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Determinants of voluntary retirement savings of Estonian residents

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I hereby declare that I have compiled the thesis independently
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has not been previously presented for grading.
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ABSTRACT

As demographic changes are happening globally, a new way of saving for retirement is being searched for. Voluntary pension savings may become a new paradigm and be part of a solution. Numerous research are held, and regulations adopted to improve the current retirement system. The necessity of private retirement savings is being promoted in the society and encouraged by voluntary Third Pillar in the Estonian pension system. This bachelor thesis contributes to detecting current major factors prevailing among Estonian residents influencing voluntary retirement saving decisions. Relevant determinants of retirement planning and savings are chosen based on previous studies and applied to analyse the case of Estonia. The factors of saving behaviour are crucial to be understood, first of all, by people to act more consciously and identify the needs and plans for the future, including retirement. And, secondly, by policy-makers, for whom being aware of the influencing determinants is important in order to create the best solution possible and help people maintain the standard of living when retired. Using binary logit regression, three models were built with data collected through a specific survey. The results show that voluntary retirement savings positively depend on income, working experience, self-employment, higher education, financial literacy, retirement saving plan and spouse's decision to save. Having mortgage or other credits render an opposite effect. Altogether, the saving behaviour of Estonian residents and decision to privately save for retirement depend on numerous socio- and non-economic factors.

Keywords: Pension system, retirement savings, retirement planning, voluntary/private retirement savings, determinants, pillars.

INTRODUCTION

Due to a steady increase in life expectancies and the rise of the average age of the population, an important question rises: how to eliminate severe consequences of those facts on pension systems and how to ensure the sufficiency of individual retirement savings. Thus, the main goal today is increasing private retirement savings, as the current public pension system alone does no longer give a guarantee of an adequate income at an old age. (Dolls *et al.* 2018) Nowadays, the responsibility of one's financial security after retiring shifts and individuals are increasingly in charge of providing a decent living standard for themselves in old age (Lusardi 2008).

To ensure that people are going to have adequate and sustainable pensions, the government and/or the person itself should take care of it, because income level is uneven throughout lifetime and is remarkably lower in old age. Economic well-being of Estonian residents does not ensure a decent living standard at a retirement. Currently, average pesnion size is approximately half of average income.

As saving behaviour, and especially retirement saving behaviour, is said to be a very complex function that depends on various factors and involves many processes, the aim of this bachelor thesis is to highlight the most significant determinants of saving behaviour of Estonian residents. The research question is going to be focused on why people in Estonia do not save enough for retirement.

The main focus of this research is to find the relations between different determinants affecting complex saving behaviour and decisions, so voluntary retirement savings were chosen to be a dependent variable. Because the dependent variable is binary, logit regression analysis is used as a research method. The most significant relations are going to be highlighted through regression models. To obtain relevant data for that purpose, a specific theory-based questionnaire was conducted, which is closely observed in section 2.1. Thanks to upcoming state pension system

reform retirement saving topic is even more actual nowadays. This aspect is also taken into account in questionnaire construction and results analysis.

The goal of the thesis is to interpret how various retirement saving factors affect private retirement savings in case of Estonia. First two hypotheses are put forward to estimate the overall situation in country. Third hypothesis is an estimated effect of one certain determinant, which may be specifically actual in the case of Estonia. Two last hypotheses are derived from the subsequent theoretical framework and expected impacts of retirement saving determinants from socio- and non-economic categories.

H1: Less than half of the sample is going to have private investments/savings for retirement.
H2: Around half of the sample has joined third voluntary pillar of Estonian pension system.
H3: Self-employment may act as a significant retirement saving determinant, as Estonia has a supportive ecosystem for entrepreneurs.
H4: Voluntary retirement savings will positively depend on age, gender, higher and financial education, marriage and spouse's saving behaviour, children, and saving sum calculation.
H5: Voluntary retirement savings strongly depend on age, gender, higher education, area of residence, financial risk (mortgage, leasing, other credits) and labour market characteristics such as income, self-employment, and job in finance.

Research is structured in the following way: the first chapter introduces the current situation in Estonia, the topic of saving behaviour and retirement savings, and presents an overview of major relevant macroeconomic theories that explain saving decisions. Next, theoretical perspective on the effects of determinants of retirement savings is given by analysing numerous studies held in Europe and, particularly, Estonia. An illustrative chart is presented to help visualise saving predictors under discussion. The description of methodology applied begins the second chapter. Later, the process of data collection is described, and the full versions of questionnaires are presented in Appendicies. Then follow descriptive statistics and analysis of results and, finally, the findings are summarised in the conclusion. Limitations and future research suggestions enclose the study.

1. THEORETICAL FRAMEWORK

1.1. The case of Estonia

The ageing of the population is, according to the OECD, the main risk for the future of publicly funded pension systems (Kulu *et al.* 2020). The population of Estonia is not an exception and is also rapidly ageing. In its turn, this causes an increase in country's old-age dependency ratio, which implies that a higher number of older people is expected to be supported by the working-age population. According to European commission, Estonia is likely to have one of the most problematic structure and size of the working-age population among European Union countries. (Unt, Saar 2016) Moreover, a relatively high employment rate among older population is observed together with health issues, which may be determined as a necessity to stay employed for many seniors (Klesment, Lepik 2012). All these facts together make a case of Estonia to be extremely actual and interesting for the research purpose and investigating the retirement saving determinants.

Insufficient pre-retirement planning and retirement savings, *per se,* may cause harsh consequences that will promote economic problems in a number of developed countries. Prior research proves that modern society lacks a perfect solution for retirement savings, and it is impossible to create a system that would match each individual's needs. Consequently, the role of private retirement savings was emphasized, and low retirement saving rate became a major concern around the world and, particularly, in European countries. (Yusof, Sabri 2017) Estonia is also searching for the ways to improve the state pension system and the upcoming reform is described in the second chapter.

The current Estonian pension system is a three-pillar system implemented since the end of the 1990s. In order to lift the pension income, the system became more generous to working people and people with longer working experience in the following years. As a result, pension system more appreciates people with a longer working career. One more important aspect is that since

1966 people can receive an old-age pension in a full amount together with work income. (Klesment, Lepik 2012) Shortly describing the three pillars that Estonian pension system stands on (Pensionikeskus 2020):

1. State pension or state-managed first pillar: state old-age pension paid to a person who has reached the pensionable age and worked at least 15 years. Pensionable age in Estonia is generally 63 years, and in five years this age is planned to rise up to 65. Under this pillar, pension comes from the taxes of working part of population. This pillar provides minimum protection for the retired people.
2. Mandatory funded pension or compulsory private second pillar for those born in 1983 and later. This pillar aims to accrue additional personal pension, on top of the state-financed first pillar. Two percent of the gross salary of an employee is contributed to the chosen pension fund, which invests these contributions into different assets. State also adds four percent out of the social tax paid by the employee.
3. Supplementary funded pension or voluntary private third pillar provides an opportunity to ensure sufficient retirement payments even better. A person determines the sum of payments to this voluntary pillar by himself and may adjust it any time.

Many retirees face a problem of a shrunk income when retired (Yusof, Sabri 2017) and the average numbers for Estonia support this evidence. As of the beginning of April of the year 2020, average old-age pension in Estonia increased by more than 9%, and with 44 years of service, it amounted to around 528 Euros (Soobik 2020). If to take a look at an average income level, it is explicit that the income at a retirement harshly declines. According to present figures and simple counting, people are left with roughly a half smaller income at old age. Indeed, one of the most popular banks and pension fund managers in Estonia states on its homepage, that an average income during retirement (in case of joining both I and II pillars) equals to only around 40% of what the person was used to get as a monthly income before he or she retired and it is possible to receive a little over 60% in case of additionally joining the third voluntary pillar (My pension assets 2020). This information is clearly presented and probably provided to motivate people start saving more for the retirement and draw their attention to the problem which may not seem very evident right now but most probably can affect in the future.

1.2. General overview on retirement saving

Saving behaviour is recognised as a highly researched and extensively analysed area with a significant number of studies (Yusof, Sabri 2017; Jacobs 2009). However, there is an evident problem of insufficient pre-retirement planning and saving, leading to economic issues and uneven income levels throughout the life cycle. Mainly, savings are made to ensure a smooth consumption level over the lifecycle. Specifically, most individuals save for the retirement period when income level is declined or is absent at all. (Jacobs 2009)

Retirement saving relates to a complex financial planning behaviour (Yusof, Sabri 2017) and current pension system is already quite involving for an individual. This means that multi-pillar system requires some relative action from people. For instance, people have to make a decision about the fund they choose to contribute to, its riskiness, the service provider, etc. Furthermore, people have to make up their minds whether they want additional contributions and join the third pillar and related decisions. All this requires action and decision making from individuals on a topic which they may struggle to visualise, as future is difficult to be imagined (Yusof, Sabri 2017). The importance and influence on saving decisions of visualising the self in the future and, especially, at the retirement, is discussed below.

When moving closer to retirement age or being retired, most people realise that they would like to have saved more during the previous years and be more financially prepared for this period of life. Hershfield *et al.* (2011) try to understand why people fail to save enough money for the retirement and how the saving decisions could be made more future-oriented. In their study, people were able to interact with prospective renderings of themselves using virtual reality and make decisions related to resource allocation. (Hershfield *et al.* 2011)

Psychologists and economists say, that people may lack retirement savings, because not feeling connected enough to one's future self. People are said to take less care, the more distant in time the subject is. For example, we can more or less imagine our life in the nearest few years, make a plan and be encouraged to save money for some goal, but barely would that happen in case of 40 years time. We can only be motivated to save for retirement if we can imagine ourselves at that time. Otherwise, it feels similar to giving money to a stranger or making a decision for another person, and we would rather spend money today. Conducting four various experiments showed the increased importance of future-oriented choices and allocation of resources to retirement

savings in case of participants interaction with their prospective virtual images. Such kind of visual intervention may boost saving behaviour, and be regarded as a valuable part of solution to motivate people be more prepared for the retirement. (Hershfield *et al.* 2011)

In addition to discussed above peculiar and new way of treating saving behaviour, this research also gives an overview of traditional and early economic factors: a few most famous macroeconomic models are described, as well as relatively modern theories and hypotheses. Furthermore, section 1.3. considers various determinants from non-economic and socio-economic fields that are included into research. Below is an illustrative Figure 1, that systemizes determinants and theories, which are going to be further described in the research.

