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Understanding the Factors Affecting Savings of Dutch Households

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UNDERSTANDING THE FACTORS AFFECTING SAVINGS OF DUTCH HOUSEHOLDS

- Master Thesis -

MSc. Business Administration – Specialization Finance

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UNDERSTANDING THE FACTORS AFFECTING SAVINGS OF DUTCH HOUSEHOLDS

George Popoviciⁱ

Abstract:

This paper investigates how demographic, house and personality variables influence savings of Dutch households. Using the LISS panel data set, I show that age, civil status, education and family structure have an important impact on the level of total savings. Furthermore, house value and income were found important items over total savings of house owners and renters. After dividing saving into different categories, openness, consciusness, extraversion and agreeableness could also explain certaing types of savings.

Key words: households savings; demographic variables; personality; house; household survey; the Netherlands

JEL codes: D10; D91; E21

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Introduction

Saving is being seen as a method of diminishing the risk resulting from the inability to predict the future and additionally as an act of precaution. Basically, we would know exactly how much money we need if we could predict the future. But because we cannot do this, the need to save money for the future is vital. On the other hand, unexpected events in the life-cycle of individuals make saving an important element in fulfilling the financial gap that would appear otherwise.

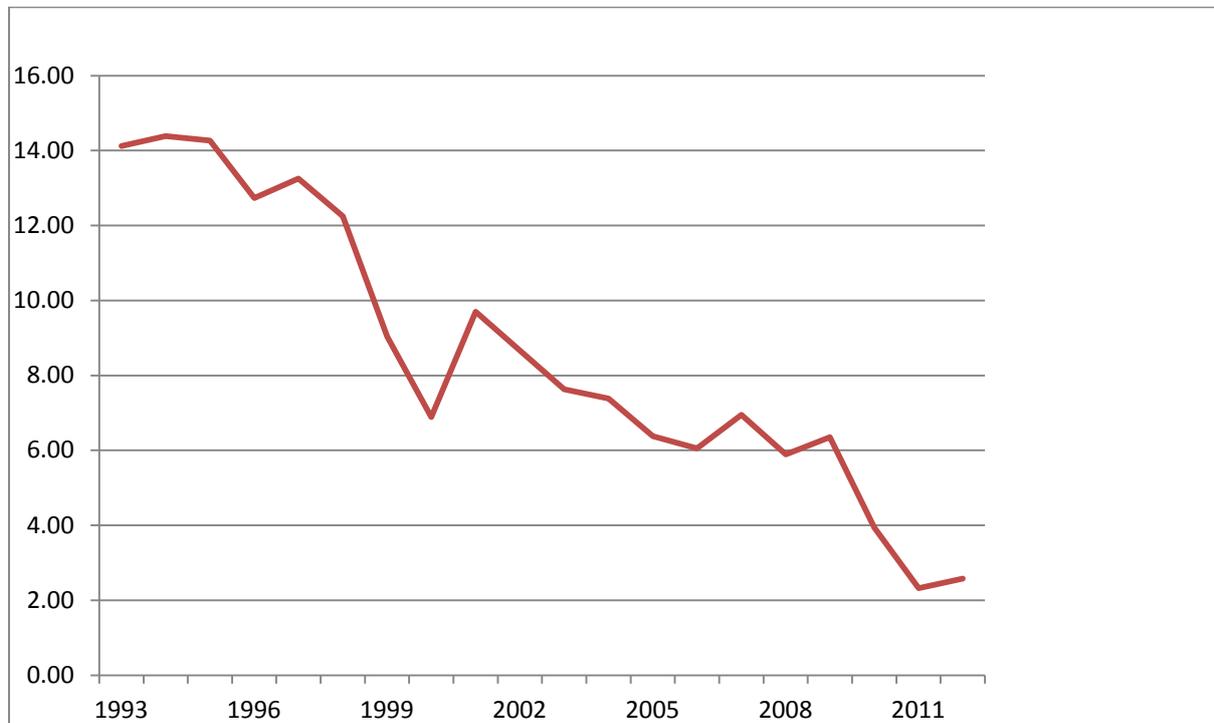
Considering the current trend for early retirement and its impact over the old public pension schemes, more and more importance is being assigned to individual savings. Beside their usefulness in the retirement scheme, saving also comes as an alternative solution for future investments and insurances. It offers the possibility of making diverse acquisitions without the use of loans that come with expenses such as interest rates and future administration costs. Over the long run, in the absence of insurance markets, savings are considered one of the main triggers of social mobility and of making future spending possibilities (Attanasio and Székely, 2000).

For many years, economists and other experts have criticized the European and American consumers for their unwilling to save (Fernandez et. al. 2010; Kim, 2010). Figure 1 shows this aspect in the case of Netherlands. During the past 20 years, saving ratios have dramatically decreased by almost 80% compared to the level of 1993, in 2011 the savings ratio being estimated at 2.32% of disposable household income. An interesting aspect is that savings have been affected by the uncertainty in the financial markets such as the internet bubble of the late 90's and the present financial crisis. Thus, it is even more important to see what factors influence the decrease in savings and in particular during periods of financial unrest.

To shed more light on the determinants of savings and their influence over savings behaviour of Dutch households, this paper investigates how demographic, mortgage, house value, rent and personality variables stimulate savings. Because there is no clear definition of savings, I apply three different approaches. The first method focuses on assessing the relationship between the mentioned variables and the total savings of households. The second approach starts from the fact that savings appear in different forms (liquid savings, investment savings, durable goods savings and debt savings), which are highly influenced by some variables and

less by others. This approach comes as a need to assess which of the selected variables are important for the different types of savings. Lastly, the third method focuses on determining the likelihood of saving among Dutch households based on the demographic, mortgage, house, rent and personality predictors.

Figure 1: Net households' savings ratio in the Netherlands¹



Source: OECD Economic Outlook No. 91, OECD Economic Outlook: Statistics and Projections (database).

Apart from the existing literature, this study looks at the influence of demographic, house (value of the house, mortgage/rent) and personality variables on different types of savings. Few studies have taken into consideration all these aspects together. This innovation is possible as I make use of the 2008 and 2010 waves of the Longitudinal Internet Studies for the Social sciences (LISS) panel which collects information over demographic characteristics, personality, economic situation and housing.

Furthermore, this paper makes a parallel between house owners and renters. It is expected that differences exist between these two categories. One of the most important is the wealth distribution; home owners have more wealth than renters as the value of house would be the predominant asset. On the other hand, home-owners have more debt, used in order to finance

¹ This figure includes forecast data on Dutch households saving rate in percentage of disposable household income.

their investment in the house. Alongside the economic situation, other aspects such as age or education could also play a role in the difference between the two categories (Hsueh, 2000; Vestman, 2012).

