Aalto University
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Effect of business education and personality on retirement saving

Finance

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EFFECT OF BUSINESS EDUCATION AND PERSONALITY ON RETIREMENT SAVING

PURPOSE OF THE STUDY

The objective of the study is to examine whether the field of education, personality and political values affect the decision to save for retirement. In the thesis, personality is measured in terms of an abbreviated version of the Big Five personality trait indicator. The focus is on examining both investing in pension insurance or PS agreement and otherwise saving for retirement. Furthermore, the impact of expectations that people have about their actual retirement age on the decision to save for retirement and the determinants of considering additional pension savings needed are studied.

DATA

The study employs data gathered with a tailored questionnaire about the demographics, characteristics, personality traits and expectations concerning retirement. The sample consists of 636 respondents of which 259 have education in economics. The survey was targeted to members of The Finnish Association of Business School Graduates (SEFE) and The Finnish Association of Graduate Engineers (TEK).

RESULTS

The findings give supportive evidence of significant positive impact of business education on retirement saving. When examining the effects of the Big Five personality dimensions, extraversion stands out as a significant factor positively affecting the probability of saving for retirement. In addition, some support for the negative impact of openness on retirement saving is found. Moreover, the results suggest that those who do not have pension insurance or PS account mainly due to otherwise saving for retirement tend to have higher risk tolerance, live more often in a big city and more often have wealth in stocks compared to those individuals who are saving for retirement in form of pension insurance or PS agreement.

KEYWORDS

Retirement saving, economics education, personality

Aalto-yliopiston kauppakorkeakoulu

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KAUPPATIETEELLISEN KOULUTUKSEN JA PERSOONALLISUUDEN VAIKUTUS ELÄKESÄÄSTÄMISEEN

TUTKIELMAN TAVOITTEET

Tutkielman tavoitteena on tarkastella vaikuttaako kauppatieteellinen koulutus, persoonallisuus ja poliittiset arvot päätökseen säästää eläkevuosia varten. Persoonallisuutta mitataan Big Five – indikaattorin lyhennetyllä versiolla. Tutkimus keskittyy sekä eläkesäästämiseen eläkevakuutuksen tai PS – sopimuksen muodossa että muulla tavoin säästämiseen eläkevuosia varten. Lisäksi tutkitaan vaikuttaako eläkesäästämiseen se, minkä ikäisenä henkilö uskoo jäävänsä eläkkeelle ja tarkastellaan mitkä tekijät vaikuttavat siihen, että henkilö pitää vapaaehtoista eläkesäästämistä itselleen tarpeellisena.

LÄHDEAINEISTO

Aineisto koostuu tutkimusta varten suunnitellulla kyselyllä kerätyistä tiedoista. Kyselyllä kartoitettiin vastaajan demograafisia tietoja, ominaispiirteitä, persoonallisuuden piirteitä ja odotuksia liittyen eläkkeelle jäämiseen. Otos koostuu yhteensä 636 vastaajasta, joista taloustieteellisen koulutuksen saaneita on 259. Tutkimuksen kohderyhmään kuuluivat Ekonomiliitto SEFEn ja Tekniikan Akateemisten liitto TEKin jäsenet.

TULOKSET

Tutkimuksen tulokset tukevat väitettä, että kauppatieteellinen koulutus on tilastollisesti merkitsevä ja positiivisesti vaikuttava tekijä, kun tarkastellaan vapaaehtoista eläkesäästämistä. Tutkittaessa Big Five – teorian persoonallisuuden ulottuvuuksia, ulospäin suuntautuneisuus erottuu tilastollisesti merkitsevänä tekijänä, joka positiivisesti vaikuttaa todennäköisyyteen, että henkilö säästää vapaaehtoisesti eläkevuosiaan varten. Tulokset antavat myös jonkin verran tukea väitteelle, että avoimuudella on negatiivinen vaikutus eläkesäästämiseen. Lisäksi tulokset osoittavat, että henkilöt, jotka eivät ole hankkineet eläkevakuutusta tai PS – tiliä koska säästävät muulla tavoin eläkevuosiaan varten, omaavat korkeamman riskinsietokyvyn, asuvat useammin isossa kaupungissa ja heillä on useammin varallisuutta osakkeissa verrattuna henkilöihin, jotka säästävät eläkevuosiaan varten eläkevakuutuksen tai PS – tilin muodossa.

AVAINSANAT

Eläkesäästäminen, kauppatieteellinen koulutus, persoonallisuus

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1. INTRODUCTION

1.1. Background and motivation

Pensions and retirement investing have received a lot of media attention during the past few years due to the challenges that aging population and increasing age-related expenditure are causing. It has been constantly emphasized that pensions are going to be relatively smaller in the future and people should be prepared for earnings-related pensions equaling half or less their salary. The relative level of pension income is going to decrease mainly due to *longer life expectancy* and the *implementation of the life expectancy coefficient* [1] used to adjust the pension to the change in life expectancy. New products and services have been developed to best suite the purposes of investors saving for retirement and there have been public discussion about increasing the effective retirement age. Though pensions and retirement investing have been a popular topic in the media, studies that examine limited stock market participation and the effect of economic education, values, personality or political orientation have not yet been extended to retirement investing.

Previous research has documented that stock market participation is strongly correlated with the level and type of education of an individual. Christiansen et al. (2008) found that economists are significantly more likely to hold stocks compared to individuals with education from other field of study controlling for wealth, income and age. Furthermore, besides demographic factors and risk aversion, recent studies have attached limited stock market participation with a number of factors such as values, personality traits and political orientation. Considering findings on values and finance, it seems reasonable to assume that people not only maximize utility according to standard models but also consider financial assets as consumption goods (Fama and French, 2007). Similarly to other consumption, it seems that people get different utilities from different kinds of financial assets. Conditional on participation, people seem to buy stocks of certain companies to maximize their utility by for instance choosing companies that are socially responsible (e.g. Hong et Kostovetsky, 2010) or companies of which the product the investor

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[1] Life expectancy coefficient is a coefficient by which the starting pension will be multiplied. The coefficient concerns persons born in 1948 or later and is calculated based on the mortality statistics separately for each age group at the age of 62. In 2011, the coefficient is 0,98689. (see e.g. http://www.etk.fi/Page.aspx?Section=64992)

himself/herself prefers (Aspara and Tikkanen, 2010). For instance, Aspara and Tikkanen (2010) find evidence proposing that individuals' willingness to invest in a company's stock goes beyond its expected financial returns/risk and is affected both by individual's affective evaluation of the company's product brand(s) and perceived personal relevance attached to domains represented by the company's product categories. Respectively, it seems plausible to think that value-expressive reasons might drive the participation decision in the first place. Thus, people might not invest in stocks or pension insurance because their values might be inconsistent with values which they associate with the stock market creating cognitive dissonance.

Recent studies (e.g. Luotonen, 2009; Jouhikainen, 2010; Kaustia and Torstila, 2011) have proposed that values and personality traits can be important factors in determining whether an individual chooses to participate in the stock market. Respectively, values and personality traits may have an important effect on whether or not a person gets interested in investing. Individual who emphasizes conservation values of tradition, conformity and security is more likely not to invest in stocks or equity funds due to not being interested in investing (Luotonen, 2009). On the other hand, emphasis of the self-enhancement values of power and achievement increases the probability of investing in the stock market (Luotonen, 2009). Furthermore, political preferences have been suggested to be a vital factor in stock market participation. Kaustia and Torstila (2011) conclude that a moderate left voter is significantly less likely to own stocks than a moderate right voter. The authors suggest that personal values can lead to negative associations with the stock market and result in "stock market aversion". In addition, Kaustia and Torstila (2011) point out that people with different political ideologies might have different expectations on a future social safety net and thus, have different idea on the importance of making additional pension savings.

1.2. Contribution and results

Effect of values and personality traits on investing is quite recent topic in the finance literature and thus, relatively little research on the topic has been conducted since today. There have been two closely related master's theses which both examined limited stock market participation with a questionnaire targeted to Finnish university students. Luotonen (2009) focused on the relationship between values and stock market participation and Jouhikainen (2010) examined the relationship between personality traits and stock market participation. Furthermore, relating to the

voluntary pension insurances, Kuusisto (2004) examined the characteristics of the Finnish pension insurances and how these affect the investment decisions made by retail investors with data provided by the Federation of Finnish Insurance Companies as a form of a questionnaire sent to individuals who have voluntary pension insurance. In addition, Kuusisto studied the determinants of the amount of money contributed to the voluntary pension insurance by utilizing the data from the Finnish Tax Authorities. Furthermore, Kaustia and Torstila (2011) studied the effect of political orientation on stock market participation in Finland. The effect of economics education on stock market participation has been examined by Christiansen et al. (2008).

This study contributes to the existing research by examining whether business education, personality traits and political orientation associate with saving for retirement. The respondents who are grouped as pension investors are saving either in form of pension insurance, PS agreement or otherwise for retirement. PS agreements have been in the market since April 2010 and their characteristics are in general similar to those of private investment-linked pension insurances. The idea is that individual makes deposits to his/her PS account and these deposits are then directed to different investments chosen by the individual: term deposits, mutual funds or directly invested in stocks for instance. The objective is to study whether those who save in form of pension products and those who do not have pension products due to otherwise saving for retirement differ and which factors affect this "self-selection". The focus is on examining pension saving of people with either university level economics education or university level education in technology or other similar field of study. Furthermore, the impact of expectations that people have about their actual retirement age and the need for making additional pension savings are studied. In brief, the purpose of the thesis is to contribute to the understanding of how field of education, values and personality affect investing and further extend this intriguing topic on retirement saving.

Several interesting findings emerge. First, consistent with findings of previous research I find that business education has a significant positive effect on the probability of an individual saving voluntarily for retirement. This is anticipated to be due to an informational advantage of individuals having education in economics and, thus, a higher awareness of the financial markets and products (see e.g. Christiansen et al., 2008; Guiso and Jappelli, 2005). Furthermore, as anticipated, the more extravert the person estimates him/herself, the more likely he/she is to save

for retirement. Especially being more reserved has a clear negative effect on the probability of saving for retirement. The positive effect of extraversion might be explained by the anticipation that individuals who score higher on extraversion might be more prone to peer effects and for instance might be more easily influenced by a financial advisor or a bank employee.

In contrast to previous research, right-wing political orientation or gender has no significant effect on retirement saving even though right-wing political values have a remarkable impact on whether the individual considers that he/she needs to privately save for retirement. Looking at the effect of demographics and risk aversion, it seems that age and wealth both have positive effects and risk aversion negative impact on retirement saving. In addition, the older the individual expects that he/she will retire; the less likely he/she is to privately save for retirement.

Furthermore, individuals who state that the main reason for not having pension insurance or PS account is other form of saving for retirement have higher risk tolerance, live more often in a big city and more often report to have wealth in stocks compared to those saving in form of pension products. Thus, it seems that directly investing in stocks can be seen as a close substitute for investing in pension insurance or PS account.

1.3. Structure of the study

The thesis is structured as follows. Chapter 2 gives an introduction to the Finnish Pension System and voluntary pension insurances. In Chapter 3, I present the most relevant part of the earlier literature from the viewpoint of this thesis. In Chapter 4, hypotheses of the thesis are formulated. Chapter 5 focuses on presenting the data and the methodology applied in the study. In Chapter 6, the empirical results are presented. Chapter 7 discusses the main findings of the thesis in their research context, the limitations concerning the study and suggestions for future research. Finally, Chapter 8 concludes the thesis.

2. OVERVIEW OF THE FINNISH PENSION SYSTEM

2.1. Categorizations of pension systems

Pension systems can be either categorised as defined benefit or defined contribution schemes according to how the benefits are determined. The Finnish Pension System is a defined benefit system. In defined benefit schemes a certain payout at retirement is guaranteed according to a set formula instead of depending on investment returns. Defined benefit schemes can be funded, unfunded or partially funded schemes. The Finnish system is a *partially funded system* where approximately one quarter of the pension contributions are funded to cover future pensions and the remaining used to finance pensions in current payment. Funded systems are in general good because part of the pensions can be paid from investment returns. Yet, in defined benefit systems in which pension payments instead of pension levels adjust, fully funded schemes would be difficult to undertake because investment returns cannot be known in advance and stock markets can be very volatile at times. In fully funded schemes, risks and returns are assumed by all employees.

In contrast to defined benefit schemes, in defined contribution systems contributions are paid into an individual account. Employees are given more responsibility in retirement wealth accumulation as each employee decides whether to participate in pension plan, how much to contribute and what kind of asset allocation to hold. Pension levels instead of pension payments adjust to market conditions. In defined contribution schemes, risks and returns are assumed by each participant. Furthermore, as each employee chooses in which funds to invest and how much to invest, she should also then change asset allocations to be more conservative when near retirement. Respectively, young participants should choose asset allocation that includes enough equity to ensure better long-term returns. Defined contribution systems have gained more popularity during the recent years because of the challenges related to population ageing and thus to the sustainable financing of the pension scheme in defined benefit systems. For instance, in the United States, private retirement arrangements were predominantly defined benefit pension plans two decades ago but nowadays very few firms create new defined benefit plans and many firms have moved to defined contribution plans (see e.g. Poterba et al, 2007).

2.2. The Finnish Pension System

The Finnish Pension System comprises of three pillars: *the residence-based national pension, the employment-based earnings-related pension and voluntary supplementary pension provision*. The Finnish Pension System relies mainly on the employment and national pensions. According to the Finnish Centre for Pensions, the average pension to be paid is approximately 1,300 euros per month.[2] Earnings-related pension is financed both by the employers and the employees. There is no upper limit in Euros for the pensionable earnings or for the pension. The national pensions provide a minimum income in case earnings-related pension would be small. These are financed by employer contributions and tax revenues. Moreover, there have been several reforms made in the Finnish Pension System since the scheme was first created because the system has to take into account changes in the society. The largest pension reform in Finland was made effective in the beginning of 2005. The most significant changes that took effective then included: the employee can choose to retire anywhere between the ages of 63 and 68, the age limit for the part-time pension was raised from 56 to 58, the earnings of the whole work history as the basis for earnings-related pension provisions and the creation of the life expectancy coefficient. (Finnish Centre for Pensions, 2007.)

Voluntary supplementary pension insurances can be interest rate-linked, investment-linked or a combination of interest rate-linked and investment-linked insurance. The return of interest rate-linked pension insurance is determined both by the technical interest rate and an additional interest dependent on the insurance company's profits. In contrast, the return of investment-linked pension insurance is dependent on the return of stocks, bonds and funds chosen by the policyholder. In addition, the return of investment-linked pension insurance is affected by the fees charged by the fund management companies such as annual administration fees and subscription and redemption fees for the fund shares and the fees for buying stocks. (Finnish Centre for Pensions, 2007.) Investment-linked pension insurances have in general a higher expected return but at the same time mean that the policyholder takes the risk of holding less than optimal portfolio. Furthermore, in addition to private pension insurances, PS agreements have been in the market since April 2010. The characteristics of PS agreements are in general similar to those of private investment-linked pension insurances. The idea is that individual makes

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[2] See http://www.etk.fi/Page.aspx?Section=45545 for details.

deposits to his/her PS account and these deposits are then directed to different investments chosen by the individual: term deposits, mutual funds or directly in stocks for instance. Thus, the profit depends on the return of the investments chosen by the investor.

Pension insurances and PS agreements differ from other investment products due to their fixed, long-term nature and because they allow for tax deductions. Currently, the maximum annual amount of contributions is 5,000 Euros and the maximum tax credit is 1,400 Euros per year. The maximum tax credit is determined by the capital income tax rate (28 percent) and tax deductions should be primarily made from capital income taxes. Yet, if the individual has no capital income, a corresponding tax deduction can be made in the income taxation in the form of a separate credit for deficit in capital income. Currently, the lowest retirement age which entitles to tax deductions is 63. Furthermore, the pension insurance contract is usually attached to life insurance provision for the event of the insured person's death. Life insurance provision assures that in case the insured person dies, the insurance savings are paid in predetermined parts to the insured person's beneficiaries. (Finnish Centre for Pensions, 2007.)

2.3. Private retirement investing in Finland

Private retirement investing has rapidly increased in Finland during the past 15 years or so. The increase in savings possibilities, more prevalent uncertainty and increasing awareness about the adequacy of income during retirement have likely been the most significant factors prompting private households to increasingly save for retirement. The most eager retirement investors in the form of retirement insurance are private households aged from 25 to 45. (Ahonen, 2008.) Though voluntary supplementary pensions are still only a small fraction of pensions in payment, i.e. only about five percent of the total pension provision consists of supplementary pension provisions (The Finnish Centre for Pensions); it is likely that their importance will significantly grow in the future when the relative level of earnings-related pension is expected to decrease.

According to the statistics provided by the Federation of Finnish Financial Services, approximately 69 percent of new pension insurances sold to private investors in Finland in 2010 were investment-linked insurances. More specifically, of 8,385 pension insurances sold in 2010, 5,793 were investment-linked insurances. In 2009, the corresponding amount of new insurances

sold totalled altogether 38,964 insurances of which around 87 percent were investment-linked. The investments in December 2010 totalled around 7.7 billion Euros of which the majority, 62 percent was invested in interest rate-linked insurances.[3] Figure 1 presents the development of new sales of private pension insurances for the last ten years and the proportions of investment- and interest-rate linked pension insurances sold. According to the Bank of Finland, 9,811 PS agreements were sold in 2010 and the investments totalled around 9.9 millions of Euros at the end of December 2010.[4] Though the amount of PS agreements sold in 2010 was not by any means substantial, it seems to have had a significant impact on the number of new pension insurances sold in 2010 and on the proportion of investment-linked insurances sold in 2010.

Figure 1. New sales of private pension insurances
The upper figure presents the statistics of new sales of pension insurances to private investors for the time period of 2000-2010. The lower figure presents the proportions of investment- and interest-rate linked insurances sold to private investors for the last ten years.