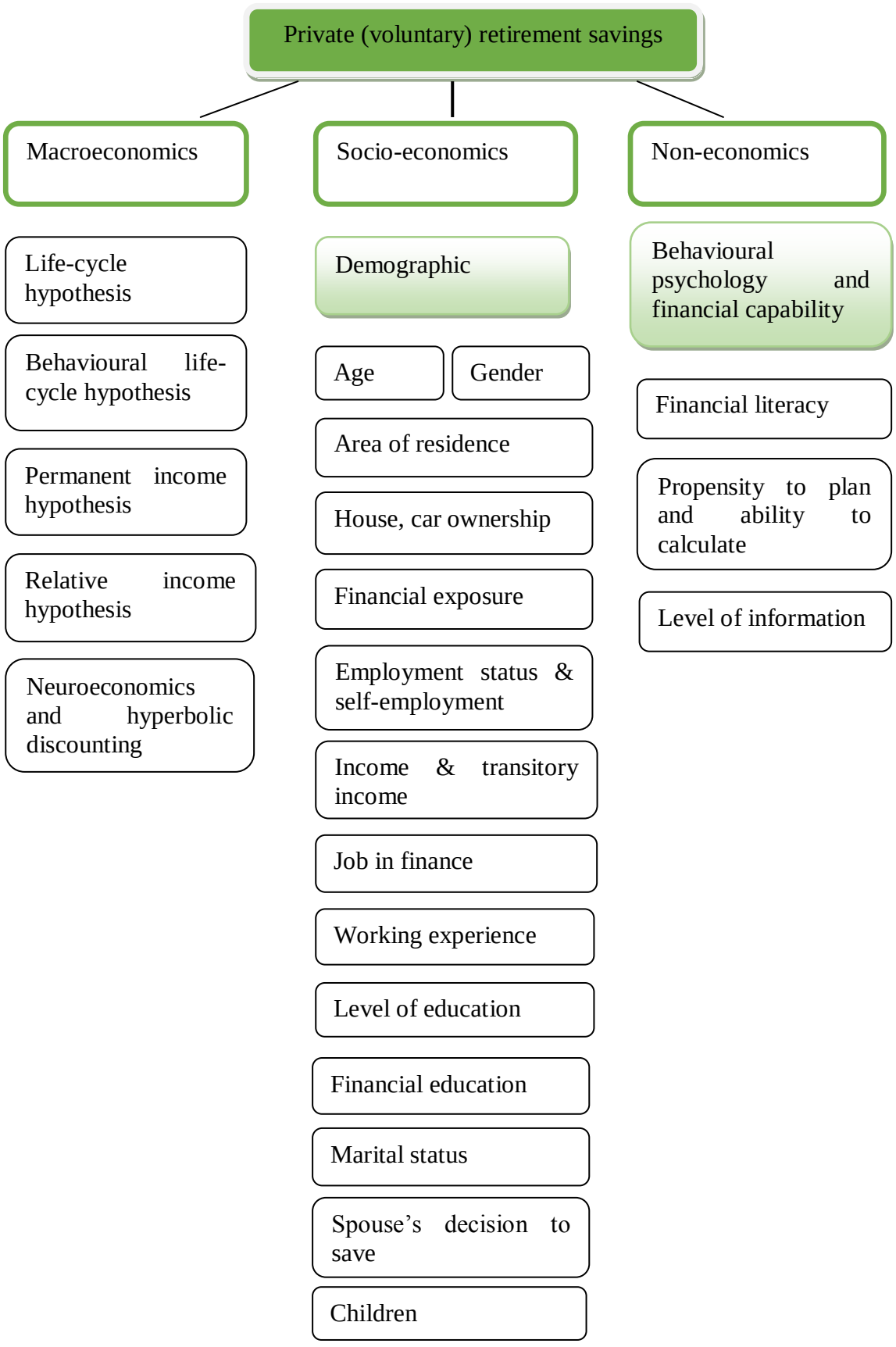

Figure1. Determinants of private retirement savings.

Source: Based on previous research reviewed

1.3. Relevant theories and implications for retirement saving behaviour

1.3.1. Life-cycle hypothesis and Behavioural Life-cycle hypothesis

One of the major theories explaining consumption and saving behaviour was proposed by Franco Modigliani in 1950s. Life-cycle hypothesis assumes that people are rational and behave quite optimally when it comes to their consumption and savings over the lifetime. Namely, people try to smooth out income level throughout lifecycle, regardless that income is not stable and consumption needs and income often vary in different periods of life. Theory assumes that, for example, in young age consumption exceeds the income. At retirement, the situation is opposite and as income declines the level of consumption is being smoothed out or optimized by using previously accumulated savings. Life-cycle hypothesis states that mostly these savings are possible to be accumulated in the middle age when earnings are generally the highest. (Life cycle theories ... 2020). According to some recent research, individuals start to save at around 33 years old, and when they become debt-free, financial wealth for retirement is being accumulated. Mostly, this accumulation starts after age 45 (Jacobs 2009). The main motive for an individual saving money, according to life-cycle theory, is the need to provide for the retirement (Deaton 2005).

In the life-cycle hypothesis, or often referred as a theory, there is also a connection between economic growth and saving. Modigliani assumed that the main influencing factor for saving is the growth rate of total income which implies that the level of income itself is not crucial and countries with low income levels save the same share of their income as people from richer countries. (Deaton 2005)

The theory seems to be very logical, but it has a few assumptions (Рыжкова 2013):

1) people are rational and can consciously plan their activities, maximizing efficiency;
2) people prefer a smooth level throughout life, so they try to support a stable amount of expenses;
3) inheritance is not taken into account in a classical life-cycle theory.

Moreover, the theory assumes that people understand how the life-cycle goes and that there is a need to save for the future, as income levels are going to be smaller closer to retirement and a need to smooth out will appear. Thus, it also assumes that individuals are able to plan. (Рыжкова 2013). The decline in labour earnings closer to the end of the lifecycle is said to occur due to

depreciation of human capital. As a result, labour productivity reaches its peak earlier in the timeline than total earnings do. Despite the fact that individuals have a valuable time after retirement, as well, it steadily depreciates as further investments in human capital do not bring marginal value, and they drop to zero at retirement. (Jacobs 2009)

As of now, apparently, the life-cycle theory is very difficult to be empirically implicated because most people are not rational. Even an economist may fail to make a correct saving plan and not choose an appropriate savings rate. Furthermore, self-control may become an issue, even if the correct savings rate was chosen. Self-control and discipline appear here as an ability of a person to regularly save with respect for future benefits, despite the fact that immediate consumption seems to be more attractive. Often a person is not able to overcome his „now" orientation and reduce current consumption with respect to future rewards. (Thaler, Benartzi 2004). Hyperbolic discounting theory is going to be discussed in more details below.

One more problem that harshly affects household saving behaviour is procrastination. This means postponing the tasks, especially unpleasant ones. Procrastination is easily applied to retirement savings, as well. For instance, most people who see a problem in undersaving or not having a retirement plan, may not change the situation even after a few months, because of low self-control and procrastination. (Thaler, Benartzi 2004). Accordingly, people, who enrol in some retirement saving programs and experience inertia or procrastination, will most likely make no changes into the funds chosen, rate of saving, etc.

The self-control factor, mental accounting and framing are taken into account and play a significant role in an alternative theory proposed by Shefrin and Thaler in 1988, behavioural life-cycle hypothesis. Under this enriched life-cycle theory, people divide wealth into different accounts and future income is less preferred to be spent than current income. Also, the way how money was received influences the willingness to spend it. Mental accounts in this theory help people restrict and allocate certain types of income to certain types of spendings. Appropriate example here is a retirement account, and most likely, it will be mentally allocated only to future consumption. (Graham, Isaac 2002)

1.3.2. Permanent and relative income hypotheses

The permanent income hypothesis conjectured by Friedman in 1957 is quite similar to the life-cycle hypothesis by also assuming that people try to balance consumption and earnings in

different points in lifetime to maximize their well-being (Life cycle theories … 2020). Under this theory, people try to smooth consumption out guided mostly by the permanent part of their income, not taking into account the transitory changes in income. As in permanent income hypothesis, the main factor influencing consumption is spending money at a level close to lifetime average income, an individual mainly saves only if anticipates possible future declines in his income to protect himself (Wang 2006).

According to the discussed theory, transitory or windfall income may affect retirement savings in the following way. For example, if an employee receives a bonus, this individual will possibly not increase the spending based on this event, but rather increase the savings. Receiving an inheritance can also be included to the list of windfall income and, as the theory estimates, this individual will maintain current or permanent level of consumption and find ways to invest or save this additional money for long-term objectives, such as retirement is.

Stated above examples show why later on in this research a variable of transitory income was included into questionnaire and a connection between retirement savings and unexpected income was investigated.

The relative income hypothesis was formulated by Duesenberry in 1949 and is quite different from other famous hypotheses, regardless of the fact that they all followed it. Despite previously discussed permanent income hypothesis having a theoretical dominance, probably because of providing more clear explanations to consumption and saving behaviour, relative income hypothesis has recently gained a growing body of empirical evidence (Alvarez-Cuadrado, van Long 2011). The theory states that individuals refer more to the relative level of income and consumption and that relative well-being is important. Meaning that a household compares its lifetime income to other households or a reference group and based on that makes a decision about consumption level. As a result, if other people's income or generalized national income, increases, consumption levels are also going to increase. (What is … 2020). Dusenberry stated that saving rates of an individual are proportionate and increase together with relative income. However, aggregate savings do not depend on income distribution. In opposite to the permanent income hypothesis, under this theory, the percentage saved and the saving ratio will not depend on the absolute level of lifetime income. The only determinant that is going to affect it is a relative position of a family. If the income increases and family moves forward in the percentile

position in income distribution, savings rate will increase, as well (Alvarez-Cuadrado, van Long 2011).

Applying relative income hypothesis to retirement savings, it can be supposed that every household or individual based on relative judgements is going to save a different portion of income and savings rate is going to be unique. Moreover, poor people may tend to save less and consume most part of their income in order to compensate for the consumption gap between them and a richer percentile. (What is … 2020)

1.3.3. Neuroeconomics and hyperbolic discounting

A relatively new and developing field of economics, neuroeconomics, leans on the hyperbolic discounting theory. According to this cornerstone theory of behavioural economics, a person chooses a monetary reward right now, rather than a higher sum in the future. An immediate reward seems to be more appealing than one in the future, even with a higher value. People's decisions follow a hyperbolic curve, meaning that extra value quickly loses its attractiveness, as the delay gap widens. For instance, choosing between $10 today or $50 tomorrow, most people would wait one more day and get an obviously better deal. However, if the other option is receiving $50 in half a year, majority would not wait and take the $10 right now. (Said 2018)

Neuroscience deals with biases, including present-biased preference as in this case, looking deeply into the work of the brain. Hyperbolic discounting has its own place and has to be taken into account when trying to reason people's financial behaviour and saving decisions. Our brains are programmed such way, that it recognizes the immediate satisfaction and maximizing present reward is its goal. Thus, most people chose the option "now". There is an opposite behaviour to hyperbolic discounting – delayed gratification, meaning that a person can reject getting something immediately for a greater value and satisfaction in the future. People with delayed gratification type of thinking are relatively rare, and most of the brains are programmed to get the treat sooner, as it associates with a higher value of reward. Scientists say, that the difference between people who mainly save or spend lies deep in the features of development of our brain and has roots from the ancestors, as specific parts of the brain are responsible for making decisions, way of thinking and will. (Рыжкова 2013)

Consistent with hyperbolic discounting, pre-retirement savings are made at lower interest rates, as it is a long run and people are more patient than in a short run, where they want an immediate

reward (Thaler, Benartzi 2004). Additionally, important notice here is that people wait too long to start retirement savings. Considering the already limited period of life-cycle where the retirement savings may be accumulated, such postponement might be very costly given the power of compound interest (Deaton 2005). Taking previously said into account, under this theory, people save for the retirement and accumulate wealth, but are most probably satisfied from their idea or dream of a bright future, rather than actual understanding of the need to take care of retirement account (Рыжкова 2013).

One more behavioural aspect that should be taken into account is loss aversion. This cognitive bias refers to people weighting losses more heavily than gains. This phenomenon is relevant in retirement saving topic, as households that regularly receive a specific disposable income, they get used to it and tend to perceive any reductions in it as a loss. As a result, households are not willing to increase the amount or proportion of their income contributed to the retirement account or other saving methods, as they will view it as a cut in pay. (Thaler, Benartzi 2004)

As to conclude this overview, numerous theories and hypotheses may be applied to analyse how people save for retirement. There are classical and more modern hypotheses but, still, some main factors may be emphasized: rationality is bounded, the existence of loss aversion, people may lack self-control, procrastinate, and regard their income in absolute or relative terms.

1.4. Previous research and findings on related variables

Retirement saving behaviour is a “complex object” which most likely is a function of various determinants and attitudes towards saving and investing activities (Yusof, Sabri 2017). There are numerous theoretical and empirical research on topics related to retirement savings and effects of different determinants. A variety of determinants or factors influencing retirement savings are researched from different categories, for example, obvious or classical variables that are related to demographics, such as age, gender, education, and classified as socio-economics. Besides that, non-economic factors are also often included in retirement savings research and comprise of behavioural and cognitive psychology fields. In this study, only behavioural determinants, specifically related to financial capability, are considered in empirical research. Loss aversion bias, which is reflected in cognitive psychology, was discussed in the theoretical part above. It can again be considered in Figure 1.

Briefly, older individuals with higher income, who are more educated, and are more financially literate are more likely to save for retirement. Also, individual characteristics, including future orientation and risk tolerance, are said to influence retirement saving in line with household's propensity to plan. The latter significantly predicts retirement savings. (Burke, Hung 2015). In addition, Knoll *et al.* (2012) found that engagement in retirement saving is linked to one's perception of retirement, namely, whether or not he sees it as an essential reason to save.

According to Kulikov *et al.* (2007), a number of control variables, for example, family size (children), gender, age and educational level, help explain the saving behaviour and rate at the micro-level. These particular variables and other determinants will be discussed further.