This paper is structured as follows. Section 2 reviews the existing literature which stresses the relationship between savings and variables such as demographic, economic situation and personality. Section 3 presents the surveys which were used in order to collect the data and the descriptive statistics. Section 4 discusses the estimations which show the determinants of savings. Section 5 presents the results taking into consideration different forms of savings. Lastly, part 6 comes with the conclusion.

Literature review

In general, savings are being defined as money not spent. They ensure that a person will be more independent financially and will not build so much on loans. They also come with the opportunity of purchasing assets immediately, benefiting from a discount and create a change to grow in the future.

In the last years, there has been an increased debate over the variables of savings (Hoynes and McFadden, 1996; Dumann, 2008; Attanasio and Brugiavini, 2012). Mostly, savings are being regarded in the form of deposit accounts, which come with an interest rate. But we can also speak about personal savings, which include investments (in stocks, bonds, real estate etc) as well as deposits.

At the household level, clearly, savings are being regarded as the difference in wealth between periods. However, there is still a lot of discussion on the elements of wealth. A large part of the literature concerned with savings has tended to consider only the net financial wealth (Euwals et al., 2000; Attanasio and Rohwedder, 2003). In their studies, capital gains on real estate or durable consumption goods such as cars, motorcycles, boats and caravans are not taken into consideration. The reason for this is that net financial wealth is more liquid and this makes it more likely to influence savings. Some researchers have a different opinion (Gale, 1998; Lundberg and Ward-Batts, 2000); they consider that the value of durable goods as well as real estate also influence savings. People usually save so they can buy later.

Other researchers considered even more different forms of savings. Nyhus and Webley (2001) speak about household liquid savings, investment savings, insurance savings and the sum of debt (negative savings). They have adopted this stance, evaluating the behaviour of households, asserting that different attitudes have a contrasting effect over savings.

Previous empirical studies suggest that there are a variety of factors that are regarded as important elements of savings. In this paper, three categories of researches are relevant: the studies on demographic factors and savings, the findings on the relationship between house prices and savings and the literature analyzing the personality traits and its influence on savings.

Demographic variables

General consensus among researchers all around the world has shown that savings are being influenced by demographic variables (Lera López, 1998; Fernandez et al., 2009). Factors such as age, gender, education or civil status are shown as important aspects in the decision to save. For example, Fernandez et al. (2009) investigate the determinants of savings from eight countries in Europe. In accordance to the life-cycle economic approach that people tend to save more as they reach retirement, they have found that age has a positive impact on savings. Furthermore, the results show that the probability to save is rising with age, but at a progressively lower rate. Demery and Duck (2006) also found that saving rates are in line with the life-cycle model. They have concluded that people in the working life are more interested in savings when they reach the age of 50. The disadvantage poses by the life-cycle theory is that persons are considered fully rational, acting only in their own interest and being able to know the exact date of retirement, death, as well as other important facts.

Furthermore, gender has an impact on the willingness to save. Recent studies point out the higher degree of risk aversion among women (Pan and Statman, 2010). Floro and Seguino (2002) show evidence that women do save more relative to men, even after an increase in women's income and bargaining power.

Gerrans and Clark-Murphy (2004) consider that there is a close relationship between age and gender. Using a survey of members of the Superannuation Scheme for Australian Universities, they have concluded that younger females are more likely to have a higher risk tolerance and a bigger chance of not saving. Furthermore, saving decisions are also found to be driven by the connection between gender and marital status rather than by gender alone;

married women tend to save more than single women. One interesting result was that married young females have a higher probability of having negative savings relative to the old male category.

Previous studies have examined the effects of education on savings (Morisset and Revoredo, 1995; Laiglesia and Morrisson, 2008). Education is a factor which is closely tied to the wealth accumulation and its influence over income is direct. Over a long period of time, education corrects the savings of different individuals and its effect depends also on the region and economical development within that area. Morisset and Revoredo (1995) found that for each point increase in education, the savings rate increase with 0.37%. Indirectly, education has the ability to modify the behaviour of households, even if the authors themselves believe it is not the best proxy for determining the savings attitude of households.

One of the best factors with an important impact over savings is financial education. Using the DNB (De Nederlandsche Bank) Household Survey, Van Rooij et al. (2011) provide evidence that financial education is strongly influencing net worth. First, a higher degree of financial knowledge increases the possibility of having gains from the stock market. Second, it has a large impact on the creation of retirement plans which lead to a boost in savings. Overall, financial literacy has been found to influence directly as well as indirectly the wealth and savings of households, proving to be much more efficient in determining the saving behaviour of households.

Attempts to introduce the household size effects on the life-cycle model have also reveal that larger family size reduces the aggregate saving rate (Davies, 1988). Furthermore, using the OLS method, Orbeta Jr. (2006) has estimated a saving function using income and number of children as dependent variables. The results tend to agree with previous studies and show that an increase in the household size has a negative impact on savings. This effect is even more apparent in the case of low wealth family, further depressing the already low saving rates. Likewise, the study reveals that reducing the household size can be a positive factor for savings and wealth.

As already stated before, empirical research found that civil status as well as domestic partnership have been found to influence savings behaviour. Married persons are more likely to be more interested about their wealth and savings (Li et al., 1996; Fernandez et al., 2009).

Man-Yee and Heather (2010), have taken the discussion further and consider that savings are usually “shared” between partners, without any difference between being married or not. Investments, on the other hand, are being held independently by each couple member. Additionally, savings tend to influence also the psychological well-being of the partner, where investments or debt held by one partner do not seem to have an influence on the behaviour of the other partner.

Income is also an important feature in the process of household savings. In general, literature on savings considers that a higher income raises the chances of wealth accumulation (Attanasio and Székely, 2000; Fernandez et al, 2009). Other researchers have a different opinion. Huberman et al. (2007) and Huggett and Ventura (2000) found evidence that people with low income do not save usually more than high income persons because of their expectance that the public pension systems will ensure them with a retirement income.

Fernandez et al. (2009) also asserted that income and job uncertainty are being highly correlated, so there is a close link between job uncertainty (income uncertainty) and the savings. There is evidence that people which do not have a stable job, either working as freelancer or in project-based companies, are more willing to save more, taking into consideration the uncertainty which lies in front.

