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ASP scheme as a factor of saving decisions among young Finnish adults

Bachelor's thesis

International Business Administration, Finance and Accounting

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I hereby declare that I have compiled the thesis independently

and all works, important standpoints and data by other authors

have been properly referenced and the same paper

has not been previously presented for grading.

The document length is 8335 words from the introduction to the end of conclusion.

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ABSTRACT

The aim of the bachelor's thesis is to investigate the association of the Finnish ASP scheme and saving decisions of young Finnish adults. This study also takes a look at time preferences, impulsivity and other factors that may have an effect on both regular saving and saving ratios. The data is gathered using a quantitative based survey method (N=107) and then analyzed by using a cross-sectional regression with multiple models.

The results suggest that most young Finnish adults save money regularly and the ASP scheme is a well known system. Young adults are also interested in buying an own home and the majority saves money for that exact reason. Those who have opened the ASP-account are more likely to save regularly. Higher income is also noticed to have a positive effect on saving. Time preferences and especially present bias correlate negatively with saving habits.

Keywords: saving behaviour, ASP scheme, first-home saving, time preferences

INTRODUCTION

Buying the very first home is one of the biggest investments made during lifetime. Home saving is also a big reason for young adults to save money. According to Nordea Bank's survey from 2019, saving for the first apartment is the 3rd biggest reason to save for young Finnish adults, only after saving for a "bad day" and achieving financial independence (Kärkkäinen 2019, 6).

The desire to buy the first home is not surprising. Many young adults find regular jobs in their 20's after finishing schools. This is when many start to think about buying a home. Living in a rented apartment is usually seen as a short-term option. Furthermore, renting means paying for the right to live in the apartment where as buying a home and taking a mortgage gives the ownership and security.

Obviously, young adults usually have low income and cannot buy a home without taking a mortgage. Getting a mortgage means regular income and savings. Banks usually reguire a downpayment to get a loan and since young adults often don't have other securities available, starting to save money as early as possible helps the situation.

The Finnish government has made a special system to help young adults with saving for the first home, the ASP scheme. The ASP scheme consists of an account and loan. The popularity of ASP-saving accounts has increased by over six times during 2009-2019 (Palmgren, 2019), which makes it a topical theme of saving.

Since buying a home is a good target for the future, time preferences have a role in saving decisions aswell. Previous studies show that impulsive decision making can have a negative effect on saving habits of young adults. To have enough savings for the first home it is always better to start saving early.

Because of the increasing popularity of the ASP scheme and saving among young adults, the objective of the research is to investigate the relationship between the ASP scheme, regular saving,

saving ratios and time preferences. Based on the aim of the research, the main research questions are:

- Does the awareness and use of the ASP scheme associate positively on regular saving and saving ratios of young Finnish adults?
- Do time preferences associate negatively with saving habits of young Finnish adults?

Based on the aim and previous studies, the two hypotheses were formulated:

- The ASP scheme increases regular saving and saving ratios of young Finnish adults.
- Present biased young adults are less likely to save regularly and have lower saving ratios than others.

The research focuses on young Finnish adults who have not yet bought their first homes. The data is gathered via an online survey and further investigated through cross-sectional regression models. Opportunity sampling method is used and the sample size is 107. The dependent variables used in the regressions are regular saving and saving ratios. The independent variables are divided to socio-economic variables such as age and gender, time preferences and ASP related variables. The further connections are presented using correlation.

The research consists of three main parts. The first part consists of theoretical framework where the author takes a closer look into saving behaviour, house saving and time prerefences. Furthermore, the ASP scheme is explained and previous studies are investigated. The second part explains the methodology and data of the research. The third part includes the results from regressions and discussion. Finally, the author gives a conclusion.

1. THEORETICAL FRAMEWORK

1.2. Saving decisions and house saving

In a modern market economy, the handling of own welfare is increasingly important. Money is affecting our everyday lives and we work to get paid salary. That's why it is important to create financial plans and saving strategies to support life decisions that might also occur in the far future. (Doda, Fortuzi 2015, 108).

Saving for the future is important. Everybody should try to save money for sudden costs that might occur. This way people can protect themselves from financial shocks and are able to create wealth. A crisis like the current COVID-19 pandemic has affected the lives of people around the world and many have lost their jobs. The global unemployment increased by 33 million in 2020 and the unemployment rate rised by 1.1% (ILO 2020, 2). These kind of crises increase the importance of saving habits.

Saving is the act of refraining from spending one's income on consumption. In other words, an individual is able to save if income is higher than consumption. Savings can be also defined by a change in wealth over time. In this means it is the sacrifice of present consumption, so that one is able to spend more in the future (Achar 2012, 265).

Eventhough the act of saving might be simple to define the reasons for saving and saving decions vary between individuals. Usually saving is related with having a goal. The ability to take control of life and keep up with financial goals is to make plans. Generally, there are three durations for financial goals: shot-, medium-, and long term goals. The short term goals could for example be paying a debt or taking a vacation. However, planning for the future is important aswell. Medium-, and long-term goals may include things like further education, buying a home or even retiring (NEFE 2017, 35).

Generally speaking, individuals with lower income levels try to save for more immediate expenses such as food or rent. People with higher income levels tend to save for longer aim expenses such as education, apartment or retirement (Ellene, Kumar 2019, 15).

Time preferences are generally considered as an important factor of economic decision making. Different theories suggest that time preferences associate with individual patience. In other words, less-patient individuals tend to spend less money, time or resources so that they are able to yield benefits in the future (Bradford *et al*. 2014, 2).

Furthermore, present bias is often recognized to put more weight on near future than far future. The problem with present bias is that it may lead to time inconsistenvy and failure to stick to plans. The optimal decision at one point might not be optimal anymore in the future as time periods become increasingly significant (Bradford 2014, 2).

Time preferences are often referred to delayed and larger rewards being preferred over smaller and immediate rewards. The preferences are measured using monetary rewards to see whether a participant chooses a smaller reward now or a larger reward later (Hunter *et al.* 2018, 2).