The goal is to select articles on retirement saving and analyse what determinants and relations were found by the previous researchers. Further on, to take a look at the current situation in Estonia and validity of those links in more details by choosing some of the proposed factors to act as a dependent variable and independent variables and to conduct an empirical part of the study. An overview of economic determinants was already given in section 1.1., so here socio-economic factors and to socioeconomic status are described.

1.4.1. Age, gender, and education

Age variable is highly researched and even dominant in case of retirement savings (Yusof, Sabri 2017). If to rely on Modigliani's theory, young people will save money to provide for the retirement at an old age, so that they will have resources for smooth consumption when not able to earn salary or willing to work (Deaton 2005). Nevertheless, young people often do not comprehend importance of retirement savings and do not regard it as a reason to put money aside (Knoll *et al.* 2012). Unfortunately, being at a young age shows a negative relation to saving for retirement. Undersaving behaviour among younger generation may be caused by lack of information and knowledge about pension, lack of advice and trust, and lower income level. This emphasizes that the action should be taken early and attention of young people should be drawn to this issue by different means, e.g., media, related programs. (Foster 2015)

According to Kulikov *et al.* (2007), the age variable is also statistically significant in the case of Estonia, and the lowest savings are among households with age around 30 years. Elderly people show about 10% higher saving rate. Another research exhibits that private savings increase with

age until they flatten out at reaching around 45 years. About 70% of these individuals save for retirement. (Metzger 2017)

Overall, the relation is positive and the older a person is, the more engaged in retirement planning and saving he or she is (Yusof, Sabri 2017). Moreover, the timing of retirement itself also shows its impact: the closer the pension is, the higher the probability that an individual will start saving additionally for old age (Metzger 2017).

No consensus on the gender variable is reached. Some researches find a more definite relation of retirement savings with men, other with women. For instance, households headed by a woman, holding all other variables constant, save less than those where a man makes decisions (Kulikov *et al.* 2007). Retirement savings and planning positively depend on being male. This may be reasoned by another important influencing factor – income. Generally, due to gender pay gap and other circumstances, such as lower education or fewer skills required, women earn less. Because of lower earnings, women also have fewer possibilities to raise their savings. This might cause a lower financial preparedness for retirement than men have. (Clark *et al.* 2003)

However, another relation is also revealed, namely, that women treat retirement saving decision differently and believe in its high importance. As a result, women save relatively more than men. It is also influenced by stronger propensity to save, and that on average women live longer. (Huberman *et al.* 2007)

Education is a controversial variable, and positive, neutral or even negative impacts on retirement savings were found in previous researches. A positive relationship is supported by Clark *et al.* (2003) who state that the higher is the level of education, the more prepared for retirement an individual is. Being more educated also involves having more extensive financial knowledge which, obviously, is beneficial for accumulating pension savings.

Totally opposite influence of higher levels of education is also a popular opinion and was found in case of Estonia by Kulikov *et al.* (2007). One of the reasons behind lower saving among household's with a higher level of education is probably due to their expectations of receiving high and stable income inflows in the future, as well. They may believe that the future is not so uncertain, and their income might increase, so do not regard retirement savings as a necessity. (Kulikov *et al.* 2007) Although education was expected to increase saving behaviour in general

and through enhanced financial literacy and more future-oriented decisions, no strong relationship was found by Metzger (2017).

There is also no clear evidence when particularly considering financial education. The effect of it is contradictory, takes time to reveal and is not immediate. Moreover, it may work even indirectly through individual characteristics, like the taste to save. (van Rooij *et al.* 2012). However, there is no doubt that financial education increases cognitive abilities, understanding of the power of compound interest, improves the clarity of financial goals, increases propensity to plan, motivates to start saving early, etc. All of this may lead to increased retirement savings. (Banks, Oldfield 2007)

1.4.2. Area of residence, house and car ownership, financial exposure

Home or property ownership may be regarded as a sort of an investment that can be socially or financially treated as a retirement saving. In an ideal situation, there should be a positive link between homeownership and retirement savings contribution, as these households are said to have extra money for regular saving purposes. (Yusof, Sabri 2017)

According to Kulikov *et al.* (2007), owning a home may be a significant determinant of saving behaviour among Estonian households. However, a positive relationship in Estonia may be biased due to rapidly growing housing market and high level of property ownership among the population. Some other studies showed no significant effect of home-ownership. Kulikov *et al.* (2007) also showed a negative link between possession of durable consumer goods, particularly cars, and saving.

At the same time, the financial wealth of the neighbourhood and area of residence also impact retirement savings, mostly by dictating to its dweller the social norms. Thus, people living in urban areas are said to have higher retirement savings. (Yusof, Sabri 2017). Here it can be supposed that a link with income level may also be established, because, statistically, an average income level in the capital of Estonia and Harju county is higher than in other regions of the state.

According to data on 2019 IV quarter of Estonian Bank and Statistical office, average gross salary was the highest in Tallinn, around 1600 Euros, which is higher than the overall average gross salary of 1472 Euros. The lowest average income was recorded at Hiiu – 1042 Euros.

(Keskmine palk ... 2020) Due to such distribution of income levels in different regions of Estonia, a variable of area of residence was also included into present research, as it may show not only social aspects but has a financial background, as well.

Turning back to the financial exposure of households, homeownership might be related to mortgage loan and possessing a car with a leasing agreement. Other loans or credit cards may also be relevant. Naturally, households with such liabilities have to pay the debts backs and tend to save less. Thus, higher liquidity availability, in terms of credits, influences retirement savings negatively. (Kulikov *et al.* 2007)

1.4.3. Labour market characteristics

Apparently, being employed positively affects propensity to save. Specifically, higher retirement savings are observed among white-collar, rather than blue-collar workers. (Metzger, 2017) Moreover, it can be hypothesised that being employed in finance-related positions also increases saving rates.

Self-employment will be considered as a separate retirement saving predictor, as previous research shows that business owners and self-employed people differ from population (Lusardi, Mitchell 2007). Metzger (2018) found that self-employed people tend to save more for retirement. This also involves noticeably higher saving rates, because of willingness to compensate for the compulsory saving within the pension system. On the contrary, civil servants and unemployed people save less. (Metzger 2017) However, Kulikov *et al.* (2017) found the opposite being relevant for Estonian partly or wholly self-employed households, as there is a negative relationship and receiving income from self-employment implies lower tendency to save.

In addition, an explanatory variable of employment duration is included, as working experience, in combination with income level, obviously influences the future size of pension under the statutory pension system (Metzger 2018).

According to Knoll *et al.* (2012), household income is among the most important influencing factors on any types of savings. Karen Dynan *et al.* (2004) in paper "Do the rich save more?" found that there is a strong positive relationship between saving and income level and proved

that people and households with higher income levels truly save more - a higher fraction of their income. The relationship became even stronger if retirement savings were added.

The income factor is crucial when determining the probability of retirement savings. As a relationship is said to be positive, the increase in disposable income also increases the probability of saving, which in its turn, increases the likelihood of saving for retirement purposes. (Metzger 2017)

Worth pointing out that even more expressed positive relationship of savings and income arises with unexpected or transitory income. Receiving such type of income in addition to a regular income increases propensity to save. The remaining not spent part of the income from that particular month will be regarded as a saving. (Kulikov *et al.* 2007)

1.4.4. Marital status, spouse's possession of private retirement savings, and children

Marital status is worth being highlighted as an independent variable, because marriage may predict saving behaviour much more than being in cohabiting relationships. The reasons behind are that married couples are regarded as more stable economically, most probably manage resources jointly and share costs, and may be future-oriented. All in all, married people are said to save for retirement more likely than single people or people in other status. Despite the previously mentioned relation that younger people save less, here it is not appropriate. Young married adults mostly see retirement as an important reason to save. (Knoll *et al.* 2012)

One more finding is that marriage may be a stronger retirement-specific saving behaviour predictor for women than men (Knoll *et al.* 2012). Even so, married couples still accumulate higher wealth than unmarried (Lusardi, Mitchell 2007). This relation is also valid for applying to retirement savings planning which may be facilitated by psychological aspects of marriage, e.g., negotiating, considering one another's preferences, and causing higher motivation to discuss future and retirement savings (Knoll *et al.* 2012; Metzger 2018).

However, according to Metzger (2018), spouse's retirement saving decisions may vary. Despite the fact of sharing the same household characteristics, spouses differ on an individual level and in labour-market. He found that having a retirement saving account is positively correlated among spouses. Likely, the increase in one partner's savings causes another to increase, as well, because of peer or recognition effect. This means that, if one spouse starts to save for the

retirement or increases the contribution amount, other spouse would mirror those actions. Nevertheless, those decisions are still made at an individual level, and spouses' savings may not substitute each other. (Metzger 2018)

Children variable is very controversial. For instance, quite an obvious effect of having children on savings was derived by Lusardi and Mitchell (2007) stating that individuals with children accumulate more wealth than childless. Another point of view is the reduction of savings with the number of children in a family, because of increased financial burden. The negative relation may also be affected by the belief of parents that their children will provide financial support to them at retirement and do not see the need to save money themselves. (Kulikov *et al.* 2007)

One more issue that arises in connection with children is a bequest. It can be assumed that households or individuals with children are going to save more than childless, because of willingness to leave an inheritance to their children. The dynastic smoothing model also supports that and states leaving a bequest is a way for smoothing the consumption over generations for households with higher income. Besides philanthropy, other expenditures or savings related to children may occur. Nevertheless, no evidence was found that children cause a higher saving rate. (Dynan *et al.* 2004)

Finally, having children may influence saving goals and shift the long-term ones towards others, for example, accumulating savings for college. Saving for retirement was in a priority among women without a child. (Knoll *et al.* 2012)

A review is followed by the remaining factors of retirement saving behaviour highlighted in this thesis, from non-economic field and, specifically, representing behavioural psychology and financial capability.

1.4.5. Non-economic factors

Information availability is essential in any decision. According to a research held by M. Dolls *et al.* (2018), there is a strong correlation between receiving a personalized informative letter about the future pension and increase in retirement savings. Receiving such letter even shocked individuals in Germany, as, on average, people tend to overestimate their pension amount. As a result, those letters not only increased the level of awareness about future retirement but also

made the topic more visible and stimulated discussion, which in its turn fosters retirement planning. (Dolls *et al.* 2018)

One more field experiment held by Beshears *et al.* (2015) showed that being aware of actions and retirement savings of peers may affect negatively. An opposite reaction is caused by an unfavourable comparison to individuals with higher status or income level. This brings discouragement and does not increase savings. (Beshears *et al.* 2015) However, being exposed to additional information will not have a great impact or change the saving behaviour of those who already accumulate optimal retirement savings. Moreover, the availability of information as such is not enough to get informed. (Mastrobuoni 2011)

All in all, being informed and having greater knowledge about future retirement causes a higher probability of planning and saving for retirement (Yusof, Sabri 2017). Mostly, lack of informedness is spread among households with lower income, women, and less educated people (Lusardi 2008).

A lot of research supports that financial literacy is positively related to encouraging thinking about retirement, planning and, thus, retirement savings (van Rooij *et al.* 2012). Lusardi (2007, 2008) and Metzger (2017) find that financial sophistication increases saving outcomes through enhancing propensity to plan.

However, Anderson *et al.* (2017) draw attention to one notice in this positive link. He states that retirement planning and saving are not only positively correlated, but also highly dependent on a perception of one's financial literacy not less or even as much as literacy itself. According to these findings, saving individuals are those with a firmer belief in their financial awareness and literacy, which may not totally correspond to their real knowledge. Individual's mistaken opinion about his financial literacy is as important indicator of retirement planning and saving as actual literacy is. (Anderson *et al.* 2017)

Besides more likely having a retirement plan and higher wealth among financially literate people, they are also more actively participating at a stock market and investing, probably, because of a facilitated information processing and financial decision making (van Rooij *et al.* 2012). Although lack of financial literacy or knowledge decreases engagement in retirement

planning and saving, this may not be an issue, if a person relies on the help of professional advisors to make decisions (Lusardi 2008).

