuristics and Biases in Retirement Savings Behavior. *The Journal of Economic Perspectives*, 21(3), 81-104.

⁵⁵ Kozup, J., Howlett, E., Pagano, M. (2008). The Effects of Summary Information on Consumer Perceptions of Mutual Fund Characteristics. *Journal of Consumer Affairs*, 42, 37-59.

⁵⁶ Madrian, B.C., Laibson, D., Choi, J.J., Beshears, J. (2011). *How Does Simplified Disclosure Affect Individuals' Mutual Fund Choices?* In *Explorations in the Economics of Aging* (pp. Explorations in the Economics of Aging, 2011-05-01). University of Chicago Press.

Examining the most effective approaches to augment pension volumes has prompted a multitude of inquiries into how investor attention can be directed toward their desired choices. Nudge theory methods can be harnessed to craft informational documents tailored for investors elucidating the operation of specific pension plans^{58 59}. In accordance with research findings, participants indeed opted for the default option, particularly as they approached retirement age, due to its growing conservatism, coupled with dynamic pictograms. The study elucidated that the mode of information presentation and the extent to which information is perceptible and relatively apprehensible hold greater sway than the informational content itself.

While the described methods can be extensively employed to incentivize desired behaviours, the most effective means of engaging citizens in pension accumulations is through the utilization of the so-called **auto-enrolment mechanism**⁶⁰. Authors have extensively examined the impact of automatic enrolment on existing pension schemes in England, discerning that automatic enrolment plays a pivotal role in fostering participation in pension plans and the formation of automatically selected accumulations. It was deduced that such "default" behaviour stems from participants' inertia to independently make decisions regarding pension investments. Notably, the provision of automatic enrolment was perceived as the best option by an authoritative source. The conclusions of this study have been extensively deliberated within academia and serve as a foundation for governmental entities in the development of pension planning tools. Through the analysis⁶¹ of the shared and distinct impacts on accumulation formation between both modes of participation – voluntary and automatic enrolment – it becomes evident that automatic enrolment proves more effective for individuals with lower financial literacy.

Global experiences of countries demonstrate that employers play a pivotal role in engaging citizens in pension accumulation endeavours⁶². At the inception of employment relationships, existing occupational pension plans are extended to employees, comprising both informative discourse and financially motivating factors, harmonizing contributions. Furthermore, the formation

⁵⁷ Navarro-Martinez, D., Salisbury, L., Lemon, K., Stewart, N., Matthews, W., Harris, A. (2011). Minimum Required Payment and Supplemental Information Disclosure Effects on Consumer Debt Repayment Decisions. *Journal of Marketing Research*, 48(SPL), S60-S77.

⁵⁸ Camilleri, A.R., Cam, M.-A., Hoffmann, R. (2019). Nudges and signposts: The effect of smart defaults and pictographic risk information on retirement saving investment choices. *Journal of Behavioral Decision Making*, 32(4), 431-449.

⁵⁹ Bateman, H., Dobrescu, L., Newell, B., Ortmann, A., Thorp, S. (2016). As easy as pie: How retirement savers use prescribed investment disclosures. *Journal of Economic Behavior & Organization*, 121, 60-76.

⁶⁰ Madrian, B.C., Shea, D.F. (2001). The power of suggestion: Inertia in 401(k) participation and savings behavior. *Quarterly Journal of Economics*, 116(4), 1149-1187.

⁶¹ Goda, G. S., Levy, M. R., Manchester, C. F., Sojourner, A., Tasoff, J. (2020). Who is a passive saver under opt-in and auto-enrollment?. *Journal of Economic Behavior & Organization*, 173, 301-321.

⁶² Atkinson, A., Messay, F._A., Rabinovich, L., Yoong, J. (2015). Financial Education for Long-term Savings and Investments: Review of Research and Literature, *OECD Working Papers on Finance, Insurance and Private Pensions*, No. 39, OECD Publishing, Paris.

of accumulations through automatic deduction of contributions from wages within pension plans is convenient, straightforward, and consequently efficacious. Moreover, in line with Beshears and his colleagues' study in 2013⁶³, a readily available proposition to join a pension accumulation plan with predetermined contribution rates and investment strategies, thereby simplifying choices, not only augmented the number of participants but also amplified the magnitude of their contributions.

Equally pivotal in augmenting pension amounts is an effective pension payout system characterized by longevity, regularity, the option of deferral, and even distribution throughout remaining lifespan. In this context, individual perceptual idiosyncrasies must also be considered, forming the basis for the development of appropriate incentivization methods. The results of Brown et al., in 2013⁶⁴ study underscore that, in structuring pension payouts – annuities – the efficacy of pension accumulation should be gauged based on desired consumption volume rather than investment yield measurement. Simultaneously, while forming pension accumulations, individuals expect clarity regarding the magnitude of their monthly pension. According to recent research findings⁶⁵, eighty-one percent of participants assert that guaranteed income would be the most desirable outcome, a preference congruent with the allocation of lifelong pension accumulation. This, in turn, underscores the imperative to fashion pension accumulation products capable of affording higher costs while still encompassing a component safeguarding designated guaranteed accumulation sums.

In summary, the Nudge Theory is an effective way to facilitate people's decision-making in the area of FPR. Moreover, it can be applied at virtually all stages of the decision-making process, from making the contribution to receiving the accrued benefits. However, it is important for policy makers to be aware of the significant impact of Nudge techniques on the final outcome of decisions and of the risk that the contributor himself, due to behavioural biases, will put too much trust in the proposition, which in turn will lead to less informed decision-making and hence avoidance of responsibility.

1.3. Financial planning for retirement effectiveness valuation models

In order to create a more effective decision-making model for FPR, the theory developed is based on the indicators of the impact of FPR that have already been widely discussed in the scientific literature and their analysis by categorising and regrouping them according to the criteria

⁶³ Beshears, J., Choi, J.J., Laibson, D., Madrian, B.C. (2013). Simplification and saving. *Journal of Economic Behavior and Organization*, 95, 130-145.

⁶⁴ Brown, J.R., Kling, J.R., Maullaifathan, S., Wrobel, M.V. (2013). Framing Lifetime Income, *The Journal of Retirement*, 1(1), 27-37.

⁶⁵ Finke, M., Fichtner, J. J. (2022). Employee Opinions about Partial Annuitization in a Retirement Plan. *The Journal of Retirement*, 9(3), 9-31.

of the theoretical construct. The general approach in developing such models is **to identify groups of influencing factors in order to attribute all the features or aspects to be analysed to one of these groups**. It is important for modelers to identify groups so that all known, and newly discovered factors can be applied to them.

A study of such FPR models concludes that the list offered by the academy so far is limited, but the intensity of research especially in the last 40 years should be acknowledged (Figure 1.1).

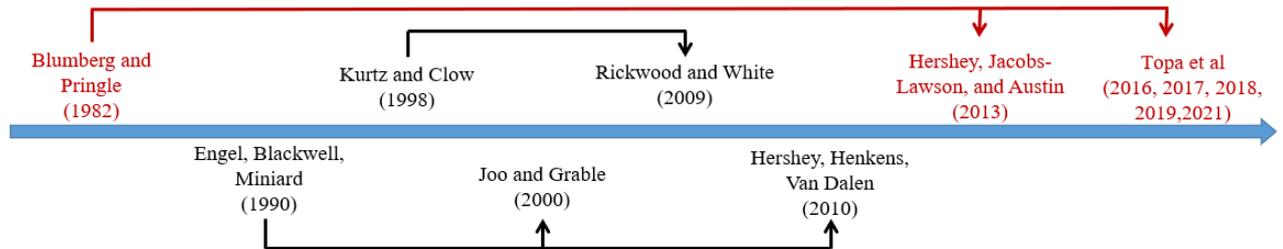


Figure 1.1 **Financial planning for retirement effectiveness valuation models time scale**

Source: the author's construction based on literature review

One of the models to be mentioned is created by Australian researchers Rickwood and White (2009)⁶⁶ based on the factors included in the Kurtz and Clow (1998)⁶⁷ model grouping them into three other categories between internal (individual needs and wants, motivation, past experience, etc), external (competitive options, culture, etc) and risk (financial, functional, physical etc) factors, that influence the consumer's pre-purchase decision for the retirement planning as the complex service. Although the grouped impact factors were comprehensive, they did not include the section that has been extensively studied so far - the level of financial literacy.

The level of financial literacy was considered in Hershey et al (2010)⁶⁸ scientific theory of an interdisciplinary model of financial planning, which extended the Retirement Investment and Savings Model developed by Yoo and Grable⁶⁹ in 2000, which in turn referred to the consumer decision-making model developed by Engel et al (1990)⁷⁰ classification of factors. Hershey based this model on the interrelationship of three main aspects, looking at psychological dispositions in the context of an individual's social environment and taking into account existing economic

⁶⁶ Rickwood, C., White, L. (2009). Pre-purchase decision-making for a complex service: Retirement planning. *Journal of Services Marketing*, 23, 145-153.

⁶⁷ Kurtz, D.L., Clow, K.E. (1998), *Services Marketing*, John Wiley & Sons, New York, NY.

⁶⁸ Hershey, D.A., Henkens, K., Van Dalen, H.P. (2010). Aging and Financial Planning for Retirement: Interdisciplinary Influences Viewed through a Cross-Cultural Lens. *The International Journal of Aging and Human Development*, 70(1), 1-38.

⁶⁹ Joo, S.H., Grable, J.E. (2000). A retirement investment and savings decision model: Influencing factors and outcomes. *Consumer Interests Annual*, 46, 43-48.

⁷⁰ Engel, J.F., Blackwell, R.D., Miniard, P.W. (1990). *Consumer Behavior*, Hinsdale.

parameters and drivers. Within the framework of the research of psychological disposition, the following constructions were tested in the model: financial knowledge, clarity of the goal of retirement and future perspective as a personality trait. The analysis of social support focused on three types of influence: from friends and colleagues, spouse or partner and parents. Economic parameters determine the savings environment, which includes the existing pension system, state support mechanisms, pension plans and trust to them. The model was demonstrated on the basis of an empirical study of the pension planning habits of US and Dutch residents, focusing on age and country of origin. The results of testing this model in different countries ⁷¹ with different pension systems and economic growth level presents its viability and suitability for further research in other countries.

The proposed models suggested the division of aspects of an individual's cognitive nature and behaviour into different groups clearly demonstrating the scientific search for an optimal construct for the analysis of factors influencing FPR. The analysis of FPR efficiency models demonstrates the applicability of decision-making theories and also of different scientific approaches to the research process.

The special attention has to be paid to the contribution of American researcher Douglas Hershey who has made significant impact to the developing the model for evaluation of FPR. In his research, Professor Hershey has paid special attention to the influence of psychological factors on FPR, analysing their relationship with other aspects of savings, as well as developing psychosocial economic models. The task of Hershey's research models is to explain the motives of different people's FPR actions depending on the psycho-emotional aspects of the individual and taking into account the socio-economic parameters and context. One of the so-called temporal process models created by Hershey, Jacobs-Lawson, and Austin in 2013 ⁷² (further in text named – “Hershey model”), proposed a new conceptual model for understanding the determinants of effective retirement planning behaviour. The core principle of the model was based on the three dimensions determining the working quality established by Blumberg and Pringle in 1982⁷³:

- **Capacity** or the combination of individuals' knowledge, skills, intelligence, age, health, education and similar variables enabling them to effectively perform a task.

- **Willingness** or the range of mental and behavioural characteristics that determine the extent to which an individual is willing to undertake a given activity: motivation, job satisfaction,

⁷¹ França, L.H., Hershey, D.A. (2018). Financial preparation for retirement in Brazil: A cross-cultural test of the interdisciplinary financial planning model. *Journal of Cross-cultural Gerontology*, 33(1), 43-64.

⁷² Hershey, D.A., Jacobs-Lawson, J.M., Austin, J.T. (2013). *Effective financial planning for retirement*. In M. Wang (Ed.), (pp. 402–430). Oxford University Press.

⁷³ Blumberg, M., Pringle, C.D. (1982). The missing opportunity in organizational research: Some implications for a theory of work performance. *Academy of Management Review*, 7(4), 560-569.

personality type, attitudes, norms, values, status, task characteristics, work engagement, perceived role expectations, as well as self-esteem and other related concepts.

▪ **Opportunities** or external environment and its conditions for a given activity that constrain the performance of that particular task and that cannot be directly influenced by the activity performer: colleagues, environment and technical means.

By transferring this distribution to effective financial planning decisions, the *Hershey model* maintained the three dimensions, while the factors widely discussed in previous models and in the scientific literature were applied according to the new division, Figure 2. The proposed model is a comprehensive model including different aspects to explain FPR and examining the financial planning of pensions not only from the economic sphere, but also considering the dependence of savings decision-making processes on personal behaviour, skills, culture, and environmental factors.

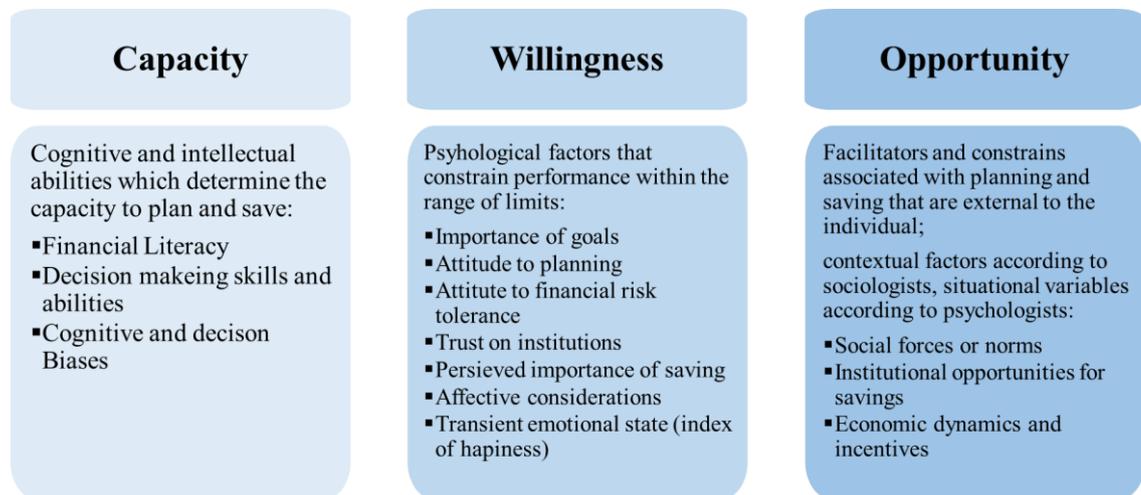


Figure 1.2 **Three dimensions and the factors of Hershey model**

Source: the author's construction based on literature review

Since the publication of this model in 2013, several studies are being performed that analyse the interaction of various factors between the three dimensions, as well as their effect on the effectiveness of FPR. Of particular note is the study conducted in Spain with the participation of Gabriela Topa, PhD in psychology. The main directions of the research provided are the viability tests of the developed model, as well as the inclusion of additional factors in the existing model (Annexe 1). It is useful to note that the construct of the model where "antecedents" as input variables and "consequences" as output variables were introduced by Topa et al. in 2009⁷⁴ in their study on retirement planning and decision making.

⁷⁴ Topa, G., Moriano, J.A., Depolo, M., Alcover, C.M., Morales, J.F. (2009). Antecedents and consequences of retirement planning and decision-making: A meta-analysis and model. *Journal of Vocational Behavior*, 75(1), 38-55.

In cases where these factors cannot be included in an existing model, scientists are proposing to extend the model by adding new dimensions. In 2018, Topa, Lunceford, and Boyatzis⁷⁵ provided an extensive literature review to identify missing factors in the existing model and offer an extension of their model. In the list of antecedents, the Ideal Self Dimension was added next to the Capacity, Willingness and Opportunity factors. Capacity dimension has been enriched with the Financial self-efficacy, Belief in systems and Metacognitions and worries factors. Willingness included Retirement planning involvement, Hope and Job satisfaction/ work engagement factors. Opportunity dimension extension was the largest one - Bridge employment opportunities, Family members financial support, social support in general, Aging stereotype, Organizational climate for aging. Next to *Hershey model* existing demographic moderators there were added Psychosocial moderators such as Procrastination, Need for cognitive closure, Fear of Death and Emotional intelligence. In this way, the dimensions offered by the model are supplemented by new scientific studies with aspects characterising a specific region or even era, which in turn enriches the model and allows it to be applied in various, very different studies.

The *Hershey model* as the proposed FPR assessment model has a practical application which further strengthens its position. All three dimensions described above - Capability, Willingness and Opportunity - are interlinked to create eight types of planners, which were developed based on the assessment of each of these three dimensions (Table 1.2). Therefore, a Competent Planner is a person with sufficient capacity who is willing to accumulate and a high level of opportunities to make savings decisions. As long as one of the components is not high enough or even low, savings decisions may not be made.

Table 1.2 **Types of planners and the level of FPR performance**

<i>Type of planner</i>	Capacity	Willingness	Opportunity	<i>The level of FPR performance</i>
<i>Competent planner</i>	High	High	High	<i>Very high</i>
<i>Frustrated planner</i>	High	High	Low	<i>High</i>
<i>Incompetent planner</i>	Low	High	High	<i>Moderate</i>
<i>Unmotivated planner</i>	High	Low	High	<i>Moderate</i>
<i>Restricted planner</i>	Low	High	Low	<i>Low-Moderate</i>
<i>Lost planner</i>	High	Low	Low	<i>Low-Moderate</i>
<i>Entitled planner</i>	Low	Low	High	<i>Low</i>
<i>Non - planner</i>	Low	Low	Low	<i>Very low</i>

Source: the author's construction based on Hershey model

⁷⁵ Topa, G., Lunceford, G., Boyatzis, R.E. (2018). Financial planning for retirement: a psychosocial perspective. *Frontiers in Psychology*, 8, 2338.

There are seven types of savers defined: *Restricted*, *Frustrated*, *Lost*, *Incompetent*, *Unmotivated*, *Entitled* and *Competent planner*. There is another type of individual that is not reflected here - *Non-planner*. These are people who do not have any of these dimensions. By measuring the level of each attribute for an individual, it is possible to classify him / her as a certain type of saver, so it provides an opportunity to create a strategy to improve the situation on both – micro and macro level. Analysing the impact of each of the dimensions on increasing the level of FPR (Table 1.2), it can be concluded that Capability and Willingness have a greater overall impact on positive outcomes. On the other hand, the strength of the Opportunities dimension can play a decisive role in the non-planner group as well as in the group with high scores on the other two dimensions.

For pension policy makers, the model can serve as a way to design the pension system according to the existing structure and characteristics of planners. Identifying the groups of planners, their size and the common characteristics within the groups would enable the design of pension plans that not only meet their needs, but also have the highest level of individual engagement. **The higher the level of Capability and Willingness aspects for planners, the less interference pension policy makers need to have in their planning decisions, the more individuals are expected to actively seek opportunities to save and the more able they are to make competent and well-informed FPR decisions.** On the other hand, planners with low levels Capability and Willingness aspects will not actively seek saving opportunities themselves, nor will they be able to make informed decisions, so pension policy makers need to ensure that such individuals are involved in the pension system, even without their active participation.

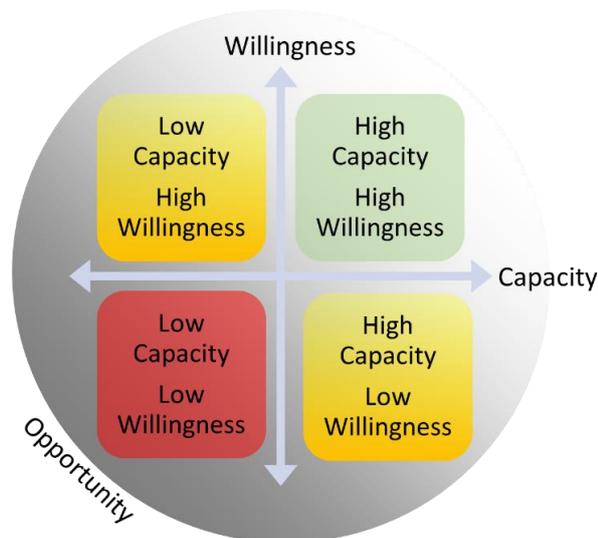


Figure 1. 3 **Matrix of planners according to Capability and Willingness dimension**
 Source: the author's construction based on Hershey model

Figure 1.3, constructed by the author, illustrates the interplay between the three dimensions, highlighting the role of pension policy makers in achieving higher FPR outcomes. It suggests that knowing how planners are distributed across their types, based on the Capabilities and Willingness dimensions, would allow for a more accurate, more responsive and hence more efficient design of the pension system.

In order for the factors influencing FPR to provide a comprehensive and reliable understanding of their impact on the behaviour of Latvian consumers, it is important to select them on the basis of evidence from scientific studies.

1.4. The factors influencing the FPR to be analysed in the model of research

1.4.1. Theoretical aspects of the “Capacities” concept

In developing the theoretical concept of this study, with reference to the evolution of decision-making theories discussed above, the very basis is the identification of the level of **financial literacy** as a capacity factor. According to the Capacities aspects, the strictly cognitive nature of financial literacy is the very foundation of people's ability to make financial decisions, making it the most important aspect for the Latvian context and situation. The other factors proposed by Hershey - decision making skills and abilities, as well as cognitive and decision biases - stem from people's level of financial literacy. Given the limitations of this study, it is important to focus on the primary aspect - Financial literacy.

The great attention of the researchers has been paid to the role of financial education enhancing the level of financial literacy since financial knowledge score is one parameter having the direct and most noticeable impact on financial literacy level. By analysing^{76 77} the historical origins of the concept of financial literacy at the beginning of its development financial literacy was associated with the existence of pure cognitive qualities, so it was based on the existence of financial knowledge. Researchers justified the vulnerability of consumers to financial market fluctuations by a lack of knowledge. As early as the beginning of the 21st century, highly developed countries with a strong history of private pension savings offered better education programs and, if necessary, financial services advisors as a solution to improve investment planning decisions. Despite the

⁷⁶ Mason, C., Wilson, R. (2000). Conceptualising financial literacy (Research Series Paper 2000: 7). London: Loughborough University, Business School. 2000-7.

⁷⁷ Stolper, O., Walter, A. (2017). Financial literacy, financial advice, and financial behavior. *Journal of Business Economics*, 87, 581-643.

training and counselling programs introduced⁷⁸, consumers' ability to manage their finances did not improve significantly, and opportunities to improve financial literacy were further explored.

Scholars have directed their attention towards assessing the financial literacy of the populace through a variety of methodologies. One prominent approach entail gauging the possession of a specific educational level, spanning from elementary schooling to doctoral degrees. In exploring the interconnections among factors influencing financial aptitude, researchers⁷⁹ underscore the impact of numeracy from early stages of development. As such, divergent perspectives emerge regarding the most efficacious indicators of educational accomplishment. Jappelli and Padula (2013)⁸⁰, in their study investigating the repercussions of investing in financial literacy on wealth, propose the utilization of the Organization for OECD's Program for International Student Assessment (PISA) data. Considering the constraints of PISA data with regard to the scope of countries, Grohmann, Klühs, and Menkhoff (2018)⁸¹ resort to employing data from EDSTAT⁸².

One of the most cited academics Lusardi and Mitchell among their numerous studies in financial literacy field in the research provided in 2006⁸³ proposed three questions to evaluate the level of financial literacy of the respondent. The questions were about the understanding the Inflation, Compound interest and Risk diversification meaning in savings. These questions have become known as *the Big Three*⁸⁴ and are widely used not only in the further research of their authors⁸⁵ but also in the national and international surveys all around the world – including US and Europe. Besides the list of questions had been expanded by adding the questions about the Time value of money, Money illusion and more sophisticated financial literacy questions like understanding of stock market, kinds of financial instruments, their prices, volatilities, and levels of returns⁸⁶.

Serious research to measure the level of financial literacy is the basis for identifying and comparing the correlations between the measured level of financial literacy and people ability to

⁷⁸ Jennings, M., Nelson, E., Boucher, A. (1997). Financial Literacy: the cost of ignorance. *RSA Journal*, 145(5477), 31-35.

⁷⁹ Grohmann, A., Klühs, T., Menkhoff, L. (2018). Does Financial Literacy Improve Financial Inclusion? Cross Country Evidence. *World Development*, 111(C), 84-96.

⁸⁰ Jappelli, T., Padula, M. (2013). Investment in Financial Literacy and Saving Decisions. *Journal of Banking & Finance*, 37(8), 2779-2792.

⁸¹ Grohmann, A., Klühs, T., Menkhoff, L. (2018). Does Financial Literacy Improve Financial Inclusion? Cross Country Evidence. *World Development*, 111(C), 84-96.

⁸² Angrist, N., Patrinos, H.A., Schlotter, M. (2013). An Expansion of a Global Data Set on Educational Quality, *World Bank Policy Research Paper No. 6536*.

⁸³ Lusardi, A., Mitchell, O.S. (2006). Financial Literacy and Planning: Implications for Retirement Well-Being. *Pension Research Council Working Paper 2006-01*.

⁸⁴ Stolper, O., Walter, A. (2017). Financial literacy, financial advice, and financial behavior. *Journal of Business Economics*, 87, 581-643.

⁸⁵ Lusardi, A., Mitchell, O.S. (2008). Planning and financial literacy: How do women fare? *American Economic Review*, 98(2), 413-417.

⁸⁶ Lusardi, A., Mitchell, O.S. (2007). Financial literacy and retirement planning: New evidence from the Rand American Life Panel. *Michigan Retirement Research Center Research Paper No. WP, 157*.

create effective plans for retirement. The aforementioned U.S. scientists Lusardi and Mitchell (2007)⁸⁷ investigated how financial literacy influences planning behaviour. The results of the study postulated that a higher level of financial literacy is a determining factor in influencing FPR decisions and thus determining people's well-being not only during working life but also in old age. It is proven that financially educated people plan their pensions better, and they are also more successful in shaping their well-being^{88 89 90 91}. The positive correlation between the ability to plan pension income and also to increase today's income with the level of financial literacy of individuals is found both between different population groups in one country⁹² and in transnational studies⁹³. The close link between financial literacy and accrued pension capital is explained by a better knowledge of the pension system as such, as well as criteria to be taken into account when planning pension contributions, choosing specific types of investments and managing optimal pension plans^{94 95 96}. However, the existence of an inverse effect between the level of financial literacy and the level of FPR cannot be ignored. In their study, Bucher-Koenen and Lusardi (2011)⁹⁷ demonstrated that people who participate in pension plans become more financially savvy and knowledgeable over time than those who do not. Furthermore, the research conducted by Klapper, Lusardi, and van Oudheusden (2015)⁹⁸ has illuminated the dual essence of financial literacy. On one facet, individuals possessing higher financial literacy demonstrate enhanced proficiency in utilizing financial services. Conversely, the presence of accessible financial services forms the bedrock for a heightened level of financial literacy.

⁸⁷ Lusardi, A., Mitchell, O.S. (2007). Baby boomer retirement security: The roles of planning, financial literacy, and housing wealth. *Journal of Monetary Economics*, 54, 205-224.

⁸⁸ Lusardi, A., Mitchell, O.S. (2007). Financial literacy and retirement preparedness: Evidence and implications for financial education. *Business economics*, 42(1), 35-44.

⁸⁹ Lusardi, A., Michaud, P.-C., Mitchell, O.S. (2017). Optimal financial literacy and wealth inequality. *Journal of Political Economy*, 125(2), 431-477.

⁹⁰ Barua, R., Koh, B., Mitchell, O.S. (2018). Does financial education enhance financial preparedness? Evidence from a natural experiment in Singapore. *Journal of Pension Economics & Finance*, 17(3), 254-277.

⁹¹ Nawaz, F. (2015). Microfinance, financial literacy and household power configuration in rural Bangladesh: an empirical study on some credit borrowers. *VOLUNTAS: International Journal of Voluntary and Non-profit Organizations*. 26, 1100-1121.

⁹² Song, C. (2020). Financial illiteracy and pension contributions: A field experiment on compound interest in China. *The Review of Financial Studies*, 33(2), 916-949.

⁹³ Lusardi, A., Mitchell, O.S. (2011). Financial Literacy around the World: An Overview. *Journal of Pension Economics and Finance*, 10(4), 497-508.

⁹⁴ Hastings, J., Mitchell, O.S., Chyn, E. (2011). Fees, framing, and financial literacy in the choice of pension manager. *Financial literacy: Implications for retirement security and the financial marketplace*, Eds. O. S. Mitchell and A. Lusardi. Oxford: Oxford University Press: 101-115.

⁹⁵ Chan, S., Stevens, A.H. (2008). What you don't know can't help you: Pension knowledge and retirement decision-making. *The Review of Economics and Statistics*, 90(2), 253-266.

⁹⁶ Clark, R., Morrill, M., Allen, S. (2012). The role of financial literacy in determining retirement plans. *Economic Inquiry*, 50(4), 851-866.

⁹⁷ Bucher-Koenen, T., Lusardi, A. (2011). Financial literacy and retirement planning in Germany. *Journal of Pension Economics & Finance*, 10(4), 565-584.

⁹⁸ Klapper, L., Lusardi, A., van Oudheusden, P. 2015. *Financial Literacy Around the World: Insights from the Standards and Poor's Ratings Service Global Financial Literacy Survey*. <https://www.finlit.mhfi.com>. [accessed 23.01.2022].

Giesecke and Yang focused their study ⁹⁹ on examining the assumption that low levels of financial literacy lead to a lack of understanding of the benefits of tax incentives, which in turn means failing to take full advantage of the financial incentives offered by the government. Researchers have paid special attention to the impact of the type of employment on the financial literacy and effective financial planning skills of the population. Studies in the Americas ¹⁰⁰, as in Finland ¹⁰¹ show that self-employed people have a higher level of financial literacy, which can be explained by the need to organize their own tax payments, thus taking responsibility not only for their current finances but also for their future ones.

Financial literacy has garnered extensive global research attention, particularly in the aftermath of the 2009 global financial crisis, with particular emphasis on the financial literacy of individuals across diverse geographical regions ^{102 103 104}, most notably within Europe. An intricate examination has also been dedicated to insurance literacy ¹⁰⁵ and pension savings as integral components of life insurers' offered solutions. Investigative efforts have probed into the potential influence of financial literacy on financial decision-making, financial behaviour ¹⁰⁶, and the diverse strategies pursued in European nations ¹⁰⁷, alongside the evaluation of the level of financial education ^{108 109} within these contexts.

Researchers hailing from Estonia ¹¹⁰ have undertaken a study to ascertain the interplay between subjective and objective financial knowledge, personal financial management behaviour, and socio-economic status vis-à-vis financial well-being. A notable outcome of this study highlights the imperative for financial service providers to integrate these findings into the design of their

⁹⁹ Giesecke, M., Yang, G. (2017). Are financial retirement incentives more effective if pension knowledge is high? *Journal of Pension Economics and Finance*, 17(3), 278-315.

¹⁰⁰ Joulfaian, D. (2018). Saving for retirement by the self-employed. *Journal of Pension Economics and Finance*, 17(3), 316-334.

¹⁰¹ Kalmi, P., Ruuskanen, O.-P. (2018). Financial literacy and retirement planning in Finland. *Journal of Pension Economics and Finance*, 17(3), 335–362.

¹⁰² Magistro, B. (2017). Financial literacy and support for free trade in the UK. *World Economy*, 43(8), 2050-2069.

¹⁰³ Romanova, I., Kudinska, M. (2017). *Banking and Fintech: a Challenge or Opportunity?* In: S. Grimma, S. Bezzina, I. Romanova & R. Rupeika-Apoga (Ed.), *Contemporary Issues in Finance: Current Challenges from Across Europe*, Book Series: Contemporary Studies in Economic and Financial Analysis, Volume: 98, 21-35.

¹⁰⁴ Angelini, V., Bertoni, M., Stella, L., Weiss, C.T. (2019). The ant or the grasshopper? The long-term consequences of Unilateral Divorce Laws on savings of European households. *European Economic Review*, 119, 97-113.

¹⁰⁵ Mare, C., Dragos, S.L., Dragota, I.-M. Dragos, C.M. (2019). Insurance Literacy and Spatial Diffusion in the Life Insurance Market: A Subnational Approach in Romania. *Eastern European Economics*, 57(5), 375-396.

¹⁰⁶ Nicolini, G., Haupt, M. (2019). The Assessment of Financial Literacy: New Evidence from Europe. *International Journal of Financial Studies*, 7(3), 54.

¹⁰⁷ Nicolini, G. (2019). *Financial Literacy in Europe Assessment Methodologies and Evidence from European Countries*. Book Series: Routledge International Studies in Money and Banking, Volume: 100, 269 p.

¹⁰⁸ Xiao, J.J., Porto, N. (2017). Financial education and financial satisfaction: Financial literacy, behavior, and capability as mediators. *International Journal of Bank Marketing*, 35(5), 805-817.

¹⁰⁹ Amari, M., Salhi, B., Jarboui, A. (2020). Evaluating the effects of sociodemographic characteristics and financial education on saving behavior. *International Journal of Sociology and Social Policy*, 40(11/12), 1423-1438.

¹¹⁰ Riitsalu, L., Murakas, R. (2019). Subjective financial knowledge, prudent behaviour and income - the predictors of financial well-being in Estonia. *International Journal of Bank Marketing*, 37(4), 934-950.

offerings and communication strategies. The outcomes of their inquiry suggest that discernible disparities in financial knowledge, attitudes, and behaviour exist between young women and men¹¹¹. This discernment underscores the necessity to factor this dimension into the orchestration of marketing endeavors and the formulation of educational initiatives geared towards augmenting the financial literacy of the populace.

In the 21st century, even more so after the pandemic, most day-to-day financial transactions are handled remotely - using internet access and self-service platforms^{112 113}. FPR are also made on the basis of information processing, analysis and self-selection. Thus, not only do today's investors need a good understanding of financial issues, but digital skills have also become crucial. The digital age is putting pressure on business units to intensify competition and create new opportunities for governments, but it also provides additional opportunities to address and deliver services more effectively.

In the area of FPR, digitally savvy consumers are not only keen on using digital planning tools, they are also developing their financial and long-term financial planning skills in this way¹¹⁴. Much attention is being paid by researchers to elucidating the positive correlation between the overall level of financial literacy and digital financial literacy based on readiness to use digital financial services^{115 116 117}. These studies demonstrate the role of digital finance literacy in promoting financial inclusion, which is the basis for more effective FPR process.

At the same time, the digital financial services offered by financial services providers are becoming the basis for consumers to acquire digital skills and take advantage of the opportunities offered. This effect is most evident in the increase in non-cash transactions, which not only allow citizens to access their bank statements remotely, make daily payments and, more importantly, apply for loans and make short-term and long-term savings^{118 119 120}. Greater access to financial

¹¹¹ Okicic, J., Kakes, D. (2019). *Insights into Gender Differences in Financial Literacy of Youth*. 8th International Scientific Symposium Economy of Eastern Croatia-Vision and Growth. Book Series: Medunarodni Znanstveni Simpozij Gospodarstvo Istocne Hrvatske-Jucer Danas Sutra, 474-484.

¹¹² Çopur, Z., Doğan, N. (2022). Individuals' Financial Health During the Covid-19 Pandemic. *Journal of Management and Economic Studies*, 4(2), 118-134.

¹¹³ Lyons, A. C., Kass-Hanna, J., Fava, A. (2022). Fintech development and savings, borrowing, and remittances: A comparative study of emerging economies. *Emerging Markets Review*, 51, 100842.

¹¹⁴ McLean-McKay, M., Leigh-Mossley, J. (2017). *Initiating Budgeting Behaviour among Non-budgeters: A Financial Literacy Pilot Using Mobile Technology*. Financial Consumer Agency of Canada.

¹¹⁵ Königsheim, C., Lukas, M., Nöth, M. (2017). Financial knowledge, risk preferences, and the demand for digital financial services. *Schmalenbach Business Review*, 18(4), 343–375.

¹¹⁶ Morgan, P., Long, T. (2019). *Determinants and Impacts of Financial Literacy in the Lao PDR* (No. 928). Asian Development Bank Institute.

¹¹⁷ Shen, Y., Hu, W., Hueng, C.J. (2018). The effects of financial literacy, digital financial product usage and internet usage on financial inclusion in China. In *MATEC Web of Conferences* (Vol. 228, p. 05012). EDP Sciences.

¹¹⁸ Apiors, E.K., Suzuki, A. (2018). Mobile money, individuals' payments, remittances, and investments: Evidence from the Ashanti region, Ghana. *Sustainability*, 10(5), 1409.

¹¹⁹ Lyons, A.C., Kass-Hanna, J. (2021). Financial inclusion, financial literacy and economically vulnerable populations in the Middle East and North Africa. *Emerging Markets Finance and Trade*, 57(9), 266-2738.

services and higher coverage is the bases for enhancing a more meaningful user experience. It is the experience of using financial services that is also one of the ways to increase financial literacy, as it corresponds to the "Learning by doing" approach¹²¹ to acquiring knowledge.