Personality aspects

Attributes such as risk aversion, emotion or complexity have always counted in the decision of an individual. These elements are mostly studied by psychologists but have also caught the attention of economists. A huge interest in economy has been given to items such as risk aversion, attitudes or time preferences (Dummann, 2008; Arrondel and Masson, 2011; Korhonen, 2011) and very little attention has been paid to the main factor of these behaviours: the personality.

Personality characteristics are being defined as the feelings, behaviours or thoughts that influence the decision to act in a different manner (Roberts, 2009). The firsts to build a model for measuring the personality traits were Costa and McCrae (1992). They have called it the Five Factor Model, which includes ten items which measure the openness to experience, conscientiousness, extraversion, agreeableness and emotional instability.

The Five Factor Model, also known as the Big Five personality traits, has been mostly used and accepted by both psychology and economy researchers (Nyhus and Webley, 2001;

Roberts et al, 2011; Becker et al. 2012). Critics on this measurement procedure have also arisen. For example, Borghans et al. (2008) recognize the importance of IQ and preferences measures as well as the personality ones. They consider that age also plays a role in the volatility of personality as well as new experiences that could change different perceptions.

Nowadays, new versions of the Five Factor Model have appeared. Rammstedt and John (2007) provide a ten item version of the Big Five personality traits. They have selected two items for every personality, each item being related uniquely to one personal attribute. Rammstedt and John (2007) accept that one strong disadvantage of their method is the reliability problem. On average, the BFI-10 version captured 70% of the Big Five Factor Model and had 85% retest reliability. Gosling et al. (2003) conclude that researchers should use brief versions of personality measurement techniques when they have the time limit as well as in studies where personality is not the main topic of interest.

While most of the literature studies the impact of personality on total savings, other researchers study its impact on different levels of wealth. Nyhus and Webley (2001) found that neuroticism, autonomy and extraversion are important and significant variables in predicting the savings behaviour of Dutch households. A high degree of emotional stability has a positive impact on the household's plan to save. Furthermore, they had separated savings into investment, insurance and debt and found that extraversion as well as autonomy has a negative impact on investment savings. Speaking about insurance savings, high level of agreeableness, autonomy or extraversion again seems to minimize insurance savings. Lastly, autonomy and agreeableness have a positive impact on debt savings.

Brown and Taylor (2011), using the measurement of Costa and McCrae (1992), expose the effect of personality traits on the financial assets and debt of British households. Extraversion and openness were found to have a significant positive impact on debt; a one standard deviation increase in extraversion and openness rising by 22% and 10% the level of unsecured debt. Furthermore, extraversion was also found to have a significant negative effect on the financial assets, a one standard deviation increase reducing the financial assets by 13%.

Duckworth and Weir (2011) consider the effect of conscientiousness and openness over financial decision during the financial crisis. They reflect that conscientiousness and openness should play an important role on savings. Moreover, higher levels of conscientiousness are common to less spending of income, while openness has an opposite effect.

Risk aversion and prudence have also been found to influence savings between two periods. Bauer and Buchholz (2008) have pointed out, using utility functions, that risk aversion as well as prudence affects savings. Only when the utilities in the two periods are close, both risk factors are not considered important. That is why, risk aversion and prudence are important factors of savings and should be included especially in long period researches. Korhonen (2011) confirm the results of Bauer and Buchholz (2008), pointing out that risk aversion alone did not have any impact on the savings of graduate Finnish students.

Happiness has also been associated with the possibility of saving. Guven (2009), using data from the DNB Household Survey (Netherlands) and the German Socio-Economic Panel, conclude that happiness has a positive impact on savings. Happy people think more over their decision to spend. On the contrary, sad people are being found to have more debt and are more attracted towards spending, probably as a method of recovery.

Economic situations

Another issue in the literature is related to the degree of which house price influences household savings. At a first look, it may appear that both house prices and savings are being largely influenced by the economic cycle. However, King (1990) and Pagano (1990) consider that both savings and house prices are being triggered by the same thing. When the economy goes up, consumption follows the same trend, but inelastic supply of houses could also cause a rise in prices.

The empirical results over the influence of house prices fluctuations on savings are mixed. Recent studies found that households with gains from house price fluctuations do not reduce their savings (Wang and Wen, 2011). Evidence suggests that savings increase in the case of home owners that experience a decrease in their house value (Engelhardt, 1996). Contrary, Hsueh (2000) recognize that house price fluctuations have a direct impact on the savings of households that have a house. The author justifies that house price increases with respect to income, cause an increase in wealth and decrease the savings ratio of the family. Even if there is no general agreement on the effect of house prices on savings, both views affirm that the overall effect of house price changes on savings is very hard to determine.

Rouwendall and Alessie (2002), using the Dutch socio-economic panel for the years 1987 to 1994, affirm that the increase in house prices has a negative impact on savings. In their study, they have isolated the house price effect of other variables that could influence the decision to

save. Hoynes and McFadden (1996), working on data from the Panel Study of Income Dynamics, introduce demographic variables along with the house price variable. They have found no evidence that households were having savings shifts due to changes in house prices.

Apart from the house price fluctuations, home-owners are also influenced by the mortgages they have. Rouwendall and Alessie (2002) research on mortgage has mixed results. When accounting changes in the mortgage as a form of savings, they have found no significant influence of mortgages. On the other hand, when the changes in mortgage are not included in the savings equation, they have found that if the value of mortgage increases by 100 guilders, savings will decrease by 7.2 guilders.

Chakrabarti et al. (2007) conclude that in the recession period, savings of households were positively influenced by the lower values of mortgages, emphasizing that an important factor was to rebuild the net wealth. A possible explanation for this behaviour could be that, driven by financial efficiency considerations, consumers decide whether to withdraw equity in order to minimize the mortgage value (Angelini and Simmons, 2011).

Financial literature also emphasize on the difference in savings between owners and renters. Lin et al. (2000) found that a reason for this could be the higher mortgage values in contrast to the rent. A difference between owners and renters could also be the age. Usually, young households are being in particular interested in the rent values of houses. Moriizumi (2002) consider that high rent values have a significant negative impact on the level of savings of young households. His study deals with the life cycle path, considering that both rent and house price should be taken into observation, as young families try to accumulate wealth in order to purchase a house.

Saving comes in different forms and the motives behind the decision to save are complex. While the existing literature focus on the determinants of savings, a large majority of the studies only take under consideration a few variables, neglecting the potential impact of other variables as well. This paper tries to cover a large variety of potential variables that could influence household savings. Using data from the LISS Panel, I incorporate demographic, house and personality variables into a savings function in order to assess their influence over house owners/renters in the Netherlands.