The dream of buying an own home is a desire that many people want. In most household budgets, buying an own home is one of the biggest investments made. Housing is an important factor in a country's property industry. The property market benefits from the social trend of independent living. The decision to buy a home is affected by factors like affordable house prices, saving for a deposit and low interest rates (Abdullah *et al*. 2012, 2-7).

Having an own home is also seen as a better long-term option than rental option. Renting is a good option for its flexibility since tenants can move away at short notice. However, owning a home gives security and privacy (Hargreaves 2002, 3). Furthermore, it is beneficial to pay away mortgage and own a house than paying for only the right of living as it is for renting.

The downpayment deposit is a big problem with buying a home if there are no savings. The amount of the downpayment depends of country, bank and other factors. This creates a problem for low income young adults who may have difficulty to afford the required downpayment for purchasing a home (Mnasri 2015, 43). It is also important especially for first-home buyers to get into the housing markets. If first-time buyers are not able to enter the markets, negative side effects might

occur like pressure on the social housing framework. Financial issues are seen as a major factor in the home buying decision making of first-home buyers (Reed, Mills 2007, 4; 12).

The home ownership rates have increased in the OECD countries over the decades. In Finland, the home ownership rate has in the last 13 years increased and decreased slightly with lowest rate being 70,7% and highest 74,30% (Statista 2021). The relaxation of down-payment constraints on mortgages might be in a key role which might increase the ownership rates (Andrews & Sanchez 2011, 207).

A key factor is that there should be something left from the income to put aside. The savings rate is the percentage that a person is able to deduct from disposable income to set aside (Wohlner 2021). In the European Union, household saving rates differ significantly. Differences have proven to be persistent over time (Eurostat 2021). In times of economic uncertainty, like in which we are living today, household savings rates are expected to increase. People might be afraid to lose a job and try to save more.

The household saving rate in the EU was 12% in 2019. On average, EU households save more than their counterparts in Japan, but less than in the US. In the end of 2019, the savings rates started to inrease significantly due to COVID-19 pandemic, which has affected many in a way that people are forced to think more about consumption and saving decisions. In the second quarter of 2020, the savings rate in the EU was the highest at 25%, all the way from year 1999 (Eurostat 2021).

1.2. Saving behavior of young Finnish adults

Lately, the interest among Finnish citizens in saving has increased a lot. Savings rate of Finnish households were negative for a long time and consumption was high. During 2020 savings rate started to increase rapidly (Kaunisto 2020). The increase of the rate indicates that households do not spend all their money but are able to put something aside.

COVID-19 is the main reason for the impact on higher savings rates lately. During the pandemic, people have not been able to consume the way they normally do. Furthermore, more than every fourth Finn consider that a financial shock like COVID-19 has changed the way they think about

saving. Especially young adults have woken up to the importance of saving and many find saving increasingly important (Lähitapiola 2021).

One of the biggest reasons Finnish people save money is for buying a home. It is essential especially for younger adults. Statutory loan ceiling means that there is a need to have savings or other securities when applying for a housing loan. Young adults often do not have other securities available than the house that will be bought itself, so they need to start saving (Osuuspankki 2021).

Saving for a home is also a topical subject for young Finnish adults. According to Danske Bank Finland's survey in 2016, two-thirds of 18-35 year olds find it important to have bought an own home by age 35 (Danske Bank 2017). Own home is seen as a good investment, a way of creating welfare and more affordable option compared to renting. In 2018 the average age of first home buyers in Finland was 28,8 years (Tilastokeskus 2019, 9).

However, even though young adults find it important to save and home saving is one of the most thought option, many young Finnish adults save only a short-time period and small amounts. Noticable preventing reason are the current life situation and low income (Danske Bank 2017).

The low income level of young adults can partly be explained due to long years of studies. From the Finnish high school graduates over 80% continue studying in universities/corresponding (Haapamäki 2018). Furthermore, Finnish men are obligated to go to army which makes the time of getting to full-time work even longer. This means that it is difficult to work full-time at the same time while studying and the median age of finishing a higher education in Finland is 28 years old (Opetus- ja kulttuuriministeriö 2019, 3).

1.3. The ASP scheme

1.3.1. A short history of the ASP scheme

Typically, owner occupancy has been seen as the most desirable form of tenure and first-home buying as a key factor of efficient housing markets. In the Finnish housing finance, the 1990's saw big changes. There was a boom in the late 80's and financial crahs in the early 90's which led to quick increase of housing prices. Since younger people typically have lower savings and income

levels, many young adults used the so called "ASP scheme" in the 90's when buying a first home (Tähtinen 2005, 19).

The problems for young adults were seen many years prior to the financial crash. In the 1970's the rental prices were high and the supply for rental apartments low. This made it difficult for young adults to find an affordable priced apartment. The income levels of younger people were also low and buying a home was difficult aswell. The average age for buying the first home at that time was as high as 40 years old and the ones that could buy an apartment usually had higher income. This meant that younger people were in a bad position in the housing markets (Vesanen 1987, 6-15).

To solve this problem the state wanted to create a system that would help young people to save and purchase their first homes. The state formed two work groups in the late 70's to formulate a system which then became the ASP (asuntosäästöpalkkio) scheme. The first ASP-accounts were opened in the beginning of the 1980's and a law for state supported ASP-loan and interest subsidies was made (Vesanen 1987, 6-15).

The ASP law was formed in 1992. The goal written in the law was to increase the possibility of buying a first home for young adults (Finlex 1992). Since then the ASP law has been changed from time to time to match up with current housing market standards. The most recent change is a recent one since the maximum amount of the ASP-loans was increased. The reason behind was the increase of house prices of 4% in Finland from 2014 (Ympäristöministeriö 2021). Due to the law and changes to the from time to time, the system has lived up for multiple decades and the intention of helping young adults with both saving in general and saving for the first home has helped many young Finnish adults.

The popularity of the ASP scheme has varied from time to time. The system gained rapid popularity in the 80's as the demand for owner-occupied houses was really high for the whole population. From year 1982 to 1999 the amount of given ASP-loans was around 127 700. The peak was in the beginning of the 90's (Finlex 2000). Since then the popularity has decreased and increased from time to time. However, in the last five years the popularity has increased significantly and there is a record amount of money deposited to the accounts, around 3,9 billion euros (Gustaffson 2021). Furthermore, the amount of valid ASP-accounts has increased from 24 300 in 2009 to 153 100 in 2019 (Finanssivalvonta 2019).