Therefore, the linkage can be created between financial literacy, digital literacy and digital financial literacy.

Lyons and Kass-Hanna (2021)¹²² in their methodological overview offered the five-dimensional framework by paying attention to “(1) Basic knowledge and skills, (2) Awareness (the knowing about), (3) Practical know-how (the knowing how), (4) Decision-making (attitudes & behaviours) and (5) Self-protection aspects.” According to the theoretical construct, digital financial literacy is essential for taking sound financial decisions that represent digital attitudes and practices when using digital financial services.

1.4.2. Theoretical aspects of “Willingness” concept

In order to achieve the goal of this study and taking into account its limitations, two psychological and behavioural aspects to be analysed have been selected, which determine the savings of investors for old age - **Importance of goals**.

The financial planning process is possible if there is an identified problem situation that needs to be resolved, so there is a known goal to be achieved. Furthermore, whether the objectives set are clear and specific, and therefore measurable, makes it possible to assess what has been achieved so far and to understand what the distance is left¹²³. Setting measurable goals helps to plan actions and guide the behaviours and efforts that need to be invested. Researchers justify linking clear goal setting to higher confidence in the adequacy of pensions in retirement, resulting in a higher level of financial literacy. A positive correlation has been found in many studies conducted in various countries around the world, such as New Zealand¹²⁴, the Americas¹²⁵ and Spain¹²⁶. Research

¹²⁰ Ouma, S. A., Odongo, T. M., Were, M. (2017). Mobile financial services and financial inclusion: Is it a boon for savings mobilization? *Review of Development Finance*, 7(1), 29–35.

¹²¹ Frijns, B., Gilbert, A., Tourani-Rad, A. (2014). Learning by doing: The role of financial experience in financial literacy. *Journal of Public Policy*, 34(1), 123–154.

¹²² Lyons, A.C., Kass-Hanna, J. (2021). A methodological overview to defining and measuring “digital” financial literacy. *Financial Planning Review*, 4(2), e1113.

¹²³ Gollwitzer, P.M. (1993). Goal achievement: The role of intentions. *European Review of Social Psychology*, 4(1), 141-185.

¹²⁴ Noone, J.H., Stephens, C., Alpass, F. (2010). The process of Retirement Planning Scale (PRePS): Development and validation. *Psychological Assessment*, 22(3), 520–531.

¹²⁵ Stawski, R.S., Hershey, D.A., Jacobs-Lawson, J.M. (2007). Goal clarity and financial planning activities as determinants of retirement savings contributions. *The International Journal of Aging and Human Development*, 64(1), 13-32.

¹²⁶ Topa, G., Herrador-Alcaide, T. (2016). Procrastination and financial planning for retirement: A moderated mediation analysis. *Journal of Neuroscience, Psychology, and Economics*, 9(3-4), 169.

shows that the clarity of the retirement goal is an important predictor of planning practice, but planning in turn predicts savings for retirement trends.

Although general goal-oriented human behaviour leads to a faster outcome, surveys conducted in the framework of financial planning behavioural research ¹²⁷ ask specific questions that shed light on this topic such as “Have you set clear goals for gaining information about retirement” or “Have you set specific goals for how much will need to be saved for retirement”. In the study of psychology, scientists ¹²⁸ have also analysed in depth the goals in various aspects from the point of view of human perception and concluded that it is people's perception of the impact of not achieving a sufficient level of well-being in retirement that can motivate them to make greater efforts. A well-known problem in FPR is the long-term nature of this decision, as people are unable to objectively compare potential future benefits as an alternative to immediate spending due to "short-sightedness"¹²⁹. The offer of psychologists ¹³⁰ is not to compare a person's current and future financial benefits, but the present and future themselves. The justification is presented for a person's greater ability to allocate financial resources to himself or herself to those people who will be able to identify with themselves in the future – so called “Future self”, that is, to think of themselves in the future as themselves rather than as another person.

In recent academic investigations ¹³¹, a comparative analysis has been conducted concerning individuals' subjective and objective evaluations of financial literacy, with an inquiry into whether the observed variances correlate with distinct behaviours in the realm of FPR. Individuals exhibiting lower levels of self-assuredness seldom assert that they have devised a retirement plan. Nonetheless, contrary to those who display excessive confidence, they exhibit a notably heightened interest in acquiring additional information regarding FPR. This tendency suggests the possibility that under-confident individuals might possess a more robust degree of preparedness for retirement relative to their self-assured counterparts. Furthermore, the ramifications of both perceived and actual financial literacy on financial conduct have been explored ¹³², uncovering that an amalgamated metric seems to yield a more comprehensive grasp of the phenomenon at hand.

¹²⁷ Stawski, R.S., Hershey, D.A., Jacobs-Lawson, J.M. (2007). Goal clarity and financial planning activities as determinants of retirement savings contributions. *The International Journal of Aging and Human Development*, 64(1), 13-32.

¹²⁸ Tsotsoros, C.E., Mooney, A., Earl, J. K., Hershey, D.A. (2021). Retirees' perceptions of goal expectancy in five resource domains. *Current Psychology*, 1-15.

¹²⁹ Thaler, R.H., Tversky, A., Kahneman, D., Schwartz, A. (1997). The effect of myopia and loss aversion on risk taking: An experimental test. *The Quarterly Journal of Economics*, 112(2), 647-661.

¹³⁰ Hershfield, H.E., Goldstein, D.G., Sharpe, W.F., Fox, J., Yeykelis, L., Carstensen, L.L., Bailenson, J.N. (2011). Increasing saving behavior through age-progressed renderings of the future self. *Journal of marketing Research*, 48(SPL), S23-S37.

¹³¹ Angrisani, M., Casanova, M. (2021). What you think you know can hurt you: under/over confidence in financial knowledge and preparedness for retirement. *Journal of Pension Economics & Finance*, 20(4), 516-531.

¹³² Allgood, S., Walstad, W.B. (2016). The effects of perceived and actual financial literacy on financial behaviors. *Economic Inquiry*, 54, 675–697.

The aspirations of pension policy makers to engage the populace in pension accumulation endeavours while transferring investment risk to individual responsibility present inherent challenges. Formulating enduring decisions, notably concerning the desired quantum of pension and the present-day allocations requisite to achieve it, proves challenging for individuals, particularly among the younger demographic, due to the long-term nature of such determinations¹³³. Efforts are being directed¹³⁴ towards enhancing the level of financial literacy, aiming to sway individuals towards embracing voluntary savings. Moreover, it is imperative to recognize that while the dissemination of widespread information has the potential to bolster financial literacy, behavioural barriers¹³⁵ persist. These barriers, encompassing myopia, scepticism, and inertia, impede the contemporaneous accumulation of assets.

People's tendency to place more emphasis on costs that are closer to the present when considering trade-offs between two points in the future, or so-called "present bias"¹³⁶, explains the behavioural science concept "Time or temporal discounting"¹³⁷ as the differences in the relative assessment of pay overtime. Recent research by American economists¹³⁸ suggests that the impact of exponential-growth bias and present bias biases on FPR decisions is significant and directly affects the size of future pensions. Empirical evidence¹³⁹ suggests that exponential-growth bias cause individuals to tend to over-borrow and under-accumulate. A study by Levy and Tasoff in a 2016¹⁴⁰ shows how exponential-growth bias can lead to insufficient savings in the retirement lifecycle consumption model. The impact of present bias on human behaviour in life cycle consumption patterns also suggests lower long-term savings¹⁴¹. In addition, people with short-term thinking and planning may lack the motivation to take up all the activities of long-term pension savings¹⁴² and this leads to lower pension levels. According to the academy, these are aspects of personality that directly affect the results of FPR.

¹³³ Kotecha, M., Kinsella, R., Arthur, S. (2010). *Research on predictions of income in retirement*. Department for Work and Pensions.

¹³⁴ Strauss, K. (2008). Re-engaging with rationality in economic geography: behavioral approaches and the importance of context in decision-making. *Journal of Economic Geography*, 8(2), 137–156.

¹³⁵ Wicks, R., Horack, S. (2009). *Incentives to Save for Retirement: Understanding, Perceptions and Behaviour; a Literature Review*. Department for Work and Pensions.

¹³⁶ O'Donoghue, T., Rabin, M. (1999). Doing it now or later. *American Economic Review*, 89(1), 103-124.

¹³⁷ Frederick, S., Loewenstein, G., O'Donoghue, T. (2002). Time discounting and time preference: A critical review. *Journal of Economic Literature*, 40, 351-401.

¹³⁸ Goda, G.S., Levy, M., Manchester, C.F., Sojourner, A., Tasoff, J. (2019). Predicting retirement savings using survey measures of exponential-growth bias and present bias. *Economic Inquiry*, 57(3), 1636-1658.

¹³⁹ Stango, V., Zinman, J. (2009). Exponential growth bias and household finance. *The Journal of Finance*, 64(6), 2807-2849.

¹⁴⁰ Levy, M., Tasoff, J. (2016). Exponential-growth bias and lifecycle consumption. *Journal of the European Economic Association*, 14(3), 545-583.

¹⁴¹ Zhang, L. (2013). Saving and retirement behavior under quasi-hyperbolic discounting. *Journal of Economics*, 109(1), 57-71.

¹⁴² O'Donoghue, T., Rabin, M. (1999). Doing it now or later. *American Economic Review*, 89(1), 103-124.

There is one more critical factor for the people willingness to take care of their income after retirement - **trust in savings institutions**. Although the level of confidence in financial institutions is a relatively local indicator, there are also trends in the global financial market, as a result of which people around the world may lose confidence in the institutions of the pension system as a result of a common financial crisis. A sufficient level of trust plays an important role, as it can serve as a substitute for incomplete financial knowledge - Rings (2005)¹⁴³ has identified a link between the ability to trust the financial sector and a person's sense of risk management despite a low level of knowledge. Aside from the need for professional governance of pension institutions, it is also important to develop a communication strategy that builds people's confidence and allows them to make long-term financial decisions.

The studies reviewed do not indicate a correlation between financial literacy and the level of trust in the financial system. However, the impact of trust on other aspects have been recognised. Italian researchers Ricci and Caratell¹⁴⁴ (2017) based their study on the Bank of Italy's 2010 survey on household income and wealth, using the social capital method tested by Guiso et. al. in 2004¹⁴⁵ and found the positive correlation between trust on financial institutions and ultimate pension savings level of the population.

1.4.3. The role of demographics in financial planning for retirement

Information on the ability and willingness to save for retirement and to make FPR decisions for different segments of the population can be critical for the design of an appropriate pension system. The basic demographic indicator - **the age** of an individual is one of the aspects of the theoretical construct proposed by Hershey, widely discussed in this study. It is understandable and repeatedly shown in the academic literature that general levels of financial literacy vary across age groups. However, Hershey refers to the 'status quo bias' put forward by Kahneman, Knetsch and Thaler in 1991¹⁴⁶, which governs people's constant behaviour on certain issues as long as no change in their attitudes and behaviour is initiated. This, in turn, clearly demonstrates the impact of external incentives on people's behaviour at different ages, including in terms of FPR. Another important element is the well-known life-cycle savings model¹⁴⁷, which involves reducing today's income by investing part of it in favour of future or retirement income.

¹⁴³ Ring, P. J. (2005) Trust in UK pensions policy: a different approach? *Policy and Politics*, 33, 55–74.

¹⁴⁴ Ricci, O., Caretelli, M. (2017), Financial literacy, trust and retirement planning *Journal of Pension Economics and Finance*, 16(1), 43-64.

¹⁴⁵ Guiso, L., Sapienza, P., Zingales, L. (2004). The role of social capital in financial development. *American Economic Review*, 94, 526–556.

¹⁴⁶ Kahneman, D., Knetsch, J.L., Thaler, R.H. (1991). Anomalies: The endowment effect, loss aversion, and status quo bias. *Journal of Economic Perspectives*, 5(1), 193-206.

¹⁴⁷ Gourinchas, P.-O. and Parker, J.A. (2002), Consumption Over the Life Cycle. *Econometrica*, 70, 47-89.

Drawing upon insights gleaned from the S&P Global FinLit Survey, scholars have discerned prevalent trends ¹⁴⁸ characterized by disparities based on gender, age, and educational attainment. Financial literacy levels, thus influencing effective FPR, exhibit fluctuations contingent upon the income classification of economies as per the World Bank's ¹⁴⁹ categorization. Notably, an unexpected revelation has come to the fore - financial literacy rates can be higher in low-income nations compared to their middle-income counterparts. This phenomenon could be attributed to the distinctive circumstances of low-income countries, particularly those ¹⁵⁰ recently grappling with hyperinflation and the lingering memory thereof. Simultaneously, these nations grapple with a dearth of knowledge regarding risk diversification. Survey data also underscores that the level of financial literacy is notably lower among individuals under 36 years of age and those surpassing 65 years. Considerable disparities in financial literacy are apparent, notably lower for women across all categories, including highly developed countries such as the USA, Germany, and Switzerland.

Research conducted by Garg and Singh ¹⁵¹ underscores a notable concern: the prevalence of low financial literacy levels among youth worldwide. This observation has sparked apprehension within scholarly circles. Additionally, the study highlights the interplay of diverse socio-economic and demographic factors, encompassing **age, gender, income, marital status, and educational achievement**, in shaping the financial literacy levels of young individuals. Moreover, an intricate linkage has been identified between financial knowledge, financial attitudes, and financial behaviours among this demographic.

1.4.4. The conceptual model of factors

In order to assess the factors influencing decision-making in financial planning for retirement and to determine the optimal pension policy design for the Latvian situation, the *Hershey model* will be used as a basis. The research process involves a comprehensive survey assessment of the distribution of the Latvian population by types of planners, taking into account two of dimensions – capacities and willingness. In order to assess the distribution of the Latvian population according to the types of planners proposed in the Hershey model, the author uses variables that confirm the actions taken by the population in the pension systems in the use of opportunities. These include the existence of pension savings in pension funds as well as active

¹⁴⁸ Lusardi, A., Mitchell, O.S. (2014). The Economic Importance of Financial Literacy: Theory and Evidence. *Journal of Economic Literature*, 52(1), 5–44.

¹⁴⁹ Grohmann, A., Klühs, T., Menkhoff, L. (2018). Does Financial Literacy Improve Financial Inclusion? Cross Country Evidence. *World Development*, 111(C), 84-96

¹⁵⁰ Lusardi, A., Mitchell, O.S. (2014). The Economic Importance of Financial Literacy: Theory and Evidence †. *Journal of Economic Literature*, 52(1), 5–44.

¹⁵¹ Garg, N., Singh, S. (2018). Financial literacy among youth. *International Journal of Social Economics*, 45(1), 173-186.

involvement in the choice of pension plans. The schematic representation of the model in Figure 1.4 demonstrates the process of the study.

Having established the distribution of the Latvian population by type of planners according to Capacity and Willingness to save, as well as active involvement in FPR the next part of the research is to assess each segment of the population according to their demography factors such as age, gender, education, employment, and native language. It is expected that a detailed insight into the demographic structure of the types of planners will provide important answers on which segments of the Latvian population are the most vulnerable and therefore - which pension policy makers should address first, and which methods would be most effective.

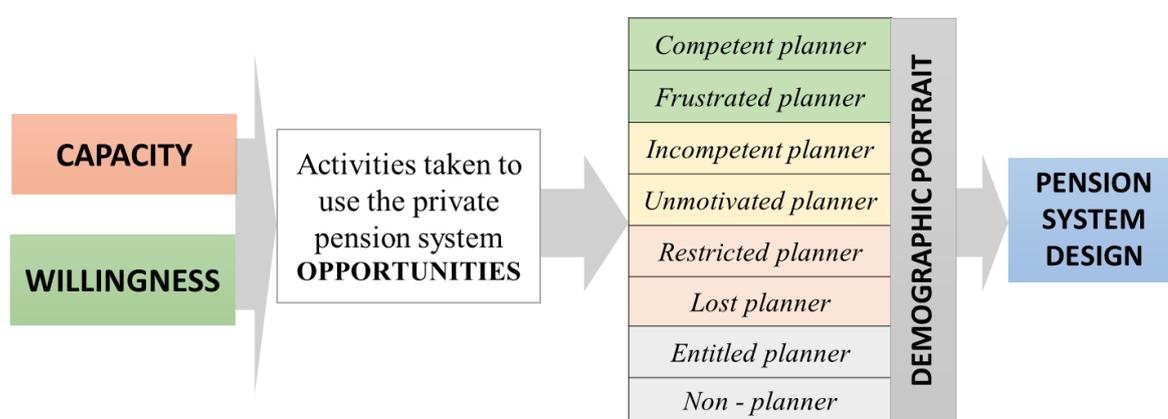


Figure 1.4 **The model of the research**

Source: the author's construction based on Hershey model and literature review

It is expected that a detailed insight into the demographic structure of the types of planners will provide important answers on which segments of the Latvian population are the most vulnerable and therefore - which pension policy makers should address first, and which methods would be most effective. The characteristics of each type of planner will provide a basis for drawing conclusions on which segments of the population are less or not reached by the current design of the pension system and the opportunities it offers. Consequently, this will enable recommendations to be made for improving the pension system to increase the participation of the Latvian population in pension savings and in FPR decision-making.

To achieve the objective of this study - **to investigate the factors of retirement financial planning and their impact on the behaviour of the Latvian population when making decisions on private pension savings**, the elements of the Hershey model will be tested as well as their interaction in the eco-environment of the Latvian pension system, the objectives of the further research are:

- 1) to assess the main influencing factors in the Capacity, Willingness and activities taken to use the pension system Opportunities dimensions of individuals' FPR participation based on an interaction effect analysis,
- 2) to provide a breakdown of the Latvian population by types of planners,
- 3) identify a demographic portrait of each group of planners, paying particular attention to level of income factor,

and finally make recommendations for the design of the pension system based on the findings of the research.

The next chapter of this study will provide an analysis of FPR Opportunities to assess the design of the Latvian pension system, citizens' engagement in FPR, as well as best practices offered by global pension policies that meet the needs of specific types of planners.

Chapter 2. ANALYSIS OF OPPORTUNITIES ASPECTS FOR FINANCIAL PLANNING FOR RETIREMENT IN LATVIA

In pursuing the objective of this study, it is essential to assess the enabling and constraining aspects of planning and saving that are beyond the control of the individual and that shape aspects of FPR decision-making options. The in-depth analysis of the design of the Latvian pension system presented in this chapter will provide a comprehensive insight into the third component of the Hershey model - Opportunities. It will not only characterise the existing system and the solutions it offers, but also compare it with other Baltic countries, based on similar pension systems but differently tailored approaches. The chapter will conclude by summarising the FPR decisions in the Latvian pension system in relation to the nature of their implementation, assessing the level of voluntariness in each of them. In turn, this will allow to establish the level of citizen involvement in FPR decision-making as determined by the design of the Latvian pension system, linking it to the Hershey model and the types of FPR it identifies.

For a more comprehensive discussion, it is valuable to identify the points of contact between the Latvian population and the design elements of the pension system at which the population would need to make any decisions in the area of FPR. The author proposes to divide the pension saving process into stages: (1) making contributions, (2) raising funds and (3) disbursing the accumulated funds. In each of these stages, it is possible to identify the activities (Figure 2.1) to be performed by the investor within the existing system.

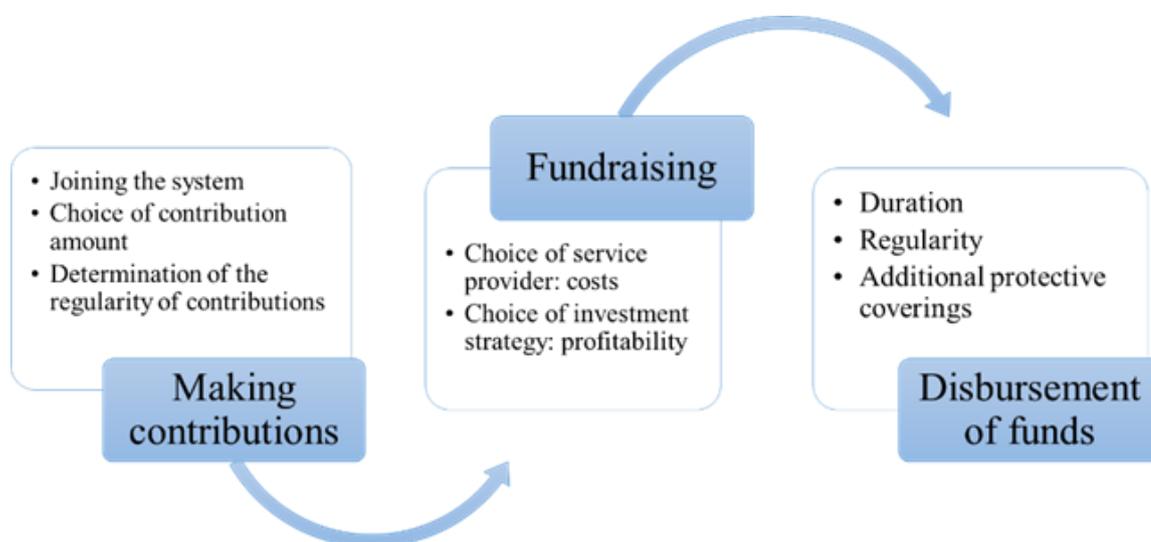


Figure 2.1 **The pension accumulation process and its components**

Source: the author's construction based on literature review published by Dundure, Sloka (2022)¹⁵²

¹⁵² Dundure E., Sloka B. (2022). Choice architecture as a basis for pension savings decisions, The Proceedings of 14th international scientific conference "New Challenges in Economic and Business Development – 2022: Responsible Growth", Organised by the Faculty of Business, Management and Economics, University of Latvia May 13, 2022 Riga, pp. 102-106.

Figure 2.1 offers a comprehensive depiction of the sequential stages within the realm of pension savings, coupled with the corresponding actions to be undertaken by investors, which inherently influence the ultimate pension income within each stage. Each of these actions signifies a deliberation to be executed by pension savers or investors, thus collectively constituting the overarching decision-making framework within the domain of financial retirement planning.

The established decision-making framework will serve as a foundational structure for assessing the Latvian pension system through the lens of decisions and selections made by investors. Recognizing that participants are engaged in decision-making not solely concerning the 3rd pension pillar, but also extending to the selection of investment strategies within the 2nd pension pillar, subsequent analyses will encompass the engagement of the populace in decision-making across both pillars.

Before turning to further analysis of the pension system, it is necessary to clarify the rationale for it, which both justifies this study and explains the motivation of the Latvian population to be interested in saving for retirement and to pursue this option.

2.1. Pension adequacy level

Faced with ups and downs in the development of the financial market, as well as searching for the optimal balance point of the social budget, the decisions made by pension policymakers affect the level of well-being of each working person after several decades. The impact of these decisions is measurable and comparable with the corresponding indicator of other countries.

Pension adequacy has been subject to examination in numerous countries worldwide through the comprehensive analyses conducted by organizations such as the OECD and the World Bank, which provide statistical and analytical assessments. To depict the retirement income standards across countries, a key metric employed is the replacement rate. The replacement rate serves as an indicator characterizing the level of post-retirement income, expressed as a percentage of an individual's earnings at the commencement of their retirement phase. Essentially, replacement rates gauge the extent to which pension systems enable typical workers to sustain their prior quality of life when transitioning from the workforce to retirement.

According to Figure 2.2, on 2020 gross pension replacement rate of Latvia (43.4%) was below the OECD average (51.8%)¹⁵³. When comparing all three Baltic countries, it becomes evident that Latvia's gross replacement rate notably exceeded that of Lithuania, which stood at 19.7%, and Estonia, with a rate of 27.9%. The drop of the indicators of the neighbouring countries from 47.1% in year 2018 to 27.9% in 2020 for Estonia and for almost 4 % pts for Lithuania reflects

¹⁵³ OECD (2021). *Pensions at a Glance 2021: OECD and G20 Indicators*. Organisation for Economic Co-operation and Development OECD.

the quantitative impact of the semi-voluntary nature of the contributions into 2nd Pension pillar funds introduced with recent reforms.

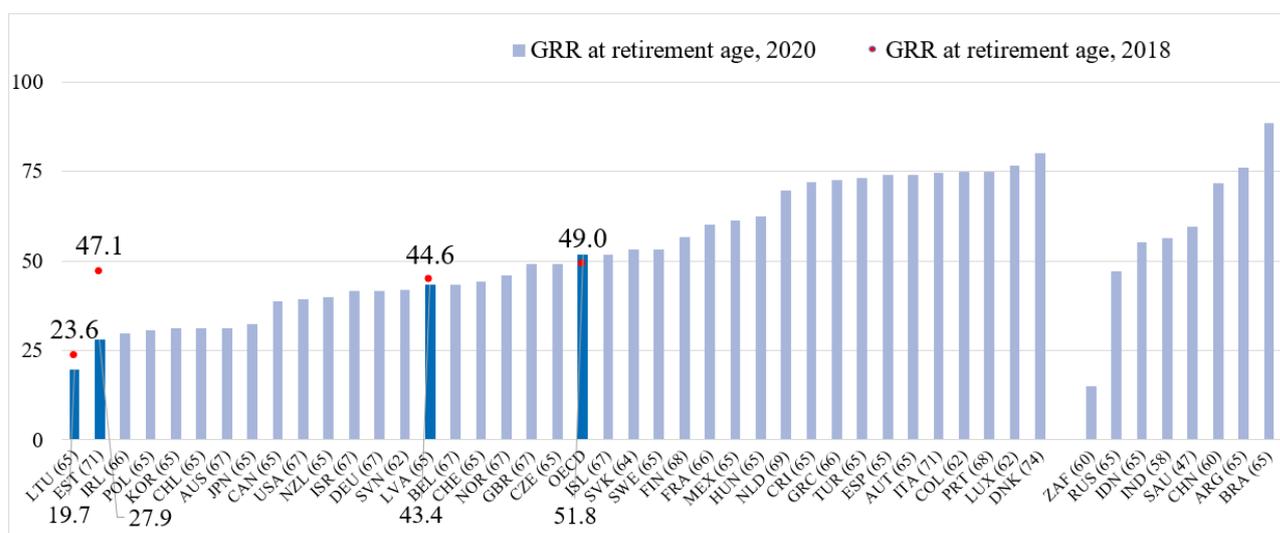


Figure 2.2 **Gross pension replacement rates 2020: Average earners at retirement age**

Source: the author's construction based on OECD (2021) and OECD (2022)¹⁵⁴

Nonetheless, it's important to note that Latvia is also experiencing a decline in its gross pension replacement rate, a trend highlighted by calculations provided by economists at the Bank of Latvia¹⁵⁵. These calculations raise concerns about the likelihood of further reductions in replacement rates, which could be attributed to adverse demographic trends, an increasing duration of pensioners' post-retirement lifespan, and the low rate of return on pension funds. For the year 2080, Kalniņš and Tkačevs have projected a range of replacement rates in Latvia, depending on various scenarios. In the most pessimistic scenario, the replacement rate is anticipated to be 19.7%, whereas in the most optimistic scenario, it is projected to reach 45%. These projections consider both the 1st and 2nd pension pillars in Latvia.

Meanwhile the situation in OECD countries in average is improving – the gross pension replacement rate has been increased from 49% in 2018 to almost 52% in 2020. This indicates that, on average in OECD countries, mandatory pension savings remain important and on an increasing trend, although they only cover around 70% of the desired pension amount.

The primary mission of the 3rd pension pillar is to provide higher-income individuals with an opportunity not only to bridge the gap until they reach the benchmark country replacement rates but also to allow society to accumulate additional funds for retirement, ensuring that living

¹⁵⁴ OECD (2022). Gross pension replacement rates (indicator). doi: 10.1787/3d1afeb1-en (Accessed on 07 August 2022)

¹⁵⁵ Kalniņš, G., Tkačevs, O. (2019). Cik zaļi dzīvosim vecumdienās? Pensiju sistēmas ilgtspējas šķietamība. [Online] Available at <https://www.makroekonomika.lv/node/4227> [Accessed 16.10.2019].

standards remain at an adequate level. Both academia and pension policy makers concur that a desirable level of the Gross pension replacement rate should fall within the range of 70-80%.

As depicted in Figure 2.3, there are countries whose pension system strategies incorporate a substantial emphasis on voluntary retirement savings. These nations include the United States, Mexico, Canada, New Zealand, Ireland, Israel, Germany, Japan, Estonia, Belgium, and Lithuania.

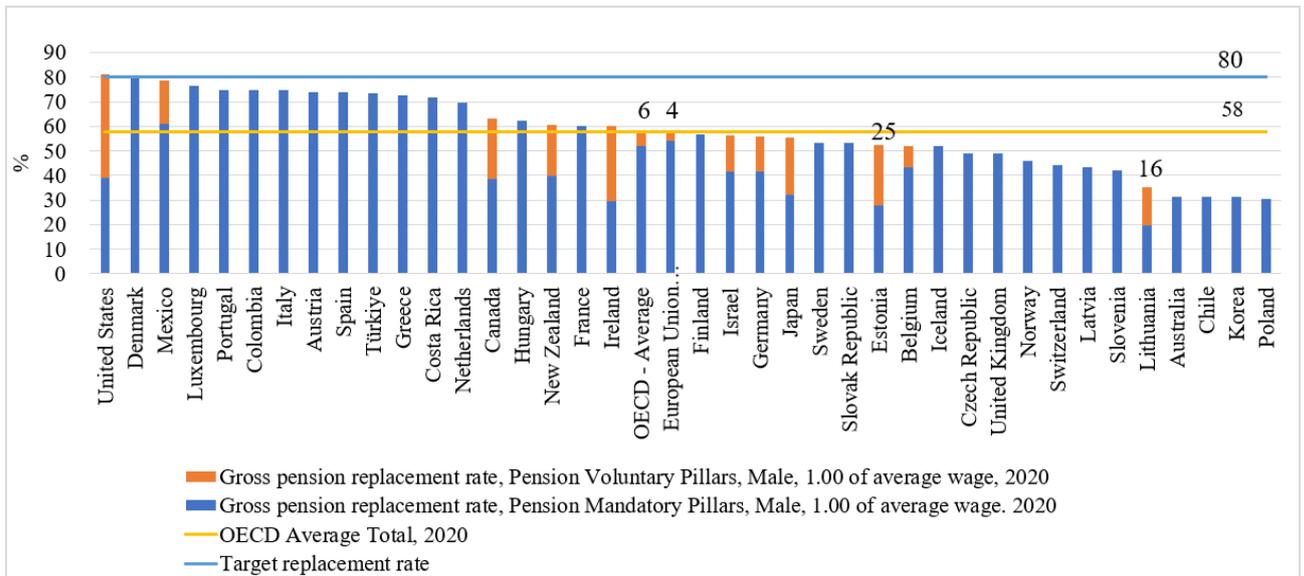


Figure 2.3 Gross pension replacement rate in OECD countries, 2020

Source: construction of the author based on OECD (2022)¹⁵⁶

However, in the year 2020, the average contribution from the 3rd pillar to the replacement rate in the European Union amounted to just 4%, which stands in contrast to OECD countries where this contribution was relatively larger, albeit still modest, at 6%. In the replacement rate calculations, the nationally regulated voluntary pension schemes with the strong motivation systems impact on the involvement in the pensions savings are included. This is demonstrably proven by the fact that in Lithuania and Estonia a significant part (25% and 16% respectively) of the expected pension is formed from voluntary contributions to pension funds, while in Latvia the expected pension is formed only from mandatory contributions, which cannot be true, because there are also savings of the 3rd pension pillar. It can be concluded that the pension capital voluntarily accumulated in private pension funds is not included in the regular replacement rate calculations, so that the presentation of an indicator calculated using this method does not provide comprehensive information on pension adequacy. It's worth noting that while the ultimate gross pension replacement rate should ideally encompass three components: (1) mandatory contributions

¹⁵⁶ OECD (2022). *Pensions at a Glance*, OECD Pensions Statistics (database), <https://doi.org/10.1787/data-00625-en> [accessed 07.08.2022].

derived from the state's compulsory unfunded pension scheme, (2) contributions from the state-funded or accumulated pension scheme managed by pension funds, and (3) compulsory contribution-based private pension scheme managed by pension funds, the replacement rates calculated by the OECD only considered the first two mandatory components.

Simultaneously, the gloomy prognostications regarding the strain on social budgets due to increased life expectancy and a diminishing proportion of the working-age population have sparked deliberations within academia and government institutions about potential scenarios. One proposed solution is to encourage contributions into the third pension pillar, represented by private pension funds. Additionally, according to Robert Holzmann, an expert from the World Bank¹⁵⁷, countries with lower replacement rates for state-guaranteed pensions tend to accumulate more funds in private pension schemes.

Furthermore, academic researchers such as Orazio P. Attanasio and Agar Brugiavini, in their study¹⁵⁸ on the substitutability between private and pension wealth in Italy following pension reforms, have found evidence of a heightened level of private savings in situations where pension wealth is reduced. The primary objective of mandatory pension system pillars is to enhance wealth redistribution among retirees and mitigate the risk of poverty. Moreover, net replacement rates differ in accordance with the income level prior to retirement, with lower pre-retirement incomes resulting in higher replacement rates. This reinforces the notion that the target audience for the 3rd pension pillar comprises investors with higher income levels.

Lower replacement rates reflect the incapacity of existing pension systems to comprehensively provide adequate incomes after reach of retirement age. At the same time, it also increases the value and motivation of citizens' own involvement in FPR decisions. Aware of the desire of the Latvian population to receive adequate pension income to ensure their old age, pension policy makers have a strong obligation to design a pension system that supports maximum participation of the population. In most countries around the world, including Latvia, funded capital is an essential part of the pension system, and decisions about it must be taken by the investor.

2.2. Latvia in the context of the development path of the global pension system

International organizations and academic research have generally agreed on the basic structure of pension systems. This structure has remained relatively consistent since the World Bank

¹⁵⁷ Holzmann, R. (2012). Global Pension Systems and Their Reform: Worldwide Drivers, Trends, and Challenges. *Social Protection & Labor Discussion Paper 1213*. The World Bank. 27 p.

¹⁵⁸ Attanasio, O.P., Brugiavini, A. (2003). Social Security and Households' Saving. *The Quarterly Journal of Economics*, 118(3), 1075–1119.

introduced the concept of a multi-pillar pension system in 1994. This system involves separating the functions of redistribution and saving into different pillars. The three main pillars are:

1. A mandated, unfunded, and publicly managed defined benefit system.
2. A mandated, funded, and privately managed defined-contribution scheme.
3. Voluntary retirement savings.

Later, in 2005, the World Bank researchers proposed a 5-pillar system by adding two additional pillars: the "zero" pillar, which provides basic level pensions to reduce the risk of poverty and the "non-financial" pillar, which includes family support and other social benefits.

However, the most widely recognized structure remains the 3-pillar system, as the first pillar typically covers basic guaranteed pension payments for the poorer population, and the 5th pillar has not received as much attention in recent years.

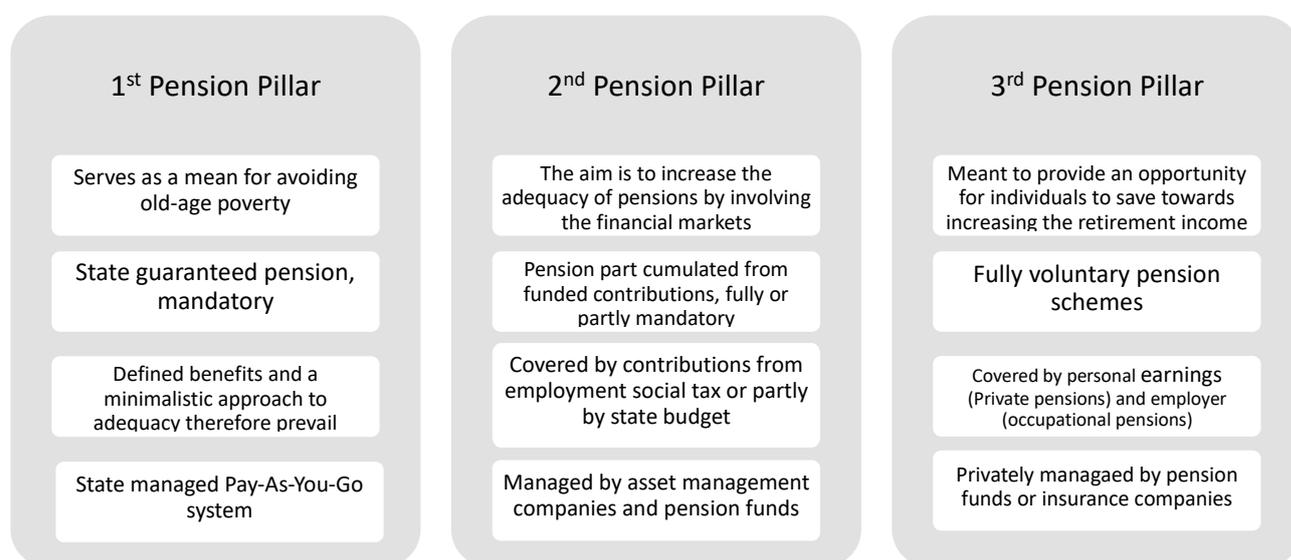


Figure 2.4 **The configuration of the pension system**

Source: the author's construction based on Holzmann R. (2012)¹⁵⁹, Lannoo K. et.al. (2014)¹⁶⁰

Over the past decade, a primary focal point of discourse has revolved around the assessment of mandatory payment systems into state social budgets and pension funds. National legislations have established regulatory frameworks, and governments have made commitments and provisions to fulfil them. Notably, considerable attention has been dedicated to the concept of "pension privatization," a reform process that was implemented in a significant portion of Latin American nations, commencing in the 1980s, and subsequently adopted by former socialist countries in

¹⁵⁹ Holzmann, R. (2012) *Global Pension Systems and Their Reform: Worldwide Drivers, Trends, and Challenges*. Social Protection & Labor Discussion Paper 1213. The World Bank. 27 p.