As discussed above, propensity to plan for retirement is highly related to financial literacy. The capacity to plan is an important factor as planning itself is a complex task. An individual needs to be able to find and collect a lot of information, process it and make relevant calculations and decisions. Nevertheless, planning is crucial and definitely increases savings and the size of future pension. (Lusardi, Mitchell 2007; van Rooij *et al.* 2012; Burke, Hung 2015)

However, not only a formal retirement plan is said to boost savings. According to Burke and Hung (2015), an ordinary rule of thumb may be sufficient for many people. Retirement planning also plays an important psychological role. Having a clear plan and saving goal allows people to feel confident (Mayer *et al.* 2011). A large body of evidence shows a positive relation between retirement planning and savings, making a plan to be a prerequisite for well-being at an old age (Burke, Hung 2005; Metzger 2017). Later research shows that higher education and income also strongly influence propensity to plan and setting retirement saving goals (Knoll *et al.* 2012; Metzger 2017).

An essential step of retirement planning is calculating the retirement saving need. Mayer *et al.* (2011) found that employed, more educated people with higher income more likely estimate their retirement needs and how much to save. The estimation may be challenging if calculating the needs too early. At the same time, postponing this action is unsafe. Although this foundational action may even discourage saving due to an appeared gap that seems to be unattainable, it still substantially affects the final result in a positive way. Nevertheless, further actions have to be taken in order to boost savings: develop a plan based on calculations, follow it, monitor, and adjust, if needed. (Mayer *et al.* 2011)

A summarizing overview of the expected impacts of discussed above determinants is presented in Table 1.

Table 1. Expected impact of determinants of retirement saving

Independent variable	Expected impact on voluntary retirement savings
Age	+
Gender	+/-
Area of residence	+
House and car ownership	+/= and -
Financial exposure (other credits)	-
Employment status	+
Self-employment	+/-
Job in finance-related position	+
Working experience	+
Income	+
Transitory income	+
Higher education	+/-
Financial education	+
Marital status	+
Spouse's decision to save and possession of voluntary retirement savings	+
Children	+/-
Information and knowledge	+
Financial literacy	+
Propensity to plan and calculating retirement need	+ and +

Source: Based on reviewed previous research

Stated above effects of variables may also be regarded as hypotheses for current research, and these signs are going to play a reference role in regression modelling and analysis.

2. METHODOLOGY AND EMPIRICAL RESEARCH

2.1. Data collection process description

To carry out the research tasks, quantitative methods are going to be used. To obtain data, a questionnaire is conducted among Estonian residents of different age, income and education categories chosen randomly. Planned sample size is a minimum of 100 people and close to 300 observations as a goal. The questionnaire is prepared in Estonian language, as Estonian residents who are going to receive retirement payments in Estonia are targeted. To get a broader overview, a questionnaire was also translated to Russian language. Both versions of questionnaire were first distributed by using acquaintances: among fellow students in the University, colleagues at work, and via social media channels. In all cases, people were asked to further share the questionnaire in order to move towards a snowball sampling method and eliminate bias. The questionnaire structure is simple, though being elaborate and sophisticated enough to provide the required data on retirement saving determinants discussed above and chosen based on previous research, conducted in Europe and, especially, Estonia.

The questionnaire comprises out of five sections with first including general questions to get demographical statistics of the sample. Specifically, the age brackets, gender, level of education, working experience are asked. Financial education and job related to finance are also distinguished. Questions about marital status, children, and the area of residence wrap this section up. Then follow income-related questions that help classify people by income level and their employment status. As discussed in the theoretical part, separating self-employed people may be relevant. People are also asked whether they recall receiving an unexpected income in recent years, as according to previous research, this may influence retirement saving decisions. The third block of questions is short and is focused on financial risk people bear: whether they have a mortgage loan, leasing or other types of credits including credit cards. Worth pointing out, that here a mortgage loan is also considered as an investment into property. Moreover, people living in a rented flat or house are also distinguished. Following the same logic, a

question about leasing includes an answer option that helps classify these people as having an asset – car.

The core block named "retirement savings" follows. First, people choose what pension pillars they are enrolled to. Each of them had a short description behind, however, if a person cannot recall or recognise what is his case, there was such choice. Out of this, statistics can show not only what proportion of the sample is enrolled to a voluntary third stage, but also how many people do not know what pillars they joined and what they imply. Next are questions related to financial literacy and propensity to plan. For example, respondents were asked whether they have tried to determine the amount of money they would need at retirement. One more question was "have you ever tried to find out how much you should save in total today and in the coming years, to live comfortably at a retirement?" Asking those questions was motivated by Mayer *et al.* (2011) and Burke and Hung (2015) articles.

A subjective opinion on the amount of current average pension payment is asked if people treat it as a sufficient or being less than needed to support comfortable lifestyle. The main question is asked: whether people save money for the retirement additionally to compulsory funds, as well as partner's saving behaviour, in case of relevance. If the person states not saving, the reasons behind it are investigated and what are the main obstacles to start accumulating additional wealth. If the person saves money for retirement, the amount and the way of saving are asked (putting cash aside, investing, having a second bank account, using third voluntary pillar, etc.).

The last section is made as an addition to the main questions necessary for the research aim and is devoted to Estonian pension system reform making second pillar voluntary. Taking into account, that probably not all people are highly interested in the current topic or aware of what exactly the reform means and what possibilities it will give, a short description was added into questionnaire. It included the main idea of the reform, as well as the discussed to that moment options that this reform will provide. The questions here are aimed to collect peoples' opinion on the reform. Whether they support it, do they see a positive trend in the development of Estonian pension system, are neutral or see the opposite. Some people may consider this topic as a complex or even not concerning them. So, this is going to provide a deeper insight into how much people know about the pension in home country and whether they have an opinion on the current situation.

Next, people are asked to imagine that the reform comes into force and what would be their respective decision. If a person answered that he would utilise the possibility and take money out of the second pillar, he was asked in more details on the reasons and purpose behind this action. The options included some of the most widely discussed in the society, such as investing independently, paying loans back, spending on current needs, investing to child's education, etc. Full versions of questionnaires are presented at the end of the thesis, refer to Appendix 1 and 2.

Shortly described in the first section Estonian pension system is said not to cope with all the issues arising in the environment and is subject to reforms. Present time, the multi-pillar pension system of Estonia is under discussion, namely, whether the second pillar, yet compulsory for people born in year 1983 and later, should become voluntary or not. Voluntarily joining or leaving it should give people more freedom to save or invest money for retirement privately.

People can continue accumulating money as previously, but the reform is going to allow to stop payments and withdraw already accumulated money from the second pillar paying 20% of an income tax. Another option is to stop payments to the second stage but not take money out and leave the accumulated sum to grow even further in the pension fund. (Kulu *et al.* 2020)

A few more options proposed are related to opening a new pension investment account in a bank, similar to a regular investment account, and transfer funds to this account only from the second pillar and back right away. Or open this specific account and begin transferring to it all the upcoming payments that otherwise would have been paid directly to the second stage without touching the already accumulated funds in the second pillar. In both cases, no income tax is imposed since money moves inside the system. Highly probable that the changes will come into force in January 2021. The first payments are planned for the spring of the same year with a five-month pre-notice of one's desire. (Belkin 2020)

Nevertheless, a lot of debates are going on in the society, as there is no confidence that people are going to make wise decisions and have the exact plan in case of savings withdrawal. People may not cope on their own with investing the money at least as profitably, as the pension funds do. The specialists of Bank of Estonia are highly concerned with the upcoming pension system reform and the question whether people are going to save on their own as much as they would with a mandatory funded pension.

Jaanika Meriküll (2019), an economist of Bank of Estonia, analysed how the elimination of second pillar at a national level is going to influence saving and investing behaviour of individuals. She came to a conclusion that people will not save enough on a voluntary basis and compensate for the lack of a second pillar. According to Meriküll (2019), people who are planning to take advantage of the reform and exit the second pillar have to be ready and expect a lower pension at retirement age by the amount of second stage. Also, higher pension size inequality may arise in case of reform introduction (Meriküll, Rõõm 2019). Moreover, the OECD in its Pension Outlook 2018 also recommends countries to have mandatory funded pension systems rather than voluntary, as self-investing tends to be too low.

According to a study held by Estonian Ministry of Finance in year 2019 on the topic of financial literacy, around one third of Estonians does not save at all. Only a little above ten percent make long-term financial plans and use investment opportunities. Out of this fraction, only four percent own shares. (Haavala 2019) Also, for many people savings in second pillar are the main financial assets (Meriküll, Rõõm 2019). Taking such investment behaviour of Estonian residents' into account, and numerous economic factors, Bank of Estonia does not recommend reform implementation. Mainly, due to a risk of lower pensions in the future. (Kulu *et al.* 2020)

Nevertheless, even if the reform will not be as successful in the short and long terms, it definitely has one significant positive aspect. The discussion around it raises the level of awareness of people about how the pension system operates, what are the future perspectives, and, certainly, makes people think more about retirement planning and saving.

Turning back to the methodology part, a few logit binary models are going to be built using the data obtained through described above questionnaires. One general model, including all the independent variables investigated and two models, including a smaller set of related determinants will be described in section 2.2.

Next, follow the data, descriptive statistics of data and regression modelling result. Conclusions about the most influencing factors, or set of factors, are going to be done at the end of the study.

2.2. Data and descriptive statistics

The cross-sectional data for this study was obtained from the survey, and Table 2 below presents the descriptive statistics of both dependent and independent variables included in regression analyses. Questionnaires have collected 280 answers in total with 129 men and 151 women in age brackets limited by the relevant retirement age. The average age of the respondents can be rounded to 35 years old and having roughly 14 years of working experience, which implies that mostly Estonian residents start working careers when being university students. This is highly probable, as 71% of respondents have higher education. Around one third out of them have higher financial education. Moreover, the same amount of people stated being employed in a position related to finance. Despite such coincidence, this data is not perfectly correlated, and people with financial education are not always working in the financial sector and vice versa. Continuing with the description of employment status, the majority of the sample are wage workers, 241 out of 280, and about 20% are self-employed. Contrary to the first hypothesis, more than half of the respondents have private retirement savings which is a surprisingly good situation.

Table 2. Descriptive statistics

Variable	Mean	Median	S.D.	Min	Max
Private retirement savings	0.65	0	0.48	0	1
Age	35.03	35	11.71	24	62
Gender	0.46	0	0.50	0	1
Area of residence (Tallinn)	0.66	1	0.48	0	1
Higher education	0.71	1	0.45	0	1
Higher financial education	0.23	0	0.42	0	1
Wage worker	0.86	1	0.35	0	1
Self-employed	0.20	0	0.40	0	1
Job in finance	0.23	0	0.42	0	1
Working experience	14.39	11	11.06	0	52
Income	1729	1750	787.70	0	3200
Transitory income	0.26	0	0.44	0	1
Mortgage	0.39	0	0.49	0	1
Leasing	0.28	0	0.45	0	1
Other credits	0.42	0	0.50	0	1
Married	0.38	0	0.49	0	1
Children	0.52	1	0.50	0	1
Spouse saves	0.36	0	0.48	0	1
Ret saving plan	0.50	1	0.50	0	1
Estimated the need	0.36	0	0.48	0	1
Calculated the sum of saving	0.35	0	0.48	0	1

Source: author’s calculations

Turning to income, average gross salary, together with other incomes is around 1730 Euros monthly, which is a few hundred higher than official average Estonian figures show. Worth pointing out that 65% of respondents live in the capital city where level of salaries is said to be higher and that was discussed above. However, mode of the sample is lower, 1250 Euros being the most frequent value and income and area of residence variables have a very weak negative correlation in this sample. A little over one quarter of the respondents also recalled receiving transitory income in the last ten years. Also, people were asked about the sum or percentage of income they contribute to additional retirement savings monthly. Based on that, the mean saving rate amounts to nearly 11%. Taking into account vast influence of outliers, e.g., some people stated saving around half of their income or even more, and omitting such values from the data row lowers the average gross saving rate to 7.7%.