Number of new insurances sold

Proportion of investment- and interest-linked insurances sold
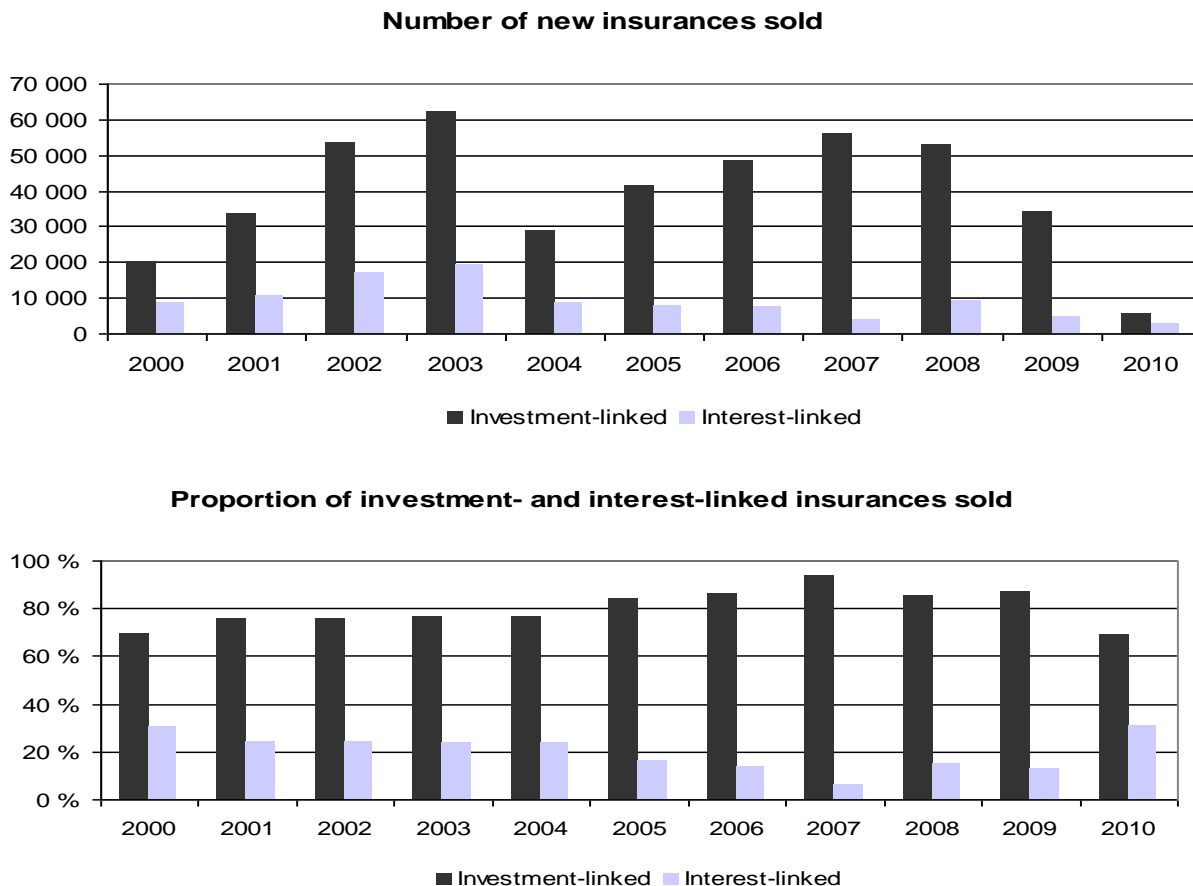
Source: Statistics provided by the Federation of Finnish Financial Services

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[3] See http://www.fkl.fi/www/page/fk_www_3880 for details.
[4] See http://www.suomenpankki.fi/fi/tilastot/tase_ja_korko/Pages/index_2011_01_31.aspx for details.

3. LITERATURE REVIEW

This chapter concentrates on findings on limited stock market participation relevant from the viewpoint of the thesis. An extensive amount of literature has attached limited stock market participation to the equity premium puzzle described by Mehra and Prescott (1985). Mehra and Prescott (1985) document that, historically, the average return on equity has far exceeded the average return on short-term virtually default-free debt. The differential in average yields was seven percent over the time period 1889-1978 in the US (Mehra and Prescott, 1985). The authors argue that the large differential in average yields cannot be accounted for in the Arrow-Debreu set-up nor by models that abstract from transaction costs, liquidity constraints and other frictions. The large differential in average yields cannot be simultaneously rationalized in a perfect market framework because aggregate consumption growth covaries too little with the return on equities and thus, implausibly high levels of risk aversion would be required in order to justify the large risk premium on stocks (see e.g. Mehra and Prescott, 1985; Mankiw et al., 1991).

Furthermore, Campbell (2006) points out that nonparticipation in the stock market may increase the equity premium and, consequently, worsen the welfare loss caused by this mistake. Understanding factors behind limited stock market participation phenomenon is relevant to this study because it can be assumed that the same factors are relevant also when examining private retirement investing. First, findings on demographic factors determining stock market participation are presented. Second, the effect of behavioural and psychological factors is discussed.

3.1. Demographic factors and the role of risk aversion

Wealth and income are one of the most obvious demographic factors affecting stock market participation. In addition, gender has been found to impact the willingness to participate in the stock market and save for retirement in a number of ways. Martenson (2008) argues that the situation with retirement savings is remarkably worse for women all over the world than it is for men due to various factors. First, the author argues that research on gender differences often points out that the majority of women seem to lack motivation and ability to manage their money. In addition, women have longer life expectancy than men which increases the need for additional pension savings. Furthermore, risk aversion tends to be greater for women than for men and previous research suggests that women attach purchasing financial services with masculinity (Martenson, 2008). On the other hand, Sundén and Surette (1998) examine gender differences in the allocation of assets in retirement savings plans and find evidence suggesting that investment decisions are more driven by a combination of gender and marital status than by gender alone. Moreover, Wang (2009) proposed that gender is an important factor in determining investors' levels of financial knowledge (both objective and subjective knowledge) and risk taking, whereas knowledge has a mediation effect on risk-taking behaviour. More specifically, the results of Wang's study on investing in mutual funds suggest that male investors might be more willing to take risks due to their higher financial literacy.

Furthermore, age has been shown to be an important demographic variable in predicting saving for retirement (see e.g. Fernandez-Lopez et al., 2010 or Ahonen and Moilanen, 2007). For instance, Fernandez-Lopez et al. (2010) study the determinants of saving for retirement in eight European countries and find the probability of saving for retirement is rising initially with age but reaches a maximum in the mid- to late 40s. According to the life-cycle theory of savings, the older the person gets, the more likely he is to save for retirement. The life-cycle theory is a forward-looking theory of savings which assumes that people decide how much to consume and to save comparing the present and future resources and needs. Of course, the decision of saving for retirement is not as straightforward as the life-cycle theory assumes as to be fully rational, the person would have to know the exact age of retirement, years of retirement and other relevant factors beforehand.

Furthermore, Karhunen and Keloharju (2001) examined shareownership in Finland from January 1, 1995 to May 31, 2000 and found that in addition to age and gender there are significant differences in shareownership in different provinces in Finland. Particularly, the Greater Helsinki Area (Helsinki, Espoo, Vantaa and Kauniainen) for the majority of investment wealth in Finland. Furthermore, Karhunen and Keloharju document that in the Greater Helsinki Area, 29.8 percent of inhabitants own shares directly whereas the national average in Finland is 14.3 percent.

Concerning the impact of risk aversion on saving for pension in form of voluntary pension insurance, it should be noted that it is not certain whether the relationship between engaging in voluntary pension insurance and participating directly in the stock market is exactly the same. It can be expected that part of the people takes voluntary pension insurance for instance in order to protect their standard of living when retired and might attach pension insurance similarly to other insurances with feelings of security whereas participating in the stock market might evoke different feelings. For instance, Chatterjee (2010) examines the role of cognitive ability and risk aversion in determining health insurance participation in the US and finds that people with higher risk tolerance are less likely to be insured than those who are less tolerant of risk.

Previous research has documented that stock market participation is strongly correlated with the level and type of education of the investor. The argument is that fixed costs of participation are higher for less educated individuals and the field of education matters because economists for example can be assumed to be more aware of financial markets and products and for them, it takes less time to participate in the stock market (Christiansen et al., 2008). Fixed costs of participation are in general determined at least by the time and money that are spent in order to participate in the stock market or to engage in voluntary pension insurance. Though correlated with various factors, education remains as one of the determinants of stock market participation when controlling for wealth, income and age.

Moreover, Christiansen et al. (2008) test for the hypothesis that an economics education is more likely to affect due to an informational advantage than by changing investor's risk aversion or optimism by examining changes in stock market participation when an individual becomes an economist. The authors' results suggest that also the amount of information about economics matter. First, a longer economics education increases the probability of an individual

participating in the stock market compared to a shorter one. Second, when examining stock market participation among highly educated investors, education in economics has statistically significant positive effect on stock market participation probability compared to other educations. (Christiansen et al., 2008.)

Consistent with the findings of Christiansen et al. (2008) of the impact of economics education on stock market participation, Guiso et al. (2005) show that the effect of awareness of financial assets is significant on stock market participation. Guiso et al. (2005) document positive association between financial awareness and education, household resources, long-term bank relationship and proxies for social interaction. The authors suggest that if the level of financial awareness among investors was enhanced, stock market participation could increase substantially from its current level.

3.2. Behavioural and psychological factors – effect of personality and values

In addition to traditional explanations of stock market participation, recent literature has attached non-economic factors with stock market participation and retirement plan participation. Besides the time and money spent when buying stocks, Campbell (2006) proposes that fixed costs of participation can also be determined in terms of psychological factors such as level of general trust towards other people that make participation uncomfortable for some households. Furthermore, Guiso et al. (2005) document that a large fraction of potential investors among those who seem to be aware of financial assets do not own stocks, suggesting that there might be factors besides demographics that play an important role in determining whether an individual participates in the stock market. Yet, psychological factors may have less impact on stock market participation when the level of education is higher or the type of education is closer to understanding financial products and the concepts of risk and return.

Personality traits

Personality traits can be anticipated to influence stock market participation as it has been documented that personality traits have an impact on cognitive thinking and investor's susceptibility to cognitive biases (see e.g. Zhang, 2003; Pompian and Longo, 2004). In addition, Durand et al. (2008) found that personality is associated with both trading behaviour and investment performance. For instance, Durand et al. (2008) find evidence that higher negative emotion is associated with increased trading behaviour whereas extraversion associated with a lower propensity to trade. Though the results of Durand et al. (2008) are based on a really small sample size of only 21 answers (response rate of 26%) they give supportive evidence to the idea that an association between personality and investment behaviour is reasonable to anticipate.

Mayfield et al. (2008) study hypothesized association between the Big Five dimensions of personality and short-term and long-term investment intentions. The study was carried out as a survey for business school undergraduates and a total of 194 usable answers were collected for the analysis. In order to measure personality of the respondents, Mayfield et al. (2008) used a version of the Big Five as described by Costa and McCrae, the NEO-FFI, which is a 60-item inventory. The results suggest that individuals who are more extraverted are more likely to engage in short-term investing whereas those scoring higher in neuroticism and/or risk aversion avoid short-term investing.

Jouhikainen (2010) examines stock market participation of Finnish university students and finds that extraversion is significantly positively associated with stock market participation (when excluding first year students from the sample) when a full set of control variables used in the study are included in the regression analysis. Furthermore, when only Big Five traits are examined, Jouhikainen finds that also agreeableness, neuroticism and openness are associated with stock market participation. In contrast to the positive effect of extraversion on stock market participation, agreeableness, neuroticism and openness negatively associate with participation. Moreover, Jouhikainen (2010) documents that those respondents who score lower on agreeableness are more likely to report the reason for non-participation to be non-interest in stocks. In addition, it seems that the importance of personality traits increases with higher levels of investment vehicle sophistication. In his study, personality is measured in terms of the 44-item

Big Five personality trait indicator of John and Srivastava (1999). John and Srivastava (1999) present the five factor model of personality in five big domains as listed below:

> **E Extraversion**, energy, enthusiasm
> **A Agreeableness**, altruism, affection
> **C Conscientiousness**, control, constraint
> **N Neuroticism**, negative affectivity, nervousness
> **O Openness**, originality, open-mindedness

The hypothesized effects of extraversion relate to findings on peer effects and social activeness on stock market participation. Concerning peer effects Duflo and Saez (2002) study the influence of colleagues' choices in deciding whether to participate in a retirement plan in the US and conditional on participation, deciding on asset allocation. Their study is the first to examine the effect of peers on saving decisions. Duflo and Saez (2002) propose that people can learn about "the proper behaviour of their social group" by observing co-workers. The authors find evidence suggesting that decisions taken in the peer group have an effect on the probability of participating in a retirement plan.

Furthermore, Hong et al. (2004) investigate the relationship between social activeness and stock market participation with survey data of roughly 7,500 households from the Health and Retirement Study. The findings suggest that social households − those who attend church or interact with their neighbours − are significantly more likely to buy stocks than non-social households, controlling for wealth, race, education and risk tolerance. Furthermore, Hong et al. (2004) argue that a social investor finds the stock market more attractive when more of his peers participate. Consistent with studies about peer effects (e.g. Duflo and Saez, 2002; Brown et al., 2008), Hong et al. (2004) find that the impact of sociability is stronger in states where stock market participation rates are higher. The authors argue that fixed costs of participation are lower when more peers are participating at least because social households learn by observing others and social investors might share information about the stock market with their peers.

Guiso et al. (2008) examine the association of general trust and stock market participation and conclude that trusting individuals are significantly more likely to participate in the stock market

and, conditional on participation, invest a larger share of their wealth in stocks. These findings remain robust after the authors control for differences in risk aversion and ambiguity aversion suggesting that trust is not simply a proxy for risk aversion. Furthermore, Guiso et al. (2008) propose that the effect of trust can be decreased by a higher level of financial education. In contrast to the findings of Guiso et al. (2008), Laakso (2010) concluded the impact of trust to be insignificant on stock market participation. Laakso (2010) examined the determinants of stock market participation employing data from the cross-European Survey on Health, Ageing and Retirement (SHARE) in Europe including a total of 34,415 responses from the second wave of SHARE. Furthermore, Laakso (2010) suggests that trust might be a relevant determinant only when investors need to trust intermediaries to become a stockholder or in managing stockholdings but trusting the market itself might not be a significant driver of stock market participation.

Political orientation

Political values can be assumed to affect the stock market participation because of self-serving purposes but also for ideological beliefs. Landier et al. (2008) investigate these two non-mutually exclusive capitalism aversion theories by focusing on attitudes toward private ownership, private profit and competition. On one hand, according to the self-serving hypothesis pro-capitalism opinions are self-serving: people favour reforms that maximize their own wealth given their current status in the system in place. On the other hand, the second hypothesis states that differences in political opinions reflect genuine disagreement on the efficiency of various economic systems and according to the slow learning hypothesis individuals learn slowly about the comparative virtues of economic systems. Furthermore, the second theory predicts that individuals would not instantaneously revise their ideological views if their status in society was changed. Landier et al. (2008) conclude that the explanatory power of the slow learning hypothesis is greater than the effects generated by the self-interest hypothesis. More specifically, the study suggests that economic reform's feasibility is not only justified by its impact on the distribution of rents; ideological a priori beliefs play an important role as well. (Landier et al, 2008.)

Linking political orientation to values and personality traits, Caprara et al. (2006) argue that voters' political choices can be assumed to nowadays depend more on personal preferences and to a lesser extent on social characteristics in Western democracies. Examining data from 3044 voters for the major coalitions in the Italian national election of 2001, Caprara et al. (2006) find that center-left voters score higher than center-right voters in the traits of friendliness and openness and lower in conscientiousness. Furthermore, center-right voters are found to emphasis more values of security, power, achievement, conformity and tradition than center-left voters.

Kaustia and Torstila (2011) study the effect of right-wing political values on stock market participation and find that probability to participate in the stock market significantly increases with right-wing political values. The authors use four unique data sets from Finland. Kaustia and Torstila (2011) first combine zip code level voting data with information on individuals' direct stock holdings from the Finnish Central Securities Depository official ownership registry from 1995 to 2002. Second, the authors repeat the analysis at the individual level by utilizing individual-level information on the same issues through an exit poll conducted for the 2003 election. In addition, stock market participation of members of parliament is studied. Attitudes toward the stock market and related variables are examined by studying the results of a proprietary, nationally representative poll. The results indicate a strong negative association between left-wing political preferences and stock market participation in all four data sets. The findings are robust both at the zip code and at the individual level controlling for income, wealth, education, and other relevant factors. Furthermore, the authors conclude that the results are consistent with the value-expressive hypothesis and the value-expressive argument is supported by survey evidence on the correlation between political preferences and attitudes toward the stock market. The findings support the view that political values affect also for other than "self-serving" purposes.

4. HYPOTHESES

This chapter formulates the hypotheses of the thesis and briefly describes the main arguments for each hypothesis. Considering the traditional explanations about determinants of stock market participation, it is obvious that wealth and income can be expected to have a positive effect on retirement saving. Likewise, age can be assumed to positively associate with investing for retirement. Yet, I expect that those respondents who report to be more tolerant of risk might be less interested to engage in voluntary pension insurance and for instance might be more willing to invest directly in the stock market. Besides the effects largely described by the earlier studies that wealth and income and risk aversion have on decision to invest in stocks, this thesis concentrates on examining the impact of educational background, personality traits such as extraversion or conscientiousness and right-wing political orientation on the private retirement investing. Both those who have voluntary pension insurance and those who responded that do not have it due to "investing in another form" are considered as pension investors.

First, Christiansen et al. (2008) document an effect of education in economics in participating in the stock market. The focus of my thesis is on business and technology graduates of whom the majority has completed a master's degree. Thus, it is hypothesized that the costs of stock market participation and thus, also costs of private retirement investing are smaller for business graduates than for technology graduates because economics education makes individuals more aware of the financial products. Second, earlier research has suggested that the emphasis of self-enhancement values of power and achievement increases the likelihood of stock market participation (Luotonen, 2009) and that business students emphasize self-enhancement values more than technology students (Verkasalo, 1996).

More specifically, the reasons for arguing that business students are expected to be more active retirement investors are at least two fold and the scope of this thesis is not to examine the magnitude of the effects of these separately. Thus, if the hypothesis holds and business graduates are investing for retirement more often than technology graduates, it cannot be indicated whether it is due to the hypothesized effect of business education or rather due to the hypothesized effect of the self-enhancement values of power and achievement that business graduates might be emphasizing more than technology graduates.