1.3.2. ASP-saving and ASP-loan

To open the ASP-account, an ASP agreement must be signed with a chosen Finnish bank. Anyone at age 15-39 who have never owned an apartment before can open the account. After opening the account, deposits can be made. However, deposits must be made in at least eight calendar quarters and the amounts must be at least 150€ and up to 3 000€ during a quarter. After eight quarterly deposits are succesfully made and the 10% amount of the purchase price is saved, it is possible to apply for the ASP-loan (Valtiokonttori 2021).

Underage ASP savers can sign the agreement with a concent of parents. Furthermore, the money saved must be earned by the underage person him/herself. This means that if an underage person is earning for example wages, only that money can be deposited. Gifts, benefits and financial aids cannot be deposited. However, after turning 18 years old, deposits can be made freely with the limit of regular quarter/amount restrictions (Valtiokonttori 2021).

The bank is obligated to pay a 1% annual tax-exempt interest to the account. Furthermore, additional interest of 2-4% is paid for the first year and five following years. However, the additional interest is only paid once the savings goal is reached an apartment is purchased (Valtiokonttori 2021). This makes the ASP-account the most profitable savings account in Finland since no other account offers such high annual interests.

The ASP-loan is basically a regular housing loan but offers the state benefits. The benefits for the loan are a lower interest rate on compared to similar regular first home loans, a government interest subsidy for ten years and a a free of charge government guarantee. If the interest rate of the ASP-loan exceeds 3,8%, the state pays interest subsidy. The subsidy is paid for the first ten years. The government guarantee may be up to 90% of the purchase price (Valtiokonttori 2021), which basically covers the entire loan.

The amount of the loan is calculated by the approved deposits made to the ASP-account. The loan may be up to 90% of the purchase price. However, there is a maximum amount for the ASP-loan. The loan amount is determined by the location of the apartment that is bought and for example in Helsinki the current max. loan amount is 215 000€ (Valtiokonttori 2021). If the price for the house is higher, the bank may grant additional regular housing loan on top of the ASP-loan.

Furthermore, the ASP-loan has some other restrictions. The state quarantee can only be applied when making the purchase of the house. In addition, interest rate hedging cannot be applied to ASP-loan (Valtiokonttori 2021). The loan period is 25 years, whereas in regular housing loans it could be up to 35 years (Nordea 2021). Furthermore, a maximum of two instalment-free years can be applied.

1.4. Previous studies and hypotheses

Laakkonen (2011, 3; 25) investigated saving and investment behavior of young Finnish people. The sample size was 54 and the age scale was 18-24 year olds. The results were that the most common target of saving was to buy an own home. However, the knowledge level of the ASP scheme was low with over 66% of respondents not knowing what the ASP-account is.

In a study conducted by Palojärvi (2019) the intention was to find out what factors affect the saving decisions of young adults. On a sample size of 292 the most common reasons to save were saving for a "bad day" and home saving. 24% of the respondents claimed to save for a home. A clear majority of 85% answered to strive for regular saving and only 14% claimed that there is no possibility to save anything monthly. Furthermore, Palojärvi argues that the popularity of ASP has increased recently and many of the respondents knew the ASP scheme well and 24% saved to the account primarily (Palojärvi 2019, 40-43).

Puikkonen and Pönttinen (2014, 47) conducted a study at the University of Jyväskylä about house saving for students. The sample size was 278. The findings were that the clear majority of 18-24 and 25-30 year old students believe that the ASP-account is the best way to save for the first home. The second most popular option was regular savings accounts and the third option was funds.

Hirvonen (2018, 52-53) investigated the financial behavior and the factors of self-control and optimism together with ASP as a possibility of being a mechanism for self-control. The findings were that self-control has a positive effect on financial behavior and that ASP-account could works as a mechanism for self-control. The participants that had an ASP-account also saved more regularly than the ones without the ASP.

Abazi (2013) argues that higher level of education leads to higher knowledge about the ASP-system. However, many young Finnish adults have difficulties to recognize the attributes of the ASP. The system is considered very complex. This is due to many governmental terms that affect the ASP-system (Abazi 2013, 38).

In addition, time preferences and impulsivity have been investigated in multiple researches. It has been widely recognized that present bias and impulsive decision making have a negative impact on saving habits.

Goda (*et al.* 2015, 50) investigated the association between retirement savings and time preferences. A broad sample of the U.S. population was used in the research. The findings were that present bias is a highly significant factor of predicting retirement savings. Furthermore, lack of self-control was found to have an additional negative effect on retirement saving.

Xiao (2019, 10-12) argues that present biased people are more likely of preferring current spending while saving less for the future. Present bias was associated also with impatient behavior. The data was gathered in China. Xiao suggests that financial planners could ask questions related to present versus future orientation or spending versus saving preferences to identify present biased people.

Reimers (*et al.* 2009, 975-977) conducted a research in the UK where they investigated the associations between delay discounting measure and impulsive behavior together with other factors included. The sample consisted of over 42 000 answers and binary measure of delay discounting was used. The findings were that present bias was associated with younger age, lower income and education and female gender. Furthermore, impulsiveness was found to be linked on poor money saving habits.

The previous studies suggest that the popularity of the ASP has increased and home saving is a topical theme for young adults. Furthermore, present bias is seen as a negative factor on saving habits. Due to these reasons, the following hypotheses for the study were formulated:

- The ASP scheme increases regular saving and saving ratios of young Finnish adults.
- Present biased young adults are less likely to save regularly and have lower saving ratios than others.

2. DATA AND METHODS

The survey and descriptive statistics are presented in the Appencides (Appendix 1 and 2).

2.1. Research method selection

There are three common methods to conduct a research: quantitative, qualitative and mixed methods. The most suitable method depends on what kind of data is used in the research. Typically the quantative approach is selected when the research questions require numerical data, the qualitative approach when textural data is used. The mixed methods are used when the research questions require both numerical and textural data (Williams 2007, 65).