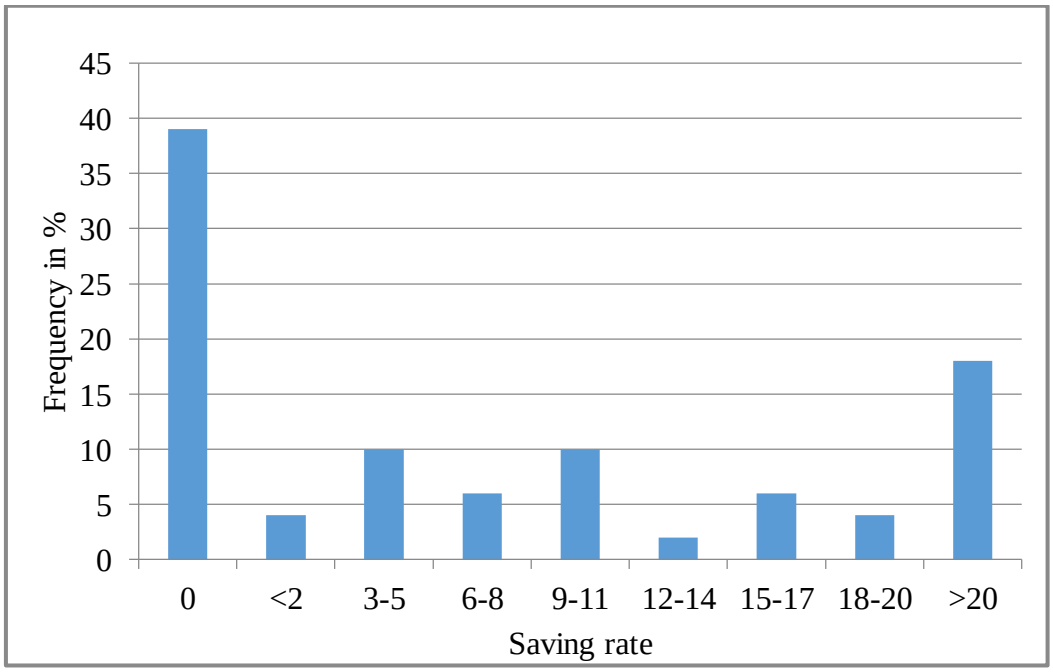

Figure 2. Distribution of private retirement saving rates (in %) based on monthly gross income
Source: author's calculations based on data obtained from the survey

According to visualised in Figure 2, distribution of private saving rate almost 40% of questioned Estonian residents do not save additionally for their retirement. No definite trend in rates can be noticed, although, there is a high proportion of saving rate over 20%. This may happen due to a stronger willingness and decision-making process. Namely, if a person states retirement saving as a goal and has a plan, he or she may contribute such high portions of income to it. One more reason might be that this high frequency is thanks to people from older age category or active

investors in the market. As figure 3 depicts, saving for retirement through private investment account is the most widespread option, whereas contributing to third voluntary pillar of the state pension system is in the second place. Besides, only a few percent below half of the sample have joined the third voluntary pillar, which is in line with the second hypothesis.

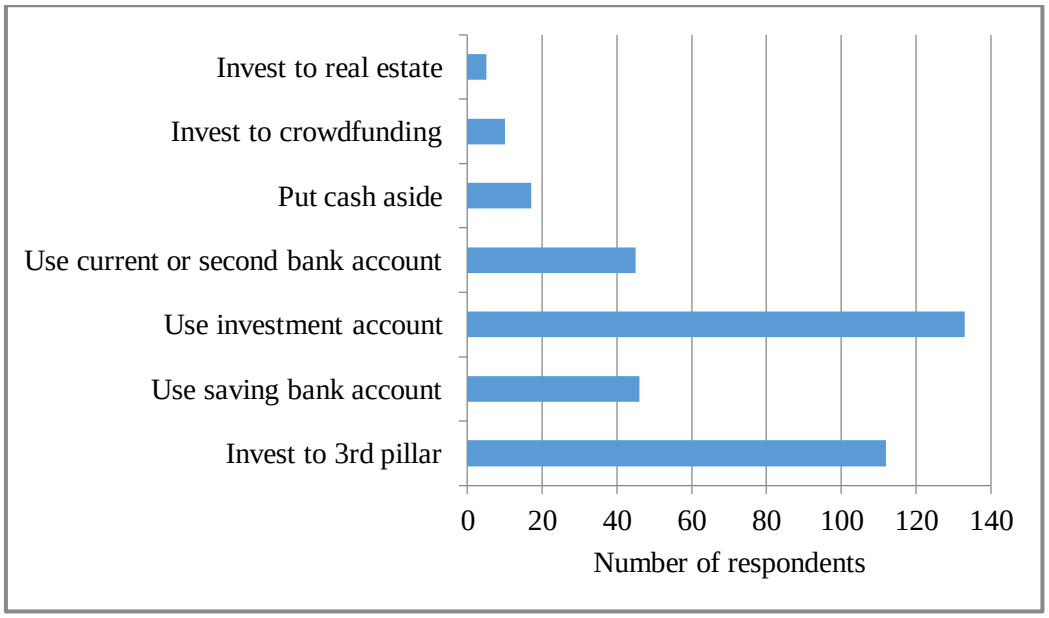

Figure 3. Distribution of ways of voluntarily saving for retirement purposes
Source: author's calculations based on data obtained from the survey

Exactly half of the sample has a retirement saving plan and only around one third has calculated the sum of monthly or yearly saving and estimated the future need. This means that either people did not make a detailed plan or lacked financial literacy for those calculations. Other attitudes towards retirement saving plan found from question 19 are presented in Appendix 3.

Roughly 40% of the sample have a mortgage loan (same percent of married people, as well). Having a car and other types of credits, which were said to affect retirement savings negatively, is actual for 78 and 117 people, respectively. A little over half of the respondents have children, and in 36% of cases, spouse saves for retirement purposes.

A majority of respondents, namely 83%, claimed that they do not regard future pension size as sufficient and relevant to maintain current lifestyle. A little less than 10% expressed hope that they will cope with that amount of money and 2% strictly denied. Others admitted that have not thought yet on the size of future pension. A discrepancy arises here as around quarter fewer

people privately save for the retirement than those who believe pension size is not sufficient. Foreseeing such inconsistencies, people who do not save for retirement were asked on the reasons for that, and what is an obstacle for them (question 23), results are below in Figure 4. The two most popular reasons are constraining income size and lack of information considering future retirement. However, 47 people would like to start saving for retirement. Presumably, these respondents may lack self-control, and, as described in the theoretical part, may prefer immediate consumption to future rewards. Starting saving may be challenging for some from the discipline point of view.

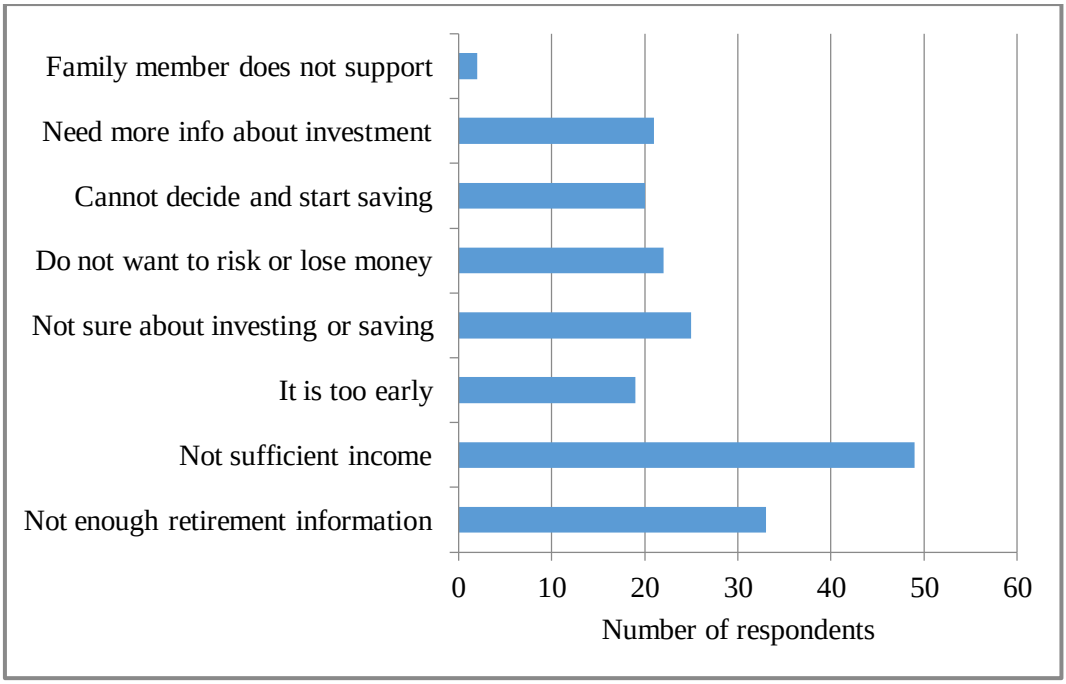

Figure 4. Distribution of answers about obstacles to start private retirement saving
Source: author's calculations based on data obtained from the survey

Lastly, presenting collected data on pension reform. According to country-level conducted surveys, around half of people will withdraw money from the second pillar, and around half of them will invest this money privately (Meriküül, Rõõm 2019). In this research sample, 5% were not aware of the reform and less than half support it (Appendix 4). The substantial portion would continue contributions in any case, and only 20% of people would use the option to withdraw money (Appendix 5). However, one person noticed that withdrawal is risky for financially nonliterate people, as economists also say. In line with previous surveys, present showed that the most popular option would be continuing privately saving or investing for retirement. See the distribution of all alternatives in Appendix 6.

2.3. Regression models

As the goal of the thesis is to find relations between private retirement savings and various factors affecting it, voluntary retirement savings act as a dependent variable and equate one when a person saves in addition to required pension system pillars. Binary logit regression is used for predicting outcomes as it suits the best in case of a dummy variable and binary dependent variable.

A set of independent variables was also coded to allow conducting binary logit models in accordance with the hypotheses stated above. Socio-demographic factors such as gender, higher education, education in finance, transitory income, living in the capital, having mortgage, leasing, and other credits are dummy variables. Moreover, a set of labour market characteristics comprise being employed, self-employed, working on a job related to finance, and working experience in years (duration of employment) are also included in models. As well as dummies for being married, having children, and spouse's positive decision to save for retirement. Non-economic factors such as propensity to plan (having a retirement plan), financial literacy, and need calculation are included as dummy variables. Age and income variables are not coded to binary values. "Age squared" variable is also added to models, as relation to savings may be non-linear.

Based on previous research, numerous combinations of independent variables were run to find the best predictors of private retirement savings. Two most relevant models will be presented, as well as one general, the equations are introduced below.

Model 1:

$$savings = \beta_0 + \beta_1 age + \beta_2 age\ squared + \beta_3 gender + \beta_4 higher\ education + \beta_5 financial\ education + \beta_6 married + \beta_7 children + \beta_8\ spouse\ saves + \beta_9 calculated\ sum \quad (1)$$

Model 2:

$$savings = \beta_0 + \beta_1 age + \beta_2 age\ squared + \beta_3 gender + \beta_4 higher\ education + \beta_5 area\ of\ residence + \beta_6 income + \beta_7 job\ in\ finance + \beta_8 self\ employed + \beta_9 mortgage + \beta_{10} leasing + \beta_{11} other\ credits \quad (2)$$

Model 3:

$$savings = \beta_0 + \beta_1 age\ squared + \beta_2 gender + \beta_3 area\ of\ residence + \beta_4 higher\ education + \beta_5 financial\ education + \beta_6 wage\ worker + \beta_7 self\ employed + \beta_8 job\ in\ finance + \beta_9 work\ experience + \beta_{10} income + \beta_{11} transitory\ income + \beta_{12} mortgage + \beta_{13} leasing + \beta_{14} other\ credits + \beta_{15} married + \beta_{16} children + \beta_{17} spouse\ saves + \beta_{18} saving\ plan + \beta_{19} estimated\ need + \beta_{20} calculated\ sum \quad (3)$$

In the first model (Table 3.1.), along with demographical factors, a theoretical concept of highly saving young families was tested together with a controversial effect of children. Also, a crucial step in retirement planning regarding calculations, considered as financial literacy, is added along with higher and financial educations. Surprisingly, in the present sample, financial education and variables "need estimation" and "calculating the saving sum" showed quite low correlation coefficients, around 0.16. So, these variables can be safely used in one model. A separate regression was run with saving sum calculation substituted by future retirement need estimation and this type of financial capability also showed its significance and positive effect in retirement saving. These two factors could not be included in one smaller model due to high correlation.