¹⁶⁰ Lannoo, K., Barslund, M., Chmelar, A., Von Werder, M. (2014). *Pension Schemes*. Policy Department A: Economic and Scientific Policy, European Parliament, 74 p

Europe, including Latvia^{161 162 163}. Pension privatization, endorsed by the World Bank, represented a recommended approach for enhancing the sustainability of pension systems and alleviating governments' responsibility for retirement savings by shifting it onto individuals. Latvia, in alignment with established best practices in developed countries, introduced the 2nd pension pillar, accompanied by a predefined schedule dictating when a specific portion of social taxes would be invested in pension funds.

The pension reform in Latvia was implemented with the underlying belief that all three components of the new multi-pillar pension system would mutually stabilize one another, effectively mitigating potential financial and demographic risks. With the goal of transitioning from a fully state-funded pension system to a model where each worker assumes ownership of their pension, Latvia established a three-part pension system:

1. First Pillar - State Mandatory Unfunded Pension Scheme: This component operates on the principle of generational solidarity and was introduced in 1996. It is governed by the "Law on State Pensions."

2. Second Pillar - State Funded or Accumulated Pension Scheme: Part of social contributions is collected and invested in financial markets, capital markets, and bank deposits. This pillar was launched on July 1, 2001, and is regulated by the "Law on State Funded Pensions."

3. Third Pension Pillar - Private Voluntary Pension Scheme: A portion of an individual's income is directed towards private pension funds, either by the individual themselves or by their employer. This pillar was introduced in July 1998 and is governed by the "Law on Private Pension Funds."

The global financial crisis exerted significant pressure on the ability of national budgets to meet the financial obligations of the first pension pillar. This led to a reduction in contributions to pension funds and, consequently, impacted the savings within the second pension system pillar. Additionally, declining returns on investment funds prompted debates¹⁶⁴ regarding the contribution of the privately managed second pension system pillar to future pension adequacy levels. Researchers conducted an analysis¹⁶⁵ to assess the effectiveness of implemented pension reforms and raised questions about the wisdom of transferring investment risk to individuals at a potentially

¹⁶¹ Kogut, B. (2010). Privatizing Pensions: The Transnational Campaign for Social Security Reform. *Journal of Pension Economics & Finance*, 9(3), 473-474.

¹⁶² Hu, A., Manning, P. (2010). The global social insurance movement since the 1880s. *Journal of Global History*, 5(1), 125-148.

¹⁶³ Coman, E.E. (2011). Notionally defined contributions or private accounts in Eastern Europe: A reconsideration of a consecrated argument on pension reform. *Comparative Political Studies*, 44(7), 884-909.

¹⁶⁴ Ebbinghaus, B., Whiteside, N. (2012). Shifting responsibilities in Western European pension systems: What future for social models? *Global Social Policy*, 12(3), 266-282.

¹⁶⁵ Ortiz, I., Duran, F., Urban, S., Wodsak, V., Yu, Z. (2018). Reversing Pension Privatization: Rebuilding Public Pension Systems in Eastern European and Latin American Countries (2000-18). Available at SSRN 3275228.

high cost. Some researchers even proposed an action plan outlining how to reverse the process of pension privatization through subsequent reforms.

In the aftermath of the Great Financial Crisis, numerous countries, including Latvia, its neighbouring nations Estonia and Lithuania, along with Poland in 2011 and Hungary in 2010, undertook measures to modify their pension systems. These changes encompassed a reduction in the proportion of contributions directed towards second pillar pension companies, often achieved by scaling down individual accounts. In some instances, such as Poland and Hungary, individual accounts in pension funds were terminated, and the funds were reintegrated into the national Pay-As-You-Go system budgets. Subsequently, Latvia adjusted the contribution rates of social tax allocated to second pillar pension funds. The decision was made to maintain these rates at the 6% level, as opposed to the previously targeted 10%. It's worth noting that the actual impact of the second pillar pension system in Latvia may not be fully ascertainable at this stage. This is primarily due to the fact that current pensioners in Latvia receive a relatively small portion of their pension from the second pillar, mainly because of the limited duration of the scheme¹⁶⁶. Consequently, a comprehensive assessment of the genuine effects of the second pillar pension system in Latvia remains an ongoing endeavour.

Governments are exploring various strategies to alleviate the burden on their state budgets while ensuring the future adequacy of pension systems. They aim to engage individuals in retirement savings decisions on a more voluntary basis, all the while providing a legislative framework for pension systems. Recent advancements in pension design have considered people's tendencies to procrastinate decisions and their challenges in long-term planning. Therefore, mechanisms such as automatic enrolment (as seen in Pillar 2 in Latvia) or "default" enrolment with the option to opt out within a specified period, as well as the use of matching contributions, have become widespread.

For instance, individual pension plans in the third pension pillar have been implemented in countries like Italy, New Zealand, Turkey, and the United Kingdom¹⁶⁷. An analysis¹⁶⁸ of pension take-up among private sector employees in the UK demonstrates that auto-enrolment significantly increased the likelihood of employee participation in a funded pension plan, with an increase of 37 percentage points. Additionally, research by Benartzi et al.¹⁶⁹ suggests that incentives offered through the Default Enrolment Mechanism are more effective than efforts to enhance financial

¹⁶⁶ Rajevska, O. (2013). Funded Pillars in the Pension Systems of Estonia, Latvia and Lithuania. *Economics and Business* 23, 83-89.

¹⁶⁷ OECD, 2018. *OECD Pensions Outlook 2018*, OECD Publishing, Paris.

¹⁶⁸ Cribb, J., Emmerson, C. (2016). *What happens when employers are obliged to nudge? Automatic enrolment and pension saving in the UK*, IFS Working Papers, No. WP16/19, Institute for Fiscal Studies.

¹⁶⁹ Benartzi, S., Beshears, J., Milkman, K. L., Sunstein, C. R., Thaler, R. H., Shankar, M., ... Galing, S. (2017). Should governments invest more in nudging?. *Psychological Science*, 28(8), 1041-1055.

literacy, incentives based on matched contributions, and tax advantages. These mechanisms are crucial in encouraging individuals to engage in pension savings and make informed decisions for their retirement.

In 2019, Lithuania, one of the Baltic States, implemented a system akin to its second pension pillar. This system instituted an automatic enrolment mechanism¹⁷⁰, whereby all individuals under the age of 40 were enrolled in the funded pension scheme without requiring explicit action on their part. These newly enrolled members were granted the prerogative to opt out within a predetermined timeframe, and this self-enrolment process was programmed to recur at three-year intervals. Furthermore, Lithuania incorporated, to some degree, the concept of Matching Contributions into this scheme. This entailed employees contributing 3% of their income, supplemented by a state-provided top-up of 1.5%. Analysing data derived from the Bank of Lithuania's published supervisory reporting on the 2nd pillar pension funds¹⁷¹, it is discerned that the total membership count witnessed a 7% upswing since the inception of this reform in early 2019, culminating in 1.4 million members by the conclusion of 2022. Given the relatively consistent demographic landscape of Lithuania during the period under scrutiny¹⁷², this development can be appraised as favourable.

Since June 2019, Poland has initiated the implementation of a novel occupational pension saving system, characterized by automatic enrolment and contributions shared between employees and employers. This arrangement mandates contributions in both compulsory and voluntary forms. In Estonia, a decision was made to transition the second pension pillar into a voluntary scheme starting in 2021, offering the option to opt out of the system and receive accumulated capital before reaching the retirement age¹⁷³. Concurrently, Estonia introduced the concept of matched contributions, wherein employees allocate 2% of their gross salary to a pension fund for their retirement. Correspondingly, the state supplements this by contributing 4% of the 33% social tax, which is calculated based on the employee's salary, functioning as an employer's social contribution.

In Latvia, automatic participation in the second pension pillar is extended to all residents born before July 1, 1971, while residents born before this date have the option to voluntarily enrol in the system. As of the conclusion of 2021¹⁷⁴, a total of 1.294 million Latvian residents had become members of the second pension pillar, with 29% of them joining voluntarily. Considering Latvia's

¹⁷⁰ OECD (2021), *Pensions at a Glance 2021: OECD and G20 Indicators*, OECD Publishing, Paris

¹⁷¹ Lietuvos Bankas, retrieved on 20.03.2023 from <https://www.lb.lt/en/pf-performance-indicators>

¹⁷² Eurostat database, retrieved on 20.02.2023 from <https://ec.europa.eu/eurostat/databrowser/bookmark/89274172-dac2-4870-9608-18692f0cf7a6?lang=en>

¹⁷³ Republic of Estonia. Funded Pensions Act (2004) (consolidated text). [Online] Available: <http://www.legaltext.ee> [Accessed 03.08.2022]

¹⁷⁴ State Social Insurance Agency (VSAA) Distribution of the number of scheme participants by age, gender and type of participation, retrieved from <https://www.vsaa.gov.lv/lv/shemas-dalibnieku-skaita-sadalijums-pec-vecuma-dzimuma-un-lidzdalibas-veida>, accessed on 10.09.2022

population at the beginning of 2022, which stood at 1.88 million, and the working-age population numbering 1.16 million¹⁷⁵, it can be inferred that the second pension pillar enjoys complete coverage.

The third pension pillar in Latvia operates on a voluntary basis, which accounts for its partial population coverage. According to data reported to the Latvian financial market supervisor as of the end of 2021, it appeared that slightly over 30% (approximately 363 thousand individuals)¹⁷⁶ of Latvian citizens engage in voluntary savings through pension plans provided by pension funds, signifying a relatively extensive participation rate. However, a more detailed analysis of the published data reveals two notable observations. Firstly, it was observed that only 49% (around 177 thousand) of the registered plan members actively contribute to these plans, demonstrating their engagement in the process. Secondly, the aggregated data do not offer insights into unique pension fund members. This implies that a single member might have savings distributed across multiple pension plans and even various pension funds. Based on the author's request for supervisory data in 2022, it was discovered that the number of participants in such pension plans amounted to approximately 10%. This resulted in a total count of pension fund members totalling 159 thousand individuals. When juxtaposed with the working-age population of Latvia, it can be inferred that the participation rate in Latvia's third pension pillar was approximately 14%. This indicates that roughly one out of every six working-age residents of Latvia actively chooses to engage in voluntary pension savings.

According to aggregate data published by the OECD on the level of assets in pension savings plans in OECD countries in 2020 or the latest available year (Figure 2.5), all three Baltic countries fall far behind the OECD average of almost 100% of national GDP. Taking into account that the figures for Estonia are before the 2021 pension reform, which resulted in substantial pay-outs, in 2023 Latvia is ahead of the other two countries - Lithuania and Estonia.

¹⁷⁵ Latvian Statistics database, Population and its changes, retrieved from <https://stat.gov.lv/lv/statistikas-temas/iedzivotaji/iedzivotaju-skaitis/247-iedzivotaju-skaitis-un-ta-izmainas?themeCode=IR>, accessed on 03.09.2022

¹⁷⁶ FCMC (FKTK), retrieved from <https://www.fktk.lv/statistika/pensiju-fondi/ceturksna-parskati/>, accessed on 03.09.2022

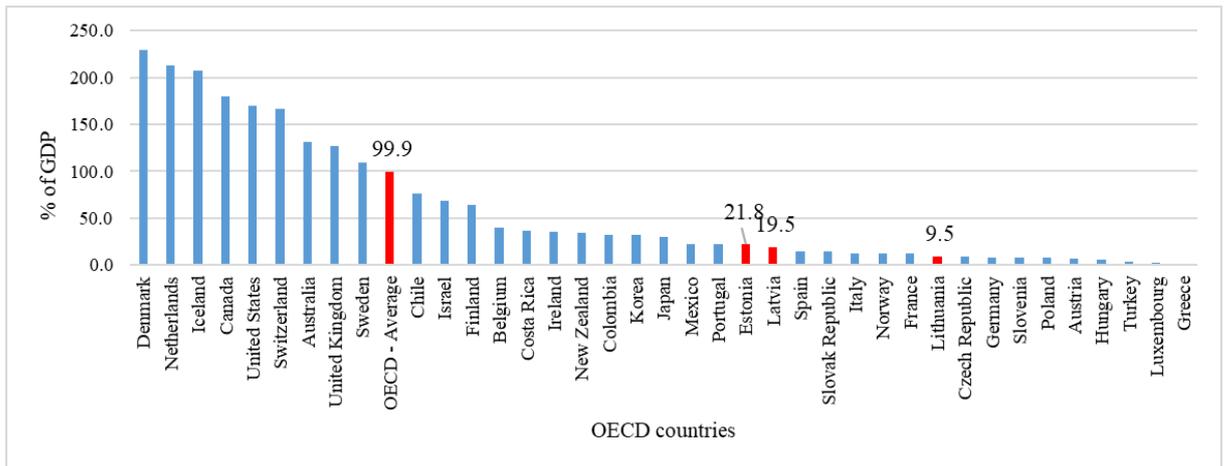


Figure 2.5 Assets in retirement savings plans in OECD countries, in 2020 or latest year available

Source: construction of the author based on OECD (2021)¹⁷⁷

A comparative analysis of the Baltic countries shows the effectiveness of automatic enrolment compared to other incentive systems such as matching contributions or possibilities to opt-out, although all methods have the same objective - to engage as wide a share of the population as possible in pension saving.

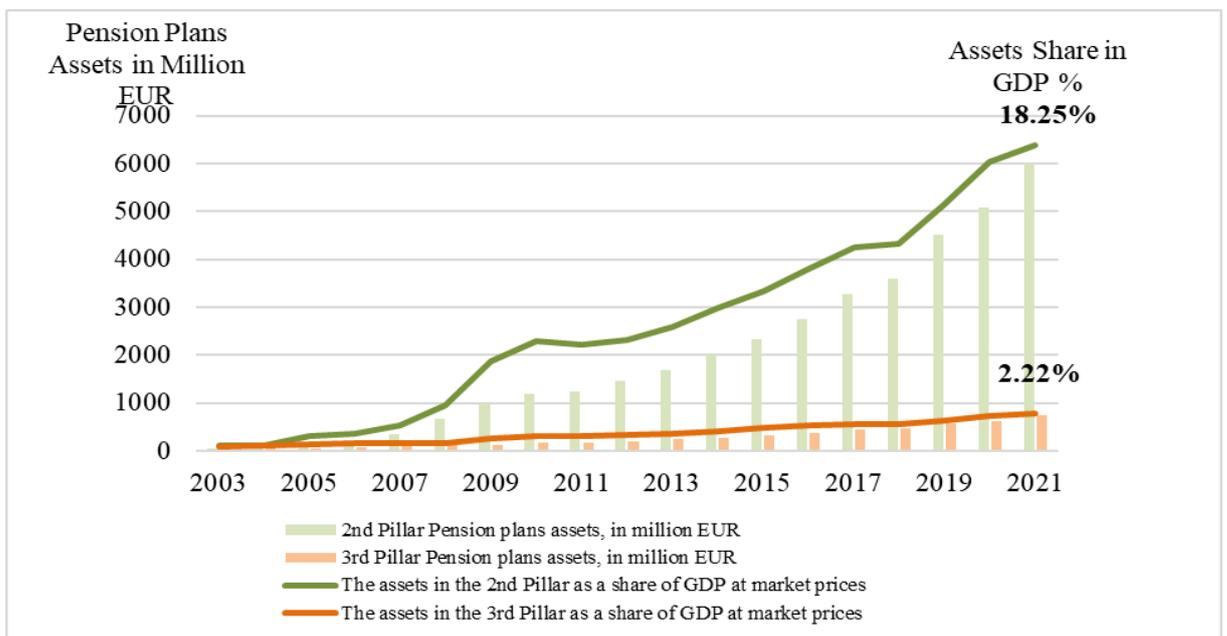


Figure 2.6 Assets accumulated in 2nd and 3rd pillar pension plans in million EUR and as the share of GDP at market (current) prices 2003 – 2021 in Latvia

Source: the author's construction based on reports of Financial and Capital Market Commission in Latvia www.fktk.lv and European Commission data <https://ec.europa.eu/>, retrieved on 03.08.2022

¹⁷⁷ OECD (2021), Assets in retirement savings plans and public pension reserve funds in OECD countries and other major economies, in 2020 or latest year available: As a percentage of GDP and in USD million, in Pensions at a Glance 2021: OECD and G20 Indicators, OECD Publishing, Paris, <https://doi.org/10.1787/33b2d135-en>.

To provide a comprehensive assessment for this study, it is essential to delve beyond a surface-level comparison of national pension policies. A more profound comprehension of the assets amassed by the two pension pillars and their progression over time is imperative. The developmental trajectories of Latvia's 2nd and 3rd pension pillars are elucidated by examining the dynamics of their assets, both in absolute terms and as a percentage of the national GDP (as depicted in Figure 2.6).

Although the two pension pillars in Latvia date back to similar periods of operation, on the basis of their different mechanisms of citizen participation, the amount of accumulated capital, or hereafter - assets, differs significantly. While at the end of 2021 the funded capital of the 2nd pension pillar in Latvia was almost EUR 6 billion, only EUR 731 million had been accumulated in the 3rd pension pillar - a difference of about nine times. Relating the amount of accumulated capital to Latvia's GDP, we can see that at the end of 2021 it exceeded 18% for the 2nd pension pillar, while for the 3rd pension pillar it was only 2%, signalling the high growth potential of voluntary savings.

When assessing the involvement of different segments of the Latvian population in pension savings at pillars 2 and 3, it can be concluded that there is a significant part of the population that is not only unprepared and unwilling to voluntarily save, but also does not receive sufficient support from the infrastructure mechanisms established by the state and financial service providers. The substantial gap between automatic pension savings and voluntary decisions to accumulate pension capital on the individual's initiative, is the main reason for the author's interest in exploring the possibilities offered by the Latvian pension system for FPR decision-making by testing a validated Hershey model. The analysis of the current pension design in Latvia and its differences with countries with similar pension systems provides a scientific basis for further practical initiatives that can be applied to enhance the Latvian pension system and its components.

2.3. Financial inclusion - as a basis for the financial planning for retirement process

Access to financial services encourages people to think beyond the day-to-day financial transactions and to make long-term financial planning decisions, including for their post-retirement income. Therefore, the Academy's research, as well as analytical material for pension policy makers, focuses extensively on the level of financial inclusion of the world's population. Financial inclusion is studied alongside financial literacy, showing ¹⁷⁸ that they are interdependent. This is substantiated by the necessity of guaranteeing accessibility to financial services as a means to apply financial literacy in practical terms.

¹⁷⁸ Grohmann, A., Klühs, T., Menkhoff, L. (2018). Does Financial Literacy Improve Financial Inclusion? Cross Country Evidence. *World Development*, 111(C), 84-96.

This is supported by research in academia, which indicates that the level of economic development in each country serves as the foundation for varying manifestations of financial literacy. For instance, a study conducted by Lauren E. Willis in 2018¹⁷⁹ underscored the inappropriate use of financial literacy in cases where broader issues like pension adequacy, excessive indebtedness, financial crises, and other societal challenges have not been adequately addressed within the country. Additionally, evidence from the Indian and Indonesian markets¹⁸⁰ suggests that the establishment of bank accounts is influenced less by financial literacy and more by government financial assistance programs aimed at assisting low-income individuals. Nonetheless, educating the population in financial matters remains a method to enhance their competence and involve them in shaping the nation's economy.

Access to bank accounts and the ability to utilize financial services form the bedrock for establishing financial depth, which, in turn, contributes to enhanced financial inclusion both at the national and individual levels¹⁸¹. The World Bank has been compiling The Global Findex database¹⁸² since 2011, conducting triennial assessments of key dimensions of financial inclusion, including adults' savings, borrowing, payment activities, and risk management behaviors. The data gleaned from this database serves as a valuable resource for subsequent investigations aimed at identifying the primary drivers of financial inclusion, delineating associations, and proposing actionable recommendations. Research¹⁸³ has demonstrated that heightened financial inclusion is correlated with reduced costs for opening and maintaining accounts, as well as increased accessibility to financial institutions or their representatives. At the national level¹⁸⁴, greater financial inclusion is interlinked with macroeconomic development indicators such as economic growth and income equality.

Hence, financial literacy and financial inclusion have become closely interrelated and mutually reinforcing concepts. With a clearer understanding of the real conditions within both realms, the involved stakeholders—citizens, financial service providers, and public policymakers—can make more informed decisions and enhance collective well-being¹⁸⁵. In 2018, academics

¹⁷⁹ Willis, L.E. (2018). Finance-Informed Citizens, Citizen-Informed Finance: An Essay Occasioned by the International Handbook of Financial Literacy. *Journal of Social Science Education*, 16(4), 16-27.

¹⁸⁰ Cole, S., Sampson, T., Zia, B. (2011). Prices or Knowledge? What Drives Demand for Financial Services in Emerging Markets? *The Journal of Finance*, 66(6), 1933–1967.

¹⁸¹ Beck, T.A. Demirguc-Kunt, A., Peria, M.S.M. (2007). Reaching out: Access to and Use of Banking Services Across Countries. *Journal of Financial Economics*, 85(1), 234-266.

¹⁸² The Global Findex Database 2017, <https://globalfindex.worldbank.org/>

¹⁸³ Allen, A. Demirguc-Kunt, L. Klapper, M., Peria, S.M. (2016). The Foundations of Financial Inclusion: Understanding Ownership and Use of Formal Accounts. *Journal of Financial Intermediation*, 27, 1-30.

¹⁸⁴ Demirgüç-Kunt, A., Klapper, L., Singer, D., Ansar, S., Hess, J. (2018). *The Global Findex Database 2017: Measuring Financial Inclusion and the Fintech Revolution*. Washington, DC: World Bank. DOI:10.1596/978-1-4648-1259-0.

¹⁸⁵ Altman, M., Altman, M. (2020). *Why financial literacy matters for socio-economic wellbeing*. Smart economic decision-making in a complex world, 211-242.

Grohmann, Klühs, and Menkhoff¹⁸⁶ conducted a study that delved into the interplay between financial literacy and the level of financial inclusion, highlighting their interdependence. Financial inclusion is regarded as a facet of the 'supply' of financial services, primarily contingent on the availability of financial infrastructure. Conversely, the level of financial literacy shapes the 'demand' for financial services, signifying the population's competence in utilizing financial services. Put simply, the 'supply' side can be assessed through access to official financial services, while the 'demand' side is determined by the capability to effectively use these services.

The researchers conducted cross-country analyses based on two primary principles: utilizing general country statistics and focusing on key characteristics of the financial infrastructure. They considered various variables, including GDP per capita, the proportion of the population aged 15-64, levels of secondary and tertiary education, private credit relative to GDP, the density of commercial bank branches per 1000 square meters, the presence of automated teller machines (ATMs) per 1000 square meters, as well as several indexes such as the strength of legal rights index, the Ease of Doing Business index, and the Political Risk Rating of each country. Another group of researchers, namely Demirgüç-Kunt, Klapper, and Singer in 2018¹⁸⁷, analysed data from The Global Findex database to identify the advantages of financial inclusion and its contributions to economic growth. They focused on various aspects, including ownership of bank accounts, access to payment services, credit availability, insurance options, and savings products, to explore the potential benefits associated with financial inclusion.

This additional analysis delves into the interaction between factors related to financial literacy and financial inclusion. To gain a more comprehensive understanding of the situation in Latvia in comparison to the other two Baltic States, this study not only examined Latvia but also conducted a comparative analysis with Estonia and Lithuania. The primary data sources used were publicly available databases, including the S&P Global FinLit Survey, The Global Findex database, World Development Indicators, and PISA data. This discussion is rooted in the similarities and distinctions observed among the three Baltic States and lays the groundwork for further exploration in this field. Future research endeavours could involve evaluating changes in the level of financial literacy within each country over time. However, it's important to note that this study does not assess the dynamics of financial literacy due to limited data availability.

¹⁸⁶ Grohmann, A., Klühs, T., Menkhoff, L. (2018). Does Financial Literacy Improve Financial Inclusion? Cross Country Evidence. *World Development*, 111(C), 84-96

¹⁸⁷ Demirgüç-Kunt, A., Klapper, L., Singer, D., Ansar, S. (2018). *The Global Findex Database 2017: Measuring financial inclusion and the fintech revolution*. World Bank Publications.

Table 2.1 **Financial literacy and inclusion factors and aspects**

Factor	Aspect
General country development	GDP per capita, PPP
General country development	Ease of doing business score
Savings	Voluntary pensions/ life insurance, and mutual funds
Education	Averages for age 15 years PISA mathematics scale: overall mathematics
Financial services availability	Account ownership at a financial institution or with a mobile-money-service provider (% of population ages 15+)
Financial services availability	Automatized Teller Machines (ATMs) per 100,000 adults
Financial services availability	Commercial bank branches per 100,000 adults
Financial services availability	Individuals using the Internet (% of the population)

Source: Elaborated by the author and published in 2021¹⁸⁸

The study encompasses an analysis of scientific publications and prior research, along with a thorough examination of statistical data. It includes trend analysis concerning various aspects of financial literacy development in Latvia, Lithuania, and Estonia. The projections put forth in the study are rooted in previous research conducted by various academics. The analysis of factors linked to the level of financial literacy in the Baltic states is carried out using four factors and eight aspects (as outlined in Table 2.1). These factors and aspects will serve as the basis for further comparative analysis over time, employing regression trendline calculations.

To assess the influence of factors on a country's level of financial literacy, it is essential to begin by comparing financial literacy rates. Unfortunately, for Estonia, Latvia, and Lithuania, the latest comparable data are from the year 2014, as collected by the World Bank in the S&P Global FinLit Survey (Figure 2.7).

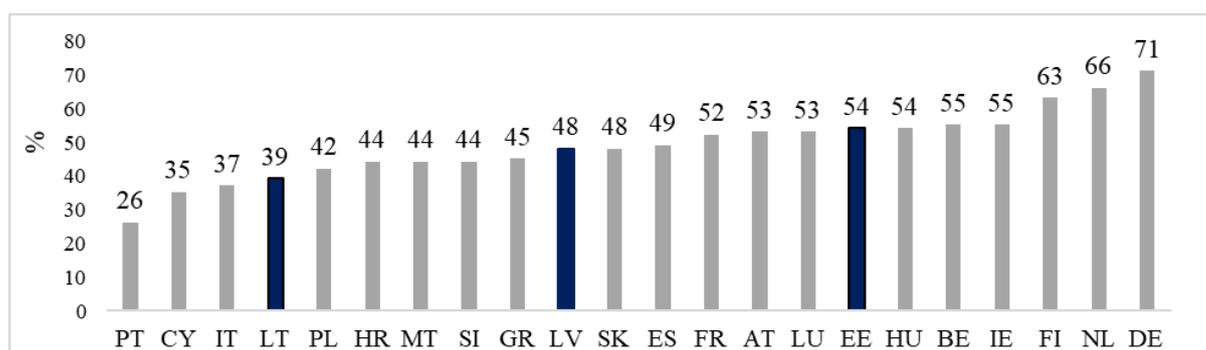


Figure 2.7 Financial Literacy rate in % from adults' population year 2014

Source: Report on S&P Global FinLit Survey, 2014, <https://gflec.org/initiatives/sp-global-finlit-survey/>

¹⁸⁸ Dundure, E., Sloka, B. (2021) Financial Literacy Influencing Factors Analysis: Estonia, Latvia, and Lithuania Case, Grima, S., Özen, E. and Boz, H. (Ed.) Contemporary Issues in Social Science (*Contemporary Studies in Economic and Financial Analysis*, Vol. 106), Emerald Publishing Limited, Bingley, pp. 251-262.

Compared to the average ratio of 36.6% observed across 140 economies in the survey, the three Baltic States exhibit higher-than-average levels of financial literacy. Estonia boasts the highest literacy rate, with 54% of adults considered financially literate, followed by Latvia at 48%, and Lithuania at 39%.

Table 2.2 presents all the aspects analyzed according to the defined financial literacy and inclusion factors. To ensure that the considered factors align with the assigned financial literacy levels and for the sake of comparability, data from the same period as the financial literacy levels (2014 or the closest available data) are used. Each country is ranked in each aspect, earning points ranging from 1 (highest scores) to 3 (lowest scores). A more detailed analysis of the indicators can be found in the author's scientific publication¹⁸⁹. The overall ranking based on the total number of points awarded is as follows: Estonia holds the highest position, followed by Latvia in the 2nd position, and Lithuania in the lowest position. Remarkably, this ranking aligns precisely with the measured financial literacy levels, with Estonia having the highest literacy rate at 54% of adults, Latvia ranking second at 48%, and Lithuania in the last position with a literacy rate of 39%.

Table 2.2 Factors creating Financial Inclusion level

Factors / country	Estonia	Latvia	Lithuania
GDP per capita, PPP	29136	23844	28156
RANK	1	3	2
Ease of doing business score	81	79	79
RANK	1	2	2
Has voluntary pensions/whole life insurance, %	19	22	9
RANK	2	1	3
Has mutual funds, %	3	1	2
RANK	1	3	2
Averages for age 15 years PISA mathematics scale: overall mathematics	520	482	478
RANK	1	2	3
Account ownership at a financial institution or with a mobile-money-service provider (% of population ages 15+)	98	90	78
RANK	1	2	3
Automated teller machines (ATMs) (per 100,000 adults)	77	63	51
RANK	1	2	3
Commercial bank branches (per 100,000 adults)	12	20	16
RANK	3	1	2
Individuals using the Internet (% of population)	84	76	72
RANK	1	2	3
Total of RANKS	12	18	23
RANK	1	2	3

¹⁸⁹ Dundure, E., Sloka, B. (2021) Financial Literacy Influencing Factors Analysis: Estonia, Latvia, and Lithuania Case, Grima, S., Özen, E. and Boz, H. (Ed.) Contemporary Issues in Social Science (*Contemporary Studies in Economic and Financial Analysis*, Vol. 106), Emerald Publishing Limited, Bingley, pp. 251-262.

Source: Elaborated by the author based on data from the database: World Development Indicators, Last Updated: 09/16/2020, <https://databank.worldbank.org/source/world-development-indicators#>; Report on S&P Global FinLit Survey, 2014, <https://gflec.org/initiatives/sp-global-finlit-survey/>

The analysis highlights Estonia's difference compared to Latvia and Lithuania, which is deserving closer examination. Estonia has the highest rates of both financial literacy and overall financial inclusion and suggests good preparedness for the lowest number of bank branches per 1000 inhabitants due to the highest internet penetration. Although Estonians save slightly less savings than Latvians at pension pillar 3, their almost universal presence of a bank account and their more active involvement in mutual fund investments indicate a tendency to save and generate income in financial markets. Estonia's level of financial literacy and digitalisation coverage also supports the ability to make more independent and informed decisions in comparison with other two Baltic countries.

This study may explain the recent pension reform initiative in Estonia analysed before, which was based on the determination of citizens to be able to save for their old age by themselves, and to do no worse than pension managers. At the same time, such public maturity is also positive, as it shows a willingness to take responsibility for their savings and make independent FPR decisions. The unanswered question is whether the entire Estonian society belongs to this category of the financially literate and capable individuals. In all probability, it is not.

In the post Covid-19 pandemic world, the business environment is undergoing an increasingly rapid shift towards digitalisation, providing new opportunities to access financial services and make advanced savings decisions for the financial literate population. For pension policy makers and practitioners, understanding the impact of these changes not only on society as a whole, but also on the most vulnerable in society, is critical. Ignorance can make services less accessible to those in Latvia who are not digitally literate or simply do not have an internet connection. It is therefore important to design a pension system that matches the financial and digital skills of the population, combined with the opportunities offered by the existing public infrastructure.

2.4. Applicability of financial incentives and different impacts on financial planning for retirement in the Baltic States

Academic research has provided evidence regarding how the configuration of a pension system influences individuals' decisions related to saving for retirement¹⁹⁰, including the effectiveness of incentives to promote private savings or reforms within pension systems. A study

¹⁹⁰ Le Blanc, J. (2011). *The third pillar in Europe: institutional factors and individual decisions* (No. 2011, 09). Deutsche Bundesbank.

conducted in the Netherlands and Sweden¹⁹¹, for example, examined how different pillars in multi-pillar pension systems interact and how government policies influence public participation and the provision of sufficient retirement income. The researchers found that the relative significance and roles of various pension pillars differ from one country to another, and they can also vary based on factors such as age, income, gender, socioeconomic status, and generational considerations.

Governments across the globe employ incentive programs to boost savings, aiming to enhance the pension replacement rate, which directly impacts people's well-being during retirement. There's an ongoing scholarly discourse¹⁹² regarding the most effective strategies governments employ in **governments incentive packages** and whether these approaches genuinely succeed in encouraging citizens to accumulate savings. On one hand, reforms in the funded pension pillar operate with a long-term perspective, making it challenging to pinpoint the predominant factor behind increased savings—whether it's financial incentives, information availability, or the marketing efforts of governments and service providers¹⁹³. On the other hand, research conducted on the UK pension system¹⁹⁴ has validated that the growth of retirement savings is closely tied to increases in contribution limits established by the government. This suggests that regulatory changes and financial incentives play significant roles in driving pension savings growth.

According to the analyses provided by OECD experts team¹⁹⁵ countries around the world use two types of financial incentives - tax incentives and non-tax incentives - to motivate individuals to save for retirement. **Non-tax incentives** include government or employer matching contributions and nominal subsidies set by the government. These payments are designed to encourage people to also make voluntary contributions by promising financial support for saving. The Latvian state does not directly contribute to the second pillar of pensions, as people pay the full amount of their contributions from their own earnings. In the third pension pillar, employers who have set up pension savings as part of an employee bonus scheme benefit from such non-tax incentives.

The most comprehensive source of comparison is the **tax incentives** offered by countries, their existence, scope and conditions of application. The financial viability of private pension

¹⁹¹ Sørensen, O. B., Billig, A., Lever, M., Menard, J. -C., Settergren, O. (2016). The interaction of pillars in multi-pillar pension systems: A comparison of Canada, Denmark, Netherlands and Sweden. *International Social Security Review*, 69, 53– 84.

¹⁹² Börsch-Supan, A. H., Bucher-Koenen, T., Coppola, M., Lamla, B. (2014). Savings in times of demographic change: Lessons from the German experience. *Max Planck Institute for Social Law and Social Policy Discussion Paper*, (18-2014).

¹⁹³ Börsch-Supan, A. H., Bucher-Koenen, T., Coppola, M., Lamla, B. (2014). Savings in times of demographic change: Lessons from the German experience. *Max Planck Institute for Social Law and Social Policy Discussion Paper*, (18-2014).

¹⁹⁴ Disney, R., Emmerson, C., Wakefield, M. (2008). Pension Provision and Retirement Saving: Lessons from the United Kingdom. *Canadian Public Policy*, 34(Supplement 1), S155–S175.

¹⁹⁵ OECD (2021), Financial incentives for funded private pension plans, OECD Publishing, <https://www.oecd.org/daf/fin/private-pensions/Financial-Incentives-for-Funded-Pension-Plans-in-OECD-Countries-2021.pdf>

schemes is influenced by national regulations, particularly in regard to tax treatment. When regulations provide tax exemptions for these schemes, their financial profitability tends to increase. Conversely, when private pension contributions are taxed, the attractiveness of these savings vehicles diminishes, as the tax burden reduces the potential financial benefits. Therefore, tax policies and regulations have a notable impact on the financial appeal of private pension schemes. Traditional taxation is based on the principle that contributions are made out of after-tax income (Taxed), investment income is taxed (Taxed) and withdrawals are exempt from tax (Exempt), in short "Taxed, Taxed, Exempt" or "TTE". Anything more favourable to investors than the "TTE" regime is considered a tax advantage.