For this research, quantitative methods are used. The research involves numerical data collection and mathematical models are used to analyze the data. A quantitative research can be conducted by different methods: correlational, developmental design, observational studies, and survey research. Quantitative research involves the collection of data so that it can be quantified to statistical treatment, in this case a regression analysis (Williams 2007, 67).

To investigate saving decisions and ASP association, the author decided to create an online survey. Google Forms was chosen as a platform for the survey. Most young adults today use social media services and digital platforms so an online survey is a convinient way to reach the target group. Opportunity sampling method was used and the targeted population was young Finnish adults who have not bought their first home yet and have possibility to open the ASP-account.

2.2. Survey

When designing the survey the target was to make it simple and quick to answer. Most of the questions were easy to answer multiple choice -questions. The author designed the survey in a way that there were two separate parts. The first part focused on socio-economic characteristics. The participants were asked to give their age, gender, education level, occupation, source of income and the scale of monthly net income.

There were three options for the education level: high school graduate/corresponding or lower, bachlelor's degree and master's degree or higher. The assumption was that most of the respondents have a university degree. Furthermore, monthly net income was divided into scales of 0-499€, 500-999€, 1000-2999€, 3000-5999€ and 6000€ or more.

For occupation and source of income the participants were given an opportunity to choose multiple answers. The assumption was that most would answer to be either employed or students and income to be either salary or social benefits. Furthermore, the participants were given the possibility to give their own answer with a short text box.

The second part consisted of questions about saving decisions and the ASP scheme. Firstly, the participants were asked whether they save money regularly and how much are they able to save from their income. The saving to income scale was 0-100%. The survey then continued with time preference impulsivity questions.

Time preferences were used to investigate whether different time horizons affect the saving decisions. The first question was a simple binary choice question, where the participants were asked whether they would choose to receive 400€ now or wait to receive 450€ one month later.

To measure the preferences and implicit discount rates more precisely the next two questions were designed so that the participants would give their own answer in a short-text box.. The participants are asked to give an X amount of money which would make them feel indifferent of receiving 400€ now or the X amount one and 10 years later.

Impulsive decision making is connected with lower money saving (Reimers *et al*. 2009, 976). Impulsivity was measured by a statement of „I am good at resisting the temptation to buy unnecessary products/services that I don't need". The participants were asked to give an answer on scale 1 to 10, where 1 represents total disagreement and 10 total agreement.

Finally, the survey ended with questions about home saving and the ASP scheme. The participants were asked whether they have considered buying a home and do they save money to buy a home. Furthermore, the participants were asked to claim whether they have heard about the ASP scheme, have they opened an ASP-account to a bank and do they save money regularly to the account. These questions were binary yes or no -questions. The final question was about the knowledge level of the ASP in which the participants gave the answer on scale 1 to 10 (1 represents no knowledge and 10 represents full knowledge).

The total number of questions was 16. The survey was opened for answers on 10.04.2021. The author sent the survey to LinkedIn connections and in different WhatsApp groups as well. In a survey research at least 100 answers should be identified (Delice 2010, 2008), so this was the minimum target aswell. All answers were collected anonymously and closed on 18.04.2021 as the target amount of answers was reached.

2.3. Data

2.3.1. Saving behaviour and ASP

The sample consists of 107 answers. From all the participants 81,3% answered to save money regularly. The scale for saving ratio was 0-100% and there were answers throughout the whole scale. However, the average savings ratio is approximately 24,4%. Furthermore, quite many respondents use the ASP-account to save money. 63,3% have opened an ASP-account and 43,9% save to ASP regularly. In a figure below (see Figure 1. ASP users vs. Non-ASP users) are presented the association of the ASP with regular saving and savings ratios:
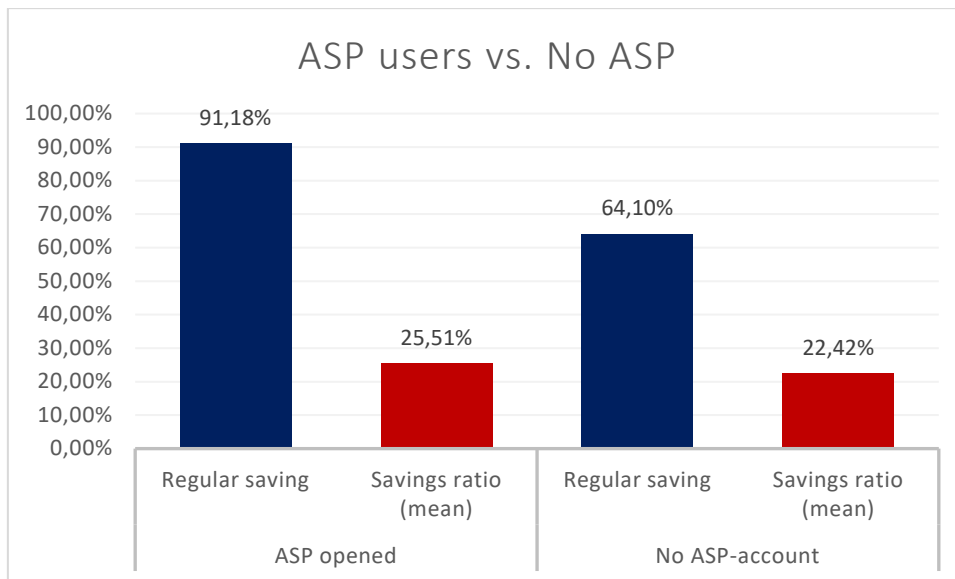
Figure 1. ASP users vs. Non-ASP users

Source: Sasi (2021), author's survey & calculations

From the figure it is possible to notice a trend of participants that have opened an ASP-account to save more regularly. Over 91% of participants with ASP save money regularly and the change is significant compared to ones that do not have the ASP-account, from which over 64% save regularly. However, there is not much of a difference with the average saving ratios compared so clear association with opened ASP-accounts and saving ratios cannot be concluded.