H1: Business graduates are more likely to save for retirement than technology graduates.

Next, hypotheses for the four Big Five personality dimensions will be formulated. For agreeableness, there is no hypothesis formed even though its possible effect will be tested later in the regression analysis. First, extraversion and social activeness have been shown to significantly increase stock market participation rate of households by various studies. Extraversion is hypothesized to positively affect stock market participation because socially active households have been found to be significantly more likely to buy stocks (e.g. Hong et al., 2004) and socially active households can be expected to be more prone to experience "peer effects". Furthermore, Hong et al. (2004) find in their study that first, the effect of sociability measured by whether household is attending church or interacting with neighbours is significantly positively related to stock market participation across the entire sample of 7,500 households and second, the marginal effect of being socially active is substantially stronger for the group of white, educated households with above-average wealth. This implies that it is reasonable to assume that extraversion should have a significant positive effect on private retirement investing because the sample selection is concentrated on educated individuals with quite high average salary and wealth.

H2: Extraversion is positively related to investing for retirement.

Considering the results of Mayfield et al. (2008), it seems that neuroticism is negatively associated with investing. The authors conclude that those who score higher on neuroticism do not intend to engage in short-term investing but no association between neuroticism and long-term investment intentions was found. Yet, I anticipate that neuroticism relates negatively to investing even when considering investing in pension insurance or PS account which is long-term in nature though it might be that the effect of neuroticism could be lower when considering saving for retirement in form of pension insurance or PS account than saving for retirement in form of directly investing in stocks for instance.

H3: Neuroticism is negatively associated with investing for retirement.

Considering that the emphasis of value of achievement has been found to positively associate with investing in the stock market (Luotonen, 2009) and with conscientiousness (Roccas et al., 2002) it seems reasonable to assume that saving for retirement increases with the level of conscientiousness. Roccas et al. (2002) document that achievement values correlate with competence, achievement striving and self-discipline which all can be intuitively expected to

positively affect retirement saving behaviour. Thus, I anticipate that respondents who score higher on conscientiousness are more likely to set financial goals for themselves such as a goal of being able to maintain the current consumption level during retirement and in addition strive for achieving these goals.

H4: Conscientiousness is positively related to investing for retirement.

Those who score higher on openness in general tend to be intellectual, imaginative, sensitive and more open to new ideas and experiences. Luotonen (2009) found suggestive evidence those individuals who emphasize Conservation values of tradition, conformity and security are more likely to report non-interest in stocks and equity funds as the reason for not investing in the stock market. Thus, intuitively, it seems plausible to think that individuals who score higher on openness would be more likely to invest for retirement as they should be more open to new ideas and experiences and in general score lower on Conservation values (Roccas et al., 2002). Yet, openness has been also found to associate with left-wing political values (Caprara et al., 2006) and with investment specific risk aversion (Mayfield et al., 2008). As a consequence of the controversial findings of previous research on the impact of openness, the sixth hypothesis will be stated as:

H6: Openness is positively/negatively associated with investing for retirement.

Moreover, recent studies (see e.g. Kaustia and Torstila, 2011) have documented that right-wing political values are associated with stock market participation. Considering that, in general, political orientation reflects the values of the voter (e.g. Caprara et al., 2006), and right-wing political values have been found to associate with self-enhancement values of power and achievement it can be hypothesized that right-wing oriented respondents are more likely to invest for retirement.

H7: Right-wing political orientation is positively associated with investing for retirement.

5. DATA AND METHODOLOGY

5.1. The survey data

The survey is targeted to members of The Finnish Association of Business School Graduates (SEFE) and The Finnish Association of Graduate Engineers (TEK) who are currently working. The minimum requirement for SEFE's graduate membership is the degree of Bachelor of Science in economics and business administration in one of the twelve Schools of Economics and Business Administration or comparable university faculties in Finland. If graduated abroad, a Master-level examination is in general required. SEFE has about 47,000 individual members of which 32,000 are graduate members. Approximately half of the members, 49 percent are men. In 2009, the average salary of SEFE's graduate members was 4,500 Euros per month (before taxes).[5]

The requirement for TEK's graduate membership is a Finnish university degree in engineering or architecture or a similar degree in mathematics or science. TEK has approximately 73,500 members of which about 50,000 are Masters of Science in Technology or other professionals working in the field of technology. The majority, 81 percent of TEK's members are men. The average age is 42 years and the average salary 4,550 Euros per month (before taxes). 90 percent of TEK's graduate members have university degree in engineering.[6]

TEK sends their annual e-newsletter by email to the members who have registered an email address. Approximately 44,000 members were sent the newsletter in 19th of January of which about 377 responded to the survey. Furthermore, SEFE's e-newsletter was sent in 2nd of February to approximately 29,000 members of which about 259 responded by 9th of February. Thus, I altogether 636 responses to the questionnaire was gathered. Yet, it has to be noted that altogether nine respondents have both education in business and technology and it is not known whether these respondents are members of TEK or SEFE (or both) and, respectively, it could be that some of the responses now estimated to be from SEFE's members are actually from members of TEK. 22 respondents report to have neither business education nor technology

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[5] See http://www.sefe.fi/files/attachments/www.sefe.fi/sefe-info/sefen_yleiskalvot_2010_suomi.pdf for details.
[6] See http://www.tek.fi/index.php?id=63 for details.

education but have replied to have other education and it is thus assumed that those respondents are members of TEK.

Furthermore, it could be the case that not all who report having education in business have a university level education in business. Yet, all respondent can be expected to have university level education in either business or technology (or other). Because of the hypothesis of the study, respondents are grouped so that those reporting an education in business belong to one group regardless of whether they report also another degree or education in technology. In addition, considering that only nine respondents have reported both educations, this problem is not by any means crucial for the study.

Furthermore, the exact amounts of members receiving the newsletter and the survey link is not known and it should be noted that some of those who have registered their e-mail address in order to receive newsletters might not have the email address currently in use, or there might be some addresses incorrectly written or no longer in use and therefore it can be expected that not all members initially sent the newsletter will receive and read it. Moreover, the survey was sent only in Finnish and SEFE's Swedish speaking members received it with a mention that the survey is in Finnish language.

5.2. Description of the data

Figure 2 presents the age distribution of the respondents first so that the respondents have been grouped according to the field of education and, second so that the grouping is based on the retirement saving status. At this point, it should be noted that the respondents who have reported business education are on average older than those with education in technology or other degree. This can be at least partly explained by the fact that the e-newsletter was sent to only SEFE's graduate members but to all TEK's members and thus, part of the respondents who are members of TEK, might not be full-time working yet, or might not have graduated yet. On the other hand, the percentage of respondents under 30 years is quite the same for both groups of respondents. When comparing the respondents above 29 years, it can be seen that from 30 to 49 years, the percentage of the respondents having technology or other education are greater than those having business education. In contrast, when comparing ages of the respondents from 50 to 60 and

above, it is clear that a greater amount of respondents belong to the group of 50-59 and 60 and above who are business graduates. The age distribution is presented as it is important to keep in mind when analysing the differences in retirement investing of respondents with business education and those with technology or other education.

Figure 2. Age distribution of the respondents
The figure presents the age distribution of the respondents who answered to the questionnaire. Total number of the respondents is 636 of which 259 reports to have an education in business and 377 in technology or other field respectively. Nine respondents report to have an education both in business and technology whereas 22 respondents report to have neither business nor technology education but some other education. The upper figure presents the age distribution of the respondents grouped by education and the lower figure documents the age distribution grouped by pension investment status. The groups "Pension insurance or PS account" and "Otherwise saving for retirement" present the proportion of respondents in each age group having pension products or not having them primary due to otherwise saving for retirement. The group "Non-investors" presents the proportion of the respondents in each age group who have indicated some other primary reason for not having pension products than otherwise saving for retirement.
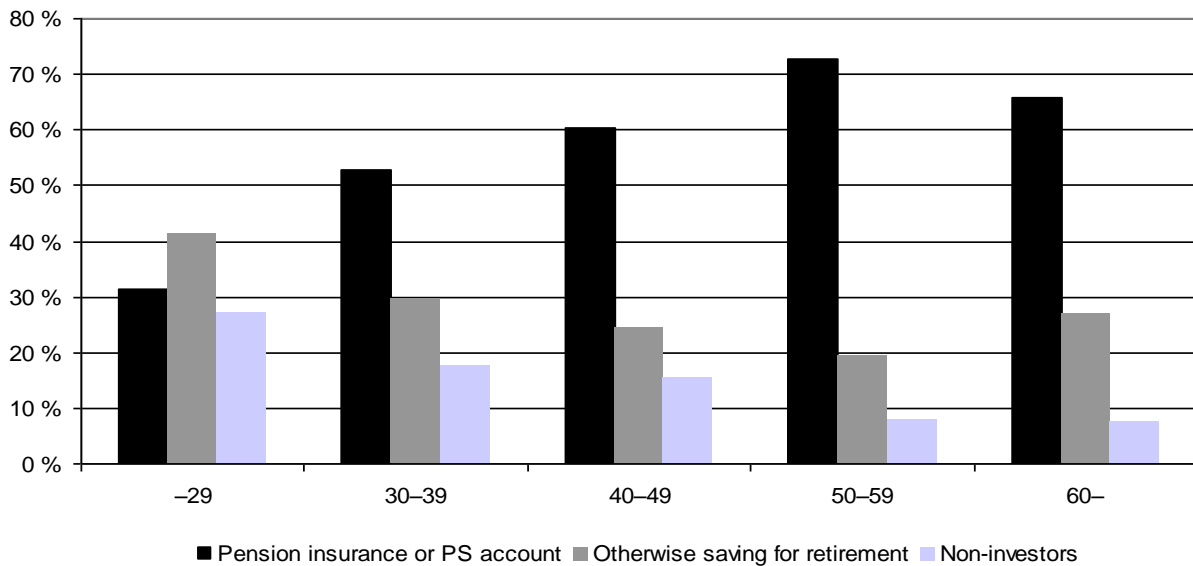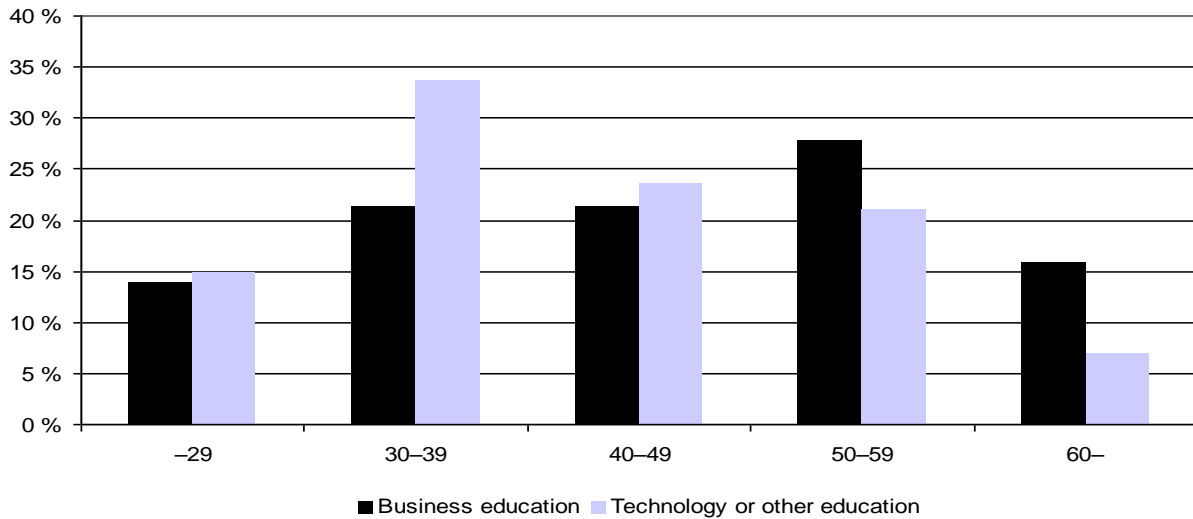
Table 1. Descriptive statistics 1 – Quantitative data

This table summarizes quantitative descriptive statistics of the respondents. In the upper part of the table, the respondents are grouped according to their education. Those respondents who have reported education in business belong to the group of business and those reporting only education in technology or other field of study belong to the group of technology or other. In the lower part, the grouping is based on whether the individual has pension insurance or PS agreement, is otherwise saving for retirement or does not save. In the group pension insurance, the respondents have voluntary pension insurance or PS account. The group of non-investors stands for those who do not have voluntary pension insurance or PS agreement and state other than otherwise saving for retirement as the main reason for not having pension products. Age is reported in years. Risk tolerance, right-wing political orientation and net income are reported using the scales shown. Net income includes both earned income and capital income. Net wealth is calculated as the difference between total assets and liabilities, as reported by the respondents. Money saved monthly after compulsory expenses is reported as an estimation by the accuracy of approximately 100 €. *, ** and *** represent that the mean for the subsample is statistically significantly different from the mean for the total sample on the 5%, 1% and 0.1% levels, respectively.

	N	Age (years)	Risk tolerance (1-5)	Right-wing orientation (1-10)	Net income (€/ month)	Net wealth (€)	Money saved after expenses (€/ month)
Education:							
Business	259						
Average		45.27**	2.93	7.34*	3,561	216,602	777
Median		46.00	3.00	8.00	3,500	200,000	500
Standard deviation		12.13	0.85	1.78	1,234	180,424	755
Technology or other	377						
Average		41.47*	2.95	6.86	3,500	179,841	632
Median		40.00	3.00	7.00	3,500	100,000	500
Standard deviation		11.05	0.83	1.89	1,132	174,481	586
Pension investors and non-investors:							
Pension insurance/ PS agreement	366						
Average		45.44**	2.93	7.07	3,598	217,213	678
Median		46.00	3.00	8.00	3,500	200,000	500
Standard deviation		11.12	0.82	1.82	1,154	179,966	662
Otherwise saving for retirement	174						
Average		40.79*	3.10*	7.19	3,591	194,253	755
Median		38.00	3.00	8.00	3,500	200,000	500
Standard deviation		11.84	0.79	1.85	1,179	173,942	644
Non-investors	96						
Average		37.83***	2.71*	6.74	3,125**	110,417***	629
Median		33.00	3.00	7.00	2,500	100,000	500
Standard deviation		10.84	0.93	2.03	1,172	149,722	689
Total sample	636						
Average		43.02	2.94	7.05	3,525	194,811	690
Median		42.00	3.00	8.00	3,500	200,000	500
Standard deviation		11.64	0.84	1.86	1,174	177,706	662

Table 1 presents the information from the survey for the questions asked mainly in set ranges for values. Ranges were used instead of exact values being asked in order to make the survey quicker and more convenient for the respondents to answer. In the survey, age was asked in a scale from 1 to 40 where one stands for the respondent being less than 26 years old and the last 40th option is that the respondent is older than 63 years. In the table, age is reported in years and those under 26 years old have been estimated to be 25 years old and the oldest group is estimated to be 64 years old. In the upper part of the table, the grouping is based on the educational background of the respondent. For the purposes of this study, all respondents who have education in business and administration belong to the group of education in business because of the hypothesis presented in chapter 4 stating that those having education in business are expected to be more probable to invest for retirement either in form of voluntary pension insurance or otherwise saving.

In the lower part of the table, the grouping is made based on whether the respondent has voluntary pension insurance or PS account ("Pension insurance/ PS agreement"), states the primary reason for not having pension products to be other form of saving for retirement ("Otherwise saving for retirement") and finally, all non-investors ("Non-investors") are presented in one group. Those who belong to the group of non-investors have responded that the reason mainly describing why they do not have voluntary pension insurance is either because they do not consider saving for retirement current for them, they are not familiar with the product and its advantages or possibilities that it is offering, they know at least one of the products (voluntary pension insurance or PS agreement) and would be willing to invest but have not had the money for investing or finally, that they do not want to engage in the product because they consider that it is too risky considering the possible future reforms in the laws concerning the Finnish Pension System.

Some respondents have commented on the open feedback question that the primary reason that they are not willing to engage in voluntary pension insurance is that the related expenses of banks are so high. Yet, I anticipate that similarly to findings on limited stock market participation puzzle, there are various other significant factors besides the monetary transaction costs and therefore, it is not that plausible to think that the only reason for not investing for retirement would be the related monetary expenses. I expect that for those who do not have voluntary pension insurance or PS agreement and who argue that the expenses are the most important

reason for that, it could be assumed that they save or invest for retirement in another form. Finally, the figures for the total sample are reported at the bottom of the table.

Respondents with an education in business are older compared to the group of respondents with education in technology (or other) both when looking at the average or median ages. Compared to the total sample mean, respondents with business education are significantly older on average. Not surprisingly therefore, business graduates score higher also on scale reporting net wealth. Net wealth has been calculated as the difference in reported scale values from one to six of respondent's estimation of his total financial plus real wealth and scale values from one to six of all debt. These differences in demographics can be largely explained by the age distribution of the respondents depicted earlier in Figure 2 where it can be seen that approximately every third of respondents with technology or other education belong to the age group of 30 to 39 whereas approximately every fifth of respondents with business education reported their age from 30 to 39. In addition, the proportion of respondents being 60 years or older is about ten percentage greater for respondents with business education than for those who have education in technology or other field.

Furthermore, consistent with findings of earlier studies business graduates score higher on right-wing political orientation compared to respondents with technology or other education. There is no remarkable differences between risk tolerance of respondents with business and respondents with technology (or other) education. On average, both groups of respondents score close to the risk tolerance level of three which stands for the respondent being willing to take average financial risks expecting for average financial returns.

When looking at the lower part of the table depicting grouping based on whether the respondent has voluntary pension insurance or PS account, does not have pension products mainly due to otherwise saving for retirement or states some other primary reason for not having pension products, it can be seen that those respondents who have pension insurance or PS agreement are on average (and on median) significantly older than the average age for the total sample. Respectively, those grouped as "non-investors" are significantly younger on average than the average age of respondent in the total sample. Concerning risk tolerance, respondents who save otherwise for retirement score significantly higher on risk tolerance compared to the mean for the

total sample. Surprisingly, there are no significant differences between right-wing political orientations of the three groups. Interestingly, though non-investors score significantly lower on income and net wealth, there is no significant difference in the estimated average sum of money (by the accuracy of approximately 100 Euros per month) saved each month after compulsory expenses such as housing or food between the groups. To conclude, differences between those having pension insurance or PS agreement and those reporting to be otherwise saving for retirement are fewer than between those reporting some other primary reason for not having pension insurance or PS account.