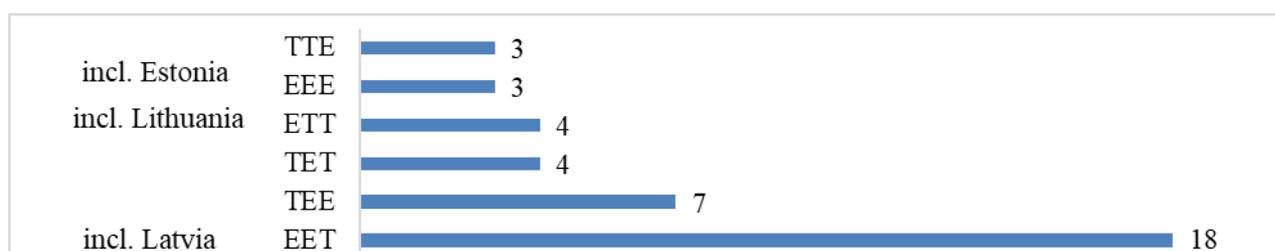


Figure 2.8 Distribution of OECD countries according to the tax incentive regimes, number of countries in year 2021

Source: Elaborated by the author based on data from OECD (2021)

It should be noted that, according to Figure 2.8, only three of the OECD countries considered in the analysis apply such a regime. In contrast, the majority - 46% - of the countries under review including Latvia have the opposite model of tax incentives to the traditional one - the EET. It is important to point out that tax relief regimes may differ from country to country for various types and pillars of pension savings. In Latvia, the EET model applies to the funds saved in the 2nd pillar, which are received in the drawdown phase by adding the accumulated capital to the capital saved in the 1st pillar or Pay-As-You-Go pension. Moreover, when the pension accrued at pension pillar 2 is received through insurers by purchasing a Lifetime Pension Policy, all of the stages are tax-free, and Latvia ranks alongside Estonia in the EEE tax relief model. This leads to the conclusion that savings at the 2nd pension pillar in Latvia are favoured in terms of tax incentives. Different conclusions can be observed for Pillar 3 in Latvia, where tax policy follows the ETE model and both contributions and withdrawals are tax exempt only under certain conditions. When examining OECD countries' efforts to find the optimal savings-enhancing strategy between 2015 and 2021, 11 countries introduced new or expanded existing financial incentives, while ten countries, including Latvia, reduced or even abolished some previously applied tax incentives.

In order to understand the tax incentives for 3rd pillar pension savings in Latvia, it is useful to compare Latvia with the other two Baltic countries - Estonia and Lithuania - in each of these phases - contributions, capital gains and withdrawals.

Table 2.3 **Financial incentives for voluntary savings in private pension funds, 2021**

Country	Contributions	Returns of Investment	Withdrawal	
Estonia	Tax-Exempt	Tax-Exempt	Tax-Exempt	
Latvia	Tax-Exempt	Taxed	Tax-Exempt if contributions made by the individual	Taxed if contributions made by the employer
Lithuania	Tax-Exempt	Tax-Exempt	Tax-Exempt	

Source: Elaborated by the author based on OECD (2020) Financial incentives for funded private pension plans and published in 2020¹⁹⁶

The analysis presented in Table 2.3 suggests that Latvia faces certain disadvantages in terms of *Returns on Investment* and *Withdrawal* stages when compared to the other two Baltic countries. However, a more in-depth examination of the *Contributions* phase and the associated tax exemptions is provided by the author¹⁹⁷ in her recent publication.

Each of the Baltic countries, Estonia, Latvia, and Lithuania, has established national regulations (Parliament of Republic of Estonia, 1999; Parliament of Republic of Latvia, 1993; Parliament of Republic of Lithuania, 2002) related to Personal Income Tax (PIT). These regulations include limitations on contributions to voluntary savings, resulting in differences in financial incentives during this stage. In all three countries, contributions to pension funds are restricted under the full PIT exemption principle. There are two types of limitations: limits based on a percentage of the PIT payer's gross annual income and aggregate limits on contributions to voluntary pension funds.

Table 2.4 **Personal Income Tax (PIT) Incentives, 2021**

Limit	Estonia	Latvia	Lithuania
Limit of gross annual income as a base for PIT reliefs	15%	10%	25%
Aggregated limit of contributions provided in voluntary pension funds	6 000 EUR	4 000 EUR	1 500 EUR
Applicability	Only Pension funds	Pension funds and Life insurance	Pension funds and Life insurance
PIT rate for employees applicable to a base for PIT reliefs	20%	20%	20%

Source: Elaborated by the author based on Personal income tax regulations of Estonia, Latvia and Lithuania

As shown in the table, the limits on gross annual income as a base for PIT reliefs range from 10% in Latvia to 25% in Lithuania. The aggregate limits on contributions provided in voluntary

¹⁹⁶ Dundure E., Sloka B. (2020). Tax Incentives as a Part of Governments' Applied Mechanisms for the Third Pension Pillar in Estonia, Latvia, and Lithuania, *European Integration Studies* 14, 144-155

¹⁹⁷ Dundure E., Sloka B. (2020). Tax Incentives as a Part of Governments' Applied Mechanisms for the Third Pension Pillar in Estonia, Latvia, and Lithuania, *European Integration Studies* 14, 144-155

pension funds differ substantially, with Lithuania having the lowest limit at 1500 EUR and Estonia the highest at 6000 EUR. These financial incentives apply to investments in pension funds for all three countries, as well as to life insurance companies with agreements lasting more than ten years in Latvia and Lithuania. Additionally, the employee tax rate applicable to the base for PIT reliefs is uniform across all three countries and does not favour any particular one.

To assess the ultimate advantage derived from PIT financial incentive, the computation of the maximum gross annual salary serving as the foundational basis for PIT incentives was conducted in accordance with the following mathematical expression (1):

$$\text{Maximum gross annual salary} = \text{Aggregated limit of contributions} * 100 / \text{Limit of gross annual income (1)}$$

As per the computation of limitations regarding PIT incentives, Lithuania exhibits the most restricted *annual salary cap*, set at 6000 EUR, while both Latvia and Estonia share an identical and more generous yearly salary limit of 40000 EUR.

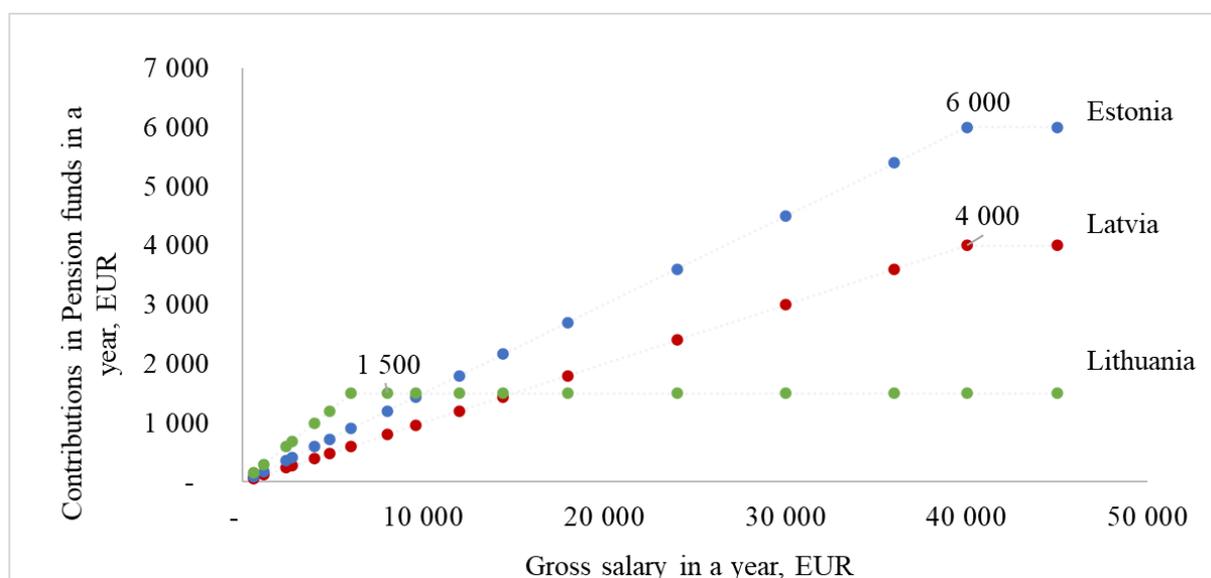


Figure 2.9 **Personal income tax incentives covered contributions in Pension Funds exposure in Gross income level in Latvia, Estonia, and Lithuania in 2021**

Source: Elaborated by the author based on Personal income tax regulations in Latvia, Estonia and Lithuania

The analysis reveals that Lithuania offers the highest financial incentive rate for individuals with a gross income up to 6000 EUR per year. However, for those with a gross income ranging from 6000 EUR to 40000 EUR annually, Lithuania does not provide any PIT incentives for savings, whereas both Estonia and Latvia do. Consequently, Lithuania targets individuals with lower salaries or gross incomes (up to 500 EUR per month) compared to Latvia and Estonia (up to 3333 EUR per month). Nevertheless, it's worth noting that Lithuania's gross annual income limit for PIT relief (25%) is, on average, twice as high as in the other two Baltic countries (10% and 15%).

The ultimate sums of incentives could vary further when considering other tax incentives related to PIT in the three Baltic countries, such as those related to tax basic exemptions and exemptions for children. These exemptions differ for each country and often change based on the tax policies of each nation. These exemptions primarily aim to reduce poverty and are designed to benefit individuals with the lowest income levels in society. Lithuania, with the lowest limit on the aggregate sum of contributions (as shown in Figure 2.9), may face a potential risk of diminishing the actual financial incentive effect of additional PIT reliefs. This additional factor raises concerns about the effectiveness of financial incentives for contributions when there are small aggregate limits in place.

According to OECD analyses¹⁹⁸ of thirty-eight member countries, the majority of them do not impose a tax on investment returns from voluntary retirement savings in pension plans. Estonia and Lithuania fall into this category. However, Latvia is one of the seven OECD member countries¹⁹⁹ that impose *a tax on investment returns*. Furthermore, the tax rate in Latvia is one of the highest, set at 20%, and it applies uniformly to all types of asset classes, investment durations, or other parameters.

Latvia's decision to include the capital gains generated by pension funds in the taxable base of PIT began in 2010. Then, in 2018, the tax rate on these gains was increased from 10% to 20%. The administration of the PIT on investment returns is done only upon *withdrawal*. This approach presents challenges in predicting the final amount of pension savings but also allows individuals to pay taxes on accumulated returns at the end of the savings period.

In Estonia and Lithuania, tax-exempt *withdrawals* of private pensions are subject to certain conditions. In Estonia, to qualify for PIT exemption, private pensions can be received no earlier than age 55 and must be in the form of life annuities. However, a 2021 pension reform in Estonia introduced a tax system for pillar 2 pensions that encourages longer-term pension payments by imposing an additional tax on pension lump sums. In Lithuania, the regulations require that pension withdrawals are tied to the statutory pension age, and tax-free payments can only be made no earlier than five years before reaching that age.

In Latvia, voluntary savings in private pension funds are differentiated based on the contributor of the contributions, whether they are made by an individual or by an employer on behalf of an employee. If an individual makes contributions by themselves, the withdrawals are exempt from PIT. However, when an employer makes contributions to private pension funds for the

¹⁹⁸OECD (2021), Financial incentives for funded private pension plans, OECD Publishing, <https://www.oecd.org/daf/fin/private-pensions/Financial-Incentives-for-Funded-Pension-Plans-in-OECD-Countries-2021.pdf>

¹⁹⁹ From 38 analysed OECD countries only Australia (15%), Belgium (9,25%), Denmark (15,3%), Greece (5%), Italy (up to 20%), New Zealand (up to 28%) and Latvia (20%) returns of investment in voluntary pension plans are taxed.

benefit of their employees, these contributions are considered business expenses for the purpose of corporate income tax and are not subject to PIT. But if an employee receives the accumulated supplementary pension capital resulting from the employer's contributions to private pension funds, it is subject to income tax at a rate of 23%. This tax is withheld and paid into the state budget by the private pension fund ²⁰⁰. It's worth noting that employer contributions up to the Latvian limit of €4,000 per year or 10% of gross annual salary are not subject to this tax.

The additional tax imposed on employer contributions to the 3rd Pension Pillar pension plans in Latvia could explain the negative trend observed in Figure 2.10. In the early 21st century, the majority of contributions to private pension funds were primarily made by employers. However, between 2004 and 2017, there was a significant decline in the share of employers' contributions in the total contributions. This decline can be attributed to the introduction of the additional tax on employer contributions. Starting from 2018, the situation appears to have stabilized, with a slight improvement noted. In 2021, employers' contributions accounted for 16% of the total contributions to private pension funds. This stabilization may be due to adjustments or changes in tax regulations or other factors influencing employer contributions.

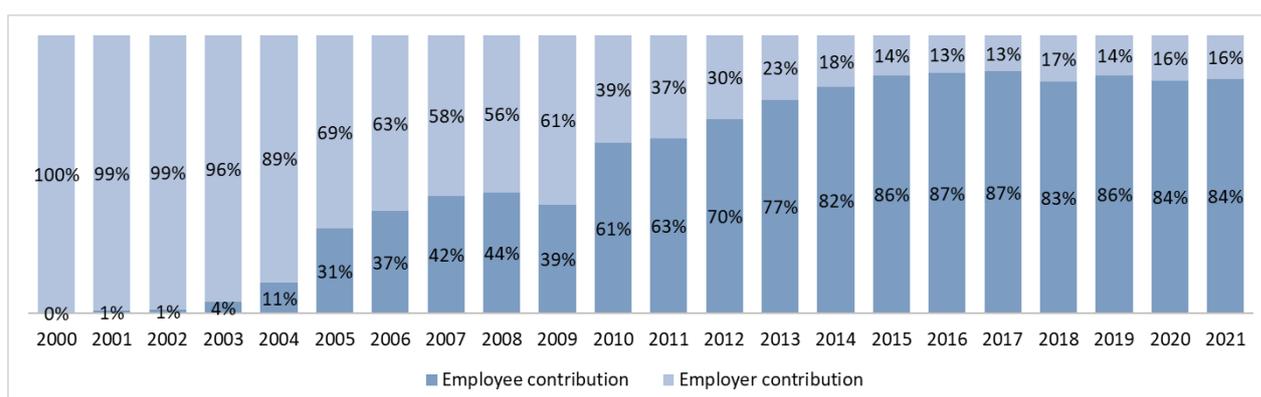


Figure 2.10 The share of employees and employers' contribution into 3rd pillar pension plans in 2000 – 2021 in Latvia

Source: the author's construction based on reports of Financial and Capital Market Commission in Latvia www.fktk.lv

This might also be explained by other influencing factors, including the change in the status of pension plan members from employers to individual contributors on leaving employment. Employers' involvement in savings is also a matter of corporate culture maturity - it needs to be part of an overall incentive system, and one that is demanded and chosen by the employee. Given the long-term nature of pension savings, employees who choose employer savings over other

²⁰⁰ Dārziņa L. (2021) Pensiju 3. līmenis. Kā krājas nauda, un kad jāmaksā nodokļi - LV portāls. LV portāls, 06.08.2021. Retrieved on 20.03.2023 from <https://lvportals.lv/skaidrojumi/331043-pensiju-3-limenis-ka-krajas-nauda-un-kad-jamaksa-nodokli-lv-portals>

immediate benefits have, on average, a higher level of income and a greater understanding of pension savings in general, allowing them to see more value in such savings.

It is important to mention that there is only one closed pension fund in Latvia that can be fully considered as an Occupational Pension Fund established by employers. AS “Pirmais Slēgtais pensiju fonds” according to publicly available information ²⁰¹ has ten shareholders – public and private capital corporations - and at the end of 2021 it has accumulations of 13 thousand members and total assets 76,8 million EUR. Although the contributions paid to AS “Pirmais Slēgtais pensiju fonds” are primarily employers' payments, a small share of ~7% of the contributions in 2021 is paid by employees themselves. A certain proportion of these could also be employees who are no longer in an employment relationship with their employers, the shareholders of the Fund, but a proportion also make individual contributions of their own.

It's important to consider **the diversity of employment forms** among working-age individuals, which includes special categories like self-employed individuals, royalty recipients, small business owners, and employees of companies with special tax regimes (referred to as self-employed persons in this context). These different employment categories can have varying implications for pension contributions, tax obligations, and retirement savings strategies.

The variety of tax regimes was the result of Latvia policy makers initiatives aim to reduce the shadow economy ²⁰² and, thus, false self-employment. The lack of social protection for certain population groups was clearly highlighted due to work and movement restrictions caused by the COVID-19 pandemic. The inhabitants of developed countries of the world, including Latvia, were massively exposed to the risk of unemployment²⁰³, which was not insured in non-standard forms of employment, as well as in illegal employment. Government of Latvia created special financial support programs, according to which they provided financial support to socially uninsured groups. Understanding the high vulnerability of financially affected population groups in this way, social policy decisions were made for further tax reforms, which in 2021 resulted in the rapid alignment of the tax regime of special forms of employment with traditional one. On the one hand, this could create risks for some of the taxpayers to fall into the shadow economy, but it also gave a clear signal to the people of Latvia about the need for everyone to create their own social protection while working under the same tax regime.

²⁰¹ AS “PIRMAIS SLĒGTAIS PENSIJU FONDS” 2021. GADA PĀRSKATS, retrieved on 20.03.2023 from <https://pensijufonds.lv/finansu-infomacija/gada-parskati>

²⁰² Putniņš, T. J., Sauka, A. (2011). Size and determinants of shadow economies in the Baltic States, *Baltic Journal of Economics*, 11 (2), 5-25.

²⁰³ Spasova, S., Ghailani, D., Sabato, S., Coster, S., Fronteddu, B., Vanhercke, B. (2021). Non-standard workers and the self-employed in the EU: social protection during the Covid-19 pandemic. *ETUI Research Paper-Report*.

Considering the construction of the pension system, it could be assumed that those population groups that are not protected by state pension payments could rely on voluntary private pension savings as the result of FPR activities provided. However, research by academics does not indicate this. Moreover, it is clear that although many self-employed people try to save for old age, there are too many who have virtually no savings ²⁰⁴. According to Hatfield ²⁰⁵, the 2015 European Self-Employment Survey confirms that the self-employed are less likely to be involved in the FPR process compared to waged workers, thus creating a risk of inequality between these categories.

According to the research ²⁰⁶ provided on behalf of the Latvian government institution "The State Labour Inspectorate" (2018), an essential factor that may negatively affect the quality of life of the self-employed in various social risk situations and material well-being in the future is that a part of the self-employed avoids making mandatory contributions in social security or makes them from the minimum amount of compulsory contributions. There was a low motivation among the self-employed to pay taxes, as well as a lack of awareness and understanding of the importance of making compulsory contributions and social security in old age. A significant part of the self-employed considered that the payment of mandatory contributions is not essential for receiving various social insurance services and is not aware that the amount of the calculated social service depends on the compulsory contributions made.

It can be concluded from the discussion above that the financial incentives provided by governments for saving for retirement may differ significantly for various income levels and forms of employment. In particular, tax incentives need to be considered in the context of the taxes paid by the population in general, which is the only way to assess their potential impact on FPR decision-makers. Meanwhile, potential investors should receive information, the tax relief rates also enable the government to motivate people to postpone today's consumption until retirement, as well as to encourage people to withdraw their savings gradually, over a longer period of time.

Potential new investors need to be informed about tax incentives to encourage saving. This highlights the next topic of particular interest - how effectively information on pension saving opportunities and arrangements is provided to the Latvian population to enable investors to make sound and informed decisions on FPR.

²⁰⁴ Thaler, R. H., Benartzi, S. (2004). Save more tomorrow™: Using behavioral economics to increase employee saving. *Journal of political Economy*, 112(S1), S164-S187.

²⁰⁵ Hatfield, I. (2015). *Self-employment in Europe*. London, UK: Institute for Public Policy Research.

²⁰⁶ The State Labour Inspectorate (Valsts Darba Inspekcija). (2018). Study "Self-employment in Latvia and improvement of the legal framework for improving the working conditions of the self-employed" available in http://petijumi.mk.gov.lv/sites/default/files/title_file/Valsts_darba_inspekcija_2018_Petijums_Pasnodarbinatiba_Latvija.pdf, accessed on 03.09.2022

2.5. Investor disclosures - a valuable guide for retirement planning decisions

The pension design opportunities analysed above for involving citizens in FPR decision-making are only possible if potential participants are able to find and understand the information describing the investment choices on offer. Policy makers and service providers jointly need to ensure that citizens who are unable and unwilling to assess investment options for themselves, often because they consider them too complex and demand too much effort to execute, are also engaged. The scientific debate continues on the impact of simplifying the provided information on investors' decisions, both confirming ²⁰⁷ and questioning it ²⁰⁸. Nevertheless, pension providers have an obligation to provide information to all members in an accessible format and in a way that will be understandable to them. While the preferred way of receiving and perceiving information may depend on the individual's information perception characteristics, whether information is received depends mainly on the **availability of different sources of information**.

The most frequently cited sources of information about the steps to be taken for FPR in the academic literature are individual consultations with financial investment or pension fund experts ²⁰⁹, obtaining information in financial seminars ²¹⁰, as well as in countries with highly developed occupational pensions information obtained at events organized by the employer ²¹¹. All of these ways of receiving information increase understanding of pension saving options, provide the opportunity to ask and receive answers, and ultimately increase the investor's financial literacy. However, these are methods that can be used by those who have decided to have a financial counsellor or attend a seminar. The more challenging task is to reach and appeal to a population that is not aware of and not at all interested in saving for retirement options.

The rise of remote financial services has highlighted the role of digital media in transforming consumer interest into actual purchases ²¹². Nyström and Mickelsson ²¹³ have introduced the concept of contextually embedded selling, which involves seamlessly integrating a firm's advertising and sales functions into a single digital media journey. Researchers have identified key themes cru-

²⁰⁷ Keim, D. B., Mitchell, O. S. (2018). Simplifying choices in defined contribution retirement plan design: a case study. *Journal of Pension Economics & Finance*, 17(3), 363-384.

²⁰⁸ Cardella, E., Kalenkoski, C. M., Parent, M. (2021). Less is not more: 401 (k) plan information and retirement planning choices. *Journal of Pension Economics and Finance*, 1-21.

²⁰⁹ Rabbani, A., Heo, W., Grable, J. E. (2021). The role of financial literacy in describing the use of professional financial advisors before and during the COVID-19 pandemic. *Journal of Financial Services Marketing*, 26(4), 226-236.

²¹⁰ Borden, L. M., Lee, S.A., Serido, J., Collins, D. (2008). Changing college students' financial knowledge, attitudes, and behavior through seminar participation. *Journal of Family and Economic Issues*, 29(1), 23-40.

²¹¹ Duflo, E., Saez, E. (2004). *Implications of pension plan features, information, and social interactions for retirement saving decisions*. Pension design and structure: New lessons from behavioral finance, 137-153.

²¹² Srinivasan, S., Rutz, O.J., Pauwels, K. (2016). Paths to and off purchase: quantifying the impact of traditional marketing and online consumer activity. *Journal of the Academy of Marketing Science*, 44(4), 1-14.

²¹³ Nyström, A., Mickelsson, K. (2019). Digital advertising as service: introducing contextually embedded selling. *Journal of Services Marketing*, 33(4), 396-406.

cial for marketers in this context, including media content, engagement, media usage, value-in-use, and purchase opportunities. It's essential to differentiate between traditional advertising and contextually embedded selling. Effective use of digital media to inform customers about voluntary savings should not only provide information but also facilitate the acquisition of the product or service.

The digital media landscape in Latvia, as of March 2023, includes three types of Internet sites where people can access information about retirement savings:

1. Official government institution websites: These sites offer textual information about the pension system. Users can access personalized data concerning the current status of the 1st and 2nd pension system pillars, as well as projections of future pension income levels. Information about the 3rd pillar is purely informative, with no linked connections to service providers, only external links to official regulations.

2. Informational websites: These websites provide explicit information in various formats, including graphics and videos, about all three pillars of the pension system. They do not offer personalized data or linked connections to service providers. Similar to the official government sites, they provide external links to official regulations.

3. Pension service providers' websites: These sites offer online calculators and the option to apply for pension offers. They provide information in various formats and include links to external sites containing official regulations.

Figure 2.11 likely illustrates the availability and accessibility of pension-related information through these three types of websites in Latvia's digital media space.

The primary drawback common to all three types of internet sites is the lack of seamless integration and interconnection among them. This limitation restricts customers' ability to fully utilize online services for retirement savings and access a comprehensive range of information and tools. The main disadvantage of the websites analysed in Sections 1 and 2 is the way the information is presented - in an instructive way about the pension system and the options and conditions it offers. This way of presenting information educates the consumer but does not call for concrete action. It is important to provide the potential investor an answer to the question: what do I need to do to start saving or change my investment strategy? The second group of websites does not respond to this question, remaining at the level of explaining why to save. On the positive side, the websites of the financial service providers themselves (3) contain a personalised nudge to take action - to choose the amount to save, the saving period and the investment strategy, i.e. a call to action.

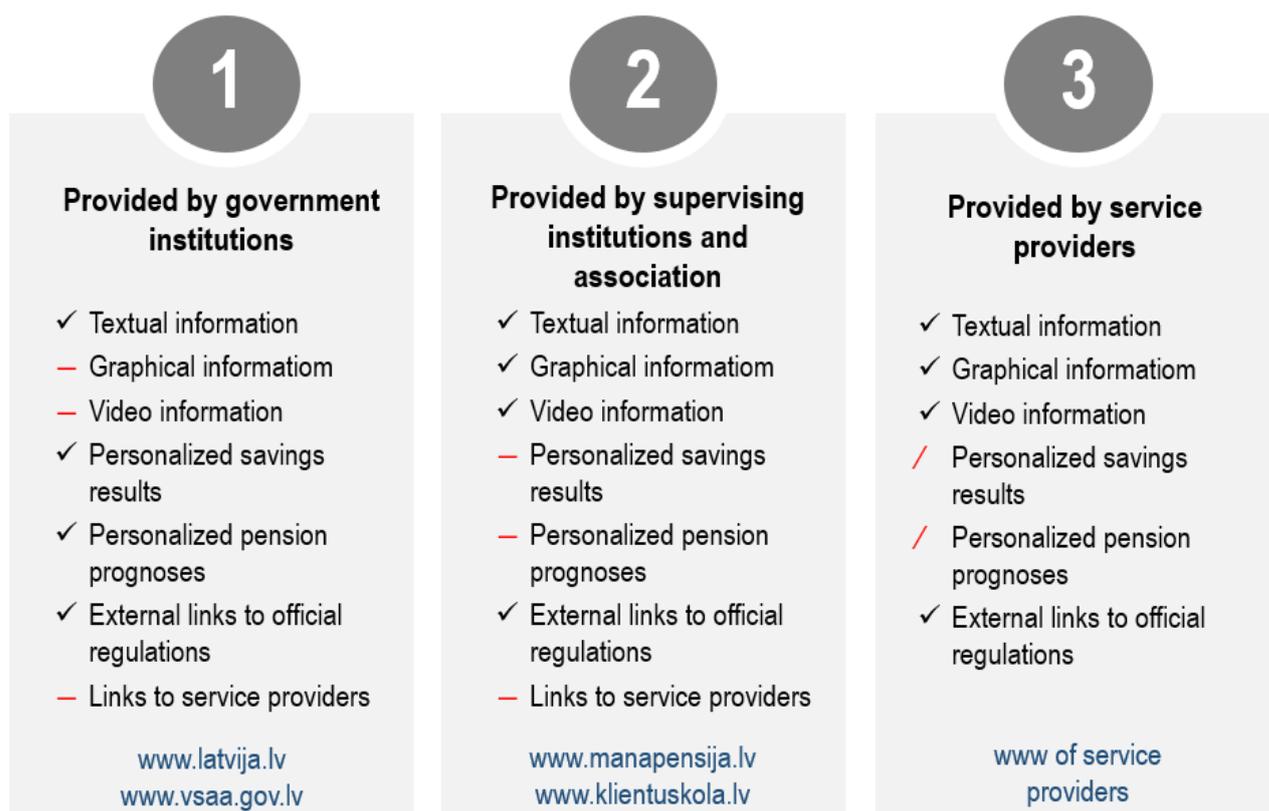


Figure 2.11 **Information provided digitally for Latvia population about funded pension system opportunities in March 2023**

Source: the author construction based on the analyses of web pages: www.latvija.lv, www.vsaa.gov.lv, www.manapensija.lv, www.klientuskola.lv, www.swedbank.lv, www.seb.lv, www.citadele.lv, www.luminor.lv, www.invl.lv, www.indexo.lv, www.integrum.lv

Particular attention should be paid to **the way the information is presented** - concise, clear, in plain (easy) language, with appropriate graphics and visuals. Similarly, information is better perceived by presenting it sequentially on the screen, from the most important to the least, so that all information is presented in a user-friendly way that can be read on different digital devices.

A well-established way to help consumers make decisions is to offer the services of all suppliers on a single online platform for easier and more convenient comparison. In Latvia, such a solution has been introduced for investment plans at 2nd pension pillar: www.manapensija.lv compares the historical returns of all investment plans in graphical and tabular form and brings together disclosure documents and performance reports for all products offered by providers.

An infrastructure for providing information has been created for members of the 2nd and 3rd pension pillars of the pension system. Not only does it serve pension plan managers to attract new clients and retain existing ones, comprehensive and regular information availability requirements are also set by legislation, which in turn ensures that investors' rights are respected, and investors make balanced and informed decisions.

European Union regulation sets requirements for disclosure documents that must be provided to existing and potential customers. Potential investors should therefore be given details of the product(s) they are looking for prior to the contract being signed. The purpose of the pre-contractual information document is to give the information to the consumer about the key aspects of the proposed investment product or service and to indicate where and how to access further information about the proposed investment. The requirements for pension products are set out in the PRIIPs²¹⁴ and PEPP²¹⁵ Key Information Document (KID). According to the requirements the following information must be presented in KID: Product key characteristics; Risks; Costs and charges; Past performance and future scenarios; and, for complex products, a comprehension alert also needs to be included. In addition, the general rules on requirements for the content and format of pre-contractual documents are set by the DMFSD²¹⁶ regulation protecting consumers when they sign a contract with a retail financial services provider at a distance and stating that it should be simple and easy to understand.

In Latvia national legislation^{217, 218} the specific set of requirements of information disclosure for the customers is provided. It is important to emphasize that the Latvian national regulation in determining the conditions for the creation of an information document is much more precise for service providers of the 2nd pension pillar than for the 3rd pension pillar. For the 2nd pension pillar, special rules have been developed²¹⁹ with specific requirements, not only what information should be reflected in the document, but also suggests how to structure and display information visually. In this way, the rationale for the creation of the regulation has been taken into account - to provide customers with essential information in a form that is as understandable as possible, but also mutually comparable.

²¹⁴ Chapter II PRIIPs, Regulation (EU) No 1286/2014 of the European Parliament and of the Council of 26 November 2014 on key information documents for packaged retail and insurance-based investment products (PRIIPs), OJ L 352, 9.12.2014, p. 1–23.

²¹⁵ Article 26 PEPP, Regulation (EU) 2019/1238 of the European Parliament and of the Council of 20 June 2019 on a pan-European Personal Pension Product (PEPP), OJ L 198, 25.7.2019, p. 1–63.

²¹⁶ Directive 2002/65/EC of the European Parliament and of the Council of 23 September 2002 concerning the distance marketing of consumer financial services and amending Council Directive 90/619/EEC and Directives 97/7/EC and 98/27/EC, OJ L 271, 9.10.2002, p. 16–24.

²¹⁷ Saeima (Parliament) Privāto pensiju fondu likums. Latvijas Vēstnesis, 259A, 30.12.2019. <https://likumi.lv/ta/id/311721/redakcijas-datums/2021/10/20>

²¹⁸ Saeima (Parliament) Valsts fondēto pensiju likums. Latvijas Vēstnesis, 78/87, 08.03.2000. <https://likumi.lv/ta/id/2341>

²¹⁹ FCMC (Finanšu un kapitāla tirgus komisija) 2020. gada 4. augusta noteikumi Nr. 123 "Valsts fondēto pensiju shēmas dalībniekiem paredzētās pamatinformācijas sagatavošanas normatīvie noteikumi". Latvijas Vēstnesis, 155, 13.08.2020. <https://likumi.lv/ta/id/316641>

The comprehensive study ²²⁰ recently provided by European Commission experts group proposed evaluation model of disclosure documents link the needs and objectives of the requirements with the relevance, efficiency, and effectiveness of the practical performance. The author set a similar objective - **to assess the suitability of existing disclosure documents** to consumers' level of knowledge and perception, as well as to aspects of interest to them that may serve as a basis for FPR decision-making.

To conduct **the research**, a survey method was used, addressing a group of socially active residents of Latvia with Latvian as their native language, who share a common interest - choir singing. In September-October 2022, 43 respondents were contacted, 30 respondents replied, with a response rate of 70%. The majority of respondents were women (73.3%) and aged 45-54 (53.3%). The survey was based on the sample of Key Information Document template, which was presented to each respondent in two ways - electronically and in hard copy. The respondents had to answer on 2-part questionnaire: 10 questions on the Key Information Document, of which 9 closed and 1 open question, and 4 questions on pension planning, as well as 2 demographic questions (Annexe 2). According to Cronbach's Alpha Internal consistency the questionnaire is 0,893 and is on acceptable level. The data analyses are provided using indicators of descriptive statistics and cross-tabulations in SPSS programme.

Table 2.5 Cronbach's Alpha Internal consistency of the questionnaire

Reliability Statistics	
Cronbach's Alpha	N of Items
,893	10

Source: the author construction based on the analyses in SPSS

The survey's task of assessing the comprehensibility of the information contained in the KID was achieved by asking for an assessment of each of the main sections of substantive information in the document: Risk level of the plan, Fees to be charged, Investment strategy and Investment return level. On a scale of 1-8, the results indicated a medium level of understanding in all categories, with a slightly higher statistical mean for Risk and a lower statistical mean for Return on Investment (Table 2.6).

²²⁰ European Commission, Directorate-General for Financial Stability, Financial Services and Capital Markets Union, Uličná, D., Vincze, M., Mosoreanu, M. (2022). *Disclosure, inducements, and suitability rules for retail investors study : final report*, Publications Office of the European Union. <https://data.europa.eu/doi/10.2874/647061>

Table 2.6 Main statistical indicators of the level of understandability of aspects presented in information documents

Statistical indicators	Is it understandable where the plan's funds are invested?	Is it understandable what the risk level of this plan is?	Is it understandable what and how much fees (deductions) will be charged?	Is it understandable how the investment plan's return is calculated?
N Valid	30	30	30	30
Missing	0	0	0	0
Mean	4.37	5.23	4.97	4.23
Standard Error of Mean	0.43	0.40	0.44	0.43
Median	5	6	5.5	4
Mode	6	7	5, 6	1
Standard Deviation	2.37	2.18	2.39	2.33
Variance	5.62	4.74	5.69	5.47
Minimum	1	1	1	1
Maximum	8	8	8	8

Scale: from 1-8 were 1 – Not understandable at all; 8 – Very well understandable

Source: the author construction based on the author's created and realised survey in 2022 data analyses

Data reflected in the table indicate that respondents rather high have evaluated the analysed aspects what is characterised by indicators of central tendency or location: arithmetic mean, mode and median. Only for “Is it understandable how the investment plan's return is calculated?” the most often given evaluation was 1 (mode) – it means that this aspect was not clear for part of respondents, here half of respondents this aspect evaluated with 4 or less than 4 and half of respondents this aspect evaluated with 4 or more than 4 (median).

It is important to underline the wide dispersion of the answers - each of the questions has evaluations across the whole scale. Moreover, the most frequently cited value in the lowest rated section - Investment Plan Returns - was 1, the lowest on the scale, indicating a lack of understanding of this aspect among a large proportion of respondents.