Most of the participants who have opened the ASP-account also save to the account regularly. From the figure below (see Figure 2. ASP users) it is possible to observe that over 69% of the participants save regularly to the ASP-account. However, this confirms that even though ASP-users save money more regularly than other participants, over 30% of the ASP-users do not save to the ASP-account and might use some other instruments for saving.
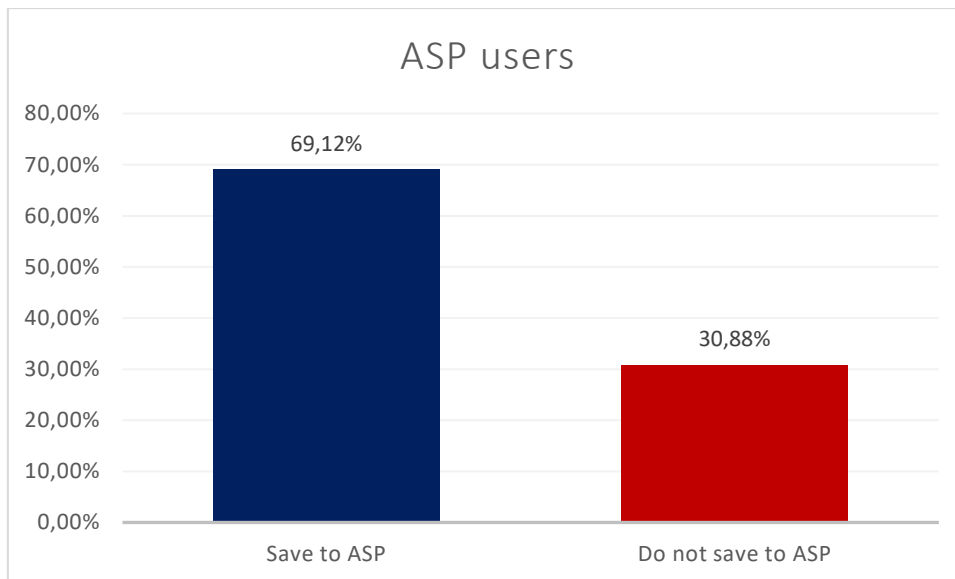
Figure 2. ASP users

Source: Sasi (2021), author's survey & calculations

The other ASP related charasteristics that were included in the survey were the knowledge of the system and whether the participant had heard of the ASP or not. The results show that clearly the most have heard about the ASP-system with over 94% of respondents. Knowledge of the ASP and its benefits is also in a very good level since on a scale of 1 to 10, over 81% of the answers are located between 7 to 10. The most common answer to the question was 10 aswell.

In addition, it is clear that the interest of buying an own house is on high level among the respondents. 86% have considered buying an own home and 72% save to buy a home. The data shows that the ones who are able to save more from their income (higher saving ratio) are more likely to save for the first home.

2.3.2. Other characteristics

The results on time preferences indicate that most of the participants are not present biased. Only 16,8% of the participants choce to receive a smaller amount now rather than waiting for higher amount after one month. However, the results are different when time horizons increase. Around 43,9% of participants put more weight for one year than 10 years of waiting. This indicates that as time horizons get wider, more participants are near future than far future orientated.

It seems that most do not make impulsive decisions either. The results are quite clear. 74,8% of the answers are positioned to 7-10 on a scale of 1-10 while the mean level is approximately 7,17. This indicates that young Finnish adults mostly agree with the given statement and tend not to make impulsive decisions.

The age of the respondents ranges between 20-34 year olds. Around 83,3% of the respondents are between the ages of 23-27. The survey is male-dominated as 73,8% of the respondents are male. 25,2% are female and one respondent chose to answer „prefer not to say".

The education level is also dominated by participants with a university degree: 68,2% of the respondents have bachelor's degree and 20,6% have achieved master's degree or higher. 11,2% are high school graduates/corresponding or lower.

The level of monthly net income is divided into different scales. For around 55% of the participants the income is in between the level 1000-2999€. Around 23% have income of 500-999€ and the rest have income levels at either 0-499€ or 3000-5999€.

Most of the respondents are either students, employed or both. Some responses included being self-employed in a single owned company. Only one participant is unemployed due to long sick leave.

Due to many students and employees, it was not a surprise that the main source of income is either salary, social benefits or both. Some claimed to get income through investments. Only four participants have no regular source of income. Finally, one participant gets income through parents and one through loans.

2.4. Statistical analysis

To analyze the data gathered from the survey more precisely, a cross-sectional regression analysis is used. The regression analysis is a powerful method to analyse statistical data. Specifically, functional relationships among different variables are investigated. The relationship of variables

is expressed in a form of an equation or a model connecting the dependent variables and independent variables (Chatterjee, Hadi 2015, 1).

Gretl-softwate was used to create regression models. The dependent variables used in the regression are regular saving and saving ratio. Author decided to create different models to investigate how added independent variables affect both regular saving and savings ratio and if the variables are statistically significant. Since there are two dependant variables, five separate models for both dependant variables were created in Gretl. These five models represent the association between the variables. Furhermore, regular saving is a binary variable so logistic cross-sectional regression models are used. For savings ratio, ordinary least squared model is used.

The independent variables are age, gender, education, income, present bias, impulsivity, desire to buy a home, regular saving for home, and ASP-heard, -opened, -save and -knowledge. To perform the regression, most of the variables were transfered into binary form. Occupation and source of income were excluded from the regression models. This is due to the questions having multiple answer options which meant that these factors were difficult to implement.

There are 106 answers taken into account on the models. This is because gender-variable is measured by male and female participants. One participant chose not to declare gender so the answer is excluded from the regression. Male participants represent value 1 and female participants value 0.

In addition, education and income are used as dummy variables. Education is measured by participants who have achieved a university degree and represent the value of 1. Others represent value 0. On the other hand, income is measured by low and high income. Participants that have income in levels 0-499 or 500-599 represent low income and value of 0. Income higher than this is represented by value 1. In the models these two variables are coded as *d_education* and *d_income*.