Table 2 on the next page presents the personality scores for each of the ten traits separately. Each trait is asked in a scale from one to six where one means that the personality trait does not describe the respondent at all and six means that the personality trait describes the respondent very well. The grouping in the table is similar to the one used in Table 1. Respondents with business education score higher on the statements "I am hardworking" and "I am thorough" which both are later combined to measure conscientiousness. Furthermore, business graduates score higher on "I am social and outgoing" and lower on "I am reserved" which both measure extraversion later in the study. Respondents with technology (or other) education score lower on "I get nervous easily" but also lower on "I handle stress well". Yet, the differences are small and the only traits where the respondents have significantly different personality trait scores are the statements "I am hardworking" and "I am social and outgoing".

Furthermore, when looking at the lower part of the table it can be noticed that personality trait average scores are quite similar for those having pension insurance or PS agreement and those who responded the primary reason for not having to be other form of retirement saving. Those respondents stating some other primary reason for not having pension insurance or PS account than other form of saving score higher on "I am reserved", "I easily find fault with others", "I get nervous easily" and "I am creative and innovative". The group of non-investors also scores on average lower on "I am hardworking", "I handle stress well" and "I am social and outgoing". Yet, the only trait where the personality trait score is significantly different on average compared to the total sample mean is the statement "I am reserved" for which non-investors score significantly lower than the average respondent in the total sample.

Table 2. Descriptive statistics 2 – Personality trait scores

This table summarizes personality trait score statistics for the respondents. In the upper part of the table, the respondents are grouped according to their education. Those respondents who have reported education in economics belong to the group of business and those reporting only education in technology or other field of study belong to the group of technology or other. In the lower part, the grouping is based on whether the individual has pension insurance or PS agreement, is otherwise saving for retirement or does not save. In the group pension insurance/PS agreement, the respondents have voluntary pension insurance or PS account. The group of non-investors stands for those who do not have voluntary pension insurance or PS agreement and state other than otherwise saving for retirement as the main reason for not having pension products. *, ** and *** represent that the mean for the subsample is statistically significantly different from the mean for the total sample on the 5%, 1% and 0.1% levels, respectively.

	N	Generally trusting (1-6)	Hardworking (1-6)	Stress tolerant (1-6)	Reserved (1-6)	Imaginative (1-6)	Social (1-6)	Finds fault with others (1-6)	Thorough (1-6)	Nerveous (1-6)	Creative and innovative (1-6)
Education:											
Business	259										
Average		4.22	**4.93***	4.45	3.52	4.00	**4.26**	3.27	5.02	3.18	3.75
Median		4.00	5.00	5.00	4.00	4.00	4.00	3.00	5.00	3.00	4.00
Standard deviation		1.01	0.84	0.96	1.20	1.26	1.12	0.98	0.85	1.21	1.21
Technology or other	377										
Average		4.23	**4.55**	4.24	3.65	3.97	**3.81***	3.36	4.84	3.05	3.81
Median		4.00	5.00	4.00	4.00	4.00	4.00	3.00	5.00	3.00	4.00
Standard deviation		1.04	0.92	1.00	1.21	1.17	1.20	1.11	0.83	1.11	1.08
Pension investors and non-investors:											
Pension insurance/ PS agreement	366										
Average		4.23	4.73	4.34	3.55	3.96	4.04	3.32	4.90	3.07	3.78
Median		4.00	5.00	4.00	4.00	4.00	4.00	3.00	5.00	3.00	4.00
Standard deviation		0.99	0.89	0.96	1.16	1.23	1.18	1.04	0.84	1.12	1.12
Otherwise saving for retirement	174										
Average		4.21	4.70	4.39	3.53	3.98	3.98	3.25	4.96	3.12	3.72
Median		4.00	5.00	5.00	3.50	4.00	4.00	3.00	5.00	3.00	4.00
Standard deviation		1.14	0.90	1.02	1.28	1.17	1.18	1.04	0.84	1.24	1.18
Non-investors	96										
Average		4.24	4.59	4.16	**3.86***	4.05	3.88	3.46	4.90	3.18	3.95
Median		4.00	5.00	4.00	4.00	4.00	4.00	4.00	5.00	3.00	4.00
Standard deviation		0.98	0.99	1.03	1.19	1.16	1.25	1.15	0.81	1.12	1.11
Total sample	636										
Average		4.23	4.70	4.33	3.59	3.98	4.00	3.32	4.91	3.10	3.79
Median		4.00	5.00	4.00	4.00	4.00	4.00	3.00	5.00	3.00	4.00
Standard deviation		1.03	0.91	0.99	1.21	1.20	1.19	1.06	0.84	1.15	1.13

Table 3 documents the descriptive statistics for qualitative questions. The respondents are horizontally grouped in to different categories. First, grouping on the left is based on the respondent's education. As already mentioned, all respondents who have reported education in business belong to one group and those who report only education in technology or other field of science belong to the group of "technology or other". Therefore, the respondents who are grouped to education in technology or other do not have economics education but about six percent of the respondents in the group of education in business have also a degree in technology or in another field of science. Furthermore, the table shows that 70 percent of the respondents in the group of technology or other education are men whereas only about 40 percent of the respondents in the group of business education are men. Yet, keeping in mind that about 80 percent of TEK's members are men and about half of SEFE's members are men, men are slightly underrepresented in my sample.

Concerning pension investing, roughly three out of five respondents with business education have pension insurance or PS account whereas roughly half of respondents with technology or other education have pension insurance or PS account. Furthermore, a greater proportion of respondents with business education report to have wealth in stocks than respondents with technology or other education. Yet, slightly greater proportion of respondents with technology or other education report to have wealth in equity fund compared to business graduates. Higher proportion of respondents with business education are saving for retirement either in form of pension insurance or PS account compared to respondents with technology or other education. Similarly, of those not having pension insurance or PS account, business graduates report more often other form of saving for retirement as the primary reason for not having pension insurance or PS account.

Horizontally on the right, respondents who do not have pension insurance or PS account and state some other primary reason for it than other form of saving for retirement are grouped as "Non-investors". Final group horizontally on the right documents the descriptive statistics for the total sample of 636 responses. Particularly interesting is to notice the percentage amounts of respondents who report to have wealth in stocks or equity fund and belong to the different groups. First, it can be noticed that the highest percentage of respondents having wealth in stocks are those who belong to the group of "Otherwise saving for retirement". Approximately half of

the respondents (53 percent) who have pension insurance or PS account report to have wealth in stocks. Though it could be that some of the respondents have reported to have wealth in stocks and it is invested through pension insurance or PS agreement, this finding suggests that having pension insurance or PS account or investing in stocks or equity fund otherwise may not be considered as direct substitutes that should "crowd out" the other form of investing. In fact, a recent study examining the determinants of saving for retirement in eight European countries with a sample of 6,036 responses concluded that "saving habit" has a positive impact on saving for retirement (Fernandez-Lopez et al., 2010). In other words, those who are saving in general are also more likely to save for retirement.

Respondents who report otherwise saving for retirement to be the primary reason for not having pension insurance or PS account have most often wealth in stocks. Yet, slightly higher proportion of respondents who have pension insurance or PS account report more often to have wealth in equity fund. This seems natural as it could be the case that many invest in equity fund through pension insurance or PS account. N/a means that the question has not been covered by the survey. It is not covered by the survey whether those having pension insurance or PS account are also saving for retirement in other form such as directly investing in stocks. Furthermore, it is important to keep in mind while looking at the qualitative statistics based on the investing for retirement status of the respondent that the survey does not cover the amount of wealth that the respondents have invested in pension insurance, PS account or for instance in stocks.

Table 3. Descriptive statistics 3 – Qualitative data

This table documents the answers to the survey questions which are qualitative by nature. The respondents are horizontally grouped into different categories. On the left, the grouping is first made according to the field of study. All respondents who have reported business education are grouped in the "Business" subsample even though couple had studied also technology or other field of study. Next, respondents are grouped as pension investors in the subgroup of "pension insurance or PS account" if they report to have pension either or in the subsample of "Otherwise saving for retirement" if the primary reason chosen for not having pension products is other form of saving for retirement. All others are grouped as "Non-investors". Finally, on the right, figures for the total sample of 636 are presented (total sample is 630 for big city as six respondents did not report their postal code). "Big city" means that the respondent is currently living in one of the five largest cities in Finland (Helsinki, Espoo, Tampere, Vantaa or Turku). Stocks, equity fund, other fund, term deposit and investment property are based on the question of whether the respondent currently has wealth in the formers (it is not known whether the respondent has himself invested the money in the assets). N/a means that the survey has not covered the question.

	Education:		Pension investors:		Non-investors:	Total sample:
	Business	Technology or other	Pension insurance or PS account	Otherwise saving for retirement		
Male	40.5 %	71.6 %	57.5 %	63.8 %	53.1 %	59.0 %
Big city	62.5 %	61.5 %	56.2 %	73.0 %	63.2 %	61.9 %
Business	100 %	0 %	43.2 %	42.5 %	28.1 %	40.7 %
Technology or other	6.2%	100 %	56.8 %	59.8 %	71.9 %	59.3 %
Pension insurance or PS account	61.0 %	55.2 %	100 %	0 %	0 %	57.5 %
Otherwise saving for retirement	28.6 %	26.5 %	n/a	100 %	n/a	27.4 %
Stocks	57.0 %	53.0 %	53.0 %	66.1 %	38.5 %	54.4 %
Equity fund	49.4 %	52.0 %	56.0 %	53.0 %	28.1 %	50.9 %
Other fund	40.2 %	41.6 %	50.8 %	32.2 %	19.8 %	41.0 %
Term deposit	40.5 %	34.5 %	36.1 %	42.5 %	30.2 %	37.1 %
Investment property	25.1 %	15.6 %	21.9 %	21.8 %	6.3 %	19.5 %

Table 4 on the next page shows the correlation coefficients for some of the most important control variables. First, looking at age expressed in scale from 1 to 40 (under 26 to older than 63), it can be noticed that age significantly correlates with most of the other control variables. First, age positively significantly correlates with having pension insurance or PS account. This is not surprising considering for instance the life-cycle theory of savings. Yet, age is negatively correlated with not having pension products mainly due to otherwise saving for retirement. This might indicate that younger respondents are more likely to choose other form of saving for retirement than pension insurance or PS agreement. Moreover, age is significantly negatively correlated with the age at which the respondent expects to retire and positively correlated with pension income objective. These correlations are consistent with the ongoing public debate about the pressures of changing the effective retirement age and about the relatively lower earnings-related pensions in the future.

Moreover, looking at expected age of retirement, it seems that those expecting to retire younger have more often invested in pension insurance or PS account. Yet, this of course can be expected to be at least partly driven by the relationship of age and expected age of retirement. Surprisingly though, expected age of retirement does not significantly correlate with the objective for pension income. Furthermore, pension income objective positively significantly correlates with right-wing political orientation, income and assets. Considering earlier literature on the relationship between political orientation and investing in the stock market, it is surprising that there are no significant correlations between having pension insurance or PS account or otherwise saving for retirement and right-wing political orientation.

Table 4. Correlation matrix

This matrix presents the correlations between some of the most important control variables used later in the regressions. "Pension insurance or PS account" expresses whether the respondent has wealth in either of the pension products. "Otherwise saving" refers to the respondents who do not have wealth in pension products mainly due to otherwise saving for retirement. Expected age of retirement is expressed in scale from 1 to 11 where the first option describes the respondent expecting to retire at 60 years old or younger and the last 11th option stands for expecting to retire older than 70. Furthermore, pension income objective, risk tolerance, right-wing orientation, income, assets and debt are examined using the scales shown. *, **, *** mean that the correlation coefficient is statistically significant on the 5%, 1% and 0.1% levels, respectively.

N= 636	Pension insurance or PS account (dummy)	Otherwise saving (dummy)	Age (1-40)	Expected age of retirement (1-11)	Pension income objective (1-6)	Risk tolerance (1-5)	Right-wing orientation (1-10)	Income (1-6)	Assets (1-6)	Debt (1-6)
Pension insurance or PS account (dummy)	1									
Otherwise saving (dummy)	-	1								
Age 1-40	0.242***	-0.118**	1							
Expected age of retirement (1-11)	-0.171***	0.016	-0.262***	1						
Pension income objective (1-6)	0.068	-0.004	0.126***	0.002	1					
Risk tolerance (1-5)	-0.018	0.114**	-0.122**	-0.039	0.158***	1				
Right-wing orientation (1-10)	0.010	0.045	0.023	-0.013	0.166***	0.203***	1			
Income (1-6)	0.073	0.035	0.346***	-0.176***	0.509***	0.070	0.096*	1		
Assets (1-6)	0.140***	0.013	0.569***	-0.246***	0.332***	0.151***	0.197***	0.538***	1	
Debt (1-6)	-0.023	0.042	-0.101*	0.011	0.032	0.120**	0.086*	0.070	0.156***	1

Table 5 documents the correlations between the Big Five personality dimensions and control variables. First, extraversion significantly positively correlates with objective for pension income and right-wing political orientation. Yet, extraversion does not correlate significantly with having pension insurance, PS account or not having either mainly due to otherwise saving for retirement. Furthermore, score for agreeableness does not significantly correlate with either of the control variables. Conscientiousness is significantly positively correlated with right-wing political orientation and assets. Looking at correlations between neuroticism and other variables it can be noticed that neuroticism is the personality dimension which correlates significantly and negatively with most of the control variables. First, objective for pension income seems to be less for those who are more neurotic, and experience feelings such as anxiety. Neuroticism is also negatively correlated with both assets and debt suggesting that those respondents who are more neurotic have gathered less wealth, have lower income and less debt than less neurotic respondents. Finally, openness is only significantly correlated with the age at which the respondent expects to retire.

Table 5. Correlations of the Big Five personality dimensions with pension investing and control variables
This table presents the correlation coefficients between the Big Five personality dimension scores and control variables. The scores for the Big Five personality dimensions have been calculated from the 10-item abbreviation of the Big Five questionnaire. "Pension insurance/ PS account" expresses whether the respondent has wealth in either of the pension products. "Otherwise saving" refers to the respondents who do not have wealth in pension products mainly due to otherwise saving for retirement. Expected age of retirement is expressed in scale from 1 to 11 where the first option describes the respondent expecting to retire at 60 years old or younger and the last 11th option stands for expecting to retire older than 70. Furthermore, correlations between the personality dimensions and pension income objective, risk tolerance, right-wing orientation, income, assets and debt are examined using the scales shown. *, **, *** mean that the correlation coefficient is statistically significant on the 5%, 1% and 0.1% levels, respectively.

N=636	Extraversion (1-6)	Agreeableness (1-6)	Conscientiousness (1-6)	Neuroticism (1-6)	Openness (1-6)
Pension insurance/ PS account (dummy)	0.048	0.005	0.012	-0.029	-0.014
Otherwise saving (dummy)	0.013	0.021	0.016	-0.016	-0.022
Age	-0.008	-0.008	0.022	-0.037	0.045
Expected age of retirement (1-11)	-0.042	0.052	-0.049	-0.020	**0.093***
Pension income objective (1-6)	**0.130*****	-0.009	-0.009	**-0.223*****	0.075
Risk tolerance (1-5)	0.032	0.017	-0.072	**-0.106****	0.073
Right-wing orientation (1-10)	**0.114****	-0.027	**0.117****	**-0.101***	-0.007
Income (1-6)	0.069	0.011	0.049	**-0.203*****	0.037
Assets (1-6)	0.037	-0.072	**0.085***	**-0.111****	0.064
Debt (1-6)	-0.008	0.011	0.052	**-0.080***	0.048

5.3. Non-response

Typically, the response rate is very low in e-mail and internet surveys compared to those sent to the target group for instance by mail. Furthermore, the response rate can be expected to be lower in this case because the survey link was sent in SEFE's and TEK's e-newsletters compared to being the only topic of the e-mail. Yet, e-mail survey was chosen because of its advantages in saving time and money compared to mail surveys. Furthermore, due to the large amount of members both associations have, I received altogether 636 responses. Thus, I estimate the overall response rate to be close to one percent. The low response rate should be noted of course when considering the reliability and applicability of the results as the probability of biases in responses might be greater with a lower response rate. Fortunately, there is a very low item non-response-rate among those who responded because most of the questions were made compulsory to answer in the survey. Furthermore, when comparing the descriptive statistics of the sample to the average statistics of SEFE's and TEK's members reported by the associations, the sample seems to be quite representative of the members.

In order to get more responses and in attempt to diminish the selection bias there was a possibility to participate in lottery of movie tickets. Yet, like any other survey, this survey may suffer from response bias and sample composition bias. More specifically, the group of people who are not investing specifically for retirement or are not interested in investing and saving might be less willing to answer to the survey. This assumption seems reasonable as only about 15 percent of the respondents do not have pension insurance or PS agreement or state that the primary reason for not having either one is other form of saving for retirement. Whereas it can be expected that at least some part of the respondents might be filling out the survey as it was mentioned that it will be used for a master's thesis, it can be also assumed that the response rate is lower than it otherwise could be because of no personalized contact and no pre- or post reminders were sent.

5.4. Econometric specifications

Regression analysis

The majority of the results are obtained by applying binary choice probit regressions. There are also several other binary choice models such as logit and tobit but fortunately, probit, logit and tobit models yield relatively similar results. Following similar studies (see e.g. Luotonen, 2009 or Laakso, 2010), probit regressions are chosen as the primary statistical method used in the study. The dependent variable in each binary choice probit regression is a dummy variable taking the value of one in case the event occurs and otherwise the value of zero.