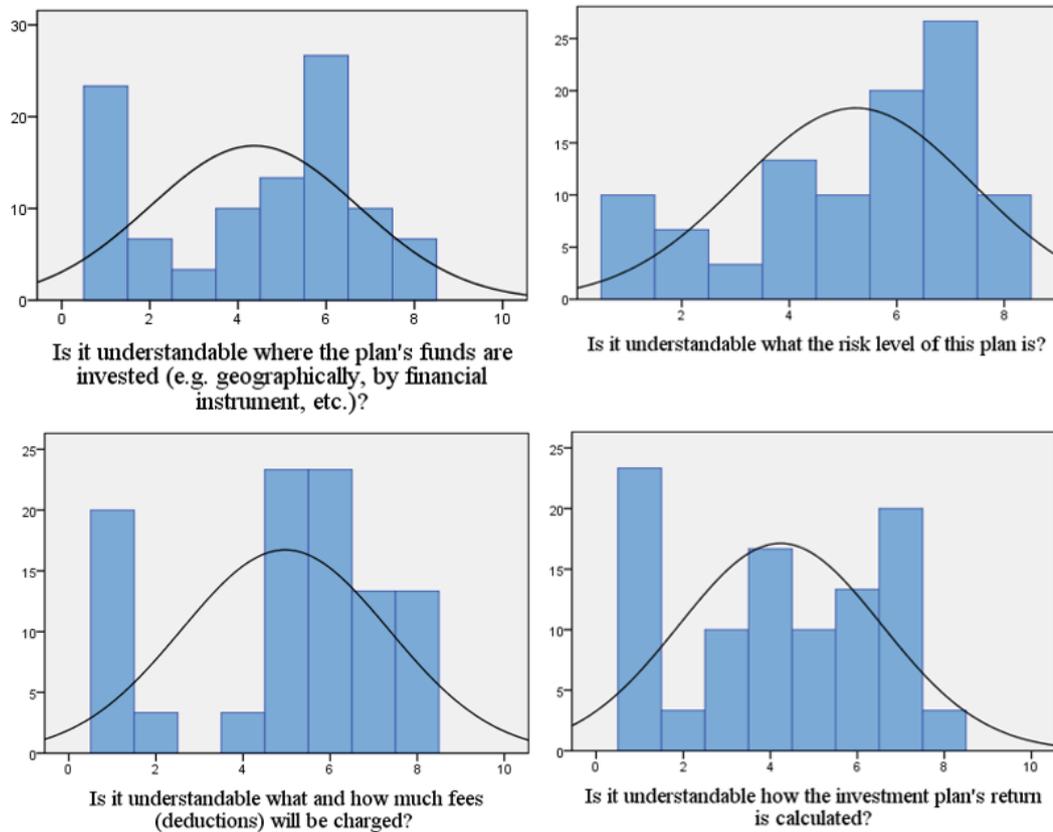


Figure 2.12 **Distribution of respondents' evaluation of analysed aspects**

Source: the author construction based on author's created and realised survey in 2022 data analyses, $n=30$

The analysis's finding that at least 20% of respondents do not understand at all the investment strategy, costs and returns of the Investment signals the low level of effectiveness of the current communication strategy for a significant segment of the population. The answer may be found in the way information is presented. To test this, respondents were asked to rate the KID in terms of the readability of the information - how the text is laid out, whether the document is too long, whether the font size makes the document easy to read, and how understandable the language is.

Table 2.7 **Main statistical indicators and distribution of the level of understandability of information documents**

		The layout of the sections	The total length of the text	The design of the document	Size of letters	Language readability and comprehensibility
N	Valid	30	30	30	30	30
	Missing	0	0	0	0	0
Mean		0.80	0.50	0.53	-0.03	-0.20
Standard Error of Mean		0.21	0.21	0.25	0.25	0.25
Median		1	1	1	-1	-1
Mode		1	1	1	-1	-1
Standard Deviation		1.16	1.17	1.38	1.35	1.35
Variance		1.34	1.36	1.91	1.83	1.82
Minimum		-2	-2	-2	-2	-2
Maximum		2	2	2	2	2

Scale: from -1 till +2 were: -2 Very bad, -1 Bad, 0 Neutral, +1 Good, +2 Very good

Source: the author construction based on author's created and realised survey in 2022 data analyses, $n=30$

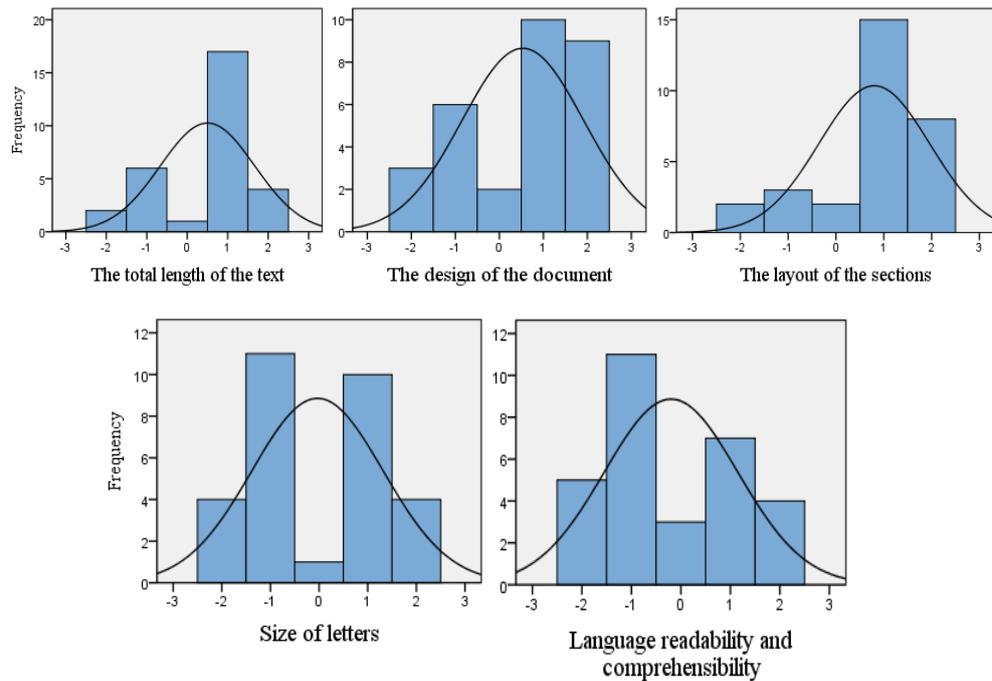


Figure 2.13 Distribution of respondents' evaluation of level of understandability of information documents

Source: the author construction based on the author's created and realised survey in 2022 data analyses, n=30

Results of this survey indicate that the layout of the sections; the total length of the text and the design of the document were positively evaluated by the respondents where the mode and median were 1, but size of letters and language readability and comprehensibility were evaluated very low – with lowest possible evaluations.

According to the survey results presented in table and figure above the majority of respondents find the KID well-structured in the sections, not too long and well-designed. There is a considerable difference of opinion on the readability of the text in terms of font size according to Table 10, which makes a paper document less usable for people with farsightedness. This is confirmed by the fact that 33,3% of respondents aged 55- 59 and 40% of respondents aged 60-64 rated the font size as unsatisfactory.

Table 2.8 Distribution of respondents by age group for evaluation of size of letters (share in % within age band)

Age Band	Evaluations					Total
	Very bad	Bad	Neutral	Good	Very good	
25 - 29				100.0		100.0
35 - 39			33.3	66.7		100.0
40 - 44		50.0		50.0		100.0
45 - 49		33.3		66.7		100.0
50 - 54	10.0	60.0			30.0	100.0
55 - 59	33.3	33.3		33.3		100.0
60 - 64	40.0	20.0		20.0	20.0	100.0
Total	13.3	36.7	3.3	33.3	13.3	100.0

Source: the author construction based on the author's created and realised survey in 2022 data analyses, n=30

The level of complexity of the language in which the information is presented in the document is the most poorly rated – 53,3% of respondents found it very badly and badly written and only 13,3% that it is written in very good way.

Table 2.9 Distribution of respondents by age group for evaluation of language readability and comprehensibility (share in % within age band)

Age Band	Evaluations					Total
	Very bad	Bad	Neutral	Good	Very good	
25 - 29		3.3				3.3
35 - 39		3.3	3.3	3.3		10.0
40 - 44		3.3		3.3		6.7
45 - 49	3.3	10.0		3.3	3.3	20.0
50 - 54	3.3	13.3	3.3	3.3	10.0	33.3
55 - 59	3.3		3.3	3.3		10.0
60 - 64	6.7	3.3		6.7		16.7
Total	16.7	36.7	10.0	23.3	13.3	100.0

Source: the author construction based on the author's created and realised survey in 2022 data analyses, n=30

According to the given answers in the open question, respondents found that the document is presented in overly complex, professional language and financial terms, whereas it should be in non-financial and simple language. The responses refer to overly broad and abstract descriptions of risks, vague definitions of the level of risk and volatility, lack of clarity on where exactly the funds are invested, and a lack of transparency on costs and fees. The comments made suggest that the information is presented in too general a way, which prevents the investor from understanding the implications of the aspects discussed for his specific needs.

According to survey when choosing an investment plan, respondents will choose the service provider and the information it provides, including on its website, as their **primary source of information**. The Key Information Document will be **the fourth priority source** of information after searching on digital sites: www.manapensija.lv and www.latvija.lv. This is explained by the fact that 63% of respondents had never seen such a document before the survey, while 23% were aware of its existence but had never used it for its intended purpose. Only 10% confirmed that they are fully aware of the document and use it for decision-making in FPR. At the same time, more than 60% of respondents, having read the evaluated information document, consider that it could be useful for making decisions on the most appropriate pension investment plan in the future.

In conclusion, the analysis of the second pensions pillar in Latvia Financial Planning Key Information Document does not provide fully comprehensible information and is therefore of limited use for potential and existing investment plan members to make an informed decision on participation in an investment plan. Taking into account the main task of disclosure documents - to be useful to the client, it is important for every service provider, as well as for the national

supervisor of uniform requirements, to regularly verify the compliance of the document, as well as to look for new opportunities to present information more and more clearly and comprehensibly. Moreover, in the digital age, continuous improvement does not entail the high costs of producing and distributing printed material, nor the long development process, which makes it much easier for pension funds as well as pension investment plan managers to publish information in a customer-friendly and as personalised as possible manner.

The analysis demonstrates that information presented in a uniform way does not reach all Latvian citizens equally. It is important to convey information in formats to which the population has access, as shown by the analysis of financial inclusion aspects. It is equally important to present information that investors consider relevant to their decision-making in a way that is personalised to each individual. Taking into account the different levels of education, financial literacy and investment experience that we all have, **information needs to be presented in a way that we can relate to and understand**. That implies offering information at different levels of sophistication to appeal to everyone and reach everyone.

2.6. Financial planning for retirement decisions in the formation of pensions in Latvia

The pension system in Latvia offers both ready-made scenarios for pension increases and the freedom for individuals to choose the solution that best responds to their needs and preferences. The latter includes most decisions at pension pillar 2, while saving at pension pillar 3 is entirely at the discretion of the investor. In determining the optimal mechanisms for involving citizens in FPR decision-making, an essential task is to identify what decisions exactly people should take.

This is most effectively accomplished using Figure 2.1, published at the beginning of this chapter, which describes the decisions to be taken throughout the pension life cycle. The next stage is to identify the level of involvement of citizens in the three stages of pension accumulation at pension pillars 2 and 3, based on the rights and obligations of the individual investing under the relevant legislation^{221 222} and supplementary rules. Based on the analysis of the legislation, the voluntary activities of the participants in the pension system in Latvia are summarized in Table 2.10.

The table 2.10 presents the differences in the level of voluntary decision-making by investors at pension scheme level 2 and 3 in Latvia: while investors at pension pillar 3 must make all decisions voluntarily (18 points from 18), saving at pension pillar 2 requires half as less active involvement of investors in decision-making (8 points from 18). The author's proposed scale of

²²¹ Saeima (The Parliament of the Republic of Latvia), 2000. Valsts fondēto pensiju likums (Law on State Funded Pensions), 08.03.2000.

²²² Saeima (The Parliament of the Republic of Latvia), 2019. Privāto pensiju fondu likums (Private Pension Fund Law), 30.12.2019.

levels of FPR decisions to be taken indicates that for pension pillar 2 the medium level of FPR decisions have to be taken while for the pension pillar 3 – the high level of FPR decisions.

Table 2.10 The nature of investor decision-making in various phases of pension savings formation at the 2nd and 3rd pension pillars in Latvia, March 2023

Decision-making phase	2nd pension pillar	Level of decision	3rd pension pillar	Level of decision
Making contributions				
Joining the system	Automatic in proportion to social contributions	0	Voluntary decision	2
Choice of contribution amount	Fixed, automatic in proportion to social contributions	0	Voluntary decision justified by tax incentives	2
Determination of the regularity of contributions	Automatic in proportion to social contributions	0	Voluntary decision	2
Fundraising				
Choice of service provider	Voluntary choice with the right to change once a year, there is a default choice	1	Voluntary decision	2
Choice of investment strategy: risk, volatility and return	Voluntary choice with the right to change investment plans up to twice a year, there is default choice	2	Voluntary decision	2
Choice of investment plan: costs and fees	Voluntary choice with the right to change investment plans up to twice a year, there is a statutory cost and fees ceiling	2	Voluntary decision	2
Disbursement of funds				
Retirement age	Defined by law without the possibility of postponement	0	From the age of 55 with no upper limit	2
Duration and regularity	1) Automatically until the end of life, adding pensions to the 1st pillar. 2) Under the terms of a lifetime pension, setting up the schedule for annuities	1	Voluntary decision	2
Additional protective coverings	Voluntary choice to inherit during accrual and pension in lifetime policy	2	Voluntary choice to inherit during accrual and pension	2
Total:	8 points from 18		18 points from 18	

The levels of decisions: 0 - investor does not have to take a decision
 1 - if no decision is taken, it is taken instead of the investor
 2 - the investor must take the decision

Low level of FPR decisions						Medium level of FPR decisions						High level of FPR decisions					
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18

Source: Author's construction based on legislation acts of Republic of Latvia published in 2022²²³

²²³ Dundure E., Sloka B. (2022). Choice architecture as a basis for pension savings decisions, *The Proceedings of 14th international scientific conference "New Challenges in Economic and Business Development – 2022: Responsible*

The high take-up and solid savings in the second pension pillar are due to automatic enrolment and regular contributions. While decision-making freedom is given at the fund-raising stage, allowing the choice of investment strategy and provider, initial decisions are taken by default on behalf of the investors, through the choice of the initial provider and investment plans. This reduces to some extent the responsibility for decisions taken at the 2nd pension pillar. Pension policy makers have also made a proposal for the disbursement phase, with a choice between contributing to the 1st pension pillar or choosing an annuity policy, although the drawback is the lack of flexibility in the choice of retirement age. In turn, in Latvia in all phases of the 3rd pension pillar, all activities are voluntary. In order to save extensively and sufficiently at the 3rd pension pillar, people themselves need to be aware of this type of saving, understand its specific rules and, above all, be motivated enough to seek offers, join pension plans and, importantly, make regular contributions.

Given the varying levels of financial literacy among different groups of people, as well as their inherent behavioural patterns, the opportunities offered by pension policy design should be tailored to reach as wide a range of people as possible. On the one hand, higher levels of participation can be achieved through stricter conditions for inclusion, while on the other hand this reduces people's genuine interest in making independent decisions and shifts responsibility to policy makers. In addition, all the reforms considered in the study were geared towards creating a broader range of opportunities, allowing citizens to choose the most appropriate and suitable solution for them. And yet, knowing that not all citizens are equally capable to make FPR decisions, pension design also needs to be tailored to each segment, with a diversified approach starting from disclosure.

The opportunities for informed decision-making in the FPR are not only determined by the state's pension design policies, support and incentive mechanisms, but crucially **by the understanding of people's capacities and their willingness to use it to their advantage in growing their future pension.** Which group of FPR decision-makers, according to the Hershey model, the Latvian pension system corresponds to the most, what should be improved in the existing Pension Opportunities, so that the other types of planners with different levels of Capacities and Willingness build up pension savings to a sufficient level - these are the questions that the next part of the study will address.

Chapter 3. FINANCIAL PLANNING FOR RETIREMENT FACTORS

EMPIRICAL RESEARCH RESULTS

3.1. Test of Capacities, Willingness and Opportunities model

In order to achieve the objective of this study - to assess the factors influencing FPR in private pension savings in Latvia, the results of the survey conducted in October and November 2022 by the research company "Latvijas Fakti" SIA selected by the Bank of Latvia in accordance with the OECD standards following the "Toolkit for measuring financial literacy and financial inclusion" (2022)²²⁴ are evaluated.

The target group of the research provided by "Latvijas Fakti" SIA was residents of Latvia aged 18-79. A representative sample of the Latvian population was drawn using a multi-stage stratified random sampling design. Stratification characteristics: a) geographical, b) national. The selection of respondents was based on the "last birthday principle". All geographical regions of Latvia were covered. Research method used: individual (face-to-face) computer-assisted interviews (CAPI) at the respondents' places of residence. Sample size: 1007 respondents.

The author exploits the answers to the questions addressed in this study at the individual level, evaluating, grouping and labelling each of the value according to the objectives of the study. The analysis selects a number of aspects for each of the dimensions defined in the Hersey model - *Capacity, Willingness and Opportunities* - as illustrated in Table 13, as well as providing an assessment of the different levels of the dimensions in terms of indicators that describe them, such as the main categories of demographic indicators.

Table 3.1 The overview of variables used in the survey

Dimensions	Subdimensions	Indicators	Answers
Capacity	Financial literacy	Calculation	False/ True
		Inflation	False/ True
		Interest on loan	False/ True
		Compound interest	False/ True
Willingness	Importance of goals	Importance of goals	From 1 – completely disagree till 5 – completely agree
	Trust in institutions	Trust in financial institutions	From 1 – completely disagree till 5 – completely agree

²²⁴ OECD (2022), OECD/INFE Toolkit for Measuring Financial Literacy and Financial Inclusion 2022, www.oecd.org/financial/education/2022-INFE-Toolkit-Measuring-Finlit-Financial-Inclusion.pdf retrieved on 25.03.2023

Dimensions	Subdimensions	Indicators	Answers
Opportunities	Activities taken to use the private pension system opportunities – Opportunities predictable	Plans Retirement income from a private pension plan	Yes/ No
		Currently holds a pension or retirement product	Yes/ No
Demography		Gender	F/ M
		Age	Age band
		Educational level	6 defined choices
		Employment status	10 defined choices
		Speaking language	3 defined choices
		Self-rated knowledge	From 1 – very high till 5 – very low
		Income band	5 defined choices

Source: the author's construction based on literature review

According to Table above the indicators which are predictor variables in the research have been grouped according to subdimensions and dimensions. The control variables make it possible to estimate different predictor variables for different population groups by age, level of education, income level, gender and ethnicity. Combining the principles of the Hershey model and the selected indicators for each dimension, the author further analyses the results of the study according to the framework presented below.

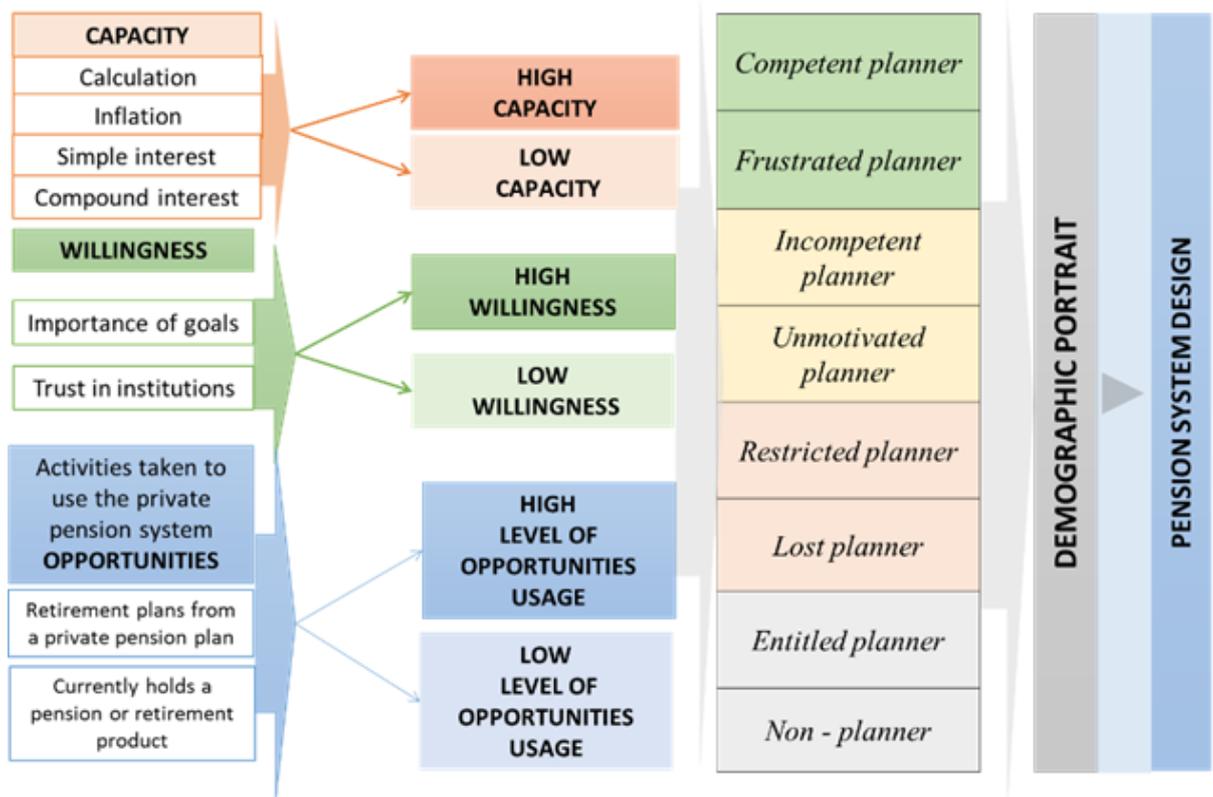


Figure 3.1 Capacities, Willingness and Opportunities model evaluation scheme

Source: the author's construction based on literature review

3.1.1. Capacity dimension

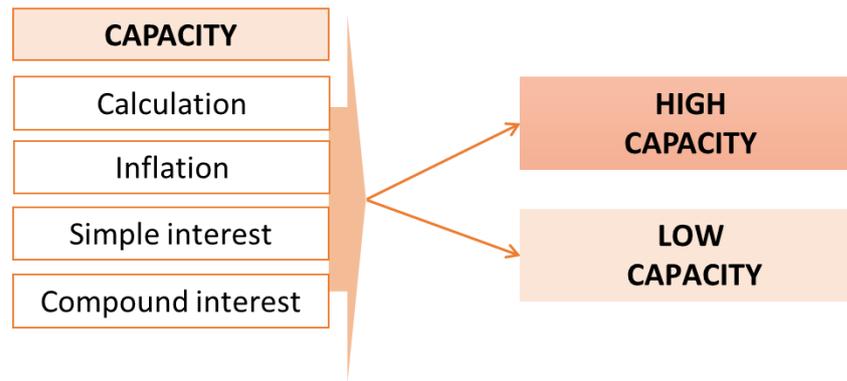


Figure 3.2 **Capacity dimension evaluation scheme**

Source: the author's construction based on literature review

The questions asked to evaluate the financial literacy of respondents, therefore define Capacity level:

- 1) **Calculation:** Imagine that five <brothers> are given a gift worth a total of 1000 euro. If the <brothers> divide the money equally, how much does each receive?
- 2) **Inflation:** Imagine that <brothers> have to wait a year to get their share of 1000 euro and inflation remains at <X> percent. After a year, they will be able to buy:
 - (a) more than today with their share of the money
 - (b) the same or
 - (c) less than today.
- 3) **Simple interest:** Imagine someone deposits 100 euro in a <free, tax-free> savings account with a guaranteed annual interest rate of 2%. He does not make any further deposits or withdrawals. How much money would be in the account at the end of the first year when the interest payment is made?
- 4) **Compound interest:** How much money would be in the account after five years [assuming no fees or tax deductions]? Would the amount be:
 - (a) more than 110 euro
 - b) exactly 110 euro
 - (c) less than 110 euro or
 - (d) not possible to deduce from the information provided.

All respondents were grouped according to the number of questions answered correctly, ranging from 0 to 4, with 0 assigned to those who did not answer any questions correctly or refused to answer, and 4 to those who answered all financial literacy questions correctly.

Table 3.2 The frequency of number of correct answers on the financial literacy questions

Number of answers		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No correct answers	90	8.9	8.9	8.9
	1 correct answer	153	15.2	15.2	24.1
	2 correct answers	283	28.1	28.1	52.2
	3 correct answers	335	33.3	33.3	85.5
	4 correct answers	146	14.5	14.5	100.0
	Total	1007	100.0	100.0	

Source: the author construction based on the survey in 2022 data analyses, n=1007

Data of the survey results indicate that 33.3% of respondents gave 3 correct answers and 14.5% of respondents gave 4 correct answers and 8.9% of respondents have given no correct answers. More detailed statistical analysis with main indicators of descriptive statistics is included in table 3.3.

Table 3.3 Main statistical indicators of descriptive statistics on number of correct answers on the financial literacy questions

Statistical indicators		Value
N	Valid	1007
	Missing	0
Mean		2.29
Standard Error of Mean		0.036
Median		2
Mode		3
Standard Deviation		1.157
Variance		1.338
Range		4
Minimum		0
Maximum		4

Source: the author construction based on the survey in 2022 data analyses, n=1007

The results of the analysis indicates that the financial literacy knowledge of the Latvian population is on moderate level: with an arithmetic mean of 2.29 (on a scale from 0 to 4), the most frequent score was 3, which is the mode; half of the respondents were able to answer up to 2

questions correctly, which is the median. The respondents' ratings covered the whole rating scale, and the variability indicators show that the analytical ratings were quite different.

Further financial literacy evaluation has been provided by defining as the Low level of capacity for those respondents who gave less than two (including) correct answers on four questions. Accordingly, those who gave three and four correct answers on four questions are named as people with High-Capacity level. There are 52,2% from respondents with Low-Capacity level.

Table 3.4 The distribution of respondents with low and high capacities for financial planning for retirement

Levels of Capacity	Frequency	Percent	Valid Percent	Cumulative Percent
Low Capacity	526	52.2	52.2	52.2
High Capacity	481	47.8	47.8	100.0
Total	1007	100.0	100.0	

Source: the author construction based on the survey in 2022 data analyses, n=1007

To validate the distribution of respondents into low and high level of capacities it is useful to compare it with evaluations of self-rated financial knowledge.

Table 3.5 Distribution of respondents on capacities levels and evaluations of self-rated knowledge

Capacity levels		Self-rated knowledge						Total
		Very high	Quite high	About average	Quite low	Very low	Do not know	
Low Capacity	Count	7	41	218	118	87	55	526
	% within Self-rated knowledge	53.8	32.8	45.7	54.1	84.5	77.5	52.2
High Capacity	Count	6	84	259	100	16	16	481
	% within Self-rated knowledge	46.2	67.2	54.3	45.9	15.5	22.5	47.8
Total	Count	13	125	477	218	103	71	1007
	% within Self-rated knowledge	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: the author construction based on the survey in 2022 data analyses, n=1007

According to Chi-Square test in the following table the result is statistically *significant* – the data suggests that the variables capacity levels and Self-rated knowledge levels are associated with each other.

Table 3.6 Chi-Square tests of the distribution of respondents on capacities levels and evaluations of self-rated knowledge

Chi-Square Tests	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	105,862 ^a	5	0.000
Likelihood Ratio	110.683	5	0.000
Linear-by-Linear Association	90.920	1	0.000
N of Valid Cases	1007		

a. 0 cells (0,0%) have expected count less than 5. The minimum expected count is 5,65.

Source: the author construction based on the survey in 2022 data analyses, n=1007

Correlation analysis is performed to characterise the strength and direction of the linear relationship between the two variables capacity level and self-rated knowledge of respondents. The results of correlation analysis are included in Table 3.7.

Table 3.7 Symmetric measures of the distribution of respondents on capacities levels and evaluations of self-rated knowledge

Symmetric Measures	Value	Asymp. Std. Error ^a	Approx. T ^b	Approx. Sig.
Interval by Interval Pearson's R	0.301	0.029	9.993	0,000 ^c
Ordinal by Ordinal Spearman Correlation	0.304	0.029	10.111	0,000 ^c
N of Valid Cases	1007			

a. *Not assuming the null hypothesis.*

b. *Using the asymptotic standard error assuming the null hypothesis.*

c. *Based on normal approximation.*

Source: the author construction based on the survey in 2022 data analyses, n=1007

The symmetric measures of the evaluations of self-rated financial knowledge and levels of capacities indicates moderate positive correlation (0.3 to 0.5): in general people with low capacity evaluates their knowledge on the lower level in comparison with people with high capacity. The exception is the highest level of self-assessment - given the insignificant number of respondents in this segment (around 1%), this does not have a significant impact on the assessment of the results.

Capacity levels of population are expected to change during the lifetime according to literature review provided in the first chapter of the research. The Hershey model itself determines the impact of people's age on their FPR behaviour, which in turn is directly related to their level of financial literacy or capacities in the terminology of this study.

Table 3.8 **Distribution of respondents on capacities levels and age bands**

Level of Capacity		Age Band						Total	
		18-19	20-29	30-39	40-49	50-59	60-69		70-79
Low Capacity	Count	28	83 _a	98 _c	74	88	83	72	526
	% within Age Band	82.4	64.8	51.3	42.3	48.9	46.1	60.5	52.2
High Capacity	Count	6	45	93	101	92	97	47	481
	within Age Band	17.6	35.2	48.7	57.7	51.1	53.9	39.5	47.8
Total	Count	34	128	191	175	180	180	119	1007
	% within Age Band	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: the author construction based on the survey in 2022 data analyses, $n=1007$

According to Chi-Square test in the following table the result is statistically *significant* – the data suggests that the variables capacity levels and age band are associated with each other.

Table 3.9 **Chi-Square tests of the distribution of respondents on capacities levels and age bands**

Chi-Square Tests	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	30,610 ^a	6	0.000
Likelihood Ratio	30.704	6	0.000
Linear-by-Linear Association	0.132	1	0.716
N of Valid Cases	1007		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 14.79.

Source: the author construction based on the survey in 2022 data analyses, $n=1007$

Correlation analysis is performed to characterise the strength and direction of the linear relationship between the two variables capacity level and age band of respondents.

Table 3.10 **Symmetric measures of the distribution of respondents on capacities levels and age bands**

Symmetric Measures	Value	Asymp. Std. Error ^a	Approx. T ^b	Approx. Sig.
Interval by Interval Pearson's R	-.011	.032	-.363	.717 ^c
Ordinal by Ordinal Spearman Correlation	-.016	.032	-.505	.614 ^c
N of Valid Cases	1007			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

Source: the author construction based on the survey in 2022 data analyses, $n=1007$

The symmetric measures of the evaluations of capacity levels and age bands indicates weak negative correlation (0 to -0.3): people with low and high-Capacity levels have uneven distribution along different age groups, correlation coefficients are not statistically significant.

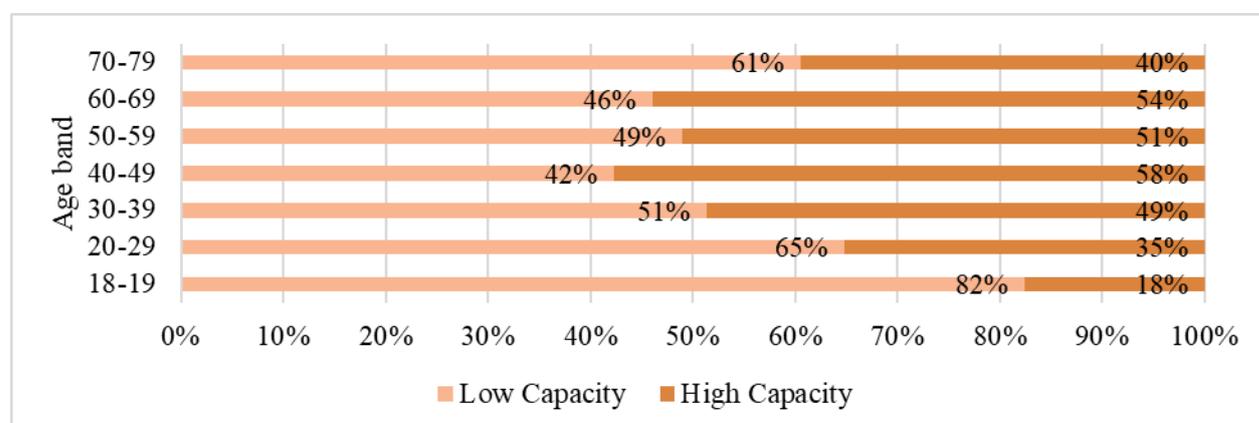


Figure 3.3 **Distribution of respondents on capacity levels and age bands**

Source: the author construction based on the survey in 2023 data analyses, n=1007

The figure above illustrates the differences between the capacity levels and also demonstrates the superiority of the 40-49 age group in financial literacy compared to younger and older respondents. According to the analyses, **the younger people in Latvia have the lowest financial literacy** - only 17.6% of young people aged 18-19 are able to demonstrate a good knowledge on the questions asked. This is negative because the questions asked were purely mathematical and would be expected to be answerable by middle school graduates. Nevertheless, the situation improves with increasing age, while it rapidly deteriorates again in the 70+ age group.

As part of the study, it is valuable to assess the impact of formal education on respondents' capacity levels.

Table 3.11 **Distribution of respondents on capacities and education levels**

Level of Capacity		Educational Level						Total
		Postgraduate education	University-level education	Upper secondary school or high school	Lower secondary or middle school	Primary school	No formal education	
Low Capacity	Count	46	104	270	100	2	4	526
	% within Educational Level	41.8	39.1	53.8	82.6	100.0	66.7	52.2
High Capacity	Count	64	162	232	21	0	2	481
	% within Educational Level	58.2	60.9	46.2	17.4	0.0	33.3	47.8
Total	Count	110	266	502	121	2	6	1007
	% within Educational Level	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: the author construction based on the survey in 2022 data analyses, n=1007

According to Chi-Square test in the following table the result is statistically *significant* – the data suggests that the variables capacity levels and education levels are associated with each other.

Table 3.12 **Chi-Square tests of the distribution of respondents on capacities and education levels**

Chi-Square Tests	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	74,835 ^a	5	0.000
Likelihood Ratio	76.960	5	0.000
Linear-by-Linear Association	54.972	1	0.000
N of Valid Cases	1007		

a. 4 cells (33.3%) have expected count less than 5. The minimum expected count is 0.87.

Source: the author construction based on the survey in 2022 data analyses, n=1007

Correlation analysis is performed to characterise the strength and direction of the linear relationship between the two variables capacity level and education level of respondents.

Table 3.13 **Symmetric measures of the distribution of respondents on capacities and education levels**

Symmetric Measures	Value	Asymp. Std. Error ^a	Approx. T ^b	Approx. Sig.
Interval by Interval Pearson's R	0.234	0.030	7.622	0,000 ^c
Ordinal by Ordinal Spearman Correlation	0.244	0.030	7.964	0.000 ^c
N of Valid Cases	1007			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

Source: the author construction based on the survey in 2022 data analyses, n=1007

The symmetric measures of the evaluations of capacity levels and education levels indicates statistically significant positive correlation. This is explained by the fact that, although the level of financial literacy gradually increases from primary school to university, post-graduates show a slightly higher level than undergraduates, and respondents without any formal education show a slightly lower level of knowledge than high school graduates.

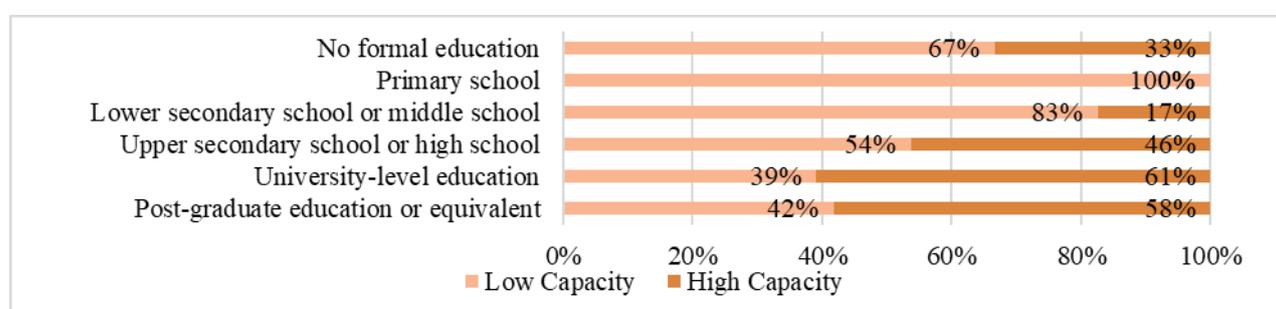


Figure 3.4 **Distribution of respondents on capacity and education levels, in %**

Source: the author construction based on the survey in 2022 data analyses, n=1007

In general, author concludes that **the level of education contributes to the increase in the level of financial literacy**. While only 17.4% of young people who have just completed secondary school have a high level of financial literacy, 60.9% of university graduates are rated as highly competent.

A more accurate picture of the structure of the population can be gained by analysing the relationship between employment and financial literacy: people in employment have higher financial literacy than those not in paid employment.

Table 3.14 Distribution of respondents on capacities levels and employment status

Level of Capacity	Employment status									Total
	Self-employed	In paid employment	Homemakers	Looking for work; unemployed	Retired	Unable to work	Not working	Student		
Low Capacity	Count	46 ^a	264	25	23	104	18	6	40	526
	% within Employment status	49.5	46.9	75.8	65.7	55.6	52.9	85.7	72.7	52.2
High Capacity	Count	47	299	8	12	83	16	1	15	481
	% within Employment status	50.5	53.1	24.2	34.3	44.4	47.1	14.3	27.3	47.8
Total	Count	93	563	33	35	187	34	7	55	1007
	% within Employment status	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: the author construction based on the survey in 2022 data analyses, n=1007

The group with the lowest financial literacy is the smallest group observed in terms of numbers - those respondents who are not working and not looking for a job.