Table 3.1. First logit model estimation

	Model 1		
Variable	Coefficient	Odds-ratio	Std. Error
const	-5.266	-	(1.913) ***
Age	0.225	1.252	(0.106) **
Age squared	-0.003	0.997	(0.001) **
Gender	1.285	3.614	(0.344) ***
Higher education	1.361	3.897	(0.367) ***
Financial education	-0.107	0.898	(0.436)
Married	-0.636	0.529	(0.396)
Children	0.215	1.240	(0.460)
Spouse saves	2.675	14.519	(0.481) ***
Calculated saving sum	1.363	3.907	(0.393) ***
N	280		
McFadden R-squared	33.21%		

Source: author's calculations based on data obtained from the survey
Notes: *p<0.1; **p<0.05; ***p<0.01.

The second model leaves basic demographical factors such as age, age squared, gender, and higher education (and they keep being significant), and adds area of residence (Table 3.2.).

Table 3.2. Second logit model estimation

		Model 2		
Variable	Coefficient	Odds-ratio	Std. Error	
const	-5.299	-	(1.770)	***
Age	0.223	1.250	(0.099)	**
Age squared	-0.003	0.997	(0.001)	**
Gender	0.576	1.779	(0.340)	*
Higher education	1.195	3.303	(0.355)	***
Area of residence	-0.47	0.625	(0.321)	
Income	0.001	1.001	(0.000)	***
Job in finance	0.598	1.819	(0.374)	
Self employed	1.247	3.481	(0.458)	***
Mortgage	-0.597	0.550	(0.365)	
Leasing	-0.332	0.718	(0.376)	
Other credits	-0.671	0.551	(0.317)	**
N	280			
McFadden R-squared	24.52%			

Source: author's calculations based on data obtained from the survey
Notes: *p<0.1; **p<0.05; ***p<0.01.

Financial risk is also considered here (theoretically vague effect of mortgage and negative of leasing and other credits) together with labour market characteristics (income, self-employment, job in finance). Working experience is excluded due to an almost perfect positive correlation with age. Separate logit models with transitory income and employment status were also run and did not show statistical significance. Transitory income had the highest p-value and a negative coefficient, so the aforementioned permanent income hypothesis and concept of putting unexpected income for long-term saving purposes cannot be proved, as well as being employed.

Finally, a general model, including all the independent variables presented in Table 3.3. correctly predicts 88.2% of cases. Two factors with the strongest positive link here are spouse saving and retirement plan. Among people who managed to comprise a retirement saving plan, the probability of saving increases 13.1 times and, if a spouse is saving, a person is 16.7 times more likely to save for retirement, as well.

Table 3.3. General regression model

	Model 3			
Variable	Coefficient	Odds-ratio	Std. Error	
const	-3.128	-	(0.975)	***
Age squared	-0.002	0.998	(0.001)	***
Gender	0.698	2.011	(0.479)	
Area of residence (Tallinn)	-0.141	0.868	(0.448)	
Higher education	0.738	2.091	(0.488)	
Financial education	-0.429	0.651	(0.681)	
Wage worker	0.892	2.439	(0.800)	
Self employed	1.369	3.931	(0.765)	*
Job in finance	0.564	1.758	(0.594)	
Working experience	0.131	1.140	(0.056)	**
Income	0.001	1.001	(0.001)	***
Transitory income	-0.265	0.768	(0.477)	
Mortgage	-1.052	0.349	(0.507)	**
Leasing	0.046	1.047	(0.497)	
Other credits	-0.438	0.645	(0.437)	
Married	-0.204	0.816	(0.485)	
Chlidren	-0.031	0.970	(0.551)	
Spouse saves	2.816	16.710	(0.643)	***
Retirement saving plan	2.575	13.137	(0.538)	***
Estimated the need	1.080	2.944	(0.749)	
Calculated saving sum	-0.793	0.453	(0.846)	
N	280			
McFadden R-squared	51.46%			

Source: author's calculations based on data obtained from the survey
Notes: *p<0.1; **p<0.05; ***p<0.01.

Worth noticing, that significant in the second model variable of credits loses its stars in a general model and previously not significant mortgage variable vice versa: gains two stars and negative effect with -1.05 coefficient. This is in contrast to theory if regarded as a long term investment. Most likely, in case of Estonia, having a house is associated more with paying back loan than asset possession and works the same way as having financial liabilities.

3. RESULTS

Despite theoretical support of marital status increasing saving, a negative coefficient appears in the first model, however, we cannot rely on it as this variable is not statistically significant. The same applies to children and, unexpectedly, financial education, which has the highest p-value. Whereas higher education is statistically significant at 1% level and a positive coefficient around 1.36, the same as calculating the saving sum. Present study shows a positive relation with having higher education in contrast to previous research held in Estonia by Kulikov *et al.* (2007). Saving sum calculation increases the chances to save by almost 4 times. Being a male dummy is also statistically significant and highly increases the chances to save for retirement privately. Men are 3.6 times more likely to save than women. However, in the second model there is weaker effect, and in general model this variable has no statistical significance.

From the second model we can infer that living in the capital city, working in finance and having a house or car is not statistically significant, probably due to a smaller amount of specific respondents. However, bearing other financial liabilities is significant and has a negative effect, corresponding to theory. Having credits bears around 45% saving probability decrease. Income variable is a strong predictor with almost no standard error.

An interesting finding is the significance of being self-employed at a level of 1%. Although theory had various implementations, in the case of Estonia entrepreneurship has a positive effect on retirement savings and the third hypothesis is proved. Self-employment keeps showing a positive link with retirement savings even in a large model. Having own business corresponds to almost 300% higher chance of privately saving for retirement. This may happen due to higher financial literacy, more useful acquaintances or sources of information among people who lead their own business.

According to odds-ratios, the most significant effect in general model shows variable “spouse saves”, as well as in the fisrt model. It increases the probability to save by 1570% and 1350%,

respectively. This means that families in Estonia highly mirror financial and saving decision of one another. The second highest effect magnitude bears planning and increases the chances to save by nearly 13 times. This corresponds to theory, as having a plan, even a preliminary, or simply rule of a thumb, makes it easier to start putting money aside.

Working experience and income are significant at 5% and 1% respectively, although their effect is not such strong. Also, in two abovementioned models, age is significant at 5% level and upon increase in age, the probability of savings increases for this sample. The least significant variables in present research are financial education, leasing, and children. All these had a vague and not immediate theoretical effect. Sample limitations may have harshly influenced the results.

Altogether, according to presented analysis, both categories of factors, socio-economic (demographic) and non-economic are relevant and bear either positive or negative effects on private retirement saving in Estonia. However, sample is limited, and fourth and fifth hypotheses have to be rejected, as effects of not all variables can be taken into account due to statistical insignificance.

CONCLUSION

The thesis aimed to find private retirement saving factors that play a significant role in the case of Estonia. Overall, a portrait of an average privately saving for retirement Estonian resident can be composed as follows: highly educated self-employed male, who has calculated saving sum and comprised a retirement saving plan. His spouse is also highly probably saving for retirement. Having higher income and more working experience increases the chances to save. However, having financial liabilities, such as credits and mortgage, will affect negatively.

Looking specifically at initial hypotheses stated, surprisingly, the first hypothesis is rejected, as 15% above half of the sample have private retirement savings. An average saving rate amounts to 7.7% from gross salary, and, mostly, private investment account solely or in combination with third voluntary pillar of state pension system is used for wealth accumulation. For others, income size insufficiency is the major limitation to start saving. As expected in second and third hypotheses, around half of the sample has joined the third voluntary pillar of the Estonian pension system, and self-employment is a significant retirement saving behaviour determinant showing a positive effect.

Unfortunately, we cannot fully infer about fourth and fifth hypotheses, as inspired by theory determinant combinations were not always statistically significant due to the sample limitations. Nevertheless, voluntary retirement savings positively depended on age (however, age squared showed negative effect), male dummy, higher education, spouse's saving behaviour, and saving sum calculation. Marriage, children and financial education regression coefficients cannot be relied on. From the fifth hypothesis, we have to eliminate the effects of living in a capital dummy, job in finance, mortgage and leasing. In addition to conclusion from previous hypothesis, we can be sure in positive effects of income and self-employment. Other credits reduce retirement savings.

Present research also revealed a high awareness of the upcoming pension system reform, and the attitudes towards it are very diversified. However, respondents would mostly keep everything as is. Approximately one third of the sample would invest privately in case of money withdrawal.

As the sample included 280 observations, the results cannot be entirely applied to the Estonian population and fully relied on. Important notice is that present research sample may include more financially literate people than overall Estonian population does, as the questionnaire was also placed in social media group related to finance and investments. Probably, due to sample limitations, we should not be overly optimistic about 65% of sample privately saving for retirement and around half people having joined third pension pillar and planning retirement. However, other categories of people were also represented in the sample, for example, school teachers who may have a lower income level, saving possibilities, and less specific financial knowledge.

One sapid insight might be done to Estonian entrepreneurs and find more sophisticated relations to retirement saving determinants and what exactly motivates them to save. Future research may also address categories of people who were found not to privately save for retirement and investigate the deeper reasons behind it. Thus, this research may be applied to help people be more financially prepared for the retirement by more widely providing necessary information for specific categories of people, increasing awareness about future retirement and pension size, explaining the importance of private savings, and move towards maintaining a standard of living when retired by privately saving.

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APPENDICES

Appendix 1. Questionnaire in Estonian language

Vabatahtlik säästmine pensioniks

**Kohustuslik*

1. Sugu*
   - Mees
   - Naine
2. Vanus*
   - Alla 18
   - 18-29
   - 30-39
   - 40-49
   - 50-59
   - 60-pensioniiga
3. Haridus*
   - Alg- ja põhiharidus
   - Keskharidus, keskeriharidus
   - Kõrgharidus (bakalaureus, rakenduskõrgharidus, magister või doktor)
4. Kõrgharidus finantsvaldkonnas (kui omandamisel, siis vasta jah)*
   - Jah
   - Ei
5. Mitu aastat töökogemust teil on?*

---

6. Töö finantsvaldkonnas (nt finantsspetsialist, raamatupidaja, audiitor, analüütik jne)*
   - Jah
   - Ei
7. Lapsed*
   - Jah
   - Ei
8. Olete abielus*

- Jah
- Ei

9. Elukoht*
   - Tallinn
   - Muu linn >50 tuh elaniku
   - Muu linn <50 tuh elaniku
   - Asula, küla
   - Ajutiselt välismaal

Sissetulek:

10. Regulaarne sissetulek (võib valida ka mitu)*
    - ☐ Olen palgatöötaja
    - ☐ Olen töötu / ajutiselt töötu
    - ☐ Pensionär / töövõimetu
    - ☐ Oma äri, ettevõte, FIE
    - ☐ Saan sotsiaaltoetusi
    - ☐ Saan raha korteri üüri eest
    - ☐ Saan dividende
    - ☐ Muu
11. Viimase 10 aasta jooksul oli ootamatu või ajutine sissetulek (nt ootamatu pärandus, suur kingitus, loterii, tööpreemia, kindlustushüvitis jne)*
    - Jah
    - Ei
    - Ei oska öelda
12. Sissetulek kuus (brutopalk ja muud sissetulekud)*
    - Miinimumpalgast vähem
    - 584-999
    - 1000-1499
    - 1500-1999
    - 2000-2499
    - 2500-2999
    - Üle 3000
    - Sissetulekut ei ole

Finantskohustused:

13. Eluasemelaen (kodulaen)*
    - o Jah, olemas
    - o Ei
    - o Ei, elukoht on üüritud
14. Liising*
    - o Jah, auto on liisingus
    - o Ei
    - o Ei oma autot
15. Muud laenud, krediitkaardid*
    - o Jah
    - o Ei

Pensioniks säästmine:

16. Eesti pensionisüsteem (vali need sambad, millega oled liitunud)*
    - ☐ I sammas ehk riiklik vanaduspension
    - ☐ II sammas ehk kogumispension (kohustuslik al 1983. a sündinud inimestele)
    - ☐ III sammas ehk täiendav kogumispension (vabatahtlik)
    - ☐ Ei oska öelda / ei mäleta
17. Kas olete proovinud teha kindlaks oma rahalisi vajadusi pensionipõlves?*
    - o Jah
    - o Ei
    - o Vähesel määral
18. Kas olete proovinud mõelda/arvutada, palju peaksite kokku hoidma täna ja lähiaastatel, et pensionieas oma vajadusi finantseerida?*
    - o Jah
    - o Ei
    - o Vähesel määral
19. Kas teil on pensioni jaoks kogumise plaan olemas? (fondi valik, kindla summa palgast säästmine, investeerimine, finantskohustuste vähendamine vms)*
    - o Usun, et on liiga vara, et alustada planeerimist
    - o Jah, minul on kindel plaan olemas
    - o Olen mõelnud, aga vähesel määral

- Tahaks plaani paika saada, aga ei tea kuidas ja millest alustada
- Ei kujuta ette, mis see peaks olema ja kas üldse vaja

20. Kas arvate, et pensionist piisab rahuldava elatustaseme säilitamiseks? (keskmine pension 2019. aasta lõpus oli 480€ ning 01.04.2020 on oodata u 8% kasvu)*
    - Jah, mulle piisaks
    - Loodetavasti piisab, võib olla aga pean teatud kulutustest loobuma
    - Ei, pensioni suurus on väiksem, kui oleks vaja
    - Ei mõtle veel oma pensioni suurusest
21. Kas säästate raha pensioni jaoks ka iseseisvalt lisaks kohustuslikku(de)le pensionifondi(de)le?*
    - Jah
    - Ei
    - Ei, aga tahaks
    - Ei, arvan, et see pole vajalik
22. Kui teil on elukaaslane/abikaasa, kas tema säästab raha pensioni jaoks ka iseseisvalt, lisaks kohustuslikku(de)le pensionifondi(de)le?
    - Jah
    - Ei
    - Pole kindel
23. Kui teie ei säästa raha pensioni jaoks, siis mis põhjustel? Mis on takistuseks? (võib valida ka mitu)
    - ☐ Vähe infot pensioni kohta (mis on minu pensioniõigused, millal tuleb pensioniiga, pensioni suurus jne)
    - ☐ Sissetulek pole piisavalt suur säästmise jaoks
    - ☐ Pole kindel, et saan hakkama raha säästmise või investeerimisega
    - ☐ Aega veel on, jõuan piisava summa veel koguda pensioni ajaks
    - ☐ Minul on raske otsustada, kipun finantsotsuste tegemist edasi lükkama
    - ☐ Pereliige pole nõus, ei toeta minu säästmise initsiatiivi
    - ☐ Tahaks rohkem infot investeerimise kohta
    - ☐ Ei soovi võtta riski, kardan raha kaotada
    - ☐ Olen juba raha kaotanud (nt investeerimispettuse pakkujad, halb kogemus)
    - ☐ Muu

24. Kui säästate raha pensioni jaoks, siis kui palju (tooge välja ligikaudne summa või protsent sissetulekust kuus):

_____

25. Kui säästate raha pensioni jaoks, siis mis viisil (võib valida ka mitu):
    - ☐ Säästan jooksvalt arvelduskontole (või teisele tavakontole)
    - ☐ Panen sularaha kõrvale
    - ☐ Kannan säästmiskontole
    - ☐ Minul on investeerimiskonto ehk investeerin ise aktsiatesse, indeksitesse jne
    - ☐ Teen makseid vabatahtlikule pensionifondile (III sammas)
    - ☐ Muu

Pensionisüsteemi reform:

Praegu on otsustamisel teise pensionisamba reform: sellega liitumine ja sealt lahkumine muutub vabatahtlikuks.

Põhimõte on see, et inimesed jätkavad oma kogumist nii, nagu on seda teinud, ning lisandub ka võimalus kogutud raha korraga välja võtta (makstes 20% tulumaksu). On ka võimalik lõpetada maksete tegemine teise pensionisambasse, aga jätta kogutud raha fondis edasi kasvama.

Saab ka uut pensioni investeerimiskontot pangas avada, sarnaselt tavalisele investeerimiskontole ning kanda raha üksnes teisest pensionisambast. Kontole võib kanda ka teise samba fondidesse kogutud raha ja liigutada ka tagasi pensionifondidesse. Kuna raha liigub teise samba sees, siis tulumaksu tasuda ei tule.

Hetkeseisuga on teada, et reform jõustub 1. jaanuaril 2021 ning esimesed väljamaksed on 2021. aasta sügisel viiekuuse etteteatamisega.

https://majandus24.postimees.ee/6878114/pensionireform-sai-viis-olulist-muudatust

26. Kas olete reformiga kursis?*
    - o Jah ning jälgin uudiseid
    - o Pealiskaudselt, olen vaid kuulnud
    - o Ei
27. Mis arvate reformist? (võib valida ka mitu)*
    - ☐ Süsteem muutub paindlikumaks, toetan reformi
    - ☐ Olen neutraalne, vaatame, mis reformist saab
    - ☐ Keeruline teema, ei oska praegu midagi öelda
    - ☐ Ei toeta reformi

- ☐ Tundub, nagu teise samba / pensionisüsteemi lammutamine
- ☐ Muu

28. Millise valiku langetaksite pensionireformi jõustumise korral? (võib valida ka mitu)*
    - ☐ Jätkaksin säästude kogumist teise pensionisambasse nagu olen seda seni teinud
    - ☐ Peataksin maksed II sambasse, aga ei võta kogutud raha välja, jätan sinna edasi kasvama
    - ☐ Peataksin maksed II sambasse ja võtaksin seni kogutud raha välja
    - ☐ Jätkaksin kogumist pensioni investeerimiskonto raames, aga jätaksin seni kogutud raha alles
    - ☐ Jätkaksin kogumist pensioni investeerimiskonto raames ning kannaksin seni kogutud teise samba fondidesse raha samuti pensioni investeerimiskontole
    - ☐ Minul puudub II pensionisammas ehk reform ei puuduta mind
    - ☐ Muu
29. Kui otsustate raha II pensionisambast välja võtta (st väljapoole pensioni investeerimiskonto süsteemi) siis mida plaanite rahaga teha? (võib valida mitu)
    - ☐ Kogun/investeerin edasi omal käel
    - ☐ Paigutan raha nt liisingu/eluasemelaenu sissemaksuks
    - ☐ Maksan finantskohustusi tagasi
    - ☐ Võtan tarbimisse
    - ☐ Investeerin haridusse (kursused, lapse ülikool vms)
    - ☐ Muu

Appendix 2. Questionnaire in Russian language

Добровольные пенсионные сбережения

**Обязательно*

1. Пол*
   - Мужской
   - Женский
2. Возраст*
   - До 18 лет
   - 18-29
   - 30-39
   - 40-49
   - 50-59
   - 60-пенсионный возраст
3. Образование*
   - Начальное образование
   - Среднее образование
   - Высшее образование
4. Высшее образование в сфере финансов? (если вы студент, отвечайте да)*
   - Да
   - Нет
5. Сколько лет опыта работы у вас есть?*

   _____
6. Работаете в сфере финансов? (например, финансовый специалист, бухгалтер, аудитор, аналитик и т.д.)*
   - Да
   - Нет
7. Дети*
   - Есть
   - Нет
8. Вы женаты/замужем?*
   - Да
   - Нет

9. Место жительства
    - Таллинн
    - Другой город >50 тыс жителей
    - Другой город <50 тыс жителей
    - Посёлок, деревня
    - За границей

Доход:

10. Регулярный доход (можно выбрать несколько)*
    - ☐ Я наёмный работник (получаю заработную плату)
    - ☐ Я безработный / временно безработный
    - ☐ Пенсионер / нетрудоспособный
    - ☐ У меня есть свой бизнес / предприятие / я самозанятый
    - ☐ Получаю социальные пособия
    - ☐ Получаю деньги за аренду квартиры
    - ☐ Получаю дивиденды
    - ☐ Другое
11. За последние 10 лет был неожиданный или временный доход (например, неожиданное наследство, большой подарок, лотерея, премия, страховое возмещение и т.д.)*
    - Да
    - Нет
    - Не могу точно сказать
12. Ежемесячный доход (брутто-заработная плата и прочие доходы)*
    - Меньше минимальной заработной платы
    - 584-999
    - 1000-1499
    - 1500-1999
    - 2000-2499
    - 2500-2999
    - Более 3000
    - Нет дохода

Финансовые обязательства:

13. Жилищный кредит (ипотека)*
    - Да, имеется
    - Нет
    - Нет, живу в арендованной квартире
14. Лизинг*
    - Да, автомобиль куплен в лизинг
    - Нет
    - Нет автомобиля
15. Другие кредиты, кредитные карты*
    - Есть
    - Нет

Пенсионные накопления:

16. Пенсионная система Эстонии (выберите ступени, к которым вы присоединены)*
    - ☐ I ступень или государственная пенсия по старости
    - ☐ II ступень или накопительная пенсия (обязательно для людей 1983 года рождения)
    - ☐ III ступень или дополнительная накопительная пенсия (добровольная)
    - ☐ Не могу сказать / не могу вспомнить
17. Пытались ли вы определить свои финансовые потребности на пенсии?*
    - Да
    - Нет
    - В малой степени
18. Пытались ли вы подумать или рассчитать, сколько вы должны копить сегодня и в ближайшие годы, чтобы покрыть свои потребности на пенсии?*
    - Да
    - Нет
    - В малой степени
19. Есть ли у вас план сбережения средств на пенсию? (выбор фонда, ежемесячный план сбережений, инвестиции, снижение финансовых обязательств и т.д.)*
    - Считаю, что ещё рано начинать планирование

- Да, у меня есть определенный план
- Периодически думаю, но чёткого плана нет
- Хотелось бы иметь план, но не знаю как и с чего начать
- Не представляю себе такой план и нужен ли он

20. Как вы думаете, достаточно ли пенсии для поддержания хорошего уровня жизни? (средняя пенсия на конец 2019 года составила 480€ и с 01.04.2020 ожидается повышение в среднем на 8%)*
    - Да, мне бы хватило
    - Надеюсь хватит, возможно, придётся воздержаться от определённых расходов
    - Нет, размер пенсии меньше необходимого
    - Пока что не думаю о размере своей пенсии
21. Копите ли вы деньги на пенсию самостоятельно, в дополнение к обязательным пенсионным фондам?*
    - Да
    - Нет
    - Нет, но хотел бы
    - Не вижу в этом необходимости
22. Если у вас есть супруг/сожитель, копит ли он(а) деньги на пенсию самостоятельно, в дополнение к обязательным пенсионным фондам?
    - Да
    - Нет
    - Не могу точно сказать
23. Если вы не копите деньги на пенсию, то по какой причине? Что является препятствием? (можно выбрать несколько)
    - ☐ Мало информации о выходе на пенсию (каковы мои пенсионные права, когда выходить на пенсию, размер будущего пособия и т. д.)
    - ☐ Доход недостаточно высок для накопления
    - ☐ Не уверен, что смогу сберегать или инвестировать самостоятельно
    - ☐ Ёще есть время, я успею достаточно накопить на пенсию
    - ☐ Мне трудно определиться, склонен откладывать финансовые решения
    - ☐ Член семьи не поддерживает мою инициативу по сбережению средств на пенсию
    - ☐ Я хотел бы узнать больше об инвестировании

- ☐ Не хочу рисковать, боюсь потерять деньги

- ☐ Уже терял деньги (например, инвестиционное мошенничество)
- ☐ Другое

24. Если копите деньги на пенсию, то сколько? (укажите приблизительную сумму или процент от дохода в месяц)

_____

25. Если копите деньги на пенсию, то каким образом? (можно выбрать несколько)
    - ☐ Откладываю на текущий банковский счет (или другой обычный счет)
    - ☐ Откладываю наличные деньги
    - ☐ Перевожу средства на сберегательный счет
    - ☐ У меня есть инвестиционный счет, то есть сам инвестирую в акции, индексы и т.д.
    - ☐ Осуществляю выплаты в добровольный пенсионный фонд (III ступень)
    - ☐ Другое

Реформа пенсионной системы:

В настоящее время рассматривается реформа второй пенсионной ступени: присоединение к ней и выход из неё станут добровольными.