When confronted with the decision to save for retirement, individuals weigh the utility gained from saving for retirement to the costs of saving for retirement. Costs of engaging in pension insurance, PS account or otherwise saving for retirement can be either monetary or psychological by nature. Utility function can be modelled with a function of respondent's characteristics and the disturbance term as follows:

$$Y_i{}^* = X_i\beta + u_i$$

In the function, i stands for the individual and X_i for the variables affecting the utility gain from saving for retirement. In other words, X_i stands for the observable characteristics that might drive the decision to save for retirement. Unobservable or random factors affecting the decision to save for retirement are described by the disturbance term u_i. Individual saves for retirement if the utility gain exceeds the costs of saving for retirement, thus, if $Y_i{}^* \geq 0$. Maximum likelihood analysis is used in order to obtain estimates of the parameters.

Heckman self-selection model

In order to examine self-selection of respondents in the group of those not having pension products primary due to otherwise saving for retirement, the Heckman two-step model is applied. Heckman's model has been frequently applied especially in microeconomics when estimating wage equations or consumer expenditures. The model attempts to correct for sample selection bias which might occur if participation in the regression category depends on factors other than those in the regression model. The sample selection bias can be viewed as a form of omitted variable bias when nonrandomly selected samples are used to estimate behavioural relationships (Heckman, 1979). Heckman states that in the analysis of sample selection bias it is sometimes possible to estimate the variables which when omitted from a regression analysis give rise to the specification error. The model consists of two stages where the first stage, whether or not the person is saving for retirement in general is expected to depend on the net benefit of saving for retirement, B^*, an unobservable variable that depends on a set of $m - 1$ variables Q_j and a random term ε:

$$B_i{}^* = \delta_1 + \sum_{j=2}^{m} \delta_j Q_{ji} + \varepsilon_i$$

where B_i is the net benefit of saving for retirement assumed in my model to be a binary variable getting value of one if the person saves for retirement, and zero otherwise. In the function, i stands for the individual, δ for the coefficients to be estimated and ε_i for the disturbance term.

The second stage of the Heckman procedure can be written as:

$$Y_i{}^* = \beta_1 + \sum_{j=2}^{k} \beta_j X_{ji} + u_i$$

$$Y_i = Y_i{}^* \qquad \text{for } B_i{}^* > 0$$

$$Y_i \text{ is not observed for } B_i{}^* \leq 0$$

In the second stage function, i stands for the individual and X_i for the variables affecting the utility gained from otherwise (other form than pension products) saving for retirement. $Y_i{}^*$ can be only estimated when the person is saving for retirement in general thus when $B_i{}^* > 0$, hence the *. β_i stands for the coefficients to be estimated and u_i for the error term.

Under the assumption that the error terms ε_i and u_i are jointly normal, the function that describes the conditional expectation of saving for retirement in other form than pension products given that the person is saving for retirement in general (the net benefit is $B_i = 1$) can be formulated as:

$$E(Y_i \,|B_i = 1) = \ \beta_1 + \sum_{j=2}^{k} \beta_j \, X_{ji} + \frac{\sigma_{u\varepsilon}}{\sigma_u} \lambda_i$$

In the function, i stands for the individual, $\sigma_{u\varepsilon}$ is the population covariance of u and ε and σ_u is the standard deviation of ε. β_i stands for the coefficients to be estimated and λ is the inverse Mill's ratio or Mill's lambda (Heckman, 1979). λ_i can be regarded as the omitted variable. Since the components of λ depend only on the selection process, λ can be estimated from the results of probit analysis of selection. (see e.g. Dougherty, 2002.)

5.5. Survey variables

This chapter presents the variables used in the econometric specifications and how each variable has been asked in the survey. Descriptions of the measures used in the regression analysis are summarized in table 6.

Wealth and income

In order to get more responses to the survey and make it quicker and more convenient to answer, income, wealth and debt were all asked using ranges in stead of asking for precise estimates. First, the respondent was asked to choose a correct range of six ranges for income after taxes and a range for total wealth including both financial wealth and real wealth. Net income includes both earned income and capital income. Financial wealth includes the estimate of total amount of financial assets that the respondent possesses whereas real wealth includes illiquid assets such as real estate. The question included a brief determination of the concept of gross wealth to make sure that the respondent would more likely take into account both financial and real wealth. Furthermore, total debt was asked in similar six ranges. The scale for net wealth was calculated as the difference between each respondent's estimates of total (financial and real) wealth and total debt. Thus the scale for net wealth is from zero to five.

Education

The respondent was asked to mark whether he had an education in economics, technology and / or other degrees. The majority of the respondents have a university degree in either economics or technology. Considering SEFE's members, there should not be responses where the respondent does not have a university level degree because the survey link was sent to only graduate members of SEFE. In contrast, TEK's newsletter was sent to all members both students and graduates as the same newsletter goes for all members. Yet, it was mentioned that the survey is targeted to working members and only few respondents have low income so that it could be assumed that they are only part-time working at the moment. Furthermore when looking at the age distribution of the respondents (see Figure 2 in page 22) it can be seen that there is not that much difference in the percentages of TEK's and SEFE's members who are under 30 years old indicating that this should not be a significant problem when comparing the responses from members with business and technology education.

Table 6. Summary of measures of variables used in the statistical analysis
This table summarizes measures of variables and the anticipated effect of each variable on retirement saving.

Variable name	Measure	Anticipated effect
Net wealth	Real and financial assets minus liabilities. Measured by the difference in scales for total assets (1-6) and total liabilities (1-6) as reported by the respondent.	+
Expected age of retirement	Describes how old the respondent expects to retire. Expressed in scale from one to 11 where one means that the respondent expects to retire 60 years old or younger and 11 that the respondent expects to retire 70 years old or older.	-
Pension income objective	Pension income objective describes the net pension income the respondent attempts to obtain. Expressed in scale from one to six in probit regressions.	+
Risk aversion	Dummy variable: gets value of one if the respondent is not willing to take any financial risks or is willing to take only below average financial risks, and zero otherwise.	-
Big city	Dummy variable: gets value of one if the respondent is currently living in one of the five largest municipalities in Finland (measured by the amount of inhabitants). Five largest cities are currently Helsinki, Espoo, Tampere, Vantaa and Turku.	+ / -
Right-wing orientation	Political orientation is measured on a scale from one to ten where one stands for left-wing and ten for right-wing political orientation.	+
Extraversion	Extraversion is measured by the average of scores on "I am social and outgoing" and reverse scored "I am reserved". Extraversion is presented in scale from one to six where one means that the trait does not describe the respondent at all and six, respectively, that the trait describes the respondent very well.	+
Agreeableness	Agreeableness is measured by the average of scores on "I am generally trusting" and reverse scored "I easily find fault with others". Agreeableness is presented in scale from one to six.	+ / -
Conscientiousness	Conscientiousness is measured by the average of scores on "I am hardworking" and "I do a thorough job". Conscientiousness is presented in scale from one to six.	+
Neuroticism	Neuroticism is measured by the average of scores on "I get nervous easily" and reverse scored "I handle stress well". Neuroticism is presented in scale from one to six.	-
Openness	Openness is measured by the average of scores on "I am creative and innovative" and "I have a vivid imagination". Openness is presented in scale from one to six.	+

Expected age of retirement and pension income objective

Expected age of retirement and pension income objective both describe the expectations of the respondent concerning retirement. Expected age of retirement describes how old the respondent expects to retire, the 11 possible responds being that the individual expects to retire younger than 60 or 60 years old, 61, … , and 70 years old or older. Expected age of retirement has been thus described in scale from one to eleven in regression analysis. Furthermore, pension income objective was asked similarly to net income, and the respondent was asked to select one of the six offered ranges for net pension income that he/she strives to obtain. In regression analysis, net pension income is described in scale from one to six similarly to net income.

Risk tolerance

Risk aversion related question is a slightly modified from the one used in the Survey of Health, Ageing and Retirement in Europe (SHARE) (e.g. Laakso, 2010). First, the concept of risk aversion was not included in the survey in contrast to the question in SHARE survey, as the level of education of the respondents is quite high and it can be therefore assumed that the target group is quite aware of the concept already. In addition, whereas the initial formulation in the SHARE panel included only options from one to four, based on the initial feedback I received for the survey questions, I included one more option. From the five possible responds presented below, option 4) "take below average financial risks settling for below average returns" was not included in the SHARE survey. The question for risk aversion is posed as follows: "Which of the statements below comes closest to the amount of financial risk that you are willing to take when you save or make investments?" The five possible responds are:

1) Not willing to take any financial risks.
2) Take below average financial risks settling for below average returns.
3) Take average financial risks expecting to earn average returns.
4) Take above average financial risks expecting to earn above average returns.
5) Take substantial risks expecting to earn substantial returns.

In probit regressions, risk aversion is used as a dummy variable getting value 1 if the respondent has responded to be 1) not willing to take any financial risks or 2) take below average financial risks.

Big city

Big city is used as a dummy variable getting value of one if the respondent has reported to live in a postal code area that is located in one of the five largest municipalities in Finland, and zero otherwise. Currently, the five largest municipalities based on the number of inhabitants are Helsinki, Espoo, Tampere, Vantaa and Turku.[7]

Political orientation

Political orientation of the respondent is asked using the left-right political spectrum. The formulation comes from the European Social Survey and is used also by for example Luotonen (2009), Jouhikainen (2010) and in the SHARE Survey. In the earlier studies, the left − right axis has been from zero to ten but in this thesis the axis is presented to begin from one instead of zero. The question is posed as follows: "Political orientation is often depicted with the so-called left − right axis. Where would you place yourself on this axis **in the context of the Finnish political scene** when one depicts left and ten right?" To make it easier for the respondent to place himself/ herself on the axis, it was highlighted that the axis should be considered in the context of the Finnish political scene.

Personality traits

The five-factor model of Big Five inventory is applied in this thesis to measure personality but instead of the 44-item version of John and Srivastava (1999), a 10-item abbreviated version of the Big Five inventory created by Rammstedt and John (2007) is used. This is done in order to improve the response rate and to keep the survey relatively short. Though this obviously poses a challenge to the reliability of the results, Rammstedt and John (2007) argue that nevertheless this abbreviated inventory is sufficient for research settings with truly limited time constraints and the BFI-10 scales retain significant levels of reliability and validity. Rammstedt and John (2007) state that the two items for each dimension has been chosen favouring more central over more peripheral item contents compared to the full BFI scales and favouring items related uniquely to one factor and not to the other four factors. More specifically, Rammstedt and John (2007) concluded that although the BFI-10 scales include less than 25 percent of the full BFI-44 scales, they were able to predict almost 70 percent of the variance of the full scales. In their study, extraversion, neuroticism and conscientiousness were best represented by the two item scores

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[7] See http://vrk.fi/default.aspx?docid=4984&site=3&id=0 for details.

with average correlations being 0.89, 0.86 and 0.82 with the full BFI scales whereas agreeableness suffered from the most substantial losses. Moreover, the use of the 10-item version of Big Five should not be a problem in this thesis because the idea is not to compare personality trait scores on earlier studies or across time but rather to create some measures for the five dimensions of personality and analyse their association with investing for retirement.

The survey covers altogether ten questions of personality, each with a scale from one to six where one means that the personality trait in question does not describe the person at all and six means, respectively, that the personality trait in question describes the person very well. Each personality trait is depicted by two questions replicating the abbreviated version of Big Five created by Rammstedt and John (2007). Each personality dimension is scored by calculating the average of scores for the two questions chosen to measure the dimension. First, extraversion of the respondent is based on the scores of "I am outgoing and sociable" and "I am reserved" of which "I am reversed" is reverse scored for calculating the score of extraversion for each respondent. Agreeableness scores are based on the questions of "I am generally trusting" and "I tend to find fault with others". "I tend to find fault with others" was translated in Finnish so that it was not the perfect translation but rather corresponded to "I easily find fault with others". Furthermore, conscientiousness scores are calculated from the scores of "I am hardworking" and "I do a thorough job". I am hardworking has been reversed from the question of Rammstedt and John (2007) who originally formulated the question as "I tend to be lazy". This was done in order to get more honest responses and due to the initial feedback I received for the survey as I did not figure out well matching Finnish translation of "I tend to be lazy". Neuroticism has been measured by the average of the scores on "I get nervous easily" and reverse scored "I handle stress well". Finally, openness has been scored by the average of "I am creative and innovative" and "I have a vivid imagination".

6. EMPIRICAL RESULTS

The results are divided in six sections. In the first section, an average retirement investor is compared to an average "non-investor" by looking at the results for the mean-similarity tests conducted. The second section concentrates on examining the determinants of saving for retirement in general whereas the third section focuses on examining the determinants of investing in pension insurance or PS account. Furthermore, the self-selection of individuals in the group of those who are saving for retirement otherwise than in form of pension products is studied. The fifth section explores the drivers of considering saving for retirement needed. Finally, the determinants of money saved after monthly compulsory expenses are examined.

6.1. Comparing retirement investors and non-investors

In this section, mean similarity tests are conducted for those saving for retirement and those who have reported some other primary reason for not having pension insurance or PS account than other form of saving compared to non-investors.

Table 7 presents the tests of similarity between average scores for respondents saving for retirement in form of pension insurance, PS account or otherwise and non-investors. The group of respondents who are saving for retirement differs significantly from "non-investors" when looking at mean scores for extraversion, risk tolerance, right-wing orientation, age, income and assets. Furthermore, there is a higher share of business graduates in the group of pension investors than in the group of non-investors. Pension investors score on average significantly higher on extraversion at the 10 percent significance level compared to non-investors. Yet, even though the signs of differences in means for other personality trait scores are as expected, these scores do not differ significantly for the two groups on average. Moreover, there is no significant difference in the proportion of men in pension investors and non-investors though previous research has suggested that men invest more often for retirement than women (see e.g. Martenson, 2008).

Furthermore, pension investors are on average significantly more risk tolerant and wealthier compared to non-investors. The average scores on debt are almost the same for the two groups. Consistently with earlier studies on the effect of political right-wing orientation on investing (e.g. Kaustia and Torstila, 2011), respondents who save for retirement are significantly more right-wing oriented on average than non-investors.

Expected ages of retirement and objectives for pension income are both reported by the respondents using the scales shown. On average, respondents who are saving for retirement expect to retire significantly younger than those who are not saving. Naturally, at least partly this can be explained by the fact that age and expected age of retirement are significantly correlated with each other. Therefore, keeping in mind that pension investors are significantly older on average, the significance of difference in means for expected age of retirement could be just due to the fact that older respondents expect to retire younger compared to younger respondents. Respectively, considering the connexion between age and expected age of retirement, it could be also that objective for pension income is significantly higher for those respondents having pension insurance or PS account because they are significantly older on average than non-investors. Therefore, they can be expected to pursue lower pension income than older respondents as their earnings-related pension income will be relatively lower in the future than for the older respondents who are sooner retiring.

Table 7. Mean similarity tests between retirement investors and non-investors
This table shows whether the average pension investor differs from the average non-investor on the characteristics received from the questionnaire. In the group Pension insurance or PS agreement, the respondents have invested in either in pension insurance or PS account or report that the primary reason for not having pension products is other form of saving for retirement. In the group Non-investors, the respondents have reported some other main reason for not having pension insurance or PS account than otherwise saving for retirement. Standard deviations are presented for the quantifiable characteristics. Scores for extraversion, agreeableness, conscientiousness, neuroticism and openness have been calculated from the scores of 10-item abbreviated Big Five personality trait questions. Risk tolerance, right-wing orientation, expected age of retirement, objective for pension income, net income, assets and debt are reported using the scales shown. Net income includes both earned income and capital income. Male – dummy gets value of one if the gender of the respondent is male and respectively, business –dummy expresses business education of the respondent. For the differences in means, t-statistics are reported below the actual figures in parentheses. *, ** and *** represent statistical significance on the 5%, 1% and 0.1% levels, respectively.

	Pension investors		Non-investors		
	Mean	Standard deviation	Mean	Standard deviation	Difference in means
Extraversion (1-6)	3.74	1.01	3.51	1.00	**0.23***
					(2.06)
Agreeableness (1-6)	3.96	0.79	3.89	0.76	0.07
					(0.84)
Conscientiousness (1-6)	4.82	0.74	4.74	0.77	0.08
					(0.94)
Neuroticism (1-6)	2.87	0.85	3.01	0.84	-0.14
					(-1.53)
Openness (1-6)	3.86	1.04	4.00	1.03	-0.14
					(-1.18)
Risk tolerance (1-5)	2.98	0.82	2.71	0.93	**0.28****
					(2.98)
Right-wing orientation (1-10)	7.11	1.83	6.74	2.03	**0.37***
					(1.79)
Age (years)	43.94	11.55	37.83	10.84	**6.11*****
					(4.82)
Expected age of retirement (years)	63.49	2.29	64.95	2.74	**-1.46*****
					(-5.56)
Male (dummy)	0.60		0.53		0.07
					(1.26)
Business (dummy)	0.43		0.28		**0.15****
					(2.74)
Net pension income objective (€/ month)	2,672	865	2,458	819	**214***
					(2.25)
Net income (€/ month)	3,596	1,161	3,125	1,172	**471*****
					(3.66)
Assets (€)	291,666	175,559	188,541	153,122	**103,125*****
					(5.40)
Debt (€)	81,851	64,927	78,125	55,636	3727
					(0.53)

6.2. Explaining saving for retirement

In this section, saving for retirement either in form of pension products (pension insurance or PS account) or otherwise is examined. The hypotheses concerning the associations between the Big Five personality traits, right-wing political orientation and business education are particularly related to this part of the regression analysis as it was already seen in the descriptive tables that the variables are much more close to each other for those saving either in form of pension products or otherwise than for the group of "non-investors". Table 8 documents the results of probit regressions where the dependent variable takes the value of one if the respondent is saving for retirement either in form of pension products or otherwise, and zero if the respondent has indicated some other primary reason for not having pension products than otherwise saving for retirement. The first specification on the left includes only variables that remain statistically significant at least on 10 percent significance level. First, it can be seen that extraversion, openness, age of the respondent being less than 35 years, the business education dummy, dummy for risk aversion and net wealth are statistically important variables in explaining saving for retirement.

Looking at the five personality trait dimensions, extraversion stands out as a significant factor explaining saving for retirement. Furthermore, the results give some support for the anticipated effect of openness, yet openness does not remain statistically significant in all specifications. It seems that agreeableness, neuroticism and conscientiousness do not explain saving for retirement as the coefficients and Wald statistics are really small and thus I have not included agreeableness, neuroticism or conscientiousness in other than the last specification.