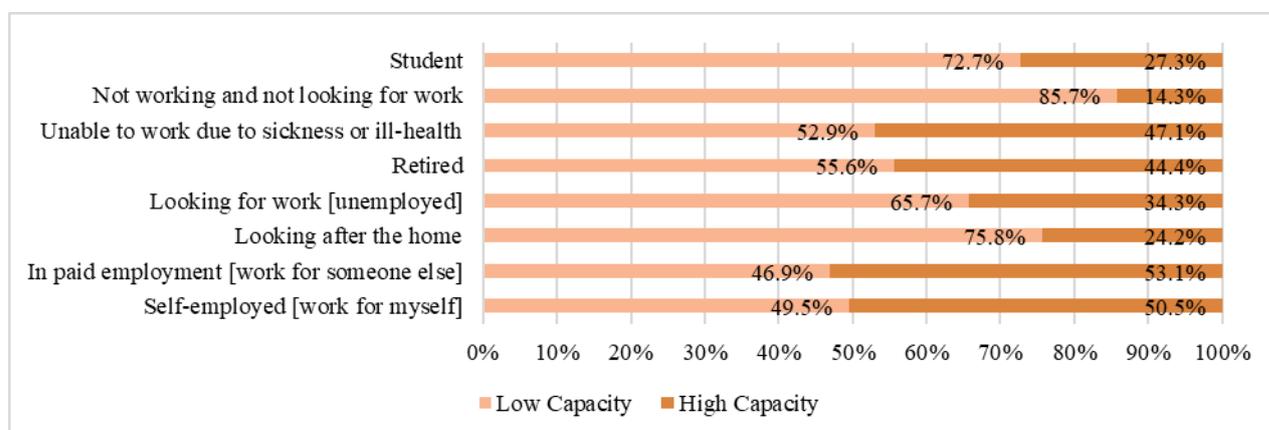


Figure 3.5 Distribution of respondents on capacity levels and employment status, in %

Source: the author construction based on the survey in 2022 data analyses, n=1007

It is noteworthy that **72.7% of students surveyed reported the second lowest level of financial literacy among all groups**. Which makes one cautious about the level of financial literacy of school leavers.

Referring to the gender gap in pension saving identified by academic studies, it is also useful to assess the existence of gender differences in this research.

Table 3.15 Distribution of respondents by capacities levels and gender

Level of Capacity		Gender		Total
		Male	Female	
Low Capacity	Count	240	286	526
	% within Gender	53.7	51.1	52.2
High Capacity	Count	207	274	481
	% within Gender	46.3	48.9	47.8
	Count	447	560	1007
	% within Gender	100.0	100.0	100.0

Source: the author construction based on the survey in 2022 data analyses, n=1007

According to Chi-Square test in the following table the result is statistically *significant* – the data suggests that the variables capacity levels and gender are associated with each other.

Table 3.16 Chi-Square tests of the distribution of respondents on capacities levels an gender

Chi-Square Tests	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	0,509 ^a	1	0.476	0.482	0.258
Continuity Correction ^b	0.422	1	0.516		
Likelihood Ratio	0.509	1	0.476		
Fisher's Exact Test					
Linear-by-Linear Association	0.508	1	0.476		
N of Valid Cases	1007				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 194.43.

b. Computed only for a 2x2 table

Source: the author construction based on the survey in 2022 data analyses, n=1007

The analysis shows a gender gap in financial literacy, with women able to demonstrate a higher level of financial literacy than men. However, it should be acknowledged that gender differences in financial literacy are not on the statistically significant level.

The language spoken by the target audience is an important aspect of developing an appropriate communication strategy. Given that 30% of respondents communicate in a language other than Latvian, it is important to find out whether there are any differences in the financial literacy of speakers of different languages.

Table 3.17 **Distribution of respondents by capacities levels and speaking language**

Level of Capacity		Speaking language			Total
		Latvian	Russian	Other	
Low Capacity	Count	358	149	19	526
	% within Language	50.9	55.4	55.9	52.2
High Capacity	Count	346	120	15	481
	% within Language	49.1	44.6	44.1	47.8
Count		704	269	34	1007
% within Language		100.0	100.0	100.0	100.0

Source: the author construction based on the survey data analyses, n=1007

The analysis revealed that the distribution of respondents' levels of financial literacy varies between speakers of different languages. The Latvian speakers have higher levels than the Russian and other language speakers.

3.1.2. Willingness dimension

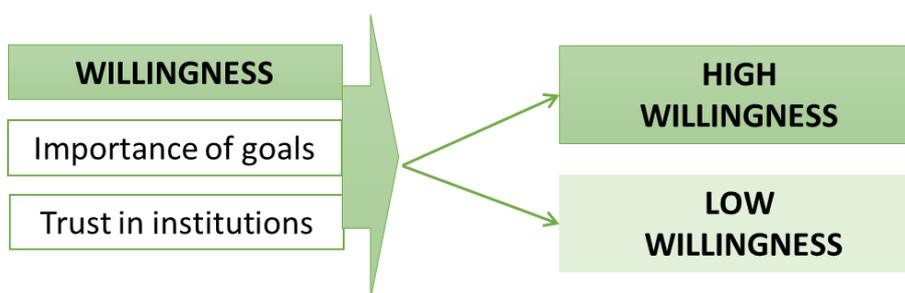


Figure 3.6 **Willingness dimension evaluation scheme**

Source: the author's construction based on literature review

To evaluate the respondents according to Willingness dimension in high and low willingness levels the answers on two questions from the survey are analysed:

- 1) To what extent do you agree or disagree with the statement: I set long-term financial goals and strive to achieve them.
- 2) How well does this statement describe you or your situation: I trust that financial service providers will treat me fairly.

The answers given in 6 categories to the two questions allow crosstabulation to create a matrix of responses.

Table 3.18 Distribution of respondents on the willingness to set long term goals and trust to financial service providers

Answers on the question: I set long term financial goals and strive to achieve them		I trust financial service providers to treat me fairly					Total	
		Do not know	Completely disagree	Disagree	Nor agree not disagree	Agree		Completely agree
Do not know	Count	26	11	12	6	4	14	73
	% of Total	2.6	1.1	1.2	0.6	0.4	1.4	7.2
Completely disagree	Count	20	66	72	70	22	39	289
	% of Total	2.0	6.6	7.1	7.0	2.2	3.9	28.7
Disagree	Count	9	27	35	47	14	18	150
	% of Total	0.9	2.7	3.5	4.7	1.4	1.8	14.9
Nor agree not disagree	Count	14	39	24	64	25	32	198
	% of Total	1.4	3.9	2.4	6.4	2.5	3.2	19.7
Agree	Count	8	12	30	32	17	18	117
	% of Total	0.8	1.2	3.0	3.2	1.7	1.8	11.6
Completely agree	Count	38	30	24	35	14	39	180
	% of Total	3.8	3.0	2.4	3.5	1.4	3.9	17.9
Total	Count	115	185	197	254	96	160	1007
	% of Total	11.4	18.4	19.6	25.2	9.5	15.9	100.0

Source: the author construction based on the survey in 2022 data analyses, n=1007

The table above divides all respondents into 36 groups, which allows for cross-group analysis and further regrouping. The author's task is to create 2 groups for each of the questions, to cross them again and end up with 4 groups. In order to assess the respondents' readiness to plan for the long term and trust in financial services provider in the categories of high and low levels, the author applies the following approach: those who are neutral, agree and completely agree with the statements are assessed with high levels, the rest - with low.

Table 3.19 Distribution of respondents according to levels of setting long term goals and trust to financial service providers

I set long term financial goals and strive to achieve them		I trust financial service providers to treat me fairly		Total
		Low trust	High Trust	
Low Goal setting	Count	278	219	497
	% of Total	27.6	21.7	49.4
High Goal setting	Count	234	276	510
	% of Total	23.2	27.4	50.6
Total	Count	512	495	1007
	% of Total	50.8	49.2	100.0

Source: the author construction based on the survey in 2022 data analyses, n=1007

According to the division into two groups of willingness to set long term goals 50.6% from all respondents are with High goal setting willingness and the rest – 49.4% with low. Whereas

according to the division into two groups of willingness to trust financial service providers 49.2% from all respondents are with High trust level and others are with low. Since the differences are not significant, we can assume that the Latvian population is split down the middle, both in its willingness to save for long-term spending and in its level of trust in financial services providers.

Following this conclusion, the next step is to identify those who have both the willingness to save and the trust in financial institutions to save in private pension funds. In this way, it will be possible to identify high and low levels of willingness.

Table 3.20 Distribution of respondents with low and high willingness for financial planning for retirement

Levels of Willingness		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Low Willingness	731	72.6	72.6	72.6
	High Willingness	276	27.4	27.4	100.0
	Total	1007	100.0	100.0	

Source: the author construction based on the survey data analyses, n=1007

Combining the two parameters - goal setting and trust in institutions - according to the same principles as applied to each of them above, we have identified a group of respondents with high willingness and trust - 276 people, or 27.4% of all respondents, and low willingness and trust - 731 people, or 72.6% of all respondents.

The best way to assess the situation is to measure willingness levels by a number of demographic parameters. According to the scientific literature, the willingness to save should increase with ageing. The following table illustrates the situation in Latvia in this respect.

Table 3.21 The distribution of respondents according to level of willingness and age band

Level of Willingness		Age Band							Total
		18-19	20-29	30-39	40-49	50-59	60-69	70-79	
Low Wil-lingness	Count	32	96	140	139	112	128	84	731
	% within Age Band	94.1	75.0	73.3	79.4	62.2	71.1	70.6	72.6
High Wil-lingness	Count	2	32	51	36	68	52	35	276
	% within Age Band	5.9	25.0	26.7	20.6	37.8	28.9	29.4	27.4
Total	Count	34	128	191	175	180	180	119	1007
	% within Age Band	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: the author construction based on the survey in 2022 data analyses, n=1007

According to Chi-Square test in the following table the result is statistically *significant* – the data suggests that the variables willingness levels and age bands are associated with each other.

Table 3.22 **Chi-Square tests of the distribution of respondents according to level of willingness and age band**

Chi-Square Tests	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	22,617 ^a	6	0.001
Likelihood Ratio	24.800	6	0.000
Linear-by-Linear Association	6.452	1	0.011
N of Valid Cases	1007		

a. 0 cells (0,0%) have expected count less than 5. The minimum expected count is 9.32.

Source: the author construction based on the survey in 2022 data analyses, n=1007

Correlation analysis is performed to evaluate the strength and direction of the linear relationship between the two variables willingness level and age band of respondents.

Table 3.23 **Symmetric measures of the distribution of respondents according to level of willingness and age band**

Symmetric Measures	Value	Asymp. Std. Error ^a	Approx. T ^b	Approx. Sig.
Interval by Interval Pearson's R	0.080	0.030	2.547	0.011 ^c
Ordinal by Ordinal Spearman Correlation	0.077	0.031	2.439	0.015 ^c
N of Valid Cases	1007			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

Source: the author construction based on the survey in 2022 data analyses, n=1007

The symmetric measures of the evaluations of willingness levels and age bands indicates weak positive correlation (0 to 0.3). While the general trend is for people's willingness to save to increase until retirement age, when it declines again, people in the 40-49 age group are reversing this.

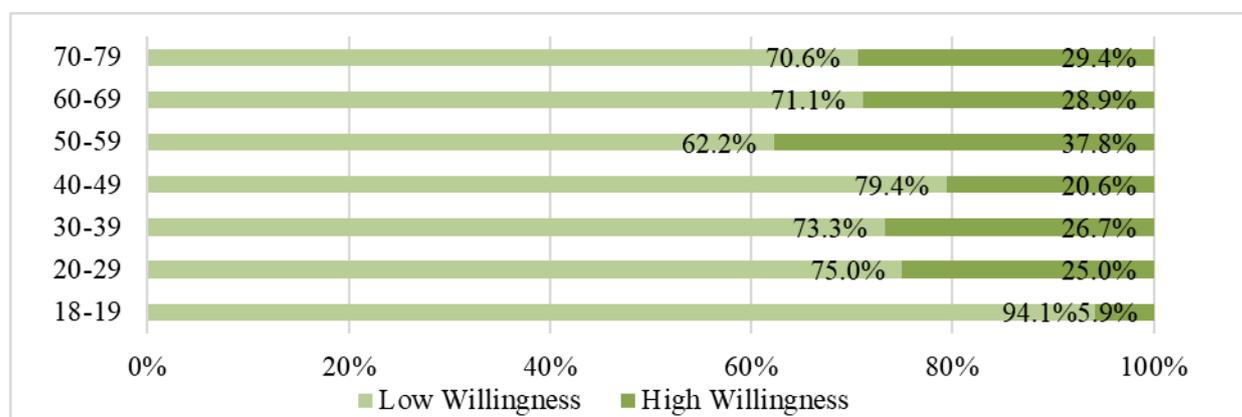


Figure 3.7 **Distribution of respondents on levels of Willingness and age bands**

Source: the author construction based on the survey data analyses, n=1007

A more detailed analysis of the factors influencing this drop in the level of willingness for this age group suggests that it is caused by both parameters: the willingness to save and the low level of trust in financial service providers. People aged 40-49 have around 20 years before retirement, during which time they can build up their savings again. This finding should therefore be taken into account when designing a communication strategy to promote retirement savings.

As with the capability dimension, it is important to assess the willingness dimension according to the level of education attained.

Table 3.24 The distribution of respondents according to level of willingness and education

Level of Willingness		Educational Level						Total
		Post-graduate education or equivalent	University-level education	Upper secondary school or high school	Lower secondary school or middle school	Primary school	No formal education	
Low Willingness	Count	83	192	372	78	1	5	731
	% within Educational Level	75.5	72.2	74.1	64.5	50.0	83.3	72.6
High Willingness	Count	27	74	130	43	1	1	276
	% within Educational Level	24.5	27.8	25.9	35.5	50.0	16.7	27.4
Total	Count	110	266	502	121	2	6	1007
	% within Educational Level	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: the author construction based on the survey in 2022 data analyses, n=1007

According to Chi-Square test in the following table the result is statistically *significant* – the data suggests that the variables capacity levels and education levels are associated with each other.

Table 3.25 Chi-Square tests of the distribution of respondents according to level of willingness and education

Chi-Square Tests	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	5,932 ^a	5	.313
Likelihood Ratio	5.722	5	.334
Linear-by-Linear Association	1.276	1	.259
N of Valid Cases	1007		

a. 4 cells (33,3%) have expected count less than 5. The minimum expected count is 0.55.

Source: the author construction based on the survey in 2022 data analyses, n=1007

Correlation analysis is performed to characterise the strength and direction of the linear relationship between the two variables willingness level and education level of respondents.

Table 3.26 **Symmetric measures of the distribution of respondents according to level of willingness and education**

Symmetric Measures	Value	Asymp. Std. Error ^a	Approx. T ^b	Approx. Sig.
Interval by Interval Pearson's R	.036	.032	1.130	0.259 ^c
Ordinal by Ordinal Spearman Correlation	.036	.032	1.149	0.251 ^c
N of Valid Cases	1007			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

Source: the author construction based on the survey in 2022 data analyses, n=1007

The symmetric measures of the evaluations of willingness levels and education level indicates weak positive correlation, but it is not statistically significant.

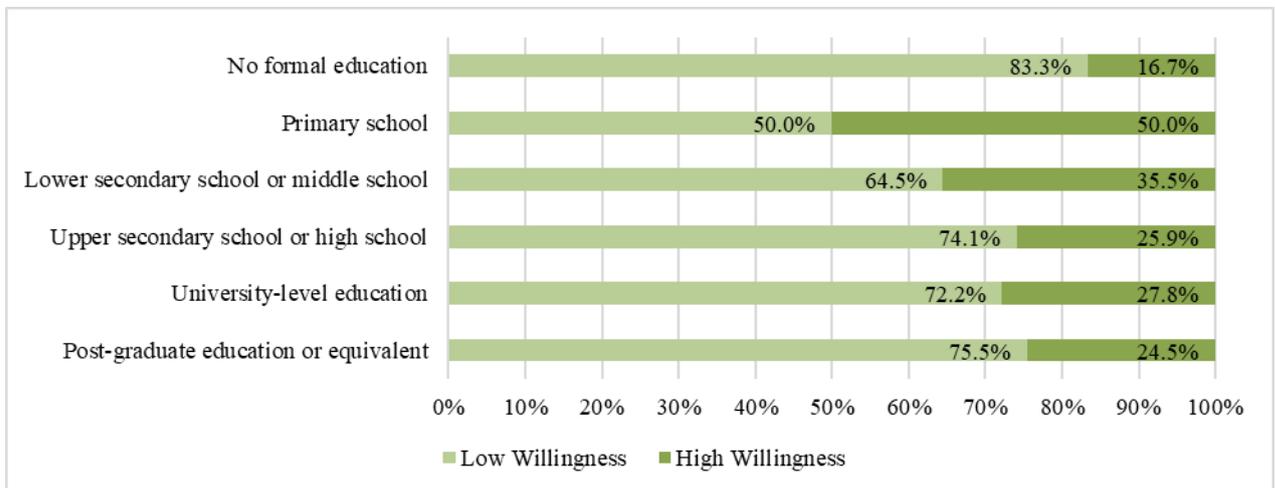


Figure 3.8 **Distribution of respondents on levels of willingness and education**

Source: the author construction based on the survey data analyses, n=1007

The general trend is for people's willingness to save to increase with the higher levels of education, except slight differences for the respondents' groups with university – level education.

The next area of interest is the link between the dimension of willingness and employment.

Table 3.27 The distribution of respondents according to level of willingness and employment status

Level of Willingness		Employment status								Total
		Self-employed	In paid employment	Looking after the home	Looking for work [unemployed]	Retired	Unable to work due to sickness or ill-health	Not working and not looking for work	Student	
Low Willingness	Count	69	412	26	15	129	25	5	50	731
	% within Employment status	74.2	73.2	78.8	42.9	69.0	73.5	71.4	90.9	72.6
High Willingness	Count	24	151	7	20	58	9	2	5	276
	% within Employment status	25.8	26.8	21.2	57.1	31.0	26.5	28.6	9.1	27.4
Total	Count	93	563	33	35	187	34	7	55	1007
	% within Employment status	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: the author construction based on the survey data analyses, n=1007

The distribution of respondents by willingness and employment status does not show significant differences for all groups except for students and those persons who are looking for the job.

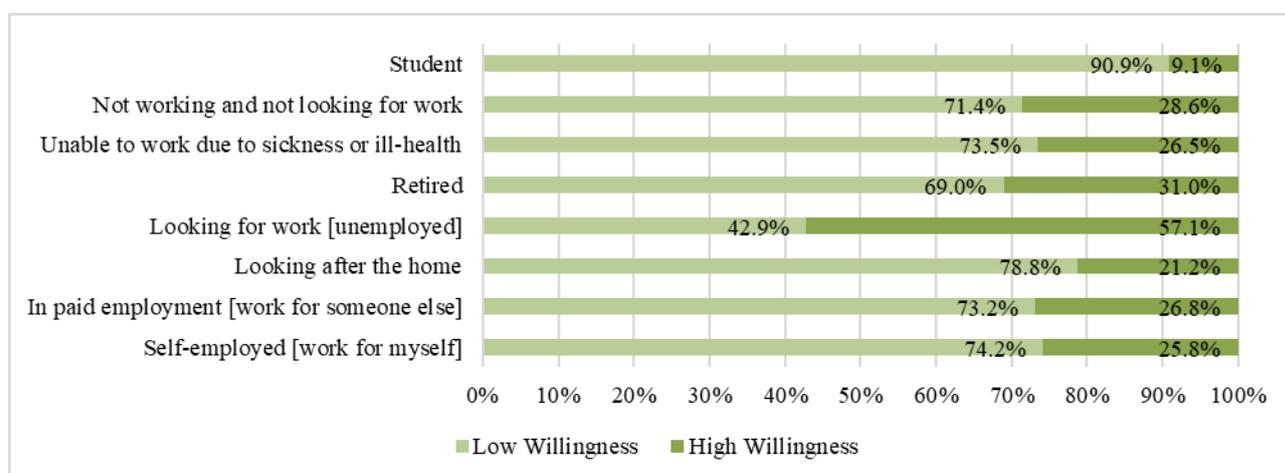


Figure 3.9 Distribution of respondents on levels of willingness and employment status

Source: the author construction based on the survey in 2022 data analyses, n=1007

For students, this may be due to limited earning potential and a short-term oriented consumption basket, while for those who are actively looking for a job, saving is not a priority at the moment due to insufficient income.

Referring to the gender gap in pension saving identified by academic studies, it is also useful to assess the existence of gender differences in the dimensions of willingness to save.

Table 3.28 The distribution of respondents according to level of willingness and gender

Level of Willingness		Gender		Total
		Male	Female	
Low Willingness	Count	319	412	731
	% within Gender	71.4	73.6	72.6
High Willingness	Count	128	148	276
	% within Gender	28.6	26.4	27.4
Total	Count	447	560	1007
	% within Gender	100.0	100.0	100.0

Source: the author construction based on the survey in 2022 data analyses, n=1007

According to Chi-Square test in the following table the result is statistically *significant* – the data suggests that the variables willingness levels and gender are associated with each other.

Table 3.29 Chi-Square tests of the distribution of respondents to level of willingness and gender

Chi-Square Tests	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	0,608 ^a	1	0.435	0.435	0.239
Continuity Correction ^b	0.503	1	0.478		
Likelihood Ratio	0.607	1	0.436		
Fisher's Exact Test					
Linear-by-Linear Association	0.608	1	0.436		
N of Valid Cases	1007				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 122.51.

b. Computed only for a 2x2 table

Source: the author construction based on the survey in 2022 data analyses, n=1007

The analysis reveals that there are gender differences in willingness to save, with women showing a higher willingness to save than men. However, it should be acknowledged that gender differences in willingness to save are not substantial. In order to compare the willingness of speakers of different languages to save, the following table provides an analysis.

Table 3.30 The distribution of respondents according to level of willingness and language

Level of Willingness		Language			Total
		Latvian	Russian	Other	
Low Willingness	Count	501	203	27	731
	% within Language	71.2	75.5	79.4	72.6
High Willingness	Count	203	66	7	276
	% within Language	28.8	24.5	20.6	27.4
Total	Count	704	269	34	1007
	% within Language	100.0	100.0	100.0	100.0

Source: the author construction based on the survey in 2022 data analyses, n=1007

The analysis revealed that the distribution of respondents' levels of willingness varies between speakers of different languages. The Latvian speakers have higher levels than the Russian and other language speakers. The fact that both capacity and willingness to save are lower for non-Latvian respondents suggests that this group of people is less likely to save for retirement at a sufficient level.

3.1.3. Capacities and Willingness dimension combination

Four new capacities and willingness groups according to their intensity levels have been created: Low Capacity and Willingness (LC, LW), Low Capacity and High Willingness (LC, HW), High Capacity and Low Willingness (HC, LW) and High Capacity and High Willingness (HC, HW).

Table 3.31 **The distribution of respondents according to level of capacity and willingness**

			Capacity dimension		Total
			Low Capacity	High Capacity	
Willingness dimension	Low Willingness	Count	378	353	731
		% of Total	37.5	35.1	72.6
	High Willingness	Count	148	128	276
		% of Total	14.7	12.7	27.4
Total	Count	526	481	1007	
	% of Total	52.2	47.8	100.0	

Source: the author construction based on the survey in 2022 data analyses, n=1007

According to Chi-Square test in the following table the result is statistically *significant* – the data suggests that the variables in Capacity and Willingness dimensions are associated with each other.

Table 3.32 **Chi-Square tests of the distribution of respondents according to level of capacity and Willingness**

Chi-Square Tests	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	0.294 ^a	1	0.588	0.621	0.319
Continuity Correction ^b	0.222	1	0.637		
Likelihood Ratio	0.294	1	0.588		
Fisher's Exact Test					
Linear-by-Linear Association	0.294	1	0.588		
N of Valid Cases	1007				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 131.83.

b. Computed only for a 2x2 table

Source: the author construction based on the survey in 2022 data analyses, n=1007

The results of analyses indicates that the largest group is constituted by respondents with low capacity and low willingness for financial planning for retirement. People with a high level of capacity but a low level of willingness comprise the second largest group - 35.1%. The second smallest group is with people who have low capacity but high willingness - 14.7%. And finally, the smallest group - only 12.7% - is made up of people in Latvia who have both the capacity and the willingness to make FPR decisions to increase their retirement income.

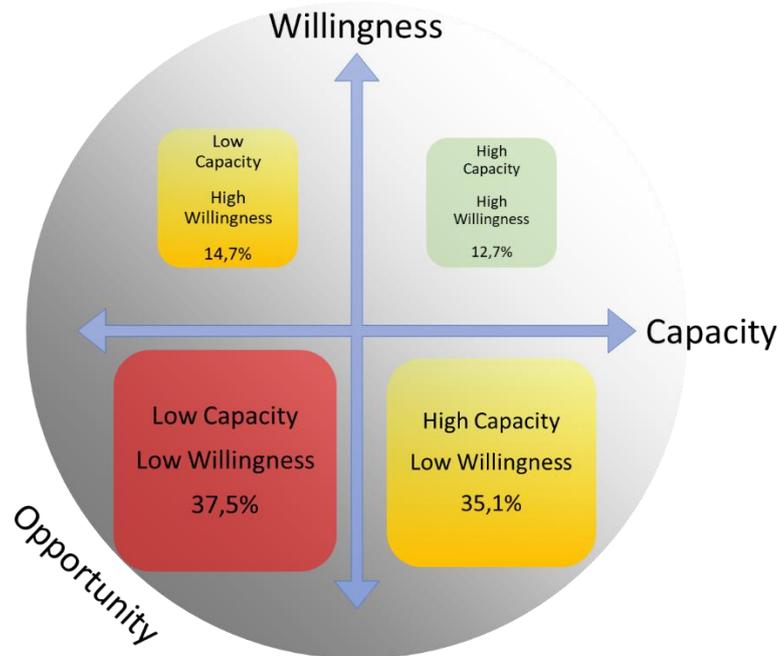


Figure 3.10 **The distribution of respondents on levels of capacity and willingness**

Source: the author construction based on the survey data analyses, n=1007

The figure above schematically illustrates the sizes and locations of all four groups on the capacities and willingness axes. Opportunities, on the other hand, are the dimension that needs to intensify as the inherent level of capacities and willingness decreases. According to the scientific theory analysed in the previous chapters of the study, the lower the level of capacities and willingness, the less likely a person will proactively take care of his/her retirement savings, i.e. make FPR decisions on his/her own. Such people will engage in pension saving if the opportunities mechanism includes auto-enrolment principles, and if they are actively and intensively approached, explaining the pension system and justifying the need to save themselves rather than waiting for state support. In Latvia, more than 70% of the population is not willing to save for themselves, so they expect the state to provide an adequate income after retirement.

3.1.4. Pension system opportunities usage as the opportunity dimension

In order to assess the adequacy of the existing pension system in Latvia to the FPR decision-makers' capacity and willingness to save, the author proposes to group respondents according to their use of the opportunities provided by the pension system. By assessing the level of involvement of the Latvian population in the existing private pension system, this will give an indication of the adequacy or opportunities dimension of the pension system according to Hershey's theory.

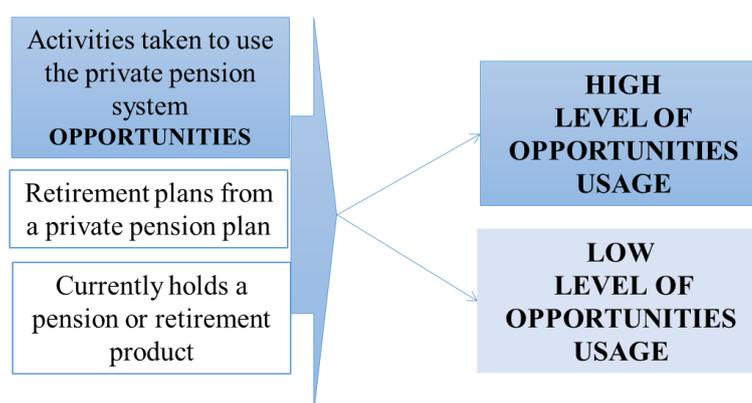


Figure 3.11 Pension system opportunities usage evaluation scheme

Source: the author construction

The answers to two survey questions are analysed in a study below:

- 1) How will you get or are you getting income in retirement: I will receive money under a private pension plan
- 2) Do you currently hold [personally or jointly] any of the pension savings product

Table 3.33 The distribution of respondents according to having the pension plan and planning the income after retirement from the private pension savings

Answers			Currently holds a pension or retirement product		Total
			No	Yes	
Retirement plans from a private pension plan	No	Count	817	43	860
		% of Total	81.1	4.3	85.4
	Yes	Count	23	124	147
		% of Total	2.3	12.3	14.6
Total		Count	840	167	1007
		% of Total	83.4	16.6	100.0

Source: the author construction based on the survey in 2022 data analyses, n=1007

According to Chi-Square test in the following table the result is statistically *significant* – the data suggests that the variables in capacity and willingness dimensions are associated with each other.

Table 3.34 Chi-Square tests of the distribution of respondents according to having the pension plan and planning the income after retirement from the private pension savings

Chi-Square Tests	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	571.458 ^a	1	0.000		
Continuity Correction ^b	565.736	1	0.000		
Likelihood Ratio	435.772	1	0.000		
Fisher's Exact Test				.000	.000
Linear-by-Linear Association	570.891	1	0.000		
N of Valid Cases	1007				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 24.38.

b. Computed only for a 2x2 table

Source: the author construction based on the survey in 2022 data analyses, n=1007

The next step is to identify the respondent in each of the four groups of capacities and willingness, together with the three levels of use of the opportunities: (1) not planning to use retirement saving opportunities, (2) planning to use retirement saving opportunities and (3) currently using retirement saving opportunities.

Table 3.35 The distribution of respondents according to levels of capacity and willingness, and three opportunities usage levels

The levels of dimensions			Opportunities usage level			Total
			Not planning to use Pension savings opportunities	Planning to use Pension savings opportunities	Using pension savings opportunities	
Capacities and Willingness dimensions	HC, HW	Count	105	13	10	128
		% of Total	10.4	1.3	1.0	12.7
	HC, LW	Count	280	24	49	353
		% of Total	27.8	2.4	4.9	35.1
LC, HW	Count	128	9	11	148	
	% of Total	12.7	0.9	1.1	14.7	
LC, LW	Count	304	20	54	378	
	% of Total	30.2	2.0	5.4	37.5	
Total		Count	817	66	124	1007
		% of Total	81.1	6.6	12.3	100.0

Source: the author construction based on the survey in 2022 data analyses, n=1007

The largest group (30.2%) is the population with low capacity and willingness, not planning to use Pension savings opportunities. The smallest constitutes only 1% - those are high capacity and willingness people who are currently using pension savings opportunities.

To compare attitudes to financial planning for retirement between groups, it is worth examining their internal proportions.

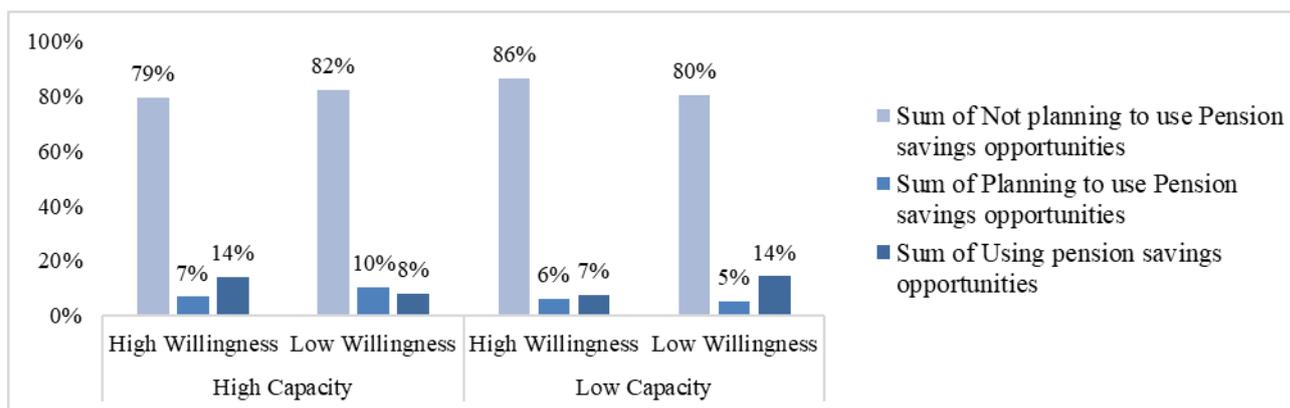


Figure 3.12 **The distribution of respondents according to levels of capacity and willingness, and three opportunities usage levels**

Source: the author construction based on the survey in 2022 data analyses, n=1007

In terms of attitudes towards private pension savings, the analysis indicates no significant differences between groups with different levels of financial literacy and motivation. It results that the most similar groups in percentage terms are those with high levels of financial literacy (capacity to save) and motivation and the diametrically opposite group - respondents with low financial literacy and low motivation.

The low capacity and motivation group is the largest at 37.5% of all respondents. While 14% of this group declare that they are saving for retirement, which could be based on their pension saving at pension pillar 2, they are not competent to assess it, nor are they motivated to do anything more to save.

The second largest group is those with a high level of capacity and a low level of willingness - 35.1% of all respondents. 10% of this group believe that they will receive a pension from the pension funds, while only 8% of the respondents are currently saving for their own retirement. This shows their low motivation to save, although the high capacity could be a factor encouraging them to save. The low willingness to save is crucial this time.

The third smallest group (14.7%) are respondents with low capacity and high willingness to save. This group eventually saves to the least extent, demonstrating the decisive role of low capacity on saving, although the willingness to do so exists. This can be justified by an insufficient communication strategy on pension saving opportunities for this particular segment of respondents.

On the other hand, in the smallest group - high capacity and willingness - although 14% of respondents are saving and 7% are still planning to do so, 79% do not see the options offered by pension funds as attractive saving opportunities. It is very likely that they are saving for retirement, but using other saving options if they are in an income bracket that can afford it.

By defining respondents who are currently saving for retirement and those who intend to save as having a high level of involvement in the pension system, the author proposes to divide all respondents into two groups - those with a low level of pension system opportunities usage and respondents with a high level of pension system opportunities usage.

Table 3.36. The distribution of respondents according to opportunities usage predictor into opportunities usage levels

Opportunities usage predictor		Opportunities usage levels		Total
		Low opportunities usage	High opportunities usage	
Not planning to use Pension savings opportunities	Count	817	0	817
	% of Total	81.1	0.0	81.1
Planning to use Pension savings opportunities	Count	0	66	66
	% of Total	0.0	6.6	6.6
Using pension savings opportunities	Count	0	124	124
	% of Total	0.0	12.3	12.3
Total	Count	817	190	1007
	% of Total	81.1	18.9	100.0

Source: the author construction based on the survey in 2022 data analyses, n=1007

As a result, all respondents are divided into groups: 18.9% with a high level of opportunities usage (HO) and 81.1% with a low use of opportunities (LO).

Table 3.37 The distribution of respondents according to opportunities usage levels

Levels of opportunities usage	Frequency	Percent	Valid Percent	Cumulative Percent
Low opportunities usage	817	81.1	81.1	81.1
High opportunities usage	190	18.9	18.9	100.0
Total	1007	100.0	100.0	

Source: the author construction based on the survey in 2022 data analyses, n=1007

In order to confirm or reject the hypothesis put forward in this study that financial planning for retirement is based on cognitive financial literacy, it is necessary to assess the proportions of respondents with the above characterised capacities and willingness levels at each segment of pension system opportunities users.

Table 3.38 The distribution of respondents according to willingness and opportunities usage levels

Capacity dimension		Opportunities usage levels		Total
		Low opportunities usage	High opportunities usage	
Low Capacity	Count	432	94	526
	% within Capacity dimension	82.1	17.9	100.0
High Capacity	Count	385	96	481
	% within Capacity dimension	80.0	20.0	100.0
Total	Count	817	190	1007
	% within Capacity dimension	81.1	18.9	100.0

Source: the author construction based on the survey in 2022 data analyses, n=1007

The table shows that the share of the population that does not save for retirement has proportionally slightly lower capacities to save.

Table 3.39 The distribution of respondents according to willingness and opportunities usage levels

Willingness dimension		Opportunities usage levels		Total
		Low opportunities usage	High opportunities usage	
Low Willingness	Count	584	147	731
	% within Willingness dimension	79.9	20.1	100.0
High Willingness	Count	233	43	276
	% within Willingness dimension	84.4	15.6	100.0
Total	Count	817	190	1007
	% within Willingness dimension	81.1	18.9	100.0

Source: the author construction based on the survey in 2022 data analyses, n=1007

However, when comparing the users of pension opportunities with the users of the willingness to save dimension, the situation is reversed: the segment of the population that does not save for private pensions has a slightly higher motivation to save than the segment that does. Moreover, the adverse impact of willingness factors is higher than the positive impact of capacity factors on the use of saving opportunities. The interpretation of these data should take into account the proportionally very small share (27.4%) of the population that is willing to save.