Data and Methodology

Survey data

The data used for the analysis comes from the LISS panel² (Longitudinal Internet Studies for the Social science) arranged by CentERdata (Tilburg University, The Netherlands). The LISS panel contains a representative sample of Dutch households who participate in monthly Internet surveys. Households that were not able to participate are supported with a computer as well as Internet connection. A longitudinal survey is covered in the panel every year, starting from 2007 until 2011, containing a large variety of fields or variables as work, education, income, housing, personality or politics.

For obtaining the data of this research paper I use multiple surveys implemented by CentERdata³ in the years 2008 and 2010. The first survey is focused *on background variables* such as gender, age, number of household members, civil status, income and education. This data was collected through the year 2010. The second survey used was *economic situation: housing*; the collection took place in June 2008 and 2010, a reminder being send twice to non-respondents. This survey was filled in parallel to the other two surveys on *economic situations: assets and income*, which are also used in this paper. The last survey that was useful for this research was about *personality*. The responses were collected in May and August 2010, reminders being also send twice to non-respondents.

In total, 489 households participated in all the surveys presented above. I have restricted the sample only to the households that have participated in all the four surveys as I would need to make assumptions on the households that did not respond or participated in other surveys. From the 489 households, 267 are reported to be house owners and 222 are tenants or subtenants. The last category will have a zero house price and mortgage. Although, most of the surveys are longitudinal and thus should be made every year, not all the surveys required had been made every year starting with 2007. That is why I will only make use of the information provided by the respondents from year 2008 and 2010. In these years, all the surveys on background variables, economic situation: housing, assets and income as well as personality have been accomplished. Incomplete data on these variables have not been taken into consideration in the collection process.

² More detailed information about the LISS panel can be found at: www.lissdata.nl.

³ The questionnaires used have been originally conducted in Dutch.

Variables

This part presents the description for every variable used in this investigation and how each variable has been addressed in the survey. A full description of the demographic and personality variables, as well as their measurements is presented in Table 1 below.

i) Demographic variables

In order to capture the life-cycle hypothesis, the first factor that I have taken into consideration is age. In the survey background variables, age has been derived based on the year of birth. To make it convenient, the variable age has been put into groups, similar to CBS (Statistics Netherlands): 34 years and younger, 35 – 44 years, 45 – 54 years, 55 – 64 years, 65 years and older. Education includes the type of diploma the household member has in accordance to the Dutch educational system. Respondents have also been asked to indicate their level of income in Euro. Because some of the respondents may not want to make their income available there could be a measurement problem; a value of zero could mean that the household member does not want to make his/her income information available or that he/she does not have any income at that moment. In order to prevent such measurement errors, CentERdata has added an imputed value for net income if gross income is available and net income not⁴. Furthermore, other variables such as civil status, number of household members and gender have been measured directly using category representations.

ii) Personality variables

LISS Panel also contains a longitudinal study on the personality of households in the Netherlands. The structure of the questionnaire has been made in concordance to the “Big five” personality factors (also known as the Five Factor Model). These five factors are: openness to experience, conscientiousness, extraversion, agreeableness and neuroticism. The first factor expresses the household member attachment for emotion, adventure, curiosity or other kinds of experiences or ideas. The second factor reflects the propensity to be organized, keep tight with a schedule or self-disciplined. The third factor reveals the type of person which is energetic or reserved. The next determinant indicates the level of compassion or cooperation as opposed to being suspicious. The last component reflects the level of anger, depression or anxiety.

⁴ For more information see Klaas de Vos, 2008, *Imputation of income in household questionnaire LISS panel* (available at www.lisdata.nl).

iii) Economic situation: housing, wealth, savings and job uncertainty

As previously discussed, these variables have been collected for the years 2008 and 2010. The only exception is the data on job uncertainty which have been collected only for the year 2010. Job uncertainty is defined as being the level of concern with respect to the income the household has. In this paper, I consider that freelancers, company owners or involvement in a partnership presents a higher degree of worry for the income the household will make.

Table 1: Variables and measurement methods used

Variable	Method of measurement
Age	Describes in which category the household member is going to be placed in accordance to the categories made by CBS.
Education	Measured directly using different types of diploma which could be obtained in the Netherlands. From 1-3: primary education, intermediate education and higher education.
Net household income	Net household income is measured based on personal net monthly income in Euros or personal net monthly income in categories if gross income is not entered. The monthly income of all household members combined has also being taken into consideration.
Wealth	Wealth has been measured by taking into consideration the total of real wealth and financial wealth.
Civil status	Describes whether the household member is married or not married (separated, divorced, widow or has never been married).
Number of household members	Directly measured using categories: 1 – one person, 2- two persons, 3 – three persons or more.
Gender	Male or female.
House price	The house price variable has been measured by the question regarding the value set by the most recent municipal property appraisal; 0 if the household do not possess a house by 2008 or 2010.

Mortgage	The amount of remaining mortgage that the household has in 2010. It takes a value of zero if the households does not have a house or does not have a remaining mortgage.
Job uncertainty	Dummy variable which takes the value of one if the household member works as a freelancer, company owner, owns a private limited company or is in a limited partnership and zero otherwise.
Openness to experience	Estimated using the records on rich vocabulary, vivid imagination, ideas as well as understanding things. They are measured from a scale from 1 to 5 where 1 is very inaccurate and 5 is very accurate.
Conscientiousness	Conscientiousness is being measured by averaging the scores on being always prepared, attention to details, order, schedule or the accomplishment of duties. Conscientiousness is measured using a scale from 1 to 5.
Extraversion	Extraversion was calculated using the average of scores on sentences such as being in the center of attention, life of the party, starting conversations as well as having a lot to say or drawing attention.
Agreeableness	Measured making use of the premises interested in people, have a soft heart or feel other emotions. They are being scaled from 1 (very inaccurate) to 5 (very accurate).
Neuroticism	The level of neuroticism has been measured using sentences as get easily disturbed, changing mood, easily irritated, stressed out easily or often feel blue. They are being scaled from 1 to 5.

Wealth is one of the most important variables. The difference in wealth for the years 2010 and 2008 is considered to be the savings/spending in this period. In my analysis I have taken into account both financial and real wealth. Financial wealth is being regarded as more liquid than real wealth and also has a more active influence on savings (Hurd et al, 2009; Engelhardt and Kumar, 2011). It could be the case that savings could occur as some of its components have changed in value even if the household did not take any action. My measure of wealth is the sum of net financial wealth (current accounts, savings accounts, term deposit accounts, investments minus financial liabilities) and real wealth (the value of cars,

motorcycles, caravans, other real estate excluding the primary residence, art works and jewellery).