Considering the demographic variables, it seems that business education has a significant positive effect on the probability of saving for retirement compared to the omitted technology dummy. Because of the correlation between age and expected age of retirement, expected age of retirement variable is not included in all regressions. Yet, both age dummy for under 26 years to 34 years and the expected age of retirement remain statistically significant when used at the same time in the specification. The finding of the expected age of retirement on the probability of saving for retirement is consistent with the report of Ahonen and Moilanen (2007) who state that

amongst those with relatively high income, the primary reason for taking voluntary pension insurance is most often to obtain better pension income or to be able to retire younger.

Risk aversion and net wealth are both significant variables in explaining the probability of saving for retirement. The male dummy is not a significant factor though previous research has often described that men are investing more often than women (e.g. Martenson, 2008). Considering that the target group of this survey is well educated and has quite high average salary, it could be that education and wealth are more important in explaining saving for retirement than simply gender. In addition, it could be that women with business education might be more actively saving for retirement compared to women with other educations as they could be more interested on following economy and buying financial products. Furthermore, the majority of the respondents with technology or other education (approximately 72 percent) was men. Alternatively it could be that a combination of gender and marital status would have a significant effect on private retirement saving but gender alone does not explain it (see e.g. Sundén and Surette, 2008).

Surprisingly, it seems that in contrast to the hypothesis about the effect of political orientation, being more right-wing politically oriented does not explain saving for retirement in the sample. It could be then, that right-wing political orientation has an effect only when looking at investing in stocks or equity fund, and here not all who are saving for retirement hold stocks or have wealth in equity fund. Furthermore, compared to the results of probit regressions shown in table 8, where those living in one of the five largest cities in Finland were less likely to have pension insurance or PS account, now living in large city does not explain saving for retirement. Thus, it can be anticipated that those respondents who live in big cities are more likely to not to have pension products due to other form of saving for retirement.

Table 8. Explaining saving for retirement

Specifications one through seven are probit regressions where the dependent variable takes the value of one if the respondent has pension insurance, PS account or reports other form of saving for retirement as the main reason for not having pension products, and zero otherwise. The scores for the five personality traits have been calculated from the 10-item Big Five question scores. Age is expressed as dummies for the respondent being younger than 26 to 34, 45 to 54, and 55 to older than 63, the omitted variable being age from 35 to 44. Male –dummy gets value of one if the respondent's gender is male, and zero for female. Business –dummy expresses the business education of the respondent whereas risk aversion –dummy is set as one for those not willing to take any financial risks or willing to take only below average financial risks in order to accumulate profits. Right-wing orientation, pension income objective and expected age of retirement use the scales shown in the regressions. Net wealth scale is calculated reducing the scale value for debt from the scale value reported for real and financial assets. Big city –dummy gets value of one if the respondent is currently living in one of the five largest cities in Finland (Helsinki, Espoo, Tampere, Vantaa or Turku).Wald statistics are reported in the parentheses below the coefficients. *, ** and *** represent statistical significance on the 10%, 5% and 1% levels, respectively.

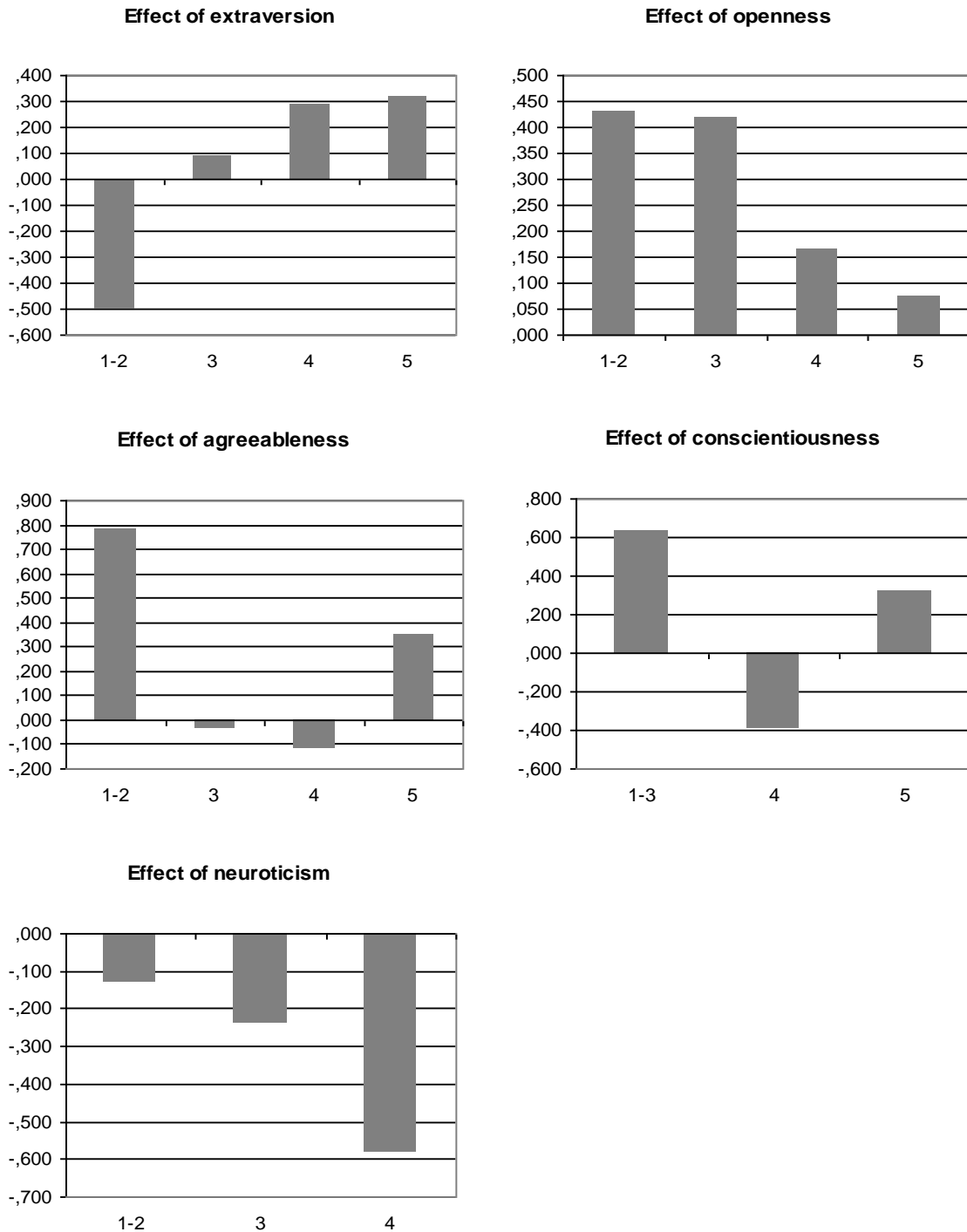|	Dependent variable: Saving for retirement (dummy)						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Extraversion (1-6)	0.23**	0.24**	0.19	0.26**	0.26**		0.23*
	(3.85)	(3.95)	(2.61)	(4.47)	(4.42)		(3.18)
Agreeableness (1-6)							0.09
							(0.29)
Conscientiousness (1-6)							0.08
							(0.25)
Neuroticism (1-6)							-0.06
							(0.14)
Openness (1-6)	-0.21*	-0.22*		-0.18	-0.19		-0.19
	(3.23)	(3.32)		(2.24)	(2.33)		(2.35)
Age -26–34 (dummy)	-0.84***	-0.90***	-0.69**	-0.68**	-0.74**	-0.76**	-0.75**
	(8.65)	(7.69)	(5.38)	(5.29)	(4.98)	(5.15)	(5.02)
Age 45–54 (dummy)		-0.38			-0.28	-0.32	-0.32
		(0.94)			(0.49)	(0.66)	(0.64)
Age 55–63- (dummy)		0.17			0.09	0.01	0.07
		(0.16)			(0.04)	(0.00)	(0.02)
Business (dummy)	0.49*	0.47*	0.43*	0.52*	0.51*	0.54*	0.49*
	(3.72)	(3.35)	(2.82)	(3.63)	(3.42)	(3.76)	(3.04)
Risk aversion (dummy)	-0.78***	-0.78***	-0.76***	-0.68***	-0.68***	-0.67**	-0.67**
	(10.09)	(9.81)	(9.55)	(7.12)	(6.85)	(6.49)	(6.31)
Net wealth (-5-5)	0.21**	0.22**	0.17*	0.17*	0.17*	0.16	0.17*
	(5.47)	(5.21)	(3.50)	(3.47)	(3.22)	(2.58)	(2.91)
Expected age of retirement (1-11)			-0.18***	-0.17***	-0.17***	-0.18***	-0.18***
			(12.86)	(11.58)	(11.36)	(13.03)	(11.66)
Male (dummy)				0.34	0.35	0.21	0.36
				(1.69)	(1.75)	(0.65)	(1.72)
Big city (dummy)					0.07	0.04	0.08
					(0.09)	(0.03)	(0.11)
Right-wing orientation (1-10)						0.01	-0.01
						(0.01)	(0.04)
Pension income objective (1-6)						0.07	0.04
						(0.35)	(0.09)
Constant	1.82***	1.88***	2.09***	2.25***	2.29***	2.37***	1.82
	(8.49)	(8.43)	(13.52)	(9.79)	(9.51)	(10.69)	(1.41)
Nagelkerke R^2	0.15	0.15	0.17	0.18	0.18	0.17	0.18
N	636	636	636	636	636	636	636

Next, it will be examined whether there is a linear relationship between the coefficients obtained from the probit regressions when looking at the effect of Big Five personality traits on saving for retirement. Figure 3 presents the regression coefficients for the five personality dimensions separately for each score values. The omitted variable is the highest score value in all specifications. For neuroticism, the omitted variable is the scores 5 and 6 because of the small number of observations in the highest scores for neuroticism. Likewise, the lowest score values have been combined due to the small number of respondents evaluating themselves as really low in traits used to describe neuroticism. In all specifications, age dummies, business dummy, risk aversion dummy and net wealth has been used as control variables.

It seems that being more introverted has the largest negative effect on the probability of saving for retirement and the higher the score for extraversion, the higher the probability of saving for retirement. Yet, the differences are not that important when looking at the extraversion scores of 4 or 5. Therefore, considering that extraversion is here measured by the average of score for sociability and outgoingness and reversed score for being reserved, it could be that those who are not social at all or are really reserved have a low probability of saving for retirement. Furthermore, looking at the coefficients for scores of openness, there is a same kind of linear relationship that can be seen for extraversion except for that the higher the score for openness, the lower is the probability that the respondent is saving for retirement. Yet, the difference between coefficients for low scores of openness, 1-2, and score of 3 is small.

Moreover, it appears that agreeableness does not explain saving for retirement in the sample as there is no obvious relationship in how it affects the probability of saving for retirement. Furthermore, surprisingly also the coefficients for the scores of conscientiousness vary so that there is no linear relationship and the effects seem to be in contrast with the anticipated effect of conscientiousness being positively related to the probability of saving for retirement. Finally, there is a linear relationship between the coefficients for the scores of neuroticism and the probability of saving for retirement even though neuroticism did not stand out as an important variable in the results of probit regressions explaining saving for retirement (see table 9).

Figure 3. Associations between the Big Five personality trait scores and saving for retirement
This figure presents the coefficients for each personality dimension scores in probit regressions where the dependent variable takes the value of one if the respondent has pension insurance or PS account or does not have either mainly because of other form of saving for retirement, and otherwise the value of zero. In all specifications, age dummies, business dummy, risk aversion dummy and net wealth have been used as control variables. The highest scores have been used as the omitted variables in the regressions. For neuroticism, the omitted variable is the scores from 5 to 6 due to small amount of observations in the highest scores. Likewise, for the same reason the values for the lowest scores have been combined.

Effect of extraversion

Effect of openness

Effect of agreeableness

Effect of conscientiousness

Effect of neuroticism

Considering the results of probit regressions, it seems that from the five personality dimensions, extraversion and openness are the ones that relate to saving for retirement. Next these dimensions will be examined more carefully. First, looking at extraversion which was measured by the scores of "I am social and outgoing" and "I am reserved", figure 4 presents the coefficients for the scores of both traits in probit regression where the dependent variable takes the value of one if the respondent is saving for retirement either in form of pension products or otherwise, and zero for "non-investors". The lowest scores, 1 and 2 have been combined as the omitted variable due to small amount of observations in the lowest scores. Age dummies, risk aversion dummy, dummy for business education and net wealth have been controlled for in the regression.

It seems that being reserved is significantly related to saving for retirement. The more the respondent has evaluated himself/herself to be reserved, the less likely he/she is to save for retirement. Surprisingly, the effect of sociability is not that clear and there is no linear relationship between the coefficients for each score describing social outgoingness of the respondent. Thus, the results suggest that being reserved is more significantly related to the probability of saving for retirement than sociability. It might be that sociability and social interaction are not always positively related to saving for retirement as for example pension insurances are often also criticized and sociability might then have rather a negative effect on retirement saving in form of pension products.

Figure 4. Examining the association between extraversion and saving for retirement
This figure presents the coefficients for the two personality trait scores that measure extraversion in probit regressions where the dependent variable takes the value of one if the respondent has pension insurance or PS account or does not have either mainly because of other form of saving for retirement, and otherwise the value of zero. Age dummies, business –dummy, risk aversion –dummy and net wealth have been used as control variables. The lowest scores have been used as the omitted variables in the regressions. For sociability, the omitted variable is the scores from 1 to 2 due to small amount of observations in the lowest scores.
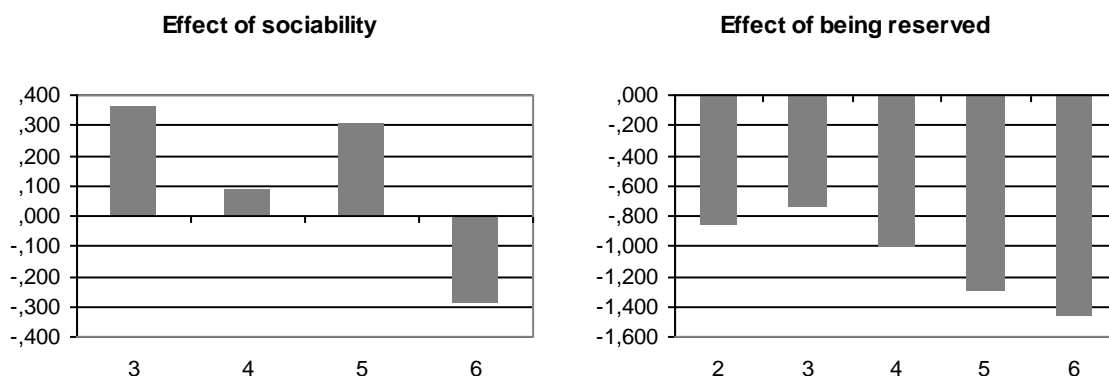
Figure 5 below shows the coefficients for different scores of "I am creative" and "I have a vivid imagination" in probit regression where the dependent variable takes the value of one if the respondent is saving for retirement either in form of pension products or otherwise, and zero for "non-investors". The score values of 1 and 2 have been used as the omitted variables in the regression. Age dummies, risk aversion dummy, dummy for business education and net wealth have been controlled for in the regression.

Looking at figure 5, it is noted that there is clearly a linear relationship between the coefficients for different score values of being creative. Yet, the effect of vivid imagination seems also to appear though the relationship between the coefficients for scores is not that obvious.

Figure 5. Examining the association between openness and saving for retirement
This figure presents the coefficients for the two personality trait scores that measure openness in probit regressions where the dependent variable takes the value of one if the respondent has pension insurance or PS account or does not have either mainly because of other form of saving for retirement, and otherwise the value of zero. Age dummies, business dummy, risk aversion dummy and net wealth have been used as control variables. The lowest scores have been used as the omitted variables in the regressions. The omitted variable is the scores from 1 to 2 due to small amount of observations in the lowest scores.
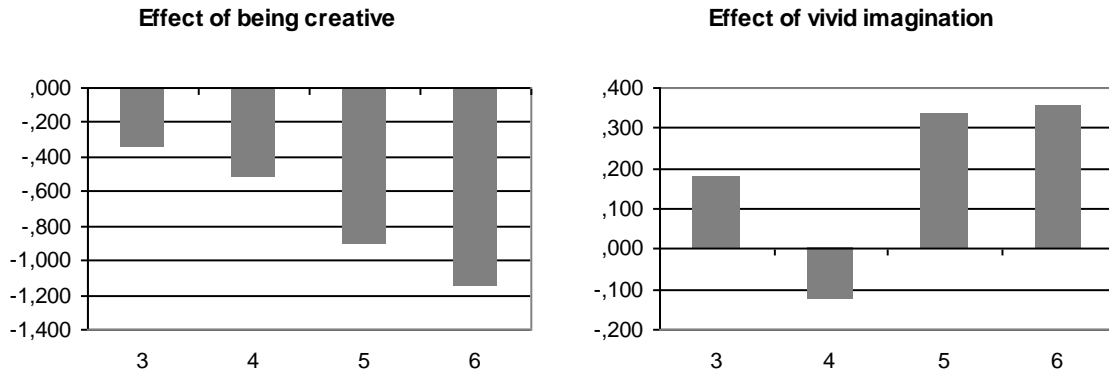
Furthermore, figure 5 presents the coefficients for the expected ages at which the respondent estimates to retire in the future, obtained from probit regression where the dependent variable takes the value of one if the respondent is saving for retirement, and zero otherwise. In the specification, scores for extraversion and openness, age dummies, business dummy, risk aversion dummy and net wealth have been controlled for. The omitted variable is that the expected age of retirement is at younger than 62 years old. First, it can be seen that the coefficient values from 62 to 64 rise linearly and then start to get negative coefficients from 65 to 70 or older than 70. Of course, the fact that age and expected age of retirement closely relate to each other explains much of the association between expected age of retirement and the dummy of saving for retirement. More specifically, the respondents who expect to retire younger are more often saving for retirement than those expecting to retire older. Especially those expecting to retire at 70 years old or older are less often saving for retirement. In addition to the association between age and expected age of retirement, one obvious explanation for the effect of expected age of retirement is that those respondents who expect to retire older should in general expect to gain higher earnings-related pension income.