There are two variables for present bias coded as *present_bias1* and *present_bias2*. Value 1 represents present bias in both variables. Variable *present_bias2* is a binary variable transformed from time preference questions nr. 10 and 11 in the survey. The formula is straightforward (participant answer – 400 / 1 and participant answer – 400 / 10). If the rate for one year was greater than for 10 years the answer was coded as the participant having present bias.

Desire to buy a home and home saving are coded as following: desire to buy a home as *home_desire* and home saving as *home_save*. ASP-variables are coded as *ASP_heard*, *ASP_opened*, *ASP_save* and *ASP_knowledge*.

In the models the first column represents the coefficient and the second column the standard error. Positive coefficients indicate that when the independent variable increases the dependent variable tends to increase aswell. Negative sign indicates that as the independent variable increases the dependent variable tends to decrease.

The P-values are marked as three star-levels which indicate the statistical significance of the variable. The three levels of significance are 0.01 (1%), 0.05 (5%), 0.10 (10%). The stars ***, **, * represent the statistical significance of these levels respectively. If the P-value is lower than one of these values, there is a statistical significance related to the variable. Finally, the adjusted R-square (R2) in the models measures whether the added variables improve the regression model or not.

The structure of the five models is following: the first two models include basic socio-economic charasteristics which are age, gender, education and income. In the third model time preferences and impulsivity are included. The final two models include home saving, desire and the ASP.

3. REGRESSION RESULTS & DISCUSSION

The regression tables are presented below the results. Correlation matrix is presented in the Appencides (Appendix 3).

3.1. First regression results

In the first regression the dependent variable used is regular saving. The independent variables added in the first model are age and gender. These variables alone do not have statistical significance related to regular saving. The first model is also the only model in which the adjusted R2 is negative. This means that it is the weakest model out of the five.

In the second model the dummy variables *d_education* and *d_income* are added. Both of the variables improve the regression and show statistical significance. The variables are significant for education at 5% level and for income at 1% level. The results show that both higher education and higher income improve possibilities of regular saving.

Time preferences and impulsivity were added in the third model. Both education and income still show statistical significance but now at level 10% and 5% respectively. Variable *present_bias2* is significant at level 1%. These results indicate that participants with present bias are a lot less likely to save money regularly than others.

With variables *home_desire* and *home_save* added in the fourth model it is unsurprising that saving regularly for home also increases the odds for saving regularly. Variable *home_save* is at level 1%. Statistical significance can also be recognized still from *present_bias2* and *d_income*. However, in this model variable *d_education* does not have statistical significance anymore. Adjusted R2 is at level 30,3% which also means that the fourth model is the most meaningful model.

In the fifth and the final model, all the ASP variables were added. The results indicate that *ASP_opened* is statistically significant at level 10%. All other ASP variables do not show statistical significance. This time around *d_education* is again statistically significant factor at level 10%. Variables *d_income* and *present_bias2* remain the same at level 5%. Furthermore, variable *home_save* is not anymore statistically significant in the fifth model.

All in all, the results from the first regression indicate that both education and income have significance and lead to higher chance of regular saving. This fact remains mostly the same even if more variables are added to the regression. Futhermore, if a participant has an ASP-account and home saving in general lead to more regular saving. Present bias is the only significant factor that affects negatively on regular saving.

3.2. Second regression results

In the second regression the dependent variable is savings ratio. The order of variables and the amount of models is the same as in the first regression. However, this time the adjusted R2 shows that the fifth and last model is the most meaningful model compared to others at 36,17%.

Again, the first model does not show any statistical significance for age and gender. However, the results in the second model indicate that age is a statistically significant variable at level 10%. This indicates that younger participants are more likely to have a higher savings ratio. In addition, variable *d_income* is highly significant and remains at level 1% in all of the remaining models.

Present bias seems to have a negative effect on savings ratio with variable *present_bias2* as it had in the first regression. The variable shows significance in all of the remaining models, 1% level in third model and 5% level in fourth and fifth models. Furthermore, the coefficient for impulsivity is negative and the significance level of the factor is 10% in the models. This indicates that impulsive decision making affects negatively on saving to income ratio.

It is also noteworthy that variable *d_education* is statistically significant factor in model three at level 10% and at 5% in model four. These results show that a university education affects

negatively on saving ratio and has more statistical significance when time preferences, impulsivity and desire for buying home were added in the models.

In the fourth and fifth model, age is highly significant factor at level 1% . This is due to adding the variables *home_desire* and *home_save* from which *home_desire* is at level 5% in the fourth model. On the other hand, the significance levels of these variables are vice versa in the fifth model where *home_save* is at level 5%. On both occasions.

Table 1. Regression results 1

Variable	Model 1			Model 2			Model 3			Model 4			Model 5		
	Coef.	St. Error	p/***	Coef.	St. Error	p/***	Coef.	St. Error	p/***	Coef.	St. Error	p/***	Coef.	St. Error	p/***
age	0,231	0,144		0,114	0,152		0,278	0,193		0,087	0,256		0,189	0,298	
gender	0,269	0,598		0,041	0,655		−0,205	0,829		0,637	0,926		0,636	1,003	
d_education				1,695	0,730	**	1,555	0,864	*	1,592	1,136		3,019	1,829	*
d_income				1,706	0,605	***	1,638	0,684	**	2,102	0,968	**	2,944	1,476	**
present_bias1							−0,126	0,873		−0,474	1,348		−1,597	1,789	
present_bias2							−2,409	0,776	***	−3,403	1,402	**	−4,309	1,747	**
impulsivity							−0,059	0,145		−0,024	0,163		−0,028	0,178	
home_desire										0,832	1,755		0,053	1,927	
home_save										2,885	1,110	***	1,561	1,770	
ASP_heard													−1,572	6,079	
ASP_opened													3,979	2,324	*
ASP_save													−1,061	2,325	
ASP_knowledge													−0,170	0,313	
N	106			106			106			106			106		
Adj. R2	-1,41 %			9,65 %			16,89 %			30,30 %			27,30 %		

Note: *p < 0.1; **p < 0.05; ***p < 0.01, model: logit, dependent variable is *regular saving*