The findings provide evidence that the level of financial literacy of the population has a positive impact on the savings behaviour of the Latvian population, while there is no evidence of the positive impact of willingness factors - the willingness to save for long-term goals and trust in financial institutions - on savings behaviour.

The evidence shows that while people are willing to save for the long term - for a safety buffer and to purchase larger items in the future - pension saving is not a high priority. Moreover, the level of trust in financial institutions allows them to be used in many areas, but not specifically for private pension saving. In conclusion, the primary task for pension policy makers is to provide clear information on pension saving opportunities through public education, as the availability of information will create the basis for the development of saving intentions.

3.2. Income level factor impact on private pension savings

One of the most frequently cited explanations for the lack of pension savings is the low level of people's incomes. Although according to the Hershey model it does not form part of any of the dimensions, the author considers that its impact on the use of the pension system, or the Opportunity Dimension, should be assessed.

Table 3.40 **The distribution of respondents according to income band (EUR a month), in % and usage of pension savings opportunities levels**

Opportunities usage levels		Income band						Refused to answer	Total
		Up to 500	from 501-750	from 751-1000	from 1001 - 1500	from 1501 - 2000	more than 2001		
Low opportunities usage	Count	89	93	114	111	73	50	287	817
	% within Income band	96.7	89.4	82.0	83.5	65.2	52.6	86.4	81.1
High opportunities usage	Count	3	11	25	22	39	45	45	190
	% within Income band	3.3	10.6	18.0	16.5	34.8	47.4	13.6	18.9
Total	Count	92	104	139	133	112	95	332	1007
	% within Income band	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Source: the author construction based on the survey in 2022 data analyses, n=1007

According to analyses presented above 33% of respondents refused to answer on the question: “Which of the following categories does your after-tax household income usually fall into”. The given responses prove the validity of the statement: **participation in the pension savings system grows gradually with increasing income levels.**

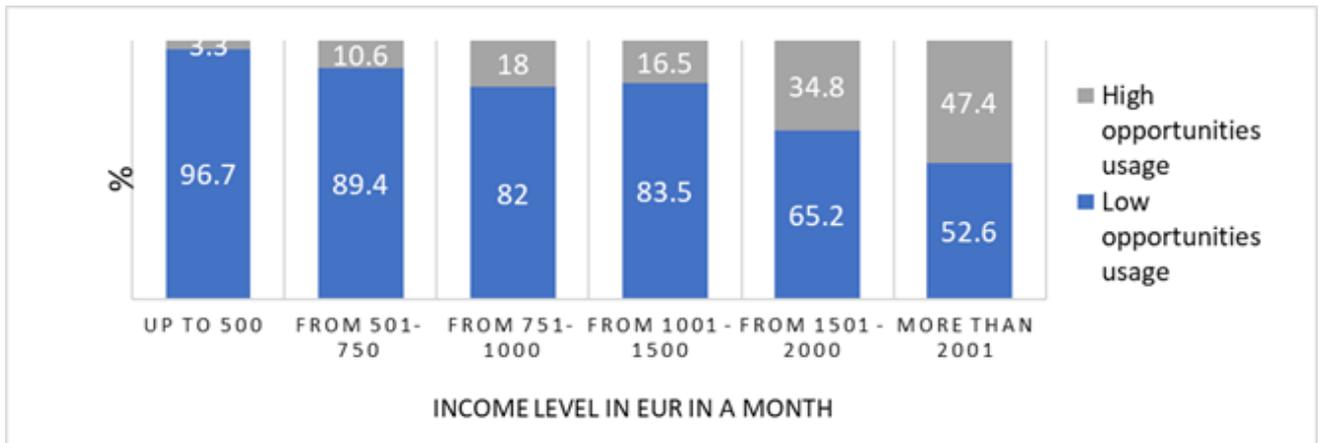


Figure 3.13 **The distribution of respondents according to income band (EUR a month), in % and usage of pension savings opportunities levels**

Source: the author construction based on the survey in 2022 data analyses, $n=1007$

The figure above demonstrates the direct impact of income level on pension saving behaviour: higher income levels predict higher levels of involvement in productive FPR decision-making, which results in private pension saving.

The relative nature of pensions implies that people with higher incomes expect higher pension incomes in absolute terms than people who earn less during their working lives. In this way, lower earners might also be expected to save, but to a lesser extent than higher earners. However, the study indicates **that income level is crucial and thus an important precondition for saving for retirement.**

3.3. Defining the types of planners

The last task of this empirical study is to determine the distribution between groups of the Latvian population according to the types of planners proposed by Hershey. In addition to the previously applied crosstabulations method, the author employs a two-step cluster analyses method.

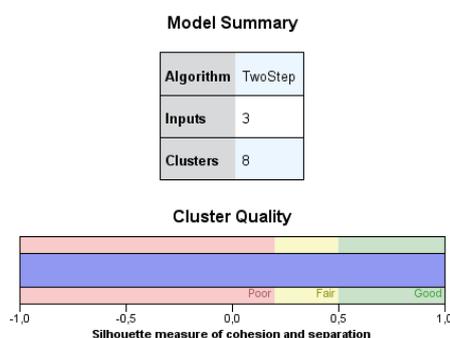


Figure 3.14 **The Capacity, Willingness and Opportunity cluster model**

Source: the author construction based on the survey in 2022 data analyses, $n=1007$

According to the breakdown of the population into groups according to capacities, willingness and opportunities levels, eight types of planners are identified.

Table 3.41 **The distribution of respondents by types of planners**

Types of planners	Frequency	Percent	Valid Percent	Cumulative Percent	The level of FPR performance
HC, HW, HO: Competent	23	2.3	2.3	2.3	Very high
HC, HW, LO: Frustrated	105	10.4	10.4	12.7	High
LC, HW, HO: Incompetent	20	2.0	2.0	14.7	Moderate
HC, LW, HO: Unmotivated	73	7.2	7.2	21.9	Moderate
LC, HW, LO: Restricted	128	12.7	12.7	34.7	Low-Moderate
HC, LW, LO: Lost	280	27.8	27.8	62.5	Low-Moderate
LC, LW, HO: Entitled	74	7.3	7.3	69.8	Low
LC, LW, LO: Non-planner	304	30.2	30.2	100.0	Very low
Total	1007	100.0	100.0		

Source: the author construction based on the survey in 2022 data analyses, n=1007

By attributing the impact of each type of planner's decisions on the level of FPR performance resulting in higher pensions, 6 levels of potential pension savings can be identified: very low, low, low-moderate, moderate, high and very high. According to Hershey model 12.7% of Latvia population have sufficient expected pension level, 9.2% moderate level 38.5% low- moderate level and 37.5 low.

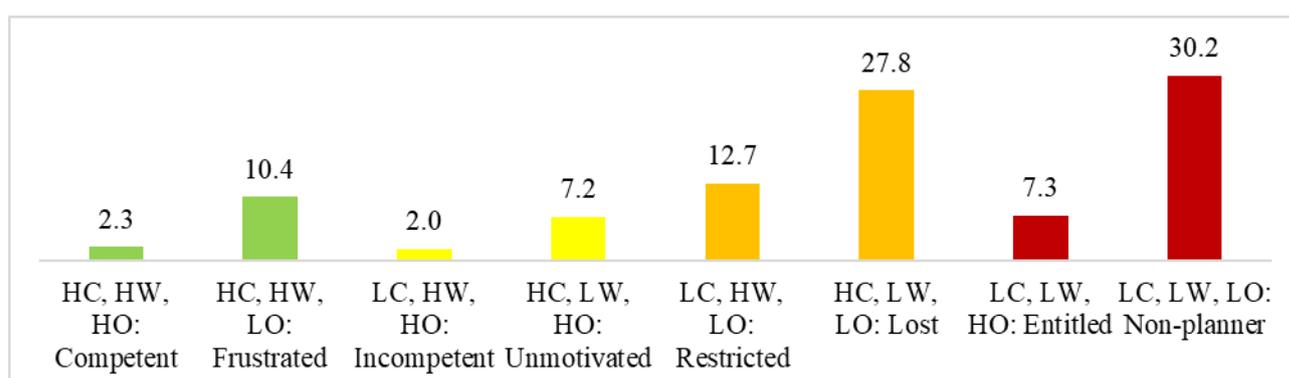


Figure 3.15 **The distribution of types of planners in %**

Source: the author construction based on the survey in 2022 data analyses, n=1007

The figure above illustrates the distribution of the Latvian population. According to the breakdown of the Latvian population by groups of FPR decision-makers - planners, it can be concluded that the largest group - 30.2% - is the Latvian population with low financial literacy, as well as low willingness to save for long-term goals and low trust in the Latvian financial system or

“Non-planners” group. A statistical analysis of the distribution of planners by main demographic characteristics (Annexe 3) shows that there is no gender imbalance in this group, while young people and people aged under 29 stand out negatively in the age groups represented compared to the overall proportions. **This suggests that active communication should be focused on young people segment.** When looking at non-planners in terms of occupation, students stand out, as do people who take care of the house and people looking for work. In terms of education, the non-planner profile includes people with secondary education, primary school leavers and those with no formal education. Native language differences are minimal, but with a predominance towards the Russian-speaking audience.

The second largest group (27.8%) is the group of **"Lost planners"**, who are financially savvy people who do not want to and do not see the opportunity to save. There is no significant gender predominance in this group, but the proportion of women is slightly higher than for all respondents combined. In terms of age categories, **particular attention should be paid to the working-age population aged 30-49.** Given that these respondents have a fairly high level of financial literacy, but no saving tradition and low trust in the financial system, it is important to design communication that is relevant to this segment - the aim is to make the strong argument that pension funds are an effective solution for retirement. Neither the employment nor the education analysis showed any significant differences in the distribution of respondents in the Lost planners group. However, this group also has a slight majority of non-Latvian speakers.

The third largest group, but already more than half the size of the previous group (12.7%), is **"Restricted planners"**. These are people who have low financial literacy but have a desire to save but they are not inclined to long-term planning and do not see opportunities to do so specifically for retirement savings. Looking at the gender differences in this group, there is a male predominance over females. This in turn means that women with similar levels of financial literacy and willingness have nevertheless decided to save for retirement. In terms of age groups, the 50-59 age segment has the largest negative deviation from the overall age distribution, while the 20-39 age segment also shows negative differences. On the other hand, the 40-49 age group is relatively less represented. This group of planners includes a higher proportion of non-graduates and people who are not currently employed but are actively looking for new jobs. Communications to this group should provide clear, plain language on what needs to be done to save, because the desire to save is there, but people do not see the opportunities.

The last group of planners requiring special attention is **"Frustrated planners"** with a share of 10.4%. These are financially savvy people who want to save, but for some reason are not benefiting from pension funds. According to the Hershey model and the planners' descriptions, this

segment of the population has a relatively high level of FPR performance. The underlying assumption is that such people are more likely to have taken care of their retirement income in an alternative way. It is therefore even more important to clarify the demographic profile of such a planner. According to our data analysis, this type of planner is more prevalent in age groups in the population aged 50 and over. It suggests that such Latvian residents have either taken care of their savings in other ways or have not saved and have decided that it is too late to make saving decisions. In terms of occupation, this category is dominated by pensioners and people looking for work. Moreover, these people have different levels of education, including higher education. Women and men are balanced in this group, while Russian-speakers are less represented than Latvian-speakers, compared to the overall proportions of the whole population. The characteristics of the Frustrated group demonstrate the low awareness of the options offered by private pension funds among the Latvian population. This sizeable group of knowledgeable and savings-oriented citizens is not sufficiently targeted and involved in the growth of pension income through private pension funds.

To test the hypothesis of this study, it is relevant to assess the level of income for each of the groups of planners.

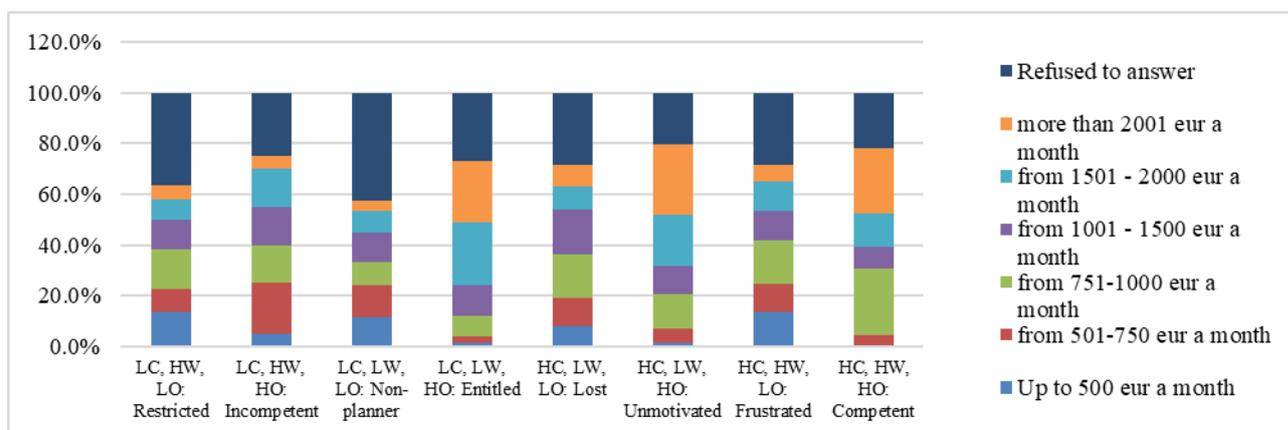


Figure 3.16 The distribution of respondents by types of planners and income level

Source: the author construction based on the survey in 2022 data analyses, $n=1007$

The figure above illustrates the differences in income levels between different types of planners:

- 1) the highest proportion of respondents who refuse to answer belongs to planners with low levels of all three dimensions.
- 2) regardless of the level of capacity and motivation to save, people with the highest income levels are the most engaged in saving.

The empirical analyses provided demonstrate the distribution of the Latvian population according to their levels of capacities and willingness to take FPR decisions, as well as the extent to which they take advantage of the opportunities offered by the Latvian pension system. The

demographic characteristics of the population groups provide an understanding of the design of the pension system, which corresponds to the perceptions, requirements and needs of the Latvian population to be addressed. The study highlights the impact of the factors discussed on the decision to save privately and demonstrates the importance of their role in the behaviour of the Latvian population.

The next section will explore what steps could be taken to improve Latvia's pension system, based on the analysis and expert opinion provided in the study.

3.4. Evaluation and results of the survey of pension fund professionals

To validate the findings of the study, the author conducted a survey of pension fund professionals and individual semi-structured interviews in March 2023. The questions asked in the survey are attached in Annexe 4 to this study. The author interviewed 8 experts through a judicious selection of participants and a combination of companies working in the field of pension funds and experienced experts in the administration and monitoring of public pension policy. The number is in line with the recommended number²²⁵ of participants.

The following experts were surveyed and interviewed: Ph.D Ilja Arefjevs, Expert of the Latvian Council of Science in the social sciences - economics and entrepreneurship, former pension fund manager and Board member at IPAS Indexo, Luminor, Nordea, Ieva Margeviča, Board member, Head of Marketing and Communication at IPAS Indexo, Sandra Kalniņa, Board member at Pirmais slēgtais pensiju fonds, Andrejs Martinovs, Executive Chairman of the Board at IPAS INVL Asset Management, Anna Fišere-Kaļķe CEO, Chairwoman of the Management Board at CBL Life and Open Pension Fund Latvia, Kristīne Lomanovska, Member of the Board of SEB Life and Pension Baltic SE, Ilona Deģe, Head of Funded Pension Scheme Administration Unit at The State Social Insurance Agency and Ph.D. Helēna Skadiņa, Chief Supervisory Expert at Latvijas Banka.

The aim of the survey was to find out the views of pension fund industry professionals on areas for improvement in the Latvian private pension fund system in order to involve more participants in savings, increase the amount of savings, as well as to identify how to better reach out to the Latvian population with different levels of savings capacity and willingness. In order to allow the experts to present their experience in a clear and easily understandable way, the author included a numerical rating in the survey and used Likert rating scales from 1 to 5. The survey was designed in 4 parts with a total of 30 questions. The reliability analyses provided proved the consistence of

²²⁵ Martinsone, K., Pipere, A. Kamerade, D. (2016). *Pētniecība. Teorija un prakse (Research. Theory and praxis)*, Riga, pp. 375.

the questionnaire according to Cronbach's Alpha at the level 0.851. To process this quantitative data, the author used mathematical statistical methods, including descriptive statistics, which are attached in Annexe 5, as well as illustrating them in the thesis by means of diagrams.

Based on the citizen decision-making framework analysed in Chapter 2 of this thesis, the very beginning of pension accumulation is the involvement of citizens in the pension system. That is why the first topic to be discussed and analysed is **the areas for improvement to involve as many members as possible in the PPF savings in Latvia**. The list of choices, which the author made on the basis of the previous study of the opportunities provided by pension systems in Latvia and around the world, included the main methods - tax incentives for citizens and financial terms for employers, compulsory savings for certain professions, more active outreach to new participants, availability and accessibility of services and clarity and simplicity of the information provided for the citizens.

In assessing the responses, there was a broad variation in the views of the respondents, with responses on all questions falling within the range of the scale offered. Consequently, the arithmetic means are not significantly different, it is within the range from 2.63% for area of Tax incentives for citizens till 3.63% for compulsory savings for certain professions.

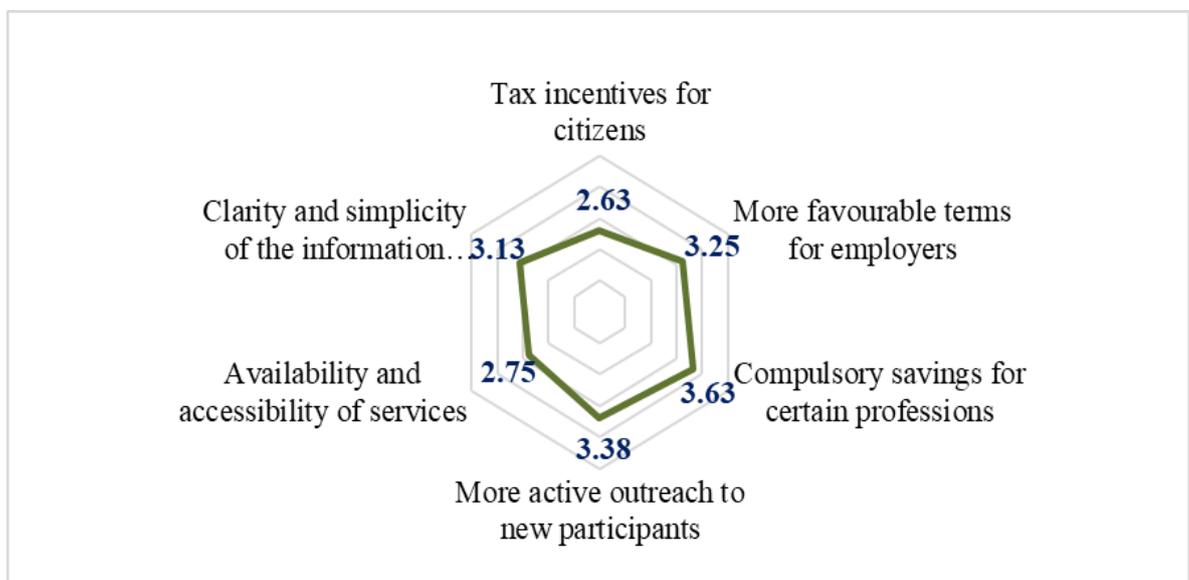


Figure 3.17 **The arithmetic means of answers to the question: What are the areas for improvement to involve as many members as possible in the PPF savings in Latvia, in %**

Source: the author construction based on the survey in 2023 data analyses, n=8

The need to improve support mechanisms for saving through employers is also supported by the mode analysis - three out of eight respondents gave this mode the highest importance rating of 5. The experts pointed out that "As national wages increase, the number of participants in the 3rd

pension pillar will continue to increase", justifying this with a regression analysis comparing the number of participants against the average wage and contributions against the average wage. There is also the view that "Full growth will start when about half of the working age population participates in the third pension pillar, as in Western countries it is typically 2/3".

While the impact of favorable tax incentives on saving was highlighted, which has led to greater involvement of individuals in building up savings, employer involvement was found to have slowed down. More favorable conditions for employers is the second most frequently mentioned aspect that needs to be improved to increase the coverage of the pension system, which was also confirmed by the experts in their explanation that there are monetary constraints for employers to create sufficient incentives for employees to save.

Experts reiterated the need to introduce compulsory saving for certain professions, which could be implemented through employers or trade unions. The third pension pillar, unlike the second pension pillar, is open to voluntary contributions, which has great advantages, but requires some nudging. Mandatory contributions for professions that are in low demand in Latvia, such as doctors, teachers and high-level experts, would provide much-needed social guarantees. Socially vulnerable categories include micro-taxpayers, whose numbers have declined but not disappeared altogether. Thus, the assumption put forward in the author's work is confirmed that **to ensure broad coverage and higher pension levels, the design of the Latvian pension system should be based on automatic participation of the population in pension accumulation, making it compulsory.**

People save in pension funds not only for the sake of building up their pensions, but also to take advantage of the tax incentives. It is important to note here that the existing contribution ceiling in Latvia of 4000, up to which income tax relief is available, may be too low for higher income earners. This view is justified by the target audience of pension pillar 3, which is people who can afford to save more than pension pillar 2 offers.

It is tax incentives that are most often emphasized in the process of attracting new members. More active outreach to new participants received the second highest average score among all aspects. Experts emphasize the need and even the obligation to provide information in a clear and understandable way. The example of Finland was cited, where in school's 12th graders teach younger pupils about financial literacy topics. The language they use is appropriate to the audience's perception, and the older pupils are often more likely to be listened to by the younger classes than by adults they do not know.

According to the experts, if the service is easy to use, the user feels 'competent', which increases participation, interest, loyalty, and confidence in the correctness of the decision. Once the system and its use are understood and complemented by the possibility to be convinced each time

that the decision taken was the right one or, on the contrary, to be convinced that something needs to be changed and is easy to do, this increases the likelihood that the 'difficult' transition will not lead to the participant giving up. Experts stressed the need to explain the importance of Pillar 3 to new and existing members alike and to stress the need for regular contributions.

In addition to the factors to be assessed, experts mentioned the attractiveness of the conditions of Latvian pension funds for the elderly due to the possibility to withdraw funds from the age of 55. Younger people, unable to plan for the long term, tend to postpone saving for retirement, considering them inflexible in terms of withdrawals. It is therefore important not only to maintain the current age at which accrued pensions can be drawn, but also **to introduce more flexible conditions for people to receive early savings in critical cases.**

The provision of more comprehensive and general information by public policy-makers - public authorities - was highlighted as an essential additional aspect to the author's proposed. This was justified by the fact that clients receive information mainly from private pension funds, which is perceived as a "sales" process that is not always viewed by citizens as independent and reliable information. People have the impression that the system is more a source of profit for banks than an important element of the pension system for them. Therefore, there is **a need for public communication provided by public authorities that the private pension fund** is an important element of the pension system and only all three pillars together will have a sufficiently positive impact on the adequacy of pensions.

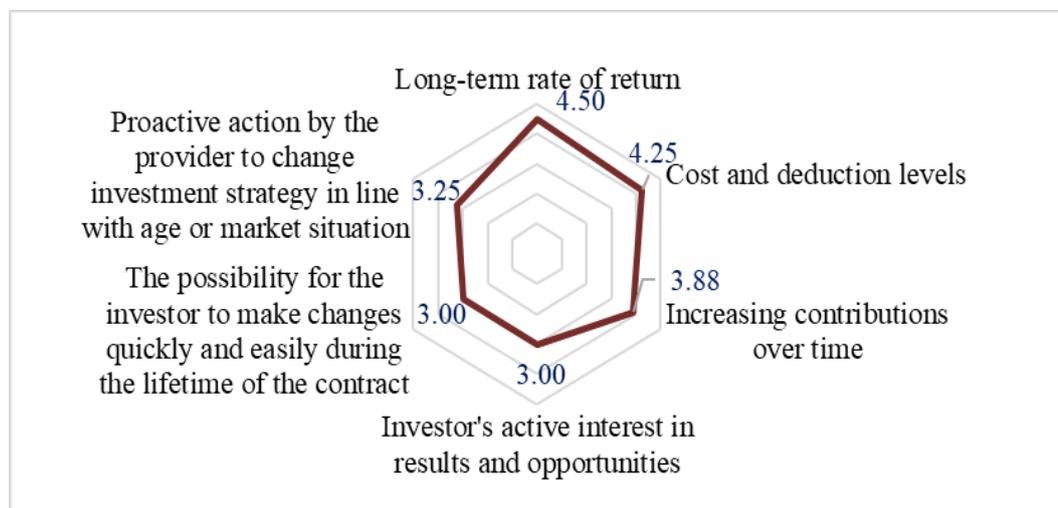


Figure 3.18 **The arithmetic means of answers to the question: To what extent do the following aspects affect the ability to maximize pension savings in Latvia, in %**

Source: the author construction based on the survey in 2023 data analyses, n=8

The next theme for experts evaluation analyses is answers given on the question: To what extent do the following aspects **affect the ability to maximize pension savings**, by asking to rate the level of impact on such factors as long-term rate of return, cost and deduction levels, increasing

contributions over time, investor's active interest in results and opportunities, the possibility for the investor to make changes quickly and easily during the lifetime of the contract and proactive action by the provider to change investment strategy in line with age or market situation.

The analysis of the responses (Figure 3.18) shows that the highest impact on pension saving is on the long-term rate of return - the arithmetic mean is 4.5 out of 5, while the mode is equally divided between 4 and 5. The second most severely scored criterion is the level of costs retained by the manager, with only a slightly lower arithmetic mean of 4.25 and a mode of 4. The other four aspects were also rated relatively highly, with no average below 3 out of 5. Long-term investment returns and cost levels had the highest consensus on priority aspects for savings, with all responses rated 4 and 5. Although the possibility for the investor to make changes quickly and easily during the lifetime of the contract had one of the two lowest arithmetic mean scores, the most frequently given score was relatively high at 4.

The answers clearly demonstrate the importance of the choice of investment plans. As pension plans differ in terms of investment strategy, returns and volatility, the investor has to decide to invest in a plan that matches his/her preferences. The choice of pension fund and investment plan is the second stage of the decision-making process outlined in Chapter 2 of this paper, which is also confirmed by the views expressed by the experts.

The choices offered to experts on how best to increase savings could be divided into quantifiable outcomes - returns, level of deductions, amounts contributed - and actions that in turn deliver these quantifiable outcomes. The answers provided demonstrate the predominance of quantitative outcomes over qualitative ones, based on the observation that "Unfortunately, there is nothing like the regularity, level and yield of contributions."

Commenting on their assessments of the quantitative factors, the experts pointed not only to the importance of increasing amounts over time on the size of savings, but also to the regularity of contributions, thereby reducing the risk of market volatility and contributing to a higher level of returns. This is where the possibilities offered by regular transfers, which are widely used, are useful.

Delving into the ways in which good results can be achieved also highlighted the importance of easy-to-use solutions for people to be informed about their savings, to keep track, to change and increase contributions and to claim the amount to be paid. The requirement for a "smooth operation" of the service was highlighted in order to make people feel secure about their investments, to increase their trust and loyalty.

The experts' answers also allowed to identify an additional factor that plays an important role in increasing pensions: **the existence of a personal financial plan** in the context of achieving

financial independence. As pension savings are the most popular and easiest way to ensure a comfortable life after the end of active employment, and as demands are increasing in today's society, having a personal plan is becoming vital. Based on the findings of a literature review, in countries around the world the creation of such a plan is entrusted to certified financial advisors, while in Latvia this function has been taken on by financial service providers, to help investors choose the amount to be paid before investing.

Experts were asked to assess ways **to better involve different types of people** in saving for retirement - those with low financial literacy and motivation to save, those with low financial literacy and high motivation to save, and those with high levels of both but not saving for retirement. The results are presented in the following diagram.

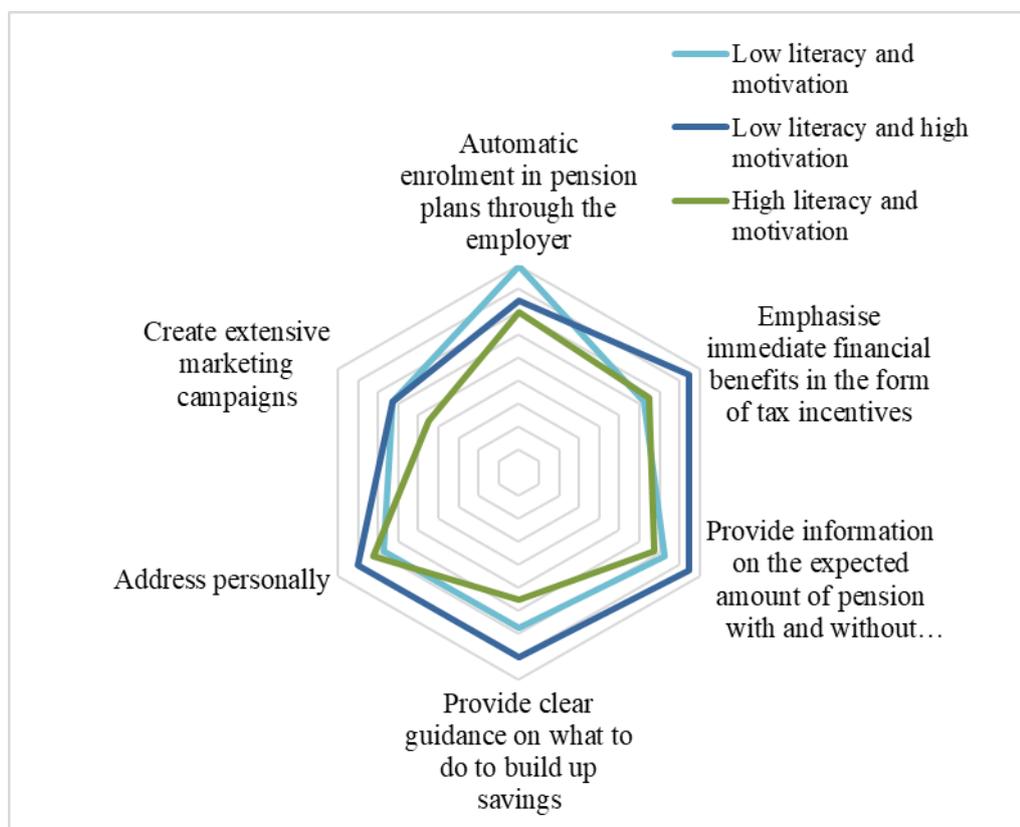


Figure 3.19 **The arithmetic means of answers to the question: How to involve people in Latvia with different levels of financial literacy and motivation more effectively in saving in PPF plans, in %**

Source: the author construction based on the survey in 2023 data analyses, n=8

Experts have identified auto-enrolment as the most effective way to attract financially incompetent and unmotivated people into the pension system. For those who are not competent and want to save, the communication should emphasise the immediate financial benefits in the form of tax breaks and provide information on the expected amount of pension with and without savings. People in Latvia with high financial literacy and no motivation to save should be approached personal-

ly. Experts believe that if smart people do not want to save and cannot be persuaded to do so, they should be automatically enrolled in pension plans through their employer, recognising that such people could be attracted by immediate financial benefits in the form of tax breaks and clarity about the expected amount of their pension with and without savings.

According to the experts, it is difficult to both educate about the principles of the pension system and reassure about the need to invest. Understanding why there is such a lack of knowledge and motivation is also very likely, as income levels would not allow any savings to be accumulated. **If the income is adequate (at least average wage and above), then both of these characteristics are causal: there is no understanding and therefore no motivation.** This confirms the hypothesis put forward in this study that **while people's financial literacy and motivation to save for private pensions are at the core of their behaviour, the ability to use them is conditional on a sufficient level of income.**

The reluctance of people to plan for long-term income was also highlighted, saying that "many people believe that they will not live to retirement anyway, that everyone is a thief and a cheat, and that they will not have a pension because they work informally". This category would benefit from regular public communication that educates in a timely, regular manner, debunks myths, shares examples where authorities and opinion leaders speak about the subject in plain, understandable language.

The experts confirmed the evidence in the scientific literature that if people are automatically involved, the burden of making decisions about what they do not understand is removed from them. However, the performance of the employer, pension fund or manager in ensuring the flow of information is very important: organising everything with as little involvement of the investor as possible, as they say, "bringing the service on a platter". Experts also recognise that Latvia is no exception; other countries are also looking for solutions, and in the case of private pension saving, this is mainly through employer involvement.

Motivation is the key to making the decision to invest, experts emphasise. The only obstacle is the lack of knowledge and skills. This can be compensated by counselling and reinforced by campaigns. But here again, the motivation to push the buttons is high, but it is not clear which buttons to push, so the function of pushing the buttons should be provided by the person. The same applies to the different stages of the life cycle where decisions have to be taken to make changes. There will always be a willingness, but the skills need to be provided by "other hands".

Similarly, a highly motivated citizen must create the "breeding ground" to start making contributions. A sense of security, a positive example must be provided. Highly motivated people usually find a way to save. Unfortunately, these ways tend to be wrong, and people fall prey to fraud-

sters. Thus, the credibility of the system and other service providers decreases, but the desire to "earn" remains. This is why it is necessary to actively communicate and offer ways to earn by explaining and demonstrating the benefits.

When it is asked what to offer people who have high financial literacy but no desire to save, experts are divided. All agree that the higher the level of financial literacy, the greater the need for low-motivated people to join the pension system. This can be helped by the service, the information feed, the intensity and the content of the information tailored to higher levels of knowledge. It is likely that these people know better ways to earn money for a secure old age or have not gained full confidence in the effectiveness of pension funds.

This group should be explained the advantages of pension funds compared to other forms of investment, while personalising the information provided according to different target groups, such as age, occupation, or lifestyle. It is important to address these people differently, as this group needs to create a sense of 'challenge and anxiety' to facilitate the final decision. In addition, it is usually people on low incomes who are worried about their future security, not the currently well-off, although both groups may be knowledgeable but reluctant to save for different motives.

It is possible that people who are financially savvy have a low risk tolerance and are reluctant to save because of the risk of losing money rather than earning it. Such investors would benefit from savings products with low but guaranteed returns. With the knowledge of the tax benefits available, such investments would also prove interesting.

In saying this, experts have highlighted another factor that shapes an investor's profile - the level of risk tolerance. It can be a reason for not making savings decisions if there is a fear of losing money. However, this is generally balanced by a good knowledge of how the pension system works, but the possibility remains that, for psychological reasons, a person is not prepared to take any risk at all. Another way to involve people in saving for retirement is **to diversify the range of pension plans** and to offer not only variable return plans but also savings with guaranteed returns, albeit at a lower level.