Figure 6. Association between expected age of retirement and saving for retirement
This figure presents the coefficients for each expected age of retirement in probit regressions where the dependent variable takes the value of one if the respondent has pension insurance or PS account or does not have either mainly because of other form of saving for retirement, and otherwise the value of zero. In the specification, scores for extraversion and openness, age dummies, business dummy, risk aversion dummy and net wealth have been used as control variables. The omitted variable is set at the respondent reporting the age at which he/she expects to retire to be under 62 years.

Effect of expected age of retirement on pension saving

6.3. Explaining investing in pension insurance or PS account

Table 9 documents the results of probit regressions where the dependent variable takes the value of one if the respondent has pension insurance or PS account, and zero otherwise. Here it is tested whether respondents who have pension insurance or PS account differ from those respondents who do not have pension products due to otherwise investing for retirement or have chosen some other primary reason for not having pension products. First, it can be noticed that none of the personality dimensions significantly explain having pension insurance or PS account.

The first specification on the left includes only variables that are statistically significant at least on the 10 percent significance level. These variables consist of net wealth, expected age of retirement and the dummy for living in one of the five largest cities in Finland. Net wealth and the expected age of retirement estimated by the respondents remain significant factors in all seven specifications whereas the effect of net wealth decreases to being insignificant when adding the age dummies for being younger than 26 to 34 years old, being from 45 to 54 years old and being from 55 to older than 63 years. Yet, this could be just due to the fact that age and wealth correlate strongly with each other. Compared to other respondents those having pension insurance or PS account seem to be older, expect to retire younger and live less often in the five largest cities in Finland. Furthermore, respondents having pension product have higher objective for pension income. Yet this is not surprising, considering that wealth, age and objective for pension income are all significantly correlated with each other. Furthermore, it can be concluded that when looking at the results shown in table 8 and 9 that specifications presented in table 8 do a better job overall in explaining the dependent variable as the Nagelkerke R^2s are higher in the specifications shown in table 8 than in table 9.

55

Table 9. Explaining investing in pension insurance or PS account
Specifications one through seven are probit regressions where the dependent variable takes the value of one if the respondent has a pension insurance or PS account, and zero otherwise. The scores for the five personality traits have been calculated from the 10-item Big Five question scores. Age is expressed as dummies for the respondent being younger than 26 to 34, 45 to 54, and 55 to older than 63, the omitted variable being age from 35 to 44. Male –dummy gets value of one if the respondent's gender is male, and zero for female. Business –dummy expresses the business education of the respondent whereas risk aversion –dummy is set as one for those not willing to take any financial risks or willing to take only below average financial risks in order to accumulate profits. Right-wing orientation, pension income objective and expected age of retirement use the scales shown in the regressions. Net wealth scale is calculated reducing the scale value for debt from the scale value reported for real and financial assets. Big city – dummy gets value of one if the respondent is currently living in one of the five largest cities in Finland (Helsinki, Espoo, Tampere, Vantaa or Turku). Wald statistics are reported in the parentheses below the coefficients. *, ** and *** represent statistical significance on the 10%, 5% and 1% levels, respectively.

	Dependent variable: Pension insurance/PS account (dummy)						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Extraversion (1-6)				0.14 (2.59)	0.10 (1.29)		0.10 (1.11)
Agreeableness (1-6)				-0.05 (0.17)			-0.03 (0.06)
Conscientiousness (1-6)				-0.01 (0.01)			-0.02 (0.03)
Neuroticism (1-6)				-0.01 (0.01)			0.01 (0.01)
Openness (1-6)				-0.08 (0.79)			-0.05 (0.36)
Age -26–34 (dummy)	-0.65*** (7.80)		-0.65*** (7.60)	-0.66*** (8.77)	-0.64*** (8.15)	-0.67*** (7.93)	-0.67*** (7.84)
Age 45–54 (dummy)	0.64** (6.18)		0.61** (5.42)	0.69*** (7.46)	0.62** (5.89)	0.65** (5.91)	0.67** (6.22)
Age 55–63- (dummy)	0.50* (3.66)		0.47* (3.13)	0.55** (5.00)	0.47* (3.44)	0.47* (3.00)	0.49* (3.29)
Big city (dummy)	-0.65*** (13.49)	-0.60*** (11.62)	-0.59*** (10.58)	-0.65*** (13.69)	-0.60*** (11.12)	-0.63*** (11.81)	-0.63*** (11.94)
Net wealth (-5-5)	0.02 (0.07)	0.16*** (10.91)	0.00 (0.00)			-0.03 (0.27)	-0.03 (0.27)
Expected age of retirement (1-11)		-0.10*** (7.67)	-0.08** (4.30)		-0.07** (4.01)	-0.08** (4.64)	-0.08** (4.00)
Risk aversion (dummy)			-0.11 (0.29)		-0.10 (0.22)	-0.07 (0.13)	-0.07 (0.10)
Male (dummy)			-0.19 (1.13)		-0.14 (0.53)	-0.23 (1.46)	-0.20 (1.05)
Business (dummy)					0.04 (0.05)	0.02 (0.01)	0.01 (0.00)
Right-wing orientation (1-10)					-0.01 (0.07)	-0.01 (0.07)	-0.02 (0.13)
Pension income objective (1-6)						0.17* (3.55)	0.16* (3.04)
Constant	0.64*** (8.94)	0.85*** (13.00)	1.16*** (14.02)	0.68 (0.55)	0.82 (2.34)	0.73 (2.07)	0.76 (0.50)
Nagelkerke R^2	0.11	0.08	0.12	0.12	0.13	0.13	0.13
N	636	636	636	636	636	636	636

6.4. Results of the Heckman self-selection model

This section documents the results obtained using the Heckman self-selection model for retirement saving. In the first stage of the Heckman model, the dependent variable gets value of one if the respondent is saving for retirement either in form of having pension products or otherwise, and zero for those respondents who state some other primary reason for not having pension products than otherwise saving for retirement. In stage 2, the dependent variable takes value of one if the respondent indicates that the main reason for not having pension insurance or PS account is other form of saving for retirement, and zero otherwise. The idea of the Heckman self-selection model is to test whether those individuals who do not have pension products due to other form of saving for retirement are different in some aspects from those who are saving in form of pension products given that the respondent is saving for retirement in either form.

The variables in stage 1 have been selected based on the results of probit regressions documented in table 9. Here, the coefficients for openness and business education are close to but not statistically significant on 10 percent significance level. The results for the first stage are the same when changing second stage variables and therefore only documented once in table 10.

It seems that those who have been "self-selected" to the group of people who do not have pension products mainly due to otherwise saving for retirement are more often living in one of the five largest cities in Finland (Helsinki, Espoo, Tampere, Vantaa or Turku) and are significantly more risk tolerant than those saving in form of pension insurance. Interestingly, looking at version 2 of the second stage results, it can be seen that when adding gender and political orientation into the equation, neither seems to be important when considering the form of saving for retirement. Furthermore, when adding age dummies in stage 2 regression, Mills lambda is not significant anymore.

Table 10. Results of the Heckman self-selection two-stage regression

This table documents the results of the Heckman two-stage self-selection model. In Stage 1, the dependent variable takes the value of one if the respondent is saving for retirement either in form of pension products or does not have those due to other form of saving, and zero for the group of "non-investors". In Stage 2, the dependent variable takes the value of one if the respondent has reported not to have pension products mainly due to other form of saving for retirement, and zero otherwise. Three versions of stage 2 results are shown (all have the same results for stage 1). The scores for extraversion and openness have been calculated from the 10-item Big Five question scores. Age is expressed as dummies for the respondent being younger than 26 to 34, 45 to 54, and 55 to older than 63, the omitted variable being age from 35 to 44. Business –dummy gets value of one if the respondent has education in economics. Net wealth scale is calculated reducing the scale value for debt (1-6) from the scale value reported for real and financial assets (1-6) as reported by the respondent. Big city –dummy gets value of one if the respondent is currently living in one of the five largest cities in Finland (Helsinki, Espoo, Tampere, Vantaa or Turku). Stocks –dummy gets value of one if the respondent has wealth in stocks. Male –dummy gets value of one if the respondent's gender is male, and zero for female. Risk tolerance and right-wing orientation are reported using the scales shown. Mills lambda describes the goodness of fit of the two-stage model. Z statistics are reported in the parentheses below the coefficients. *, ** and *** represent statistical significance on the 10%, 5% and 1% levels, respectively.

	Stage 1	Stage 2 (1)	Stage 2 (2)	Stage 2 (3)
Extraversion (1-6)	0.11*			
	(1.71)			
Openness (1-6)	-0.08			
	(-1.32)			
Net wealth (-5-5)	0.09*			
	(1.83)			
Business (dummy)	0.21			
	(1.47)			
Expected age of retirement (1-11)	-0.10***			
	(-3.39)			
Age -26–34 (dummy)	-0.43**			0.15**
	(-2.35)			(2.20)
Age 45–54 (dummy)	-0.15			-0.17***
	(-0.72)			(-2.97)
Age 55–63- (dummy)	0.04			-0.12**
	(0.20)			(-2.01)
Risk tolerance (1-5)	0.23***	0.06**	0.07***	0.01
	(2.93)	(2.27)	(2.77)	(0.27)
Big city (dummy)		0.14***	0.16***	0.18***
		(3.44)	(3.91)	(4.45)
Stocks (dummy)		0.11***		
		(2.57)		
Male (dummy)				0.05
				(1.29)
Right-wing orientation (1-10)				0.00
				(0.41)
Constant	0.72	-0.10	-0.05	0.21
	(1.61)	(-0.96)	(-0.54)	(1.55)
Lambda		0.36***	0.26**	0.25
		(2.61)	(1.99)	(1.43)
N		636	636	636

6.5. Determinants of considering voluntary saving for retirement needed

Table 11 shows the results of probit regressions where the dependent variable takes the value of one if the respondent has answered yes for the question of whether or not he/she considers that he/she needs to privately save for retirement, and zero otherwise. It seems that the personality of the respondent has no effect on how the respondent feels about voluntary pension saving. The first specification on the left includes only variables that are statistically significant at least on the 10 percent significance level. Right-wing political orientation is now clearly related to whether the respondent considers saving for retirement needed or not. Furthermore, the wealthier the respondent is the less likely he/she is to consider voluntary saving for retirement needed and those who live in a big city are less likely to consider additional pension savings needed.

The findings on the importance of wealth or expected age of retirement are not surprising as they can be explained by common sense. Consistently with previous research on the topic, those individuals who consider saving for retirement needed expect to retire younger and are also more often saving for retirement. Yet, it is surprising that when the determinants of saving for retirement were examined in the former section, political orientation was not significant variable in explaining saving for retirement but rather had a really small coefficient and really small Wald statistic. Thus, this means that there are either respondents who are more right-wing oriented and who consider saving for retirement needed but are not saving or respondents with less right-wing political values are also as likely to save for retirement. Alternatively, it might be that saving in form of pension insurance is as likely for less right-wing oriented persons even though they might not consider it actually needed for them. Furthermore, the fact that more right-wing oriented respondents are more likely to consider pension saving needed may also reflect their differing expectations about the future social safety net compared to the ones of less right-wing oriented respondents.

Surprisingly, age dummies are not significant variables in explaining who considers voluntary pension saving needed. Even though it was documented in the descriptive table earlier that those who are younger have smaller pension income objectives, it is surprising that age does not have impact on whether the respondent considers voluntary additional pension saving to be needed for him/her.

Table 11. **Determinants of considering voluntary saving for retirement needed**

Specifications one through six are probit regressions where the dependent variable takes the value of one if the respondent considers he/she needs to privately save for retirement, and zero otherwise. The scores for the five personality traits have been calculated from the 10-item Big Five question scores. Age is expressed as dummies for the respondent being younger than 26 to 34, 45 to 54, and 55 to older than 63, the omitted variable being age from 35 to 44. Male –dummy gets value of one if the respondent's gender is male, and zero for female. Business –dummy expresses the business education of the respondent whereas risk aversion –dummy is set as one for those not willing to take any financial risks or willing to take only below average financial risks in order to accumulate profits. Right-wing orientation, pension income objective and expected age of retirement use the scales shown in the regressions. Net wealth scale is calculated reducing the scale value for debt from the scale value reported for real and financial assets. Big city –dummy gets value of one if the respondent is currently living in one of the five largest cities in Finland (Helsinki, Espoo, Tampere, Vantaa or Turku).Wald statistics are reported in the parentheses below the coefficients. *, ** and *** represent statistical significance on the 10%, 5% and 1% levels, respectively.

	Dependent variable: Considers saving for retirement needed (dummy)					
	(1)	(2)	(3)	(4)	(5)	(6)
Extraversion (1-6)		0.13 (2.31)	0.11 (1.71)	0.12 (1.82)		0.12 (1.69)
Agreeableness (1-6)				0.03 (0.07)		0.02 (0.03)
Conscientiousness (1-6)				0.07 (0.41)		0.09 (0.55)
Neuroticism (1-6)				0.05 (0.22)		0.09 (0.64)
Openness (1-6)		-0.07 (0.66)		-0.05 (0.41)		-0.06 (0.48)
Age -26–34 (dummy)		-0.12 (0.27)			-0.06 (0.05)	-0.06 (0.06)
Age 45–54 (dummy)		0.31 (1.48)			0.41 (2.37)	0.42 (2.51)
Age 55–63- (dummy)		0.03 (0.01)			0.06 (0.05)	0.09 (0.11)
Business (dummy)					-0.10 (0.27)	-0.13 (0.48)
Risk aversion (dummy)					-0.08 (0.16)	-0.09 (0.21)
Pension income objective (1-6)					0.12 (1.93)	0.12 (1.89)
Right-wing orientation (1-10)	0.10** (5.31)	0.10** (4.52)	0.10** (4.98)	0.10** (4.58)	0.10** (4.94)	0.10** (4.09)
Net wealth (-5-5)	-0.13*** (6.72)	-0.14** (5.47)	-0.11** (4.67)	-0.11** (4.35)	-0.16** (6.32)	-0.17** (6.34)
Expected age of retirement (1-11)	-0.06* (2.74)		-0.04 (1.43)	-0.04 (1.16)	-0.04 (1.34)	-0.04 (0.92)
Male (dummy)		-0.21 (1.46)	-0.24 (1.90)	-0.20 (1.28)	-0.37* (3.80)	-0.31 (2.50)
Big city (dummy)			-0.31* (2.97)	-0.31* (3.00)	-0.34* (3.49)	-0.35* (3.72)
Constant	0.33 (0.78)	0.00 (0.00)	0.17 (0.12)	-0.32 (0.10)	0.28 (0.31)	-0.68 (0.41)
Nagelkerke R^2	0.02	0.03	0.04	0.04	0.05	0.05
N	636	636	636	636	636	636

6.6. Determinants of money saved monthly after expenses

In this section, the determinants of saving money after monthly compulsory expenses are examined. Table 12 documents the results of probit regressions where the dependent variable takes the value of one if the respondent has reported to save 500 Euros or more after monthly compulsory expenses. Important to notice though is that it is not known whether the respondent in general saves this amount of money or rather spends it every month. In addition to net income of the respondent, age and living in big city (in one of the five largest cities in Finland) are significantly positively related to the probability of saving on average 500 Euros or more after compulsory expenses such as food and mortgage or rent.

Furthermore, having wealth in stocks or in investment property significantly positively associates with saving 500 Euros or more whereas the association is significantly negative with owning an apartment/house. Moreover, it seems that personality or political orientations are not associated with whether or not the respondent saves money after monthly expenses. In addition, gender or risk aversion appears to have no effect on saving 500 Euros or more after expenses.

Table 12. Determinants of money saved after compulsory expenses

Specifications one through four are probit regressions where the dependent variable takes the value of one if the respondent reports that the amount of money saved after compulsory expenses is 500 € per month or more, and zero otherwise. The scores for the five personality traits have been calculated from the 10-item Big Five question scores. Age is expressed in scale where the first option is that the respondent is under 26 years old and the last option is that the respondent is older than 63. Right-wing orientation, net income and expected age of retirement use the scales shown in the regressions. Big city –dummy gets value of one if the respondent is currently living in one of the five largest cities in Finland (Helsinki, Espoo, Tampere, Vantaa or Turku). Stocks –dummy is one for those reporting to have wealth in stocks. Owner-occupied flat –dummy is one if the respondent reports to own an apartment/house. Investment property –dummy is one if the respondent has wealth in investment property. Male –dummy gets value of one if the respondent's gender is male, and zero for female. Risk aversion –dummy is set as one for those not willing to take any financial risks or willing to take only below average financial risks in order to accumulate profits. Wald statistics are reported in the parentheses below the coefficients. *, ** and *** represent statistical significance on the 10%, 5% and 1% levels, respectively.

	Dependent variable: Money left after expenses 500€ per month or more (dummy)			
	(1)	(2)	(3)	(4)
Extraversion (1-6)				-0.05
				(0.27)
Agreeableness (1-6)				-0.06
				(0.23)
Conscientiousness (1-6)				0.11
				(0.83)
Neuroticism (1-6)				-0.04
				(0.10)
Openness (1-6)				-0.03
				(0.13)
Age (under 26 to older than 63)	0.03***	0.03***	0.03***	0.03***
	(11.16)	(8.25)	(8.55)	(8.49)
Right-wing orientation (1-10)	0.07	0.06	0.06	0.05
	(2.29)	(1.59)	(1.32)	(1.02)
Net income (1-6)	0.46***	0.44***	0.44***	0.43***
	(28.81)	(24.54)	(24.01)	(22.65)
Big city (dummy)	0.58***	0.50***	0.50***	0.51***
	(10.44)	(7.42)	(7.50)	(7.73)
Stocks (dummy)		0.37**	0.35*	0.35*
		(4.03)	(3.42)	(3.26)
Owner-occupied flat (dummy)		-0.51*	-0.51*	-0.50*
		(3.64)	(3.63)	(3.50)
Investment property (dummy)		0.59**	0.58**	0.60**
		(4.86)	(4.68)	(4.79)
Male (dummy)			0.00	0.00
			(0.00)	(0.00)
Risk aversion (dummy)			-0.12	-0.14
			(0.34)	(0.45)
Constant	-2.72***	-2.34***	-2.27***	-2.11*
	(34.09)	(23.24)	(20.08)	(3.52)
Nagelkerke R^2	0.17	0.19	0.19	0.20
N	619	619	619	619

7. DISCUSSION

The previous chapter documented the results of this thesis and attempted to specify some of the important determinants of saving for retirement for a target group of respondents with quite high average income. The respondents should have a high propensity to save in all forms considering their average income. Nevertheless, there can be found some drivers of private retirement saving. This chapter discusses the main findings of this thesis in context with the previous research and the limitations regarding the study. Finally, I will present some ideas related to the topic to be examined in the future research.