A further analysis has been made on the different forms of savings. As well as total savings, this paper also provide evidence on the influence of demographic, house and personality variables on liquid savings, investment savings, durable goods variation and debt savings. The following measures of savings are used⁵:

1. Household total savings, which is the difference in the total wealth between 2010 and 2008.
2. Liquid savings, measured as the difference in current accounts, saving accounts, term deposit accounts, saving bonds or saving certificates, money loaned to family or friends for the years 2010 and 2008;
3. Investment savings, consisting of the difference between growth funds, share funds, bonds, stocks, options, warrants and single-premium insurance policies from 2010 and 2008;
4. Durable goods variation defined as the difference between the value of cars, motorcycles, boats or (static) caravans in the 2008-2010 period (the value of the house was not been taken into consideration in order to solve the problem of endogeneity);
5. Debt savings. This is measured as the difference between the amount of loans between 2008 and 2010⁶. If this difference is positive, the debt decreases and this is being considered as saving. Contrary, if the difference between the amount of debt for the years 2008 and 2010 is negative, debt level increases and this is seen as dissaving.

Sample characteristics

Table 2 shows the descriptive statistics for the demographic variables taken under consideration in this study. The average age of the respondents is 55 years, they have medium education and the large majority are male. In terms of civil status, most of them are not married, although there is only a slight difference between married and not married; on average the Dutch households have 2 members. During the period 2008 to 2010, the income

⁵ Table A1 from the appendix presents the descriptive statistics for these measures based on the 489 Dutch households.

⁶ The mortgages for the years 2008 and 2010 have not been taken into account, in order to solve the endogeneity problem that could occur.

has increased with approx. 5%, in 2010 the median income per year being €28790. This increase could also be put on the fact that 2008 was a year when the crisis has been felt more in the Netherlands, starting with 2009 the economy having small increases. Although not the subject of my study, for the year 2011 it is expected that the average income for the Dutch households to suffer small decreases as an effect of the sovereign debt crisis in the Euro zone.

In the lower part of the table, the grouping is made based on whether the household is house owner or renter. On average the house owners are older than renters, even if the difference is not big. Non-owners are predominately not married, have fewer members and have a lower diploma in education than house owners. As expected, households that are owners have a higher income both in 2008 and 2010 than renters. On average, the renters have income lower by 44% and 45% in comparison with house holders by the years 2008 and 2010.

Table 3 presents the wealth situation for the years 2008 and 2010. It can be noticed that the average wealth has slightly step-up while house prices have increased by 5.3%. This confirms other studies who observed that the Dutch households have to support one of the most expensive house prices in Europe (Xu-Doeve, 2010). In terms of mortgages, from 2008 until 2010, the median mortgage a Dutch household has to pay decreased, meanwhile the rent values increased slightly by 4%.

As expected, there is a significant difference in the wealth between households that are house owners and the ones that are not. The wealth of house owners is almost twice as large comparing to the households that are tenants or subtenants. Furthermore, when looking at the house owners, the median house price is estimated between €260000 and €280000, while the remaining mortgages for their houses are on average situated at about €136740 for 2008 and slightly bigger for the year 2010, having a value of €138200.

Table 4 presents the personality scores for each of the five factors of personality. For determining their personality level, I have used the big five personality traits. These are openness, consciousness, extraversion, agreeableness and neuroticism. For every personality characteristic 10 questions are used which are being scored from 1 to 5 (1 is very inaccurate and 5 very accurate). The vast majority of the respondents consider that they have a high level of agreeableness. Also, they consider that openness and consciousness are personality factors which are most of the time present. Emotional instability is the only factor that does not seem to be present, respondents consider that they are relaxed most of the time, do not stress out easily and are most of the time calm.

Table 2: Descriptive statistics - demographic variables

	N	Age	Gender	Civil status	Education	House members	Income 2008 (x €1,000)	Income 2010 (x €1,000)
Total sample	489							
Mean		55.17	1.34	1.55	2.07	1.76	27.45	28.79
Median		57.00	1.00	2.00	2.00	2.00	24.54	25.65
Standard deviation		14.15	0.47	0.49	0.85	0.76	14.51	15.77
House owners	267							
Mean		55.45	1.24	1.39	2.29	1.95	34.34	36.26
Median		58.00	1.00	1.00	3.00	2.00	32.40	33.70
Standard deviation		12.94	0.43	0.49	0.78	0.74	13.87	15.82
Non-owners	222							
Mean		54.82	1.45	1.74	1.81	1.52	19.15	19.81
Median		56.00	1.00	2.00	2.00	1.00	17.13	17.35
Standard deviation		15.51	0.49	0.43	0.86	0.70	10.33	9.97

Table 3: Descriptive statistics - house price, wealth and savings

	N	Mortgage 2008 (x €1,000)	Mortgage 2010 (x €1,000)	Rent 2008 (x €1,000)	Rent 2010 (x €1,000)	House price 2008 (x €1,000)	House price 2010 (x €1,000)	Wealth 2008 (x €1,000)	Wealth 2010 (x €1,000)	Savings (x €1,000)
Total sample	489									
Mean		74.66	75.45	2.40	2.50	144.01	151.74	42.76	43.42	0.65
Median		28.12	24.45	-	-	136.00	150.00	15.5	17.00	0.15
Standard deviation		99.72	100.48	2.84	2.97	158.59	168.40	98.39	101.63	63.30
House-owners	267									
Mean		136.74	138.20	-	-	263.75	277.91	63.43	61.11	-2.31
Median		111.50	109.81	-	-	235.00	243.00	31.40	32.00	-0.98
Standard deviation		98.61	99.09	-	-	120.18	129.73	122.17	118.96	77.03
Non-owners	222									
Mean		-	-	5.29	5.51	-	-	17.90	22.14	4.23
Median		-	-	5.12	5.49	-	-	3.00	3.25	0.42
Standard deviation		-	-	1.58	1.68	-	-	47.69	70.30	41.02

Overall, there are no big differences between household that own a house and renters. Both groups have, in general, the same responses in terms of their extraversion, agreeableness and neuroticism. The only small differences are in terms of their emotional stability and conscientiousness, where house-owners consider a lower neuroticism but a higher degree of discipline. As already mentioned, neuroticism reflects their drift towards negative emotions, irritation, stress, while conscientiousness reflects their attraction towards being organised, keeping tight to a schedule and being self-disciplined.