Combining the experts' assessments, opinions and explanations with the opportunities offered by the pension system analysed in Chapter 2 to increase pension savings, the table below presents the improvement possibilities of the Latvian pension system for both pension pillars, indicating the current applicability as well as the application potential of each by linking them to the phases of pension savings according to following scheme:

Yes – mechanism is introduced

No – mechanism is not introduced based on the regulation limitations

Limited – mechanism is introduced but has limited functioning

Potential – can be implemented within the existing legal framework, has development potential

Not applicable - not applicable due to limitations of the existing framework

Table 3.42 **Tasks and methods of increasing pension savings in decision making phases and their application in Latvia**

Decision phase and task	Mechanism	2nd Pension Pillar	3rd Pension Pillar
Making contributions phase			
Joining the system Involve as many participants in the system as possible	Creating the default enrolment mechanism	Yes	Potential
	Focus on occupational plans	Not applicable	Potential
	Self-employed and informal workers could be nudged into the same scheme into which formal employees are enrolled, with the same incentives	Not applicable	Potential
	In order to make saving more attractive for young people finding a way to draw on accumulated funds earlier in critical situations	Not applicable	Potential
	More active outreach to new participants	Not applicable	Potential
	Availability and accessibility of services	Not applicable	Potential
	Clarity and simplicity of the information provided for the citizens	Potential	Potential
	Public communication provided by public authorities about all 3 pension pillars	Potential	Potential
Advice on setting up a personal finance plan	Potential	Potential	
Choice of contribution amount Motivate to increase contributions	Defining financial incentives in the way of tax exemptions	Yes	Yes
	Matching contributions with employer	Not applicable	Yes
	Automatically increasing contribution rates or sums	Yes	Potential
	Creating pension planning tools with personalised information or calculators	Yes	Potential
Determination of the regularity of contributions Motivate contributions to be made regularly	Simplifying the contribution process	Yes	Yes
	Automatic payments from income using occupational pension plans	Not applicable	Potential

Decision phase and task	Mechanism	2nd Pension Pillar	3rd Pension Pillar
Fundraising phase			
Choice of service provider Simplify the choice of service provider	Enhancing disclosure on costs and fees, and past returns information	Potential	Potential
	Possibility for voluntary extra savings with an existing service provider	Potential	Yes
	Offer a wide range of service providers that are easy to compare	Yes	Potential
Choice of investment strategy: risk, volatility, and return. To maximize possible capital return level according to life cycle and length of contract	Simplifying choice by using default mechanisms	Yes	Potential
	Diversify the range of pension plans for different levels of risk tolerance	Potential	Potential
	Lifecycle strategy plans	Limited	Potential
	Proactive action by the provider to change investment strategy in line with age or market situation	Limited	Potential
	The possibility for the investor to make changes quickly and easily during the lifetime of the contract	Limited	Potential
	Providing financial advice and financial education	Limited	Potential
Choice of investment plan: costs and fees Provide an opportunity to assess the cost efficiency of service providers	Showing the capital return after applicable costs and fees	Yes	Potential
	Simplifying costs and fees information disclosure on the individual bases	Potential	Potential
	Possibility to compare costs and fees with other services providers	Potential	Potential
Disbursement of funds phase			
Retirement age To give an opportunity to postpone the start of receiving a pension	Flexibility during the first years in retirement, with a deferred life annuity starting payments at the age of e.g. 85	No	Yes
Duration and regularity Provide a lifelong stream of income after retirement	Promoting the demand for life annuities by establishing them as defaults	Yes	Potential
	Financial incentives to choose annuities	No	No
	Facilitating product comparisons: A platform comparing post-retirement options and bids	Potential	Potential

Source: author's construction based on literature review, the authors publication ²²⁶, Latvia legislation norms in force 31.12.2022 and experts survey results, provided in March 2023

²²⁶ Dundure E., Sloka B. (2022). Choice architecture as a basis for pension savings decisions, *The Proceedings of 14th international scientific conference "New Challenges in Economic and Business Development – 2022: Responsible*

By combining expert assessments, opinions and explanations with the opportunities offered by the pension system to increase pension savings analysed in this thesis, the author has created a summary of tasks and methods for increasing pension savings applicable at both pension pillars and at all decision-making stages in Latvia. It indicates the current applicability of each method as well as the potential for application, most of them identified at the 3rd pension level. Challenges to be addressed are identified at all three decision stages: in the contribution stage: greater employer involvement, the development of an offer that appeals to young people, with a robust contribution and withdrawal system, and adequate communication and access to services; in the fund raising stage: diversification of investment strategies, disclosure and easy comparability of information on eligible charges and benefits, improvement of tax incentives; in the withdrawal stage: a wider range of easily comparable offers, more flexible withdrawal systems, tax incentives for deferred or staggered withdrawals.

The mechanisms for improving the pension system summarised in the table above are based on scientific knowledge, the experience of developed countries and the views expressed by experts in the Latvian pension system. Their judicious implementation and application in line with the profile of Latvian FPR decision-makers - with different levels of capacity and willingness to save - can become the basis for greater involvement of citizens in pension saving. As a result, all three pillars of the pension system - both mandatory and voluntary - will serve their purpose - to ensure adequate pension income and a secure old age for the Latvian population.

CONCLUSIONS

The analysis of factors influencing the financial capital planning behaviour of the Latvian population as a result of the research carried out in the thesis demonstrates that the financial literacy of the population has a greater impact on the involvement in pension saving than psycho-emotional factors such as trust in the financial system and the ability to plan for the long term. The study has identified a factor that is a prerequisite for private retirement saving: sufficient income. Thus, the study not only tested Hershey's theory in the Latvian context, but also added an additional impact factor for future consideration.

An important outcome of the study is an assessment of the Latvian pension system in terms of the aspects of investors' decisions at different stages of pension saving. This allows to measure the level of involvement of citizens in decision-making and to suggest options for improving the pension system.

By conducting a research of the scientific literature, assessing the design principles of the Latvian pension system in the context of the Baltic and developed countries, as well as evaluating the involvement of the Latvian population in the FPR process based on the quality of information available to them and the ability and motivation of the investors themselves to make FPR decisions, and finally receiving expert opinion on the possibilities of improving the pension system summarised in the study, the author came to the following conclusions:

1. On the basis that financial planning for retirement decision-making is based on the descriptive factors of both conventional economic theory and behavioural theory co-existing - financial knowledge (financial literacy) is required to make wise financial planning decisions, but human nature makes the support system crucial to making the right decisions at the right time.

2. Although the design of the Latvian pension system is balanced with all 3 pillars, the key analytical indicator on the efficiency of the pension system - replacement rate of income - highlights the potential for improving its effectiveness. However, Latvia's mandatory contribution principle for all residents is superior to those countries without such a concept, including Lithuania and Estonia. Lower replacement rates reflect the incapacity of existing pension systems to comprehensively provide adequate income after reach of retirement age. At the same time, it also increases the value and motivation of citizens' own involvement in FPR decisions.

3. Using the decision-making framework developed by the author and based on the assessment of the Latvian pension system from the perspective of investors' decisions and preferences, it can be concluded that in order to increase the size of pensions, the Latvian population should not only be involved in decision-making on savings at pension pillar 3, but also at pension pillar 2, where the involvement is comprehensive and obligatory. The study concludes that 44% of all decisions to be

taken also at pension pillar 2 require the involvement of citizens. This, in turn, further confirms the need for all Latvian citizens to be involved in decision-making.

4. A comparative analysis of the impact of the Baltic environment on access to financial services resulting in financial inclusion showed Latvia's situation ranked among the two neighbours, while Estonia showed the highest level of inclusion. The analysis of financial inclusion in relation to financial literacy levels indicated them to be mutually related and causally linked. The higher the level of financial literacy, the more access people have to financial services.

5. The assessment of the incentive systems set by the Baltic governments to engage in pension saving and to increase contributions to it concludes that, although contributions are tax exempt in all three Baltic countries, Latvia has the most unfavourable tax policy during the investment return and withdrawal phases. The author's detailed analysis of the restrictive limits on tax incentives in the contribution phase demonstrates their potential impact on contribution levels, which are less attractive in Latvia than in Estonia, but significantly more attractive than in Lithuania. Raising the contribution ceilings and introducing tax incentives for certain phases of pension saving creates an incentive base and a financial rationale for people to undertake pension saving themselves.

6. While the preferred way of receiving and perceiving information may depend on the individual's perception of information, whether information is received depends mainly on the availability of different sources of information. The author's research on digital information sources and their types suggests a fragmented delivery of information, without the interconnection of different sites, thus not only not facilitating but making it more difficult for the customer to make the final purchase decision. Clear signposting from the higher-level media of public institutions to the pension funds that provide the service and where people can get it will not only increase the number of people involved but will also increase trust in the private pension system. This finding was also confirmed by a survey of pension experts.

7. The author's analysis of investor disclosure documents reveals that the information is presented in complex financial terminology that only people with a sophisticated level of financial literacy can understand. It follows that the information presented in a uniform way does not reach all Latvian citizens in the same way. It is important to communicate information in formats that are accessible to the population and appropriate to the specific understanding of different levels of financial literacy. It is equally important to present information that investors consider relevant for their decision-making in a personalised way to each individual, thereby achieving its objective. The author concludes that it is essential to create a supply of information at different levels of sophistication in Latvia, ensuring its applicability to the entire Latvian public. Therefore, **the thesis to defend that the availability, comprehensibility, and comparability of information about pension**

savings options is of decisive importance compared to the high level of detail of information disclosure is confirmed.

8. The Hershey model chosen in the study to test analyses people's intrinsic capacity and willingness, as well as their level of involvement in pension saving, by identifying the levels of each of these, and sheds light on the extent to which the design of Latvia's pension system corresponds to the characteristics of the population. The higher the level of Capability and Willingness aspects for planners, the less interference pension policy makers need to have in their planning decisions, the more individuals are expected to actively seek opportunities to save and the more able they are to make competent and well-informed FPR decisions.

9. According to the results of the Latvian Population Data Survey, the author determined the distribution of the population according to capacity levels based on the answers given to four financial literacy questions assessing the ability to count, understand inflation, savings interest and compound interest. As a result, the population was divided into a High Saving Capacity group, representing 47.8%, and a Low Saving Capacity group, representing 52.2% of the Latvian population. The relevance of the selected factors to the distribution was demonstrated by their correlation with respondents' self-assessments of financial literacy.

10. When demographic variables are analysed in the context of capacity level, it can be concluded that financial literacy increases with age. A negative signal is the markedly low financial literacy of young people: only 17.6% of 18–19-year-olds are able to demonstrate a good knowledge of the subjects that, according to the school curricula, should be covered in their education. Although, according to the analysis, the level of education contributes to increasing financial literacy. Experts also pointed out in interviews that not enough is being done to promote financial literacy in schools, which should be a key focus.

11. The second group of factors, Willingness, was based on people's propensity to save for the long term and their level of trust in the financial system. According to the division into two groups of willingness to set long term goals 50.6% from all respondents are with High goal setting willingness and the rest – 49.4% with low. Whereas according to the division into two groups of willingness to trust financial service providers 49.2% from all respondents are with High trust level and others are with low. Combining the two parameters - goal setting and trust in institutions – it was identified a group of respondents with high willingness and trust - 27.4% of all respondents, and low willingness and trust - 72.6% of all respondents signalling the relatively low level of willingness to save among the Latvian population.

12. Analysis of demographic variables confirms that the willingness of the Latvian population to save increases until retirement age, when it declines back again. However, one age group stands out

with a lower willingness to save: people aged 40-49. There is a trend that people's willingness to save increases with higher levels of education. Although the distribution of respondents by type of employment does not show significant differences between most groups, students and jobseekers stand out negatively. For students, this could be related to limited earning potential and a short-term consumption basket, while for those actively seeking work, saving is not a priority at the moment due to insufficient income.

13. Based on the population groups created according to the Capacities and Willingness levels, 4 groups with different combinations of levels were created. The results of analyses indicates that the largest group is constituted by respondents with low capacity and low willingness for financial planning for retirement. People with a high level of capacity but a low level of willingness comprise the second largest group - 35.1%. The second smallest group is with people who have low capacity but high willingness - 14.7%. And finally, the smallest group - only 12.7% - is made up of people in Latvia who have both the capacity and the willingness to make FPR decisions to increase their retirement income.

14. In order to get an idea of the adequacy of the Latvian pension system or the opportunity dimension according to the theory of this study, the level of participation of the population in the existing private pension system was investigated. The resulting distribution of respondents showed a low level of involvement of the Latvian population in pension saving, as only 18.9% were identified as having a high level of opportunity utilisation, while 81.1% were identified as having a low level of opportunity utilisation.

15. The proportion of the population not saving for retirement was found to have a proportionally slightly lower level of financial literacy or capacity save. However, when comparing the users of pension opportunities with the users of the willingness to save dimension, the situation is reversed: the segment of the population that does not save for private pensions has a slightly higher motivation to save than the segment that does. Moreover, the adverse impact of willingness factors is higher than the positive impact of capacity factors on the use of saving opportunities.

16. By determining the distribution between groups of the Latvian population according to the types of planners proposed by Hershey and attributing the impact of each type of planner's decisions on the level of FPR performance resulting in higher pensions, 6 levels of potential pension savings can be identified: very low, low, low-moderate, moderate, high and very high. According to Hershey model 12.7% of Latvia population have sufficient expected pension level, 9.2% moderate level, 38.5% low- moderate level and 37.5 low.

17. According to the breakdown of the Latvian population by groups of FPR decision-makers - planners, it can be concluded that the largest group - 30.2% - is the Latvian population with low fi-

nancial literacy, as well as low willingness to save for long-term goals and low trust in the Latvian financial system or “Non-planners” group. The smallest group in Latvia is just 2%, called "Incompetent planner" in the model, signalling that these people, while having low financial literacy, are so eager to save that they are saving for retirement.

18. The distribution of respondents into planners group as well as correlation between different levels of capacity, willingness and opportunity usage **proves the author's thesis that financial planning for retirement is based on cognitive financial literacy in Latvia** and there is no evidence that it is driven by behavioural factors.

19. The author's summarised experiences of countries in designing pension systems, as well as the analysed solutions offered by the Latvian pension system to promote financial literacy and motivation, were grouped together and evaluated by experts in the field of pension funds. Experts confirmed the need to strengthen auto-enrolment principles in Latvia by extending them to the 3rd pension pillar for certain professions, based on the significant share of the population with both low financial literacy and low motivation to save. Thus, the assumption put forward in the author's work is confirmed that **to ensure broad coverage and higher pension levels, the design of the Latvian pension system should be based on automatic participation of the population in pension accumulation, making it compulsory.**

20. The analysis of the impact of the income level of the Latvian population on pension saving, which is chosen by the author as an additional factor, proves the validity of the claim: participation in the pension saving system increases gradually with income level. Thus, the factor of income adequacy becomes a determining factor in the final decision to allocate resources to old age, giving additional context to the factor dimensions of the Hershey model. Experts have also confirmed the critical impact of income level on savings performance, confirming that **while people's financial literacy and motivation to save for private pensions are at the core of their behaviour, the ability to use them is conditional on a sufficient level of income.**

RECOMMENDATIONS

The aim of the recommendations developed as a result of the study is to raise the level of awareness of the Latvian population about the need for private pension savings, as well as to develop accessible, understandable, and easy-to-use ways for users to engage in pension saving, receive information, make investment choices and withdraw their accumulated capital. While a higher level of participation in pension saving is possible as overall income levels improve, even today, with only one in three people in Latvia saving above the national average wage, pension system policy makers need to take an active role.

Every stakeholder level is important in improving the pension system, from the standards set by the government to their application according to the knowledge, motivation, and demographic characteristics of the current Latvian population, and therefore the following **recommendations** are suggested:

1. to the pension policy makers:

- 1.1. There is a need for public communication provided by public authorities that the private pension savings are an important element of the pension system and only all three pillars together will have a sufficiently positive impact on the adequacy of pensions.
- 1.2. As the role of behavioural aspects grows, the influence of pension policymakers on people's FPR decision-making is increasing, so it is necessary to continuously improve the performance framework of the pension system, making it more attractive, understandable, and accessible to its users.
- 1.3. FPR is an eternal process that never ends, therefore the flow of information encouraging to accumulate must be continuous, annual, because every year more and more new participants enter the labour market, when it is necessary to start building pension savings at an early age.
- 1.4. To increase the participation of the population in the 3rd pillar of the pension system, employers' participation in saving should be strengthened by introducing compulsory saving for certain professions that are in high demand and socially vulnerable in Latvia.
- 1.5. Maintain the attractiveness of the 3rd pillar of pensions also among higher income earners by setting the maximum amount of personal income tax relief in line with average wage growth trends in Latvia.

- 1.6. Making pension saving more attractive by introducing a differentiated capital gains tax rate for savers who withdraw their pension savings gradually in the form of annuities, thus providing an incentive to ensure a sufficient level of pensions throughout life.
 - 1.7. Make access to accumulated pension capital more attractive by incentivising young people to join the pension system and by allowing them to use pension savings as a safety cushion in the event of unforeseen circumstances.
 - 1.8. Set standards for information disclosure that investors can understand, find easily, and apply to a specific person and time period.
- 2. to the pension savings services providers:**
- 2.1. To help investors feel secure about their investments and confident in the provider, offer easy-to-use and easy-to-understand solutions to keep people informed about their savings, keep track of them, change and increase their contributions, and claim their pay-outs.
 - 2.2. Develop financial planning for retirement tools to include all private pension saving options.
 - 2.3. Designing pension plan offerings that suit different investor profiles - with different levels of risk tolerance, preferences in investment strategies, understanding of how financial markets work, and willingness to be involved in choosing the right plan for them.
 - 2.4. To gain ongoing assurance that the information provided to investors is appropriate to their level of financial literacy.
- 3. to the financial market supervisory body:** Information disclosure documents should be created in such a way that they not only meet the requirements of European and national legislation, but also achieve their goal - to help investors make balanced FPR decisions.
- 4. to the education system policy makers:** When creating financial literacy training programs, base them not only on the acquisition of broad general knowledge but provide concrete examples of what each person can do for their pension today - choose an optimal investment strategy at the 2nd pension pillar and start building voluntary savings at the 3rd pension pillar.

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ANNEXES

Annexe 1 Studies based on the three-dimensional concept in financial planning for retirement analysis

The study	Purpose	The result
Topa, G., Herrador-Alcaide, T. (2016). ²²⁷	To analyze the mediating role of financial retirement goals in the relationship between financial retirement knowledge and retirement saving and investment behavior, and the moderating role of procrastination in people approaching retirement age.	The link between knowledge of retirement finances and saving and investing is in fact determined by the financial objectives of retirement. Delay is mediated both by the relationship between knowledge about financial retirement and goals and by the interaction of financial objectives for retirement and saving behaviour.
Palací, F.J., Jiménez, I., Topa, G. (2017). ²²⁸	To examine the impact of parental economic socialisation, whether direct or indirect, on FPR through financial literacy, decisions on financial planning and management of finances.	The economic socialisation of parents has both direct and indirect effects on FPR; parenting economic practices serve as a positive guide for the growth of financial literacy and decision-making about FPR.
Palací, F., Jiménez, I., Topa, G. (2018). ²²⁹	To analyze the relationship between three distal antecedents—financial literacy, confidence in retirement, and economic well-being—and FPR evaluated at two different times	The results confirm that self-perceived financial knowledge, confidence in retirement, and economic well-being are associated with FPR at three and six months. The stability of FPR over time was a relevant finding in the present research
Jiménez, I., Chiesa, R., Topa, G. (2019). ²³⁰	To test the moderator role of age in the relationships between antecedents and financial planning	Younger participants showed a greater level of FPR if they were characterized by a high level of education. The interaction between both age and psychological preparation for retirement and retirement goals clarity failed to reach statistical significance
Herrador-Alcaide, T. C., Hernández-Solís, M., Topa, G. (2021). ²³¹	Analyse the link between various determinants of retirement behaviour, money management habits and availability of funds.	The model can predict 36% of the spread of financial management practices and 53% of the spread of financial resources for retirement, according to the results obtained.

Source: the author's construction based on literature review

²²⁷ Topa, G., Herrador-Alcaide, T. (2016). Procrastination and financial planning for retirement: A moderated mediation analysis. *Journal of Neuroscience, Psychology and Economics*, 9(3-4), 169.

²²⁸ Palací, F.J., Jiménez, I., Topa, G. (2017). Economic Cognitions Among Older Adults: Parental Socialization Predicts Financial Planning for Retirement. *Frontiers in Aging Neuroscience*, 9, 376.

²²⁹ Palací, F., Jiménez, I., & Topa, G. (2018). Too soon to worry? Longitudinal examination of financial planning for retirement among Spanish aged workers. *Plos one*, 13(12), e0209434.

²³⁰ Jiménez, I., Chiesa, R., Topa, G. (2019). Financial Planning for Retirement: Age-Related Differences Among Spanish Workers. *Journal of Career Development*, 46(5), 550–566.

²³¹ Herrador-Alcaide, T.C., Hernández-Solís, M., Topa, G. (2021). A model for personal financial planning towards retirement. *Journal of Business Economics and Management*, 22(2), 482-502.

Annexe 2 The questions of the survey to assess the suitability of existing information disclosure documents for Latvia state funded pension investors

- Q 1. Is it understandable where the plan's funds are invested (e.g. geographically, by financial instrument, etc.)? Please rate on a scale of 1-8, where 1 - Not understandable at all and 8 - Very well understandable
- Q 2. Is it understandable what the risk level of this plan is? Please rate on a scale of 1-8, where 1 - Not understandable at all and 8 - Very well understandable
- Q 3. Is it understandable what and how much fees (deductions) will be charged? Please rate on a scale of 1-8, where 1 - Not understandable at all and 8 - Very well understandable
- Q 4. Is it understandable how the investment plan's return is calculated? Please rate on a scale of 1-8, where 1 - Not understandable at all and 8 - Very well understandable
- Q 5. Please evaluate the document in the the layout of the sections aspect in a scale from (-1) till (+2) where (-1) – Very bad and (+2) – Very good
- Q 6. Please evaluate the document in the total length of the text aspect in a scale from (-1) till (+2) where (-1) – Very bad and (+2) – Very good
- Q 7. Please evaluate the document in the design of the document aspect in a scale from (-1) till (+2) where (-1) – Very bad and (+2) – Very good
- Q 8. Please evaluate the document in the Size of letters aspect in a scale from (-1) till (+2) where (-1) – Very bad and (+2) – Very good
- Q 9. Please evaluate the document in the language readability and comprehensibility aspect in a scale from (-1) till (+2) where (-1) – Very bad and (+2) – Very good
- Q 10. Would the document and its contents be useful when choosing a Tier 2 pension plan? Please rate on a scale of 1-8, where 1 - Not usefull at all and 8 - Very usefull
- Q 11. Have you seen this document before? Please choose the answer: Never; Yes, but not using it; Yes, and I used it, I do not know
- Q 12. Are you aware of the investment manager and the plan that holds your savings for your funded pension? Please choose the answer: Yes; No, never interested; No, but I know were I can check it.
- Q 13. Do you save in private pension funds? Please choose the answer: Yes; No.
- Q 14. Please indicate any ideas and suggestions to improve the document.
- Q 15. Gender: Female, Male
- Q 16. Age: age band

Annexe 3 The demography indicators of types of planners

Table Annexe 3.1 The distribution of respondents by types of planners and gender

Types of planners		Gender		Total
		Male	Female	
LC, HW, LO: Restricted	Count	63	65	128
	% within Types of planners	49.2	50.8	100.0
LC, HW, HO: Incompetent	Count	8	12	20
	% within Types of planners	40.0	60.0	100.0
LC, LW, LO: Non-planner	Count	134	170	304
	% within Types of planners	44.1	55.9	100.0
LC, LW, HO: Entitled	Count	35	39	74
	% within Types of planners	47.3	52.7	100.0
HC, LW, LO: Lost	Count	122	158	280
	% within Types of planners	43.6	56.4	100.0
HC, LW, HO: Unmotivated	Count	28	45	73
	% within Types of planners	38.4	61.6	100.0
HC, HW, LO: Frustrated	Count	47	58	105
	% within Types of planners	44.8	55.2	100.0
HC, HW, HO: Competent	Count	10	13	23
	% within Types of planners	43.5	56.5	100.0
Total	Count	447	560	1007
	% within Types of planners	44.4	55.6	100.0

Source: the author construction based on the survey in 2022 data analyses, n=1007

Table Annexe 3.2 The distribution of respondents by types of planners and age band

Types of planners		Age Band							Total
		18-19	20-29	30-39	40-49	50-59	60-69	70-79	
LC, HW, LO: Restricted	Count	1	21	28	12	32	16	18	128
	% within Types of planners	0.8	16.4	21.9	9.4	25.0	12.5	14.1	100.0
LC, HW, HO: Incompetent	Count	0	2	5	4	3	5	1	20
	% within Types of planners	0.0	10.0	25.0	20.0	15.0	25.0	5.0	100.0
LC, LW, LO: Non-planner	Count	27	47	44	47	45	42	52	304
	% within Types of planners	8.9	15.5	14.5	15.5	14.8	13.8	17.1	100.0
LC, LW, HO: Entitled	Count	0	13	21	11	8	20	1	74
	% within Types of planners	0.0	17.6	28.4	14.9	10.8	27.0	1.4	100.0
HC, LW, LO: Lost	Count	5	24	62	59	44	57	29	280
	% within Types of planners	1.8	8.6	22.1	21.1	15.7	20.4	10.4	100.0
HC, LW, HO: Unmotivated	Count	0	12	13	22	15	9	2	73
	% within Types of planners	0.0	16.4	17.8	30.1	20.5	12.3	2.7	100.0
HC, HW, LO: Frustrated	Count	1	7	13	17	24	27	16	105
	% within Types of planners	1.0	6.7	12.4	16.2	22.9	25.7	15.2	100.0
HC, HW, HO: Competent	Count	0	2	5	3	9	4	0	23
	% within Types of planners	0.0	8.7	21.7	13.0	39.1	17.4	0.0	100.0
Total	Count	34	128	191	175	180	180	119	1007
	% within Types of planners	3.4	12.7	19.0	17.4	17.9	17.9	11.8	100.0

Source: the author construction based on the survey in 2022 data analyses, n=1007

Table Annexe 3.3 The distribution of respondents by types of planners and language

Types of planners		Language			Total
		Latvian	Russian	Other	
LC, HW, LO: Restricted	Count	89	34	5	128
	% within Types of planners	69.5	26.6	3.9	100.0
LC, HW, HO: Incompetent	Count	17	3	0	20
	% within Types of planners	85.0	15.0	0.0	100.0
LC, LW, LO: Non-planner	Count	198	92	14	304
	% within Types of planners	65.1	30.3	4.6	100.0
LC, LW, HO: Entitled	Count	54	20	0	74
	% within Types of planners	73.0	27.0	0.0	100.0
HC, LW, LO: Lost	Count	188	80	12	280
	% within Types of planners	67.1	28.6	4.3	100.0
HC, LW, HO: Unmotivated	Count	61	11	1	73
	% within Types of planners	83.6	15.1	1.4	100.0
HC, HW, LO: Frustrated	Count	80	24	1	105
	% within Types of planners	76.2	22.9	1.0	100.0
HC, HW, HO: Competent	Count	17	5	1	23
	% within Types of planners	73.9	21.7	4.3	100.0
Total	Count	704	269	34	1007
	% within Types of planners	69.9	26.7	3.4	100.0

Source: the author construction based on the survey in 2022 data analyses, n=1007

Table Annexe 3.4 The distribution of respondents by types of planners and employment status

Types of planners % within Types of planners	Employment status								Total
	Self-employed [work for myself]	In paid employment [work for someone else]	Looking after the home	Looking for work [unemployed]	Retired	Unable to work due to sickness or ill-health	Not working and not looking for work	Student	
LC, HW, LO: Restricted	9.4	46.1	4.7	13.3	21.1	3.1	1.6	0.8	100.0
LC, HW, HO: Incompetent	5.0	80.0			10			5	100.0
LC, LW, LO: Non-planner	7.2	45.4	4.9	2.0	22.7	4.6	1.3	11.8	100.0
LC, LW, HO: Entitled	14.9	68.9	5.4		8.1			2.7	100.0
HC, LW, LO: Lost	9.3	60.4	2.1	2.5	17.9	3.6		4.3	100.0
HC, LW, HO: Unmotivated	13.7	74.0	1.4	2.7	5.5	1.4	1.4		100.0
HC, HW, LO: Frustrated	7.6	54.3	1.0	2.9	26.7	4.8		2.9	100.0
HC, HW, HO: Competent	13.0	82.6			4				100.0
Total	9.2	55.9	3.3	3.5	18.6	3.4	0.7	5.5	100.0

Source: the author construction based on the survey in 2022 data analyses, n=1007

Table Annexe 3.5 The distribution of respondents by types of planners and education level

% within Types of planners		Educational Level						Total
		Post-graduate education or equivalent (e.g. master's degree, PhD or advanced p	University-level education (e.g. degree or higher-level vocational training)	Upper secondary school or high school	Lower secondary school or middle school (where relevant)	Primary school	No formal education	
Types of planners	LC, HW, LO: Restricted	5	16	52	26	1		100
	LC, HW, HO: Incompetent	20	25	40	15			100
	LC, LW, LO: Non-planner	7	15	56	20	0	1	100
	LC, LW, HO: Entitled	19	42	35	4			100
	HC, LW, LO: Lost	10	31	53	5		0	100
	HC, LW, HO: Unmotivated	26	37	37				100
	HC, HW, LO: Frustrated	11	34	47	7		1	100
	HC, HW, HO: Competent	17	52	30				100
	Total	11	26	50	12	0	1	100

Source: the author construction based on the survey in 2022 data analyses, n=1007

Table Annexe 3.6 The distribution of respondents by types of planners and income level

% within Types of planners		Income band						Refused to answer	Total
		Up to 500 eur a month	from 501-750 eur a month	from 751-1000 eur a month	from 1001 - 1500 eur a month	from 1501 - 2000 eur a month	more than 2001 eur a month		
Types of planners	LC, HW, LO: Restricted	13.3	9.4	15.6	11.7	7.8	5.5	36.7	100.0
	LC, HW, HO: Incompetent	5.0	20.0	15.0	15.0	15.0	5.0	25.0	100.0
	LC, LW, LO: Non-planner	11.5	12.5	9.2	11.5	8.6	3.9	42.8	100.0
	LC, LW, HO: Entitled	1.4	2.7	8.1	12.2	24.3	24.3	27.0	100.0
	HC, LW, LO: Lost	8.2	11.1	17.1	17.5	8.9	8.6	28.6	100.0
	HC, LW, HO: Unmotivated	1.4	5.5	13.7	11.0	20.5	27.4	20.5	100.0
	HC, HW, LO: Frustrated	13.3	11.4	17.1	11.4	11.4	6.7	28.6	100.0
	HC, HW, HO: Competent		4.3	26.1	8.7	13.0	26.1	21.7	100.0
	Total	9.1	10.3	13.8	13.2	11.1	9.4	33.0	100.0

Source: the author construction based on the survey in 2022 data analyses, n=1007

Annexe 4 The questions of the experts' survey on the involvement of Latvian citizens in pension planning decisions

Q 1 Rate the areas for improvement to involve as many participants as possible in the development of PPF savings in Latvia on a scale of 1-5, where 1 - no improvement needed and 5 - significant improvement needed:

- Q 1.1. Tax breaks for residents
- Q 1.2. More favourable conditions for employers
- Q 1.3. Compulsory savings for certain professions
- Q 1.4. More active outreach to new members
- Q 1.5. Availability and accessibility of services
- Q 1.6. Clarity and simplicity of the information provided

Please justify the high ratings given and mention additional areas for improvement.

Q 2 On a scale of 1-5, where 1 is no significant impact and 5 is a significant impact, rate the extent to which the following have an impact on your ability to maximise your pension savings:

- Q 2.1. Long-term yield level
- Q 2.1. Level of costs and deductions
- Q 2.3. Increasing contributions over time
- Q 2.4. Investor's active interest in results and opportunities
- Q 2.5. The possibility for the investor to make changes quickly and easily during the lifetime of the contract
- Q 2.6. Proactive action by the provider to change investment strategy in line with age or market situation

Please list the additional aspects of the above that you consider to be important for capital accumulation and provide a brief justification.

Q 3 Please rate the ways to involve people in Latvia with low levels of financial literacy and motivation in saving in PPF plans on a scale of 1-5, where 1 - will not give the best result and 5 - will give the best result:

- Q 3.1. Automatic enrolment in pension plans through your employer
- Q 3.2. Emphasise immediate financial benefits in the form of tax incentives
- Q 3.3. Provide information on the expected amount of pension with and without savings
- Q 3.4. Provide clear guidance on what to do to build up savings
- Q 3.5. Speak in person
- Q 3.6. Create broad marketing campaigns

Please identify additional ways to the above to involve the Latvian population with low financial literacy and no motivation to save in pension saving.

Q 4 Please rate the ways to involve people in Latvia with low financial literacy and high motivation to save in PPF plans on a scale of 1-5, where 1 - will not give the best result and 5 - will give the best result:

- Q 4.1. Automatic enrolment in pension plans through your employer
- Q 4.2. Emphasise immediate financial benefits in the form of tax incentives
- Q 4.3. Provide information on the expected amount of pension with and without savings
- Q 4.4. Provide clear guidance on what to do to build up savings

Q 4.5. Speak in person

Q 4.6. Create broad marketing campaigns

Please identify additional ways to the above to involve people in Latvia with low financial literacy and high motivation to save in pension saving.

Q 5 Please rate the ways to involve people in Latvia with a high level of financial literacy and no motivation to save in PPF plans on a scale of 1-5, where 1 - will not give the best result and 5 - will give the best result:

Q 5.1. Automatic enrolment in pension plans through your employer

Q 5.2. Emphasise immediate financial benefits in the form of tax incentives

Q 5.3. Provide information on the expected amount of pension with and without savings

Q 5.4. Provide clear guidance on what to do to build up savings

Q 5.5. Speak in person

Q 5.6. Create broad marketing campaigns

Please identify additional ways to the above to involve the Latvian population with high financial literacy and no incentive to save in pension saving.

Annexe 5 Main statistical indicators and distribution of the answers given by pension system experts in the survey provided by the author in March 2023

Table Annexe 5.1 Main statistical indicators and distribution of the areas for improvement to involve as many members as possible in the PPF savings in Latvia

Answers	N		Mean	Median	Mode	Standard Deviation	Variance	Range	Min	Max
	Valid	Missing								
Tax incentives for citizens	8	0	2.63	3.00	3	1.188	1.411	3	1	4
More favourable terms for employers	8	0	3.25	3.50	4	1.282	1.643	4	1	5
Compulsory savings for certain professions	8	0	3.63	4.00	5	1.506	2.268	4	1	5
More active outreach to new participants	8	0	3.38	3.00	3	1.188	1.411	3	2	5
Availability and accessibility of services	8	0	2.75	3.00	3	1.035	1.071	3	1	4
Clarity and simplicity of the information provided	8	0	3.13	3.00	2	1.246	1.554	3	2	5

Source: the author construction based on the survey in 2023 data analyses, n=8

Table Annexe 5.2 Main statistical indicators and distribution of aspects affecting the ability to maximise pension savings in Latvia

Answers	N		Mean	Median	Mode	Standard Deviation	Variance	Range	Min	Max
	Valid	Missing								
Long-term rate of return	8	0	4.50	4.50	4, 5	0.535	0.286	1	4	5
Cost and deduction levels	8	0	4.25	4.00	4	0.463	0.214	1	4	5
Increasing contributions over time	8	0	3.88	3.50	3	0.991	0.982	2	3	5
Investor's active interest in results and opportunities	8	0	3.00	3.00	3	0.756	0.571	2	2	4
The possibility for the investor to make changes quickly and easily during the lifetime of the contract	8	0	3.00	3.50	4	1.512	2.286	4	1	5
Proactive action by the provider to change investment strategy in line with age or market situation	8	0	3.25	3.00	3	1.165	1.357	4	1	5

Source: the author construction based on the survey in 2023 data analyses, n=8

Table Annex 5.3 Main statistical indicators and distribution of ways of involvement of people in Latvia with low levels of financial literacy and motivation in saving in PPF plans

Answers	N		Mean	Median	Mode	Standard Deviation	Variance	Range	Min	Max
	Valid	Missing								
Automatic enrolment in pension plans through the employer	8	0	4.50	4.50	4, 5	0.535	0.286	1	4	5
Emphasise immediate financial benefits in the form of tax incentives	8	0	3.13	3.50	4	1.126	1.268	3	1	4
Provide information on the expected amount of pension with and without savings	8	0	3.63	4.00	4	0.744	0.554	2	2	4
Provide clear guidance on what to do to build up savings	8	0	3.38	3.50	4	1.061	1.125	3	2	5
Address personally	8	0	3.38	4.00	4	0.916	0.839	2	2	4
Create extensive marketing campaigns	8	0	3.13	3.00	3	1.246	1.554	4	1	5

Source: the author construction based on the survey in 2023 data analyses, n=8

Table Annex 5.4 Main statistical indicators and distribution of ways of involvement of people in Latvia with low levels of financial literacy and high motivation to save in PPF plans

Answers	N		Mean	Median	Mode	Standard Deviation	Variance	Range	Min	Max
	Valid	Missing								
Automatic enrolment in pension plans through the employer	8	0	3.75	4.00	4	0.707	0.500	2	3	5
Emphasise immediate financial benefits in the form of tax incentives	8	0	4.25	4.00	4	0.707	0.500	2	3	5
Provide information on the expected amount of pension with and without savings	8	0	4.25	4.00	4	0.707	0.500	2	3	5
Provide clear guidance on what to do to build up savings	8	0	4.00	4.00	3, 5	0.926	0.857	2	3	5
Address personally	8	0	4.00	4.00	3; 5	0.926	0.857	2	3	5
Create extensive marketing campaigns	8	0	3.13	3.00	3	1.246	1.554	4	1	5

Source: the author construction based on the survey in 2023 data analyses, n=8

Table Annexe 5.5 Main statistical indicators and distribution of ways of involvement of people in Latvia with a high level of financial literacy and no incentive to save in PPF plans

Answers	N		Mean	Median	Mode	Standard Deviation	Variance	Range	Min	Max
	Valid	Missing								
Automatic enrolment in pension plans through the employer	8	0	3.50	3.50	5	1.512	2.286	4	1	5
Emphasise immediate financial benefits in the form of tax incentives	8	0	3.25	3.50	4	1.282	1.643	4	1	5
Provide information on the expected amount of pension with and without savings	8	0	3.38	3.50	4	1.061	1.125	3	2	5
Provide clear guidance on what to do to build up savings	8	0	2.75	2.50	2	1.282	1.643	4	1	5
Address personally	8	0	3.63	3.50	3	1.061	1.125	3	2	5
Create extensive marketing campaigns	8	0	2.25	2.00	2	0.886	0.786	3	1	4

Source: the author construction based on the survey in 2023 data analyses, n=8