Source: Sasi (2021), author's calculations

Table 2. Regression results 2

Variable	Model 1			Model 2			Model 3			Model 4			Model 5		
	Coef.	St. Error	p/***	Coef.	St. Error	p/***	Coef.	St. Error	p/***	Coef.	St. Error	p/***	Coef.	St. Error	p/***
age	−0,011	0,010		−0,018	0,010	*	−0,013	0,009		−0,027	0,010	***	−0,036	0,009	***
gender	−0,014	0,056		−0,050	0,054		−0,060	0,053		−0,034	0,051		−0,023	0,050	
d_education				−0,071	0,070		−0,126	0,070	*	−0,140	0,066	**	−0,067	0,071	
d_income				0,194	0,049	***	0,190	0,051	***	0,149	0,049	***	0,166	0,050	***
present_bias1							−0,006	0,060		0,014	0,059		−0,080	0,064	
present_bias2							−0,135	0,045	***	−0,151	0,045	***	−0,094	0,046	**
impulsivity							−0,019	0,011	*	−0,018	0,010	*	−0,018	0,010	*
home_desire										0,165	0,083	**	0,121	0,082	
home_save										0,081	0,063		0,189	0,078	**
ASP_heard													0,125	0,111	
ASP_opened													−0,001	0,064	
ASP_save													−0,151	0,075	**
ASP_knowledge													0,017	0,011	
N	106			106			106			106			106		
Adj. R2	-0,36 %			11,45 %			18,90 %			28,38 %			36,17 %		

Note: *$p < 0.1$; **$p < 0.05$; ***$p < 0.01$, model: OLS, dependent variable is *savings ratio*

Source: Sasi (2021), author's calculations

3.3. Discussion

The main hypothesis of the study was that the ASP scheme increases both regular saving and saving ratios of young Finnish adults. In addition, the secondary hypothesis was that present biased young adults are less likely to save regularly and have lower saving ratios than others. The results of the regressions show that the hypotheses are partly correct.

For regular saving, it is safe to say that the ones who have opened an ASP-account are likely to save more regularly than others. This also correlates with the previous researches. However, it does not seem to have any effect on saving ratios. This indicates that opening an ASP-account does not necessarily mean that young adults are able to save more but rather start regular saving.

First-home saving has also been noticed to be one of the main targets of young people to save money for. The clear majority of the participants in this study think about buying a home and also save money for the same reason. It is safe to say that these factors have a positive effect on both regular saving and saving ratios. This is probably due to the fact that saving for a home is a popular target and gives a good motivation for young people to save.

On the other hand, variable *home_save* does not have any statistical significance after adding the ASP-variables on first regression. This can be explained due to high correlation of the housing and ASP-variables. In addition, variables *ASP_heard* and *ASP_knowledge* do not have any statistical significance in neither regressions. There are couple of possible reasons behind these results.

Firstly, almost 95% of the respondents have heard about the ASP scheme. The result is not surprising since the author sent the survey to groups that have many business students. However, this led to a result where there are only a few who have not heard of the scheme and most of them claimed to save money regularly.

This might partly explain the high level of knowledge of the ASP scheme aswell. Most of the participants claim to know the ASP scheme and its benefits well. For a contrast there are not many who answered on a scale of 1-10 lower than 5. However, as it was found out in the previous studies, the popularity of the ASP scheme as a whole has increased in Finland lately. It makes sense that

the knowledge of the scheme has also increased. However, the results are still a little bit surprising due to the actual complexity of the ASP scheme.

Furthermore, around 56% of the respondents do not save regularly to the ASP-account. The variable *ASP_save* seems to have a negative effect in both regressions and is statistically significant variable on the second regression. The result is probably negative and suffers since those who do not have ASP-accounts were also taken into calculations in ASP-saving. Obviously, those who do not have the account cannot save there. In addition, some of the participants might still save to the account but not regularly as it was phrased in the survey.

Since many of the ASP-variables are not balanced due to the factors mentioned it is difficult to interpret their level of meaningfulness for regular saving and saving ratios. Despite this, it is possible to see other trends based on the other factors.

Time preferences strengthen the theory that present bias leads to inferior saving habits. The results also confirm that near future is more thought of than the far future. Even though most of the participants are not present biased the amount of present biased answers increased when time horizons were increased aswell. It is safe to say that present bias affects negatively on saving and the results correlate with the previous studies.

On the other hand, it is a little surprising to see that there are less present biased participants than future orientated ones. As discussed in the previous studies, it has been found out that present bias is more likely to be seen with younger aged people. It is possible that since the popularity of saving has significantly increased lately, young adults are more goal orientated and think about their future lives more.

Impulsivity did have a statistical significance on the second regression. The results also correlate with previous findings. It can be concluded impulsivity impacts negatively on saving. It seems that young Finnish adults are not impulsive decision makers. However, the perspective is not very good. There are probably more young people that make impulsive decisions than what was gathered. Despite this, the negative correlation with saving can still be notified.

It is not surprising to see that higher education has positive effect on regular saving. By assumption, higher education leads to higher income and has a positive effect. However, the results indicate

that higher education does not correlate with higher saving rates. A reason for this result might be that many participants are still studying and therefore do not have high income levels. Usually study grants are spent fully on living costs. Hence, they still try to save regularly. Most of the participants have achieved bachelor's degree and might currently study for master's degree.

As mentioned, higher income means higher savings. Income is an important factor in both models and the results are in line with previous researches. However, most of the respondents belong to income level of 1000-2999€ and were coded as "high income" for the regressions. A trend is still noteworthy towards better saving ratios and regular saving.

Age was only a significant factor on the second regression. After ASP, home saving and home desire -factors were added, age had a statistical significance. It seems that saving ratios decrease by age which does which is surprising. It could be assumed that higher ages means higher income and this way higher saving ratios. However, the scale of age was quite small and 83,2% are in ages between 23-27 so a higher scale would definitely give more accurate results of the effect of age.

CONCLUSION

The study investigated the association of the Finnish ASP scheme and saving decisions of young Finnish adults. Saving decisions were measured by regular saving and saving ratios. The ASP scheme was measured by the use, saving, and knowledge of the scheme. The other aim was to include time preferences and investigate their association with saving. Furthermore, other factors such as socio-economic charasteristics were added to analyze the bigger picture of saving habits.