Table 4: Descriptive statistics - personality variables

	N	Openness	Consciousness	Extraversion	Agreeableness	Neuroticism
Total sample	489					
Mean		3.55	3.72	3.26	3.83	2.49
Median		3.60	3.80	3.30	3.90	2.40
Standard deviation		0.50	0.52	0.64	0.47	0.68
House-owners	267					
Mean		3.58	3.76	3.28	3.77	2.35
Median		3.60	3.80	3.30	3.80	2.30
Std. dev		0.49	0.50	0.65	0.46	0.62
Non-owners	222					
Mean		3.53	3.68	3.25	3.90	2.65
Median		3.50	3.70	3.30	3.90	2.60
Std. dev.		0.51	0.54	0.64	0.48	0.71

Methodology

The goal of this paper is to gain a better understanding of how demographic variables, house variables and personality variables influence savings and the decision to save. Even if there has been a lot of debate on what are the characteristics that influence savings, demographic variables as well as house and personality variables have caught mostly the attention of previous studies. Other potential variables such as financial risk tolerance (Tigges et al., 2000; Jacobs-Lawson and Hershey, 2005; Wang, 2009), financial knowledge and planning (Lusardi and Mitchell, 2007; Ansong et al., 2011) have also been widely discussed over the time.

One objective of this paper is to expand previous findings on whether demographic variables, house variables and personality variables have separately an impact on the savings and on the decision to save of Dutch households. Secondly, I would like to see what effect these variables have on savings and on the decision to save if they interact all together.

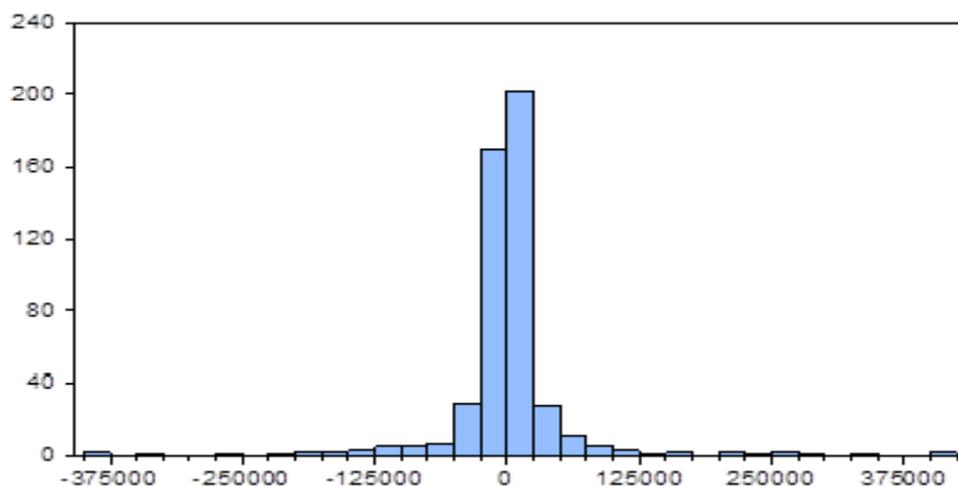
As a difference from previous studies, I have taken under consideration diverse independent variables (demographic, house price, mortgage, rent and personality) and saw their effect over the savings of Dutch households. My measure of total wealth consists of both financial and real wealth. The disadvantage of this approach comes from the possible measurement problems, as both house value and mortgage are part of total savings and are present as dependent variables. As a solution, I did not consider house value and mortgage in the measurement of total savings.

A problem in measuring savings comes from the fact that they have distributions with very long tails – a large number of households have very big positive amounts of savings while other households have very big expenditures (see Figure 2 below). Log transformations for wealth data, in general, do not work well, because of the households that have a negative or zero savings over the 2008 to 2010 period. In order to solve this problem I have made use of the hyperbolic sine transformation in order to take into consideration savings. The form for the hyperbolic sine transformation is:

$$\log (S_i + (S_i^2 + 1)^{\frac{1}{2}})$$

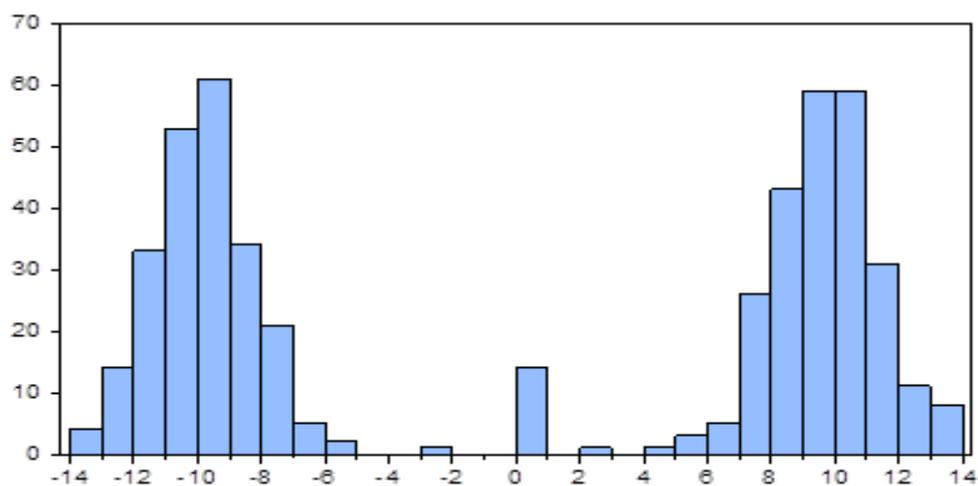
where S represents the saving of household i.

Figure 2: Distribution of total savings



In order to observe the relationship between total savings and demographic, house and personality variables, I have applied a quantile regression. Even if the large majority of previous studies (Jappelli and Pagano, 1997; Kim, 2010) considered OLS in their methodology, quantile regression has the advantage of dealing more efficient with outliers and takes into consideration the median of different other quantiles (Figure 3).

Figure 3: Distribution of total saving after hyperbolic sine transformation



While the OLS uses the mean which is highly influenced by outliers, it is known that usually wealth data consist of outliers, thus an least squared regression could be used only after treating the outliers. In this case, a quantile regression analysis gives more power to the model as it does not have to delete any outliers that appears. Secondly, because the sample does not contain a large number of respondents, it is important that every answer is taken into

consideration. That is why a quantile regression has been further used in this paper in order to assess the impact of demographic, house and personality variables on total savings.

$$\log S_i = \beta_1 + \beta_2 x_2 + \beta_3 x_3 + \beta_4 x_4 + u_i$$

where:

- $\log S$ represents the total saving of household i after the hyperbolic sine transformation;
- x_2, x_3, x_4 , represent the demographic, house (house value and mortgage/rent) and personality variables and u_i the error term.