Люди могут продолжить накопление во II-ой ступени, но теперь появится возможность прекратить выплаты и снять уже накопленные деньги, уплатив подоходный налог 20%. Также станет возможным прекратить выплаты во II-ую ступень, оставив накопленные средства дальше расти в пенсионном фонде.

Помимо этого, можно будет открыть новый пенсионный инвестиционный счет в своем банке, как обычный инвестиционный счет, и переводить на него средства только со II-ой ступени и обратно. В таком случае сумма налогом не облагается, посольку деньги движутся внутри системы.

С большой вероятностью изменения вступят в силу в январе 2021 года. Первые выплаты планируются на весну 2021 года. О своём желании надо заявить за пять месяцев заранее.

https://rus.err.ee/1009607/proekt-zakona-o-pensionnoj-reforme-proshel-pervoe-chtenie-v-rijgikogu

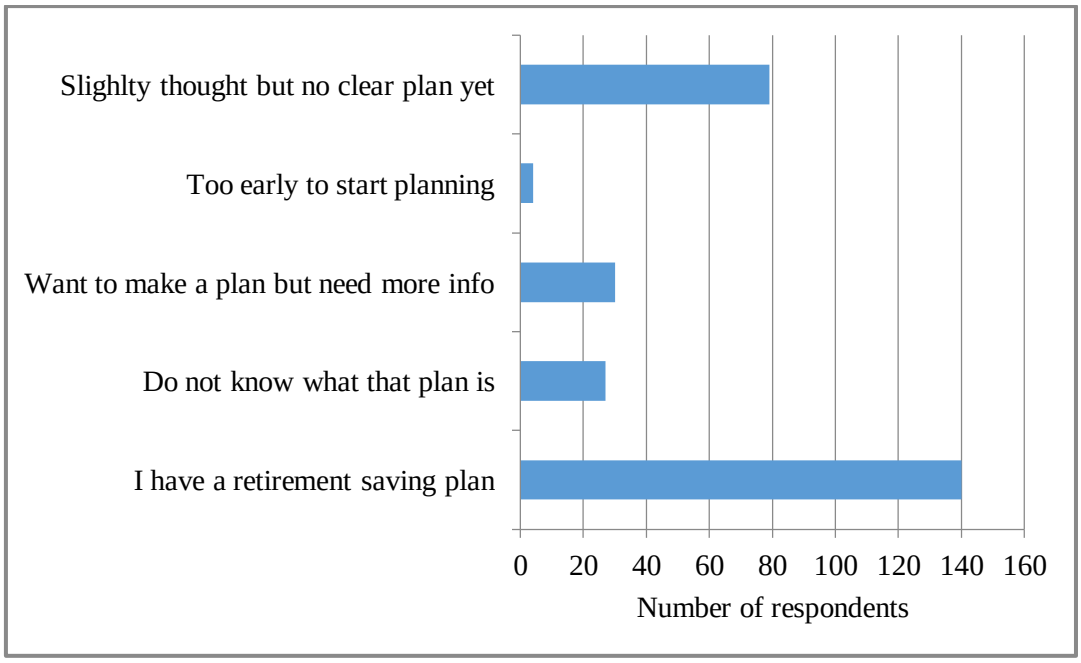
26. Вы в курсе реформы?*
    - o Да, слежу за новостями

- Поверхностно

- Нет

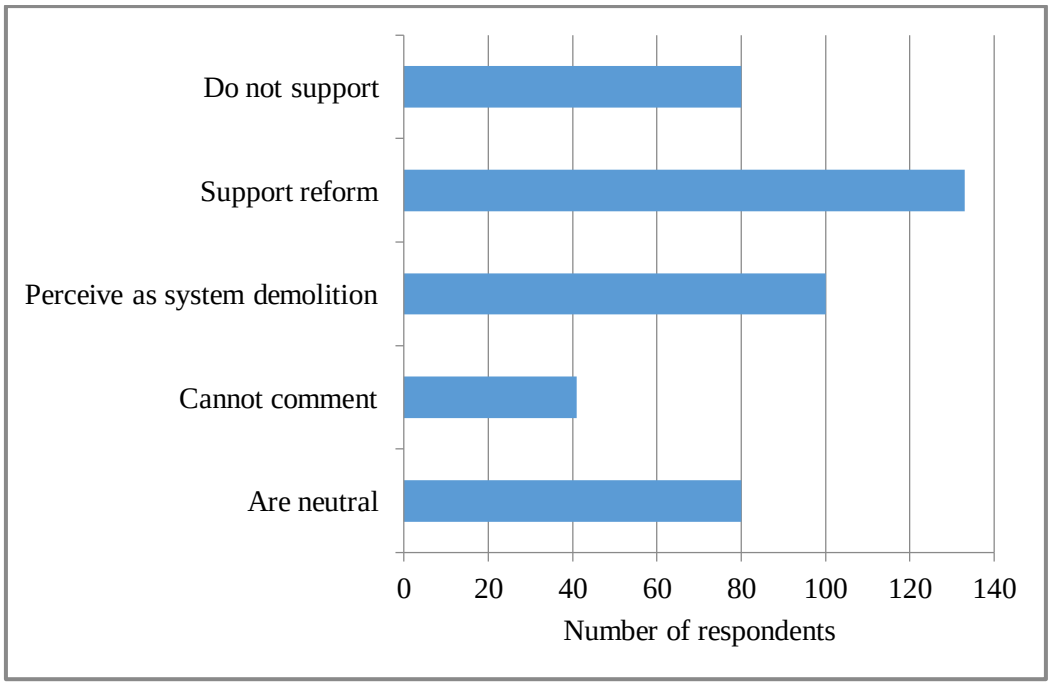
27. Что вы думаете о реформе? (можно выбрать несколько)*
    - ☐ Система становится более гибкой, я поддерживаю реформу
    - ☐ Я нейтрален, посмотрим, что принесёт реформа
    - ☐ Сложный вопрос, не могу прокомментировать
    - ☐ Не поддерживаю реформу
    - ☐ Похоже на разрушение пенсионной системы
    - ☐ Другое
28. Какой выбор вы сделаете, если пенсионная реформа вступит в силу? (можно выбрать несколько)*
    - ☐ Продолжу накапливать средства во второй пенсионной ступени, как делал это раньше
    - ☐ Приостановлю выплаты во II ступень, но накопленные деньги оставлю для дальнейшего роста
    - ☐ Приостановлю выплаты во II ступень и заберу уже накопившиеся деньги
    - ☐ Открою счет для пенсионных инвестиций, но уже накопленные деньги оставлю во II ступени
    - ☐ Открою счет для пенсионных инвестиций и переведу на него уже накопленные деньги со II ступени
    - ☐ У меня нет II пенсионной ступени, поэтому реформа меня не коснётся
    - ☐ Другое
29. Если вы решите вывести деньги из второй ступени (т.е. вне системы пенсионных инвестиционных счетов), что вы планируете делать с деньгами? (можно выбрать несколько)
    - ☐ Буду копить/инвестировать самостоятельно
    - ☐ Сделаю предоплату, например, лизинг/жилищный кредит
    - ☐ Выплачу финансовые обязательства
    - ☐ Использую для текущих потребностей
    - ☐ Инвестирую в образование (курсы, университет ребёнка и т.д.)
    - ☐ Другое

Appendix 3. Distribution of answers about retirement saving plan



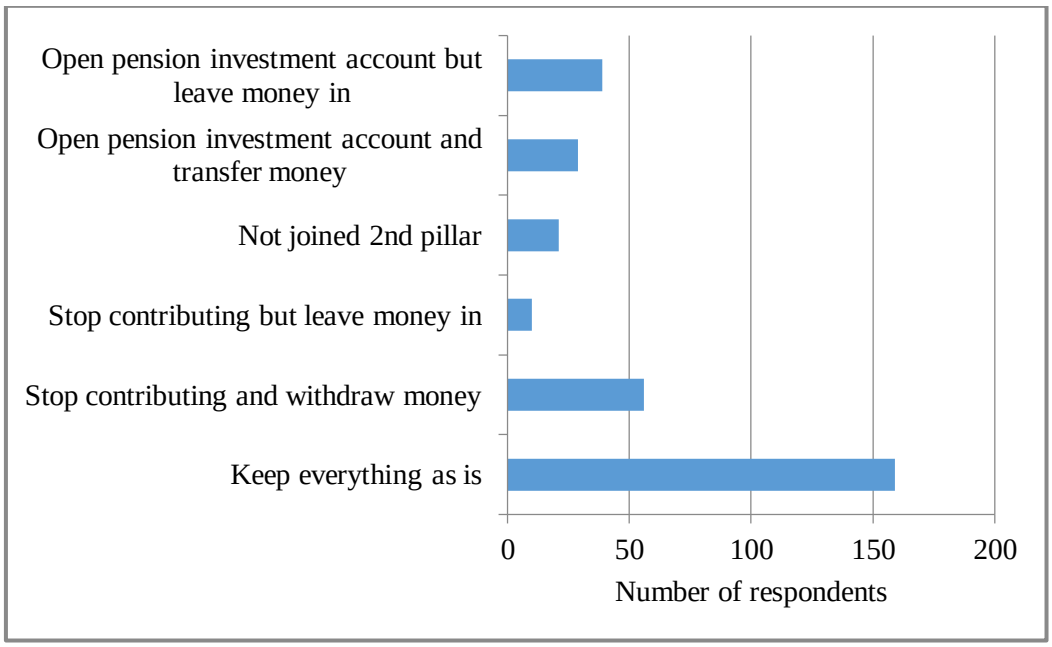
Source: author's calculations based on data obtained from the survey

Appendix 4. Attitude towards upcoming pension system reform



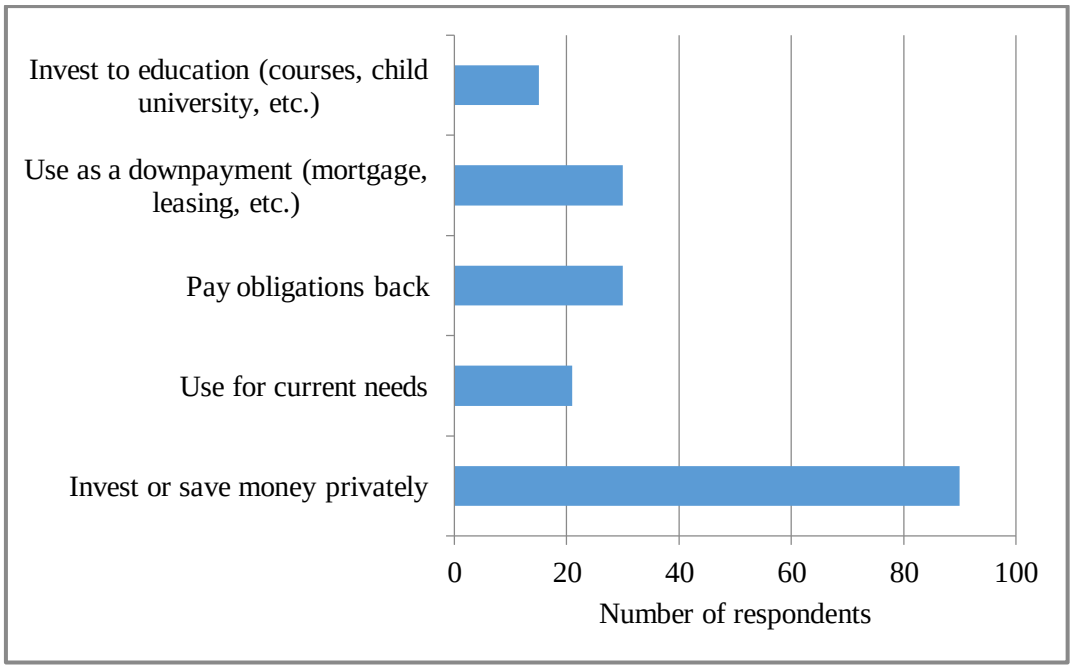
Source: author's calculations based on data obtained from the survey

Appendix 5. Decision in case second pillar reform takes effect



Source: author's calculations based on data obtained from the survey

Appendix 6. Further action in case of money withdrawal from second pillar



Source: author's calculations based on data obtained from the survey

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