Based on the current popularity of saving and the ASP scheme among young Finnish adults, two research questions were formulated:

- Does the awareness and use of the ASP scheme associate positively on regular saving and saving ratios of young Finnish adults?
- Do time preferences associate negatively with saving habits of young Finnish adults?

Based on previous studies, the two hypotheses were formulated:

- The ASP scheme increases regular saving and saving ratios of young Finnish adults.
- Present biased young adults are less likely to save regularly and have lower saving ratios than others.

All research questions were answered. The results show that the ASP scheme does have factors that lead to better saving habits among young Finnish adults. Most importantly, if one has an ASP-account it associates positively with regular saving. The desire of buying a home, saving for a home and higher income also affect positively while present bias clearly associates negatively with saving habits.

However, many of the ASP-variables had no statistical significance in any of the regressions. Due to this, it is difficult to say what is the real effect of the knowledge and use of the ASP scheme to

saving habits. Furthermore, the data was dominated by one factor in many cases. For example, education was clearly dominated by people with a university degree. For a better perspective and comparison, a larger sample size in further research would help to make sure that the results are accurate. In addition, occupation and source of income were left out of the regressions which could be used in further studies.

The survey could have also been formatted better. For example, the ones that do not have the ASP-account were forced to answer the question "Do you save regularly to ASP-account?". Due to a small sample size they were not excluded from the regressions and this affected the results aswell. Furthermore, another models could be used to compare the regression results. For example, a probit regression model could show different results for the coefficient magnitudes than the logit models shows. This way the results could also get more certitude.

All in all, it can be concluded that the ASP scheme is well known among the participants. Most of them want to buy an own home and many use the ASP-account for saving. However, the popularity of the scheme has seen increases and decreases many times in the past and only time will tell what is the future of the Finnish ASP scheme.

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APPENDICES

Appendix 1. Survey

PART ONE

1) Age?
   - _____

2) Gender?
   - Male
   - Female
   - Other
   - Prefer not to say

3) Education level
   - High school graduate/corresponding or lower
   - Bachelor's degree
   - Master's degree or higher

4) Occupation?
   - Student
   - Employed
   - Self-employed in a single owned company
   - Unemployed
   - Other _____

5) Source of income?
   - Salary
   - Social benefits
   - Investments
   - No regular source of income
   - Other _____

6) Level of monthly net income (€)?
   - 0-499
   - 500-999
   - 1000-2999
   - 3000-5999
   - 6000-

PART TWO

7) Do you save money regularly?
   - Yes
   - No

8) What percent of income are you able to save regularly (scale: 0-100%)?
   - _____

9) Which offer would you prefer?
   - Receive 400€ now
   - Receive 450€ one month from now

10) Please write an amount of "X" that makes you feel indifferent between receiving 400€ now or "X" euros one year later.
    - _____

11) Please write an amount of "X" that makes you feel indifferent between receiving 400€ now or "X" euros 10 years later.
    - _____

12) Please consider the following statement: "I am good at resisting the temptation to buy unnecessary products/services that I don't need."
    - 1 = Totally disagree   10 = Totally agree

13) Have you considered buying a home?
    - Yes
    - No

14) Do you save money to purchase a home/apartment?
    - Yes
    - No

15) Have you heard of the ASP-account?
- Yes
- No

16) Have you opened an ASP-account to a bank?
- Yes
- No

17) Do you save regularly to an ASP-account?
- Yes
- No

18) What is your level of knowledge of the ASP-system and its benefits?
- 1 = No knowledge   10 = Full knowledge

Appendix 2. Descriptive statistics

Variable (dependent)	Mean	Median	SD	Min	Max
Regular saving	0,813	1	0,392	0	1
Savings ratio	24,383	18	23,826	0	100

Variable (independent)	Mean	Median	SD	Min	Max
Age	25,570	25	2,511	20	34
Gender	0,745	1	0,438	0	1
Dummy education	0,888	1	0,317	0	1
Dummy income	0,673	1	0,471	0	1
Present bias 1	0,168	0	0,376	0	1
Present bias 2	0,439	0	0,499	0	1
Impulsivity	7,168	8	2,099	1	10
Desire to buy home	0,860	1	0,349	0	1
Save to buy home	0,720	1	0,451	0	1
ASP heard	0,944	1	0,231	0	1
ASP opened	0,636	1	0,484	0	1
ASP save	0,439	0	0,499	0	1
ASP knowledge	7,953	9	2,320	1	10

 N=107
Source: Sasi (2021), author's
calculations

Appendix 3. Correlation matrix

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. age	1														
2. gender	0,327	1													
3. d_education	0,105	0,064	1												
4. d_income	0,223	0,248	0,131	1											
5. regular saving	0,129	0,122	0,285	0,381	1										
6. savings ratio	-0,143	-0,063	-0,070	0,306	0,211	1									
7. present_bias1	0,097	0,196	0,160	-0,006	-0,041	-0,119	1								
8. present_bias2	0,107	-0,012	-0,163	-0,226	-0,397	-0,339	0,206	1							
9. impulsivity	0,055	-0,046	-0,142	0,295	0,062	-0,015	-0,036	-0,080	1						
10. home_desire	0,394	0,073	0,027	0,235	0,221	0,234	-0,106	0,140	0,071	1					
11. home_save	0,334	-0,031	0,174	0,230	0,448	0,282	0,058	-0,076	-0,009	0,647	1				
12. ASP_heard	0,218	0,232	0,171	0,176	0,092	0,079	0,110	0,052	0,136	0,136	0,029	1			
13. ASP_opened	0,250	0,227	0,100	0,176	0,334	0,063	0,029	0,083	-0,004	0,421	0,522	0,322	1		
14. ASP_save	0,084	0,042	0,315	0,296	0,328	0,015	-0,197	0,051	0,019	0,357	0,552	0,216	0,670	1	
15.ASP_knowledge	0,196	0,135	-0,033	0,219	0,260	0,324	0,117	-0,113	0,062	0,143	0,213	0,523	0,296	0,002	1

Source: Sasi (2021), author's calculations

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