Furthermore, I had divided total savings into four categories: liquid, investment, durable goods and debt savings. Applying the methodology of Nyhus and Webley (2001), I would like to see if personality and demographic still show significant influence over savings if there is also information regarding house price, mortgages and rent for Dutch households.

As a difference from the method applied on total savings, the four categories of savings have been integrated in an OLS where the dependent variables are the three types of variables: demographic, house (house value, mortgage/rent) and personality. This difference in methodologies comes because of the convergence problem which appears in the case of quantile regression. Again, because of the specific problems related to wealth data, hyperbolic sine transformation has been applied⁷.

The last step of my methodology is to assess the likelihood of the mentioned independent variables over the decision to save or not for the period 2008 to 2010. In order to see what factors affect the savings behaviour of Dutch households, I will use a 0 – 1 dummy variable as dependent variable (1 if the household has positive total savings and 0 otherwise)

The majority of papers in which the debate on savings behaviour is of high interest apply logit or probit regression. Because there are no big differences between these two methods, in order to see what factors are important in explaining the savings attitude of Dutch households, I will use the following logit model:

$$Prob(S_i > 0) = \frac{1}{1 + e^{-(\beta_1 + \beta_2 x_{2i} + \beta_3 x_{3i} + \beta_4 x_{4i})}} + u_i$$

⁷ Distributions for the other types of savings are presented in detail in the appendix (Fig. A1 – A4).

where i stands for the household and x_2, x_3, x_4 , for the observable demographic, house and personality traits. Unobservable or random factors affecting the decision to save are being explained by the error variable u_i . The results of my study are shown in the next part.

Results

The following tables show some of the results from the regression analysis made in order to determine the impact of demographic, house and personality variables on the savings of Dutch households. First, I had estimated the impact of the independent variables by taking into consideration the whole sample of 489 households. After that, I separated the sample into house owners and renters and see the impact on these categories of households.

Table 5 shows the results for the total savings and how demographic, house and personality variables influence its amount. At a first look it seems that house price, mortgage and personality variables do not have a big influence over the total savings. Total savings is higher with education and medium education households have a lower savings rate than the highly education category. Interesting, as opposed to the findings of Fernandez et al. (2009) and Demery and Duch (2006) that considers savings as an increased function of age, the life-cycle model do not seem to be applicable for the Dutch households. Results show that younger households tend to save more than older class. Houses with two members were found to have significant savings, comparing to houses with three or more individuals. Other variables such as civil status, job security, income or mortgage were found to be insignificant.

Having a look at the house owners sample, the analysis shows evidence that households do take into consideration their house value; a 1% increase in the house price lowers the total savings almost by 7.5%. Income was found significant in the case of renters, increasing the level of total savings by 1.7%. For the last category, a high influence was the structure of the household, families with one or two persons saving 10 and 12 times more than households with more than three members. This could be explained if all these members are working and have high income, without any children or elderly people into care.

Personality variables were found to have little influence over the total savings of households, only the level of agreeableness could be consider as having a negative impact on total savings. House owners and renters were also recognized not to be influenced by their personality when accounting their savings. For the owners, only extraversion was found to significantly influence the level of total savings. Thus, households that feel more and more

comfortable with others, like to draw attention and seek observations from others, increase their savings.

Table A2 presents the results for the liquid savings. Overall, mortgage value was found to be significant in both owners and the entire sample, having a negative impact on the liquid savings. From the personality variables, only the level of openness was found to be significant at a 90% level of confidence. On the overall sample as well as for the house owners sample, personality was found to be insignificant in influencing the level of liquid savings. This is quite surprising taking into consideration the results of Nyhus and Webley (2001), who found significant influence for the Big Five personality traits. A difference from the study of Nyhus and Webley (2001), which could count, is the fact that in their research they also took into consideration other personality variables from the 16PA: inflexibility, tough-minded, outgoing and meticulous. My study also considers a difference between house owners and non-owners, variables such as house price, mortgage or rent being taken under debate.

Demographic variables were found to have little importance in determining the level of liquid savings. Only in the case of house owners, households with primary education make significant less liquid savings than highly educated households. This is in accordance with the study of Morriset and Revoredo (1995). A possible explanation could be their increase interest in other forms of savings such as saving bonds or saving certificates.

Table 5: Quantile regression: Total Savings (coefficients in bold are significant at 10% level)

	All households		Only for house owners		Only for renters	
	B	(sig)	B	(sig)	B	(sig)
Constant	16.738	0.344	136.201	0.000	5.243	0.872
34 years and younger	9.828	0.010	7.463	0.072	-1.107	0.796
35 – 44 years	8.019	0.041	2.693	0.537	2.772	0.296
45 – 54 years	4.683	0.223	1.835	0.666	-3.375	0.324
55 – 64 years	6.966	0.044	1.990	0.679	-0.270	0.908
Married	0.880	0.782	-6.273	0.093	4.382	0.172
Primary education	-1.934	0.455	-0.135	0.967	-0.317	0.880
Middle education	-6.739	0.051	-2.520	0.442	-2.467	0.394
Male	-0.590	0.789	4.940	0.147	-0.931	0.632
One member	3.817	0.416	-6.151	0.279	10.337	0.041
Two members	6.780	0.057	1.573	0.701	12.469	0.004
Partner	-3.027	0.416	-1.066	0.805	-2.744	0.538
Secure job	4.420	0.211	5.647	0.176	2.792	0.544
Income	0.274	0.626	0.025	0.972	1.707	0.003
House value	0.616	0.582	-7.499	0.015		
Mortgage value	-0.935	0.404	-1.525	0.418		
Rent value					-3.589	0.242
Openness	-2.454	0.333	-0.817	0.824	2.875	0.200
Conscientiousness	-1.233	0.521	-3.270	0.209	0.255	0.891
Extraversion	1.319	0.345	3.262	0.080	-1.260	0.323
Agreeableness	-3.518	0.104	-5.754	0.076	0.551	0.800
Neuroticism	-1.645	0.146	-1.631	0.402	-0.851	0.422
<i>Adjusted R-squared</i>	<i>0.050</i>		<i>0.059</i>		<i>0.037</i>	
<i>Observations</i>	<i>489</i>		<i>267</i>		<i>222</i>	

Investment savings were found to be influenced by all three categories of variables on the overall sample (see Table A3). Younger families in the Netherlands tend to have big savings from the investments they made during the years. This could also explain the results from the total savings, where I found evidence that a younger family saves more than an older household. As expected, middle education households were also found to save less than

highly educated households. This shows evidence that education could also be a good proxy in determining the savings behaviour of households in general.