7.1. Findings in their research context

As it was anticipated, amongst well educated people who have relatively high average income, demographics fail to sufficiently explain why some save for retirement and some do not. Yet, when examining the determinants of saving for retirement in form of pension insurance or PS account, it seems that demographics play an important role. First, age is clearly related to having pension insurance or PS account and younger respondents less often have engaged in pension products. Respectively, it seems that those respondents who expect to retire younger have more often wealth in pension insurance or PS account. The findings on the effect of age and the expected age of retirement are mostly in line with the life-cycle theory of saving and with earlier research on retirement saving. Furthermore, besides the age of the respondent, the place of residence has an effect on the probability of having pension products since it was seen that living currently in one of the five largest cities in Finland (Helsinki, Espoo, Tampere, Vantaa and Turku) is significantly negatively related to having pension products.

When looking at the drivers of retirement saving more generally, more variables gain significance in explaining saving for retirement. Besides the effect of age and expected age of retirement, those respondents who save for retirement either in form of having pension products or state other form of saving for retirement as the primary reason for not having pension products score significantly higher on extraversion, lower on openness, are more risk tolerant, more wealthy and more often have education in business than those grouped as "non-investors". The hypothesis on the effect of extraversion on the probability of saving for retirement seems to be

supported by the empirical results as extraversion was found to be significant variable at least on the 10 percent significance level in almost all of the specifications. Yet, the evidence for the negative effect of openness is somewhat weaker and in the Heckman self-selection model openness is not a significant variable in explaining the probability of saving for retirement in general.

Considering the effect of having education in economics on saving for retirement, the findings of this study are consistent with the results of Christiansen et al. (2008). This study gives moderate support to the hypothesis that education in business has a positive effect on saving for retirement in general. Therefore, it could be proposed that those having education in economics save for retirement more often than those with technology or other education because of their "informational advantage". In other words, those having business education might be more aware of financial products available. Alternatively, it might be that those who have education in economics emphasize self-enhancement values of power and achievement (Luotonen, 2009) more than other graduates and are therefore more likely to invest for retirement.

The finding that gender has no significant effect on the decision to save for retirement might be argued to be related to the respondents being quite highly educated in my sample. Thus, it could be that the effect of gender is not important as the majority of the female respondents in my sample have education in business or otherwise quite high level of education. Considering the findings of Wang (2009) who proposed that men are more willing to take risks due to their greater level of financial literacy, the fact that gender has no significant effect on my sample does not seem surprising as there might be less gender differences in the financial knowledge of more educated individuals. On the other hand, it could be that gender does not play an important role in determining whether the individual saves for retirement in my sample but rather in the decisions concerning the allocation of assets or the amount of money contributed to pension savings both of which have not been covered by this study.

Those who self-select to the group of people who do not have pension products due to otherwise saving for retirement live more often in one of the five largest cities in Finland, have significantly higher risk tolerance and have more often wealth in stocks. It seems that those respondents who live in big cities or have wealth in stocks are more often selected in the group of those not having pension products due to otherwise saving for retirement. This finding seems reasonable as Karhunen and Keloharju (2001) document that in 2000, substantially larger proportion of

individuals living in the Greater Helsinki Area (Helsinki, Espoo, Vantaa and Kauniainen), more specifically 29.8 percent of inhabitants, own directly stocks compared to national average of 14.3 percent. In addition, according to Karhunen and Keloharju the majority of shareownership wealth is concentrated in the Greater Helsinki Area. Considering these findings, it seems plausible to consider that one form of saving might "crowd out" another and those respondents who live in one of the five largest cities in Finland might be more likely to invest for retirement in form of directly owning stocks compared to respondents living in smaller municipalities where saving in form of pension insurance seems to be preferred. Moreover, it could be that individuals who live in a big city have invested on average a larger share of their wealth in owner-occupied houses and might more often consider investing in owner-occupied house to be one form of saving for retirement.

Surprisingly, being more politically right-wing oriented does not explain saving for retirement in my study neither when looking at saving for retirement in form of pension products nor when looking at those who have "selected" in the group of people not having pension products mainly due to otherwise saving for retirement. In contrast, when looking at individuals who consider private pension savings needed in my sample, right-wing orientation clearly stands out as a significant variable positively related to considering voluntary pension savings needed. This might reflect that expectations concerning the future social safety net differ for individuals with more right-wing political values and for individuals with more left-wing political orientation.

Yet, it could be that in contrast with findings on positive association between right-wing political values and stock market participation (see e.g. Kaustia and Torstila, 2011), some persons have invested in pension insurance but chose only fixed income products in their portfolio allocation. Respectively, it might be that those who invest in interest-rate linked pension insurance are less right-wing oriented than those investing in investment-linked pension insurance or for instance, directly in stocks. Furthermore, as some have invested in pension insurance or PS account but do not consider additional voluntary pension savings needed for them, it could be that taking pension insurance is often part of negotiating for a mortgage for instance. Alternatively, it could be that those who do not consider pension savings needed have already gathered relatively much wealth and do not consider additional pension savings to be needed anymore.

Overall when looking at the effects of personality dimensions, this study gives only moderate support for personality being related to voluntary pension saving. First, the single personality

dimension that stands out in the analysis is extraversion, as measured by the respondent's self-assessment on his/her outgoingness and sociability and how reserved the respondent considers himself/herself. Surprisingly, neuroticism or conscientiousness had no significant effect on pension saving. It could be that level of conscientiousness plays a bigger role when looking at less educated people but not among the more highly educated. Yet, considering the findings of the study it seems that the proposition of Roccas et al. (2002) could be viable: It might be that the influence of values on behaviour depend more on cognitive control than does the influence of traits. In other words, it could be that the results would be more significant if the effect of values was examined instead of focus on personality traits as there has been found some evidence that traits have stronger influence on behaviour over which individuals have little cognitive control, whereas values have stronger influence on behaviour under more voluntary control. As the decision to save for retirement is under voluntary, cognitive control of the individual, it could be that values have higher explanative power on voluntary pension saving.

7.2. Limitations of the study

The most obvious limitations concerning this study are clearly those related to the method of utilising survey as the research method. Surveys in general are subject to various limitations such as the accuracy of answers people give when they answer, selection biases that might affect who answers and the accuracy of survey question design. Though the number of respondents is quite good, the response rate is really low and therefore it can be expected that the biases related are also higher than with higher response rate.

Furthermore, as the survey only focused on whether or not the person is saving for retirement in general, it should be noticed that it is not known for instance how much or how often the respondent contributes to the individual pension savings. Furthermore, it is not covered by the study how those respondents who have indicated the primary reason for not having pension products are actually saving for retirement and if that saving is anyway separated from other savings for example. Therefore, there might be huge differences in the pension savings of those who do not have pension insurance or PS account. In addition, it should be noticed that those having pension insurance or PS account might be also saving otherwise for retirement at the same time as one might not always crowd out other form of saving. This might also make the

differences between those having pension insurance or otherwise saving to be smaller than they were if it was known who also save in other form besides having pension products.

Moreover, the abbreviated version of Big Five suffers from losses in the reliability of the results and does not do as good job in measuring the five personality dimensions of the respondent as the longer 44-item version would. Yet, in order to get more responses to the survey the shorter version was chosen. In addition, when examining personality traits measured by the self-evaluations of respondents it should be noticed that people might not always answer as honest as they could. Considering that personality traits can be positive or negative, people might be less honest compared to when they are asked about their values as values in contrast are in general always considered as desirable.

7.3. Suggestions for future research

Various intriguing topics remain to be examined in future research concerning associations between values, personality traits and retirement investing. First, considering the scope of this study was limited to educated people with quite high average salary, the associations between personality traits, values and saving for retirement would be interesting to study also among different groups of people and with larger samples. Furthermore, as this thesis has only concentrated on individuals with university level degree in economics or in technology (or other similar field), it would be worthwhile to study whether economics education has a significant effect also when comparing to other fields of study than technology.

Thinking about the results of this study, it seems that saving for retirement in form of pension insurance might differ from other forms of saving such as investing directly in stocks. A good topic for future research might be to look at association between values and investing in pension insurance. It could be studied for instance whether people who invest in pension insurance are emphasizing more self-enhancement values of power and achievement or in contrast conservation value of security for instance. Furthermore, it could be examined whether personality traits have an impact on whether the person is interested in investing in general.

Moreover, it would be interesting to study whether those who do not have pension products because of otherwise saving for retirement are mentally accounting for pension savings and separating those from other savings. In addition, allocations of assets and trading activity would be interesting to study both when looking at saving in form of pension insurance and those who save otherwise for retirement.

8. CONCLUSIONS

In this paper, I study the effects of economics education, Big Five personality dimensions and political orientation on saving for retirement. In addition to exploring the determinants of saving for retirement in general, I examine the "self-selection" of individuals in the group of those who report to not to have pension insurance or PS account mainly due to otherwise saving for retirement. The focus of this study has been on examining retirement saving of people with university level degree in economics or university level degree in technology or other similar field of study. The data consists of 636 survey responses from the members of The Finnish Association of Business School Graduates (SEFE) and The Finnish Association of Graduate Engineers (TEK) of which 259 respondents have education in economics. When studying the probability of saving for retirement of well-educated people with quite high average salary, demographics and risk aversion alone fail to adequately explain why some people save for retirement and some do not.

This study gives supportive evidence of the relevance of economics education and personality in the probability of saving for retirement. First, economics education is hypothesized to matter due to an informational advantage it gives to the individual compared to those individuals with education in other field of study. Looking at the Big Five personality trait dimensions, extraversion stands out as a significant factor explaining saving for retirement. The reason for the positive impact of extraversion on retirement saving might be that individuals who are more extravert might be more prone to peer effects and for instance might be more easily influenced by a financial advisor or a bank employee. Furthermore, the results give some support for the relevance of openness in determining whether an individual is saving for retirement or not. It seems that the higher the individual scores on openness the less likely he/she is to save for retirement. It could be that those who score higher on openness are for instance less interested in investing and might want to spend their disposable income otherwise than in financial products.

Moreover, when examining the self-selection of people in groups of pension investors who have pension insurance or PS account and pension investors who are otherwise saving for retirement, several interesting findings emerge. First, those respondents who do not have pension products due to otherwise saving for retirement are more likely to have higher risk tolerance, live more

often in a big city and have more often wealth in stocks. It seems that having wealth in stocks can be regarded as a close substitute crowding out saving in form of pension insurance or PS account. In contrast with the findings of previous literature, right-wing orientation or gender has no remarkable effect on saving for retirement.

In addition to academic significance, the findings of the study can be applied for instance in designing marketing of financial products. Considering the relevance of personality in retirement saving it could be profitable to take into account personality traits such as extraversion or openness in the marketing design. Yet, also further research on the topic is needed. It would be interesting to study whether decisions concerning the portfolio allocation are impacted by the personality of an investor or whether individuals with different personality pay attention to different types of marketing campaigns. For instance, individuals who score higher on openness might be more interested in less conservative marketing campaigns as they are expected to be in general more open to new ideas and experiences. Furthermore, considering that economics education has positive impact on saving for retirement, increasing financial awareness could prompt retirement savings.

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APPENDIX

Tutkimus eläkesäästämisestä – Säästätkö eläkevuosiasi varten?

1) Ikä *

alle 26
26
27
…
yli 63

2) Sukupuoli *

___ Mies
___ Nainen

3) Postinumero

Kirjoita alle asuinpaikkasi postinumero viidellä numerolla

_____

4) Koulutus *

___ Kauppatieteellinen
___ Teknillinen
___ Muu

5) Nettotulot kuukaudessa (ansiotulot ja pääomatulot yhteensä nettona € /kk): *

___ 0–999
___ 1 000–1 999
___ 2 000–2 999
___ 3 000–3 999
___ 4 000–4 999
___ 5 000–

6) Montako vuotta olet työskennellyt kokopäiväisesti? *

___ 0–5
___ 6–10
___ 11–15
___ 16–20
___ 21–25
___ 26–

7) Arvio bruttovarallisuudestasi (€) *
Bruttovarallisuudella tarkoitetaan tässä rahoitusvarallisuuden (talletukset, arvopaperit ym.) ja kiinteän omaisuuden (asunnot, kulkuvälineet ym.) käypää arvoa.

___ 0–99 999
___ 100 000–199 999
___ 200 000–299 999
___ 300 000–399 999
___ 400 000–499 999
___ 500 000–

8) Arvio kaikista veloistasi (€) *

___ 0–99 999
___ 100 000–199 999
___ 200 000–299 999
___ 300 000–399 999
___ 400 000–499 999
___ 500 000–

9) Kuinka hyvin seuraavat väittämät kuvaavat persoonallisuuttasi asteikolla 1 –6, kun yksi merkitsee, että väittämä ei kuvaa sinua ollenkaan ja kuusi, että väittämä kuvaa sinua erittäin hyvin? *
1 = Ei kuvaa ollenkaan minua, 6 = Kuvaa minua erittäin hyvin

	1	2	3	4	5	6
Luotan yleisesti ottaen muihin *	☐	☐	☐	☐	☐	☐
Olen ahkera *	☐	☐	☐	☐	☐	☐
Siedän hyvin stressiä *	☐	☐	☐	☐	☐	☐
Olen varautunut *	☐	☐	☐	☐	☐	☐
Minulla on vilkas mielikuvitus *	☐	☐	☐	☐	☐	☐
Olen ulospäinsuuntautunut ja sosiaalinen *	☐	☐	☐	☐	☐	☐
Löydän helposti muista vikoja *	☐	☐	☐	☐	☐	☐
Olen tunnollinen *	☐	☐	☐	☐	☐	☐
Hermostun helposti *	☐	☐	☐	☐	☐	☐
Olen luova ja omaperäinen *	☐	☐	☐	☐	☐	☐

10) Mikä seuraavista kuvaa parhaiten suhtautumistasi riskiin, kun säästät tai sijoitat rahojasi? *

___ Otan merkittäviä taloudellisia riskejä ja odotan merkittäviä tuottoja
___ Otan suurempia taloudellisia riskejä kuin ihmiset keskimäärin ja odotan keskimäärin suurempia tuottoja
___ Otan yhtä suuria taloudellisia riskejä kuin ihmiset keskimäärin ja odotan keskimäärin yhtä suuria tuottoja
___ Otan pienempiä taloudellisia riskejä kuin ihmiset keskimäärin ja tyydyn pienempiin tuottoihin
___ En ole valmis ottamaan mitään taloudellisia riskejä

11) Poliittista suuntautumista kuvataan usein ns. vasemmisto oikeistoakselilla. Mihin sijoittaisit itsesi tällä akselilla Suomen poliittisen kentän mittakaavassa, kun yksi tarkoittaa vasenta ja kymmenen oikeaa? *

	1	2	3	4	5	6	7	8	9	10	
Vasen	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Oikea

12) Merkitse alla olevista ne, joissa sinulla on varallisuutta *
Voit valita yhden tai useamman vaihtoehdon

___ omistusasunnossa
___ sijoitusasunnossa
___ määräaikaistalletustilillä
___ osakkeissa
___ osakerahastossa
___ muussa sijoitusrahastossa
___ ei missään edellä mainituista

13) Onko vanhemmillasi varallisuutta osakkeissa tai osakerahastossa? *

___ Kyllä
___ Ei
___ En tiedä

14) Minkä ikäisenä uskot jääväsi eläkkeelle? *

60 tai alle
61
…
yli 70-vuotiaana

15) Millaiset nettoeläketulot (€ /kk) sinulla on tavoitteena saada? *

___ 0–799
___ 800–1 599
___ 1 600–2 399
___ 2 400–3 199
___ 3 200–3 999
___ 4 000–

16) Uskotko vapaaehtoisen eläkesäästämisen olevan sinulle tarpeellista? *

___ Kyllä
___ Ei

17) Onko sinulla varallisuutta vapaaehtoisessa eläkevakuutuksessa tai pitkäaikaissäästämistilillä (PS tili)? *

___ Osa varallisuudestani on sijoitettu vapaaehtoisen eläkevakuutuksen tai PS-tilin kautta
___ Kaikki sijoitukseni liittyvät vapaaehtoiseen eläkevakuutukseen tai PS-tiliin
___ Minulla on vapaaehtoinen eläkevakuutus, mutta se on laskentaperusteinen enkä ole itse valinnut sijoituskohteita
___ Ei ole

18) Mikä seuraavista kuvaa parhaiten syytä siihen, että et ole sijoittanut vapaaehtoiseen eläkevakuutukseen tai PS tilille? * (kysymys näkyy vain henkilöille jotka vastasivat edelliseen kysymykseen ei ole)

___ En tunne näiden sijoituskohteiden ominaisuuksia tai niiden tarjoamia mahdollisuuksia
___ Tunnen ainakin toisen sijoituskohteista ja olen kiinnostunut sijoittamaan, mutta minulla ei ole ollut varaa siihen
___ En koe eläkesäästämistä ajankohtaiseksi itselleni
___ En halua sijoittaa niihin, koska uskon niihin liittyvän liian isoja riskejä eläkelain muutoksista
___ Säästän muulla tavoin eläkevuosiani varten

19) Jääkö sinulle säästöön rahaa, kun olet hoitanut pakolliset menot (asuminen, ruoka ym.) kuukausittaisista nettotuloistasi? *

___ Kyllä
___ Ei

20) Paljonko arvioisit säästöön jäävän osuuden olevan keskimäärin kuukaudessa? (kysymys näkyy vain henkilöille, jotka vastanneet edelliseen kysymykseen kyllä)

Kirjoita alle arviosi kuukausittaisesta säästöstäsi 100 euron tarkkuudella

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