In the case of house value, a beta of 1.100 is highly significant at a probability of 0.006. This suggests that investment savings are positively influenced by the increase in house prices. In the case of mortgage value, in both cases there is significant evidence that it has a decreasing effect over the investment savings. Households with mortgages will mostly decrease their interest in share funds, stocks, options, art works and jewellery and try to put more attention on the mortgage.

The personality of household members does have an influence over the investment savings. In all of the three samples, a high level of consciousness has a negative effect on savings, a significant influence being observed in the case of home owners and the entire sample. On the other hand, agreeableness has a total different effect; I found an important positive influence for the case of the entire sample and also the renters.

Positive differences over the value of durable goods are not influenced much by the three categories of variable taken under consideration. Single house owners seem to save more than the married, while male renters save less. Income has a positive effect on durable savings and both consciousness and rent value have an inverse effect over durable savings. Overall, the results show that savings from differences in durable goods value are very hard to be influenced by the different attributes of Dutch household. I tend to agree with previous literature (Euwals et al., 2000; Attanasio and Rohwedder, 2003; Alessie et al., 2011) that consider these savings from durable goods as a form of involuntary savings, which are not affected by the decision of individuals (Table A4).

Next, I emphasize on the decrease in debt (debt savings). Personality variables were found important elements, variables such as extraversion and agreeableness having opposite effects over the debt savings. Higher level of income was found significant in increasing the level of debt savings. House value, mortgage and rent were not found significant. Surprising results were found for demographic variables. Even if not expected, it seems that households with low or middle education make better debt savings than the higher class. Additionally, male were found to make worse savings from debt than female and house owners with secure job to save more from debt variations than freelancers (Table A5).

Finally, I investigated whether demographic, house or personality factors influence the decision to save over the period 2008 to 2010. From the independent factors, only the one regarding the house (house value, mortgage and rent value) were found not to be significant over the decision to save. Households have a higher probability to save if they have a high level of extraversion and a low level of agreeableness. In the case of renters, extraversion was found significant, but the effect is opposite from the house owners. Further, households with fewer members are likely to save more. On the entire sample, age together with education and family structure are significant in the probability to save; lower age households along with fewer members are likely to save more, while lower education decreases the saving probability (Table 6).

Table 6: Logit method – Likelihood of households to save (coefficients in bold are significant at 10% level)

	All households		Only for house owners		Only for renters	
	B	(sig)	B	(sig)	B	(sig)
Constant	0.534	0.755	10.287	0.047	1.288	0.793
34 years and younger	0.910	0.025	0.946	0.160	-0.025	0.965
35 – 44 years	0.552	0.105	0.210	0.678	0.676	0.225
45 – 54 years	0.276	0.382	0.099	0.829	-0.202	0.698
55 – 64 years	0.379	0.131	0.288	0.422	0.226	0.565
Married	0.130	0.712	-0.329	0.527	0.877	0.126
Primary education	-0.205	0.419	-0.307	0.404	-0.263	0.495
Middle education	-0.489	0.045	-0.528	0.127	-0.634	0.122
Male	-0.007	0.973	0.049	0.898	-0.119	0.724
One member	0.233	0.627	-0.819	0.216	1.425	0.100
Two members	0.494	0.088	-0.098	0.799	1.502	0.006
Partner	-0.398	0.432	-0.499	0.487	-0.541	0.520
Secure job	0.496	0.205	0.843	0.159	0.239	0.676
Income	0.072	0.424	0.071	0.649	0.043	0.714
House value	0.020	0.881	-0.549	0.153		
Mortgage value	-0.046	0.752	-0.135	0.401		
Rent value					-0.226	0.661
Openness	-0.094	0.685	-0.308	0.347	0.513	0.172
Consciousness	-0.118	0.503	-0.208	0.438	-0.087	0.762
Extraversion	0.05	0.715	0.469	0.055	-0.525	0.047
Agreeableness	-0.204	0.364	-0.535	0.100	-0.009	0.978
Neuroticism	-0.178	0.231	-0.149	0.508	-0.267	0.228
<i>McFadden R-squared</i>	<i>0.030</i>		<i>0.061</i>		<i>0.070</i>	
<i>Observations</i>	<i>489</i>		<i>267</i>		<i>222</i>	

Conclusion

The previous chapter presented the results of this paper and attempted to determine the most important variables of different savings categories as well as the probability of households to save. This last section reviews the main findings of this thesis, taking into consideration the previous literature, discusses the limitations of the study and presents some directions for further study.

Findings

While the existing literature focuses on the determinants of savings, a large majority of them only consider a few variables, neglecting the potential impact of other variables as well the difference between house owners and renters (Fernandez et al., 2009; Kim, 2010; Brown and Taylor, 2011). This study shows that demographic, house and personality variables, taken together, are important factors in establishing the savings behaviour of Dutch households. Overall, age, civil status, education and family structure have an important impact on the level of total savings. As opposed to the life-cycle model, results show that younger households save more. Total savings increase with education and households with few members save additionally.

House value and income were found important items over total savings of house owners and renters. As expected, an increase in the house value has a decreasing effect on the savings of house owners, while income has a positive effect on the savings of renters. These results are in line with previous studies by Engelhardt (1996) and Hsueh (2000). Surprisingly, mortgage and rent were found to be not significant even after separating the sample. In terms of personality variables, only extraversion was found to influence positively the saving amounts of house owners. This result is in accordance with other studies which consider that personality variables do not have an important impact on total savings (Nyhus and Webley, 2001; Brown and Taylor, 2011).

Dividing the total savings into categories (liquid savings, investment savings, durable goods savings and debt savings), results show that different types of personality traits have a contrasting impact on the savings categories. Openness was found an important factor for liquid savings and debt savings. In the case of renters, a high level of openness increases the liquid savings. The same effect was found in the case of debt savings of house owners.

Because openness is equivalent to understanding quickly and reflecting on different things, the results are as expected.

Consciousness was found to influence negatively investment savings. This result is quite surprising, existing literature considering that consciousness has a positive influence over savings (Nyhus and Webley, 2001). One possible explanation for this result is that consciousness could also be related to inflexibility, following a strict schedule and not being prepared to quick changes that usually appear in the management of bonds, stocks or different types of funds.

Debt savings were found to be positively influenced by extraversion. People who usually start conversations and feel comfortable around others make savings by decreasing their debt level. Brown and Taylor (2011) found similar results, reasoning that extraversion could be seen as a negotiation skill which helps households in taking better decisions over their loans.

On the other hand, agreeableness was found to influence negatively debt savings. This result is consistent with the work of Nyhus and Webley (2011) who asserts that self-control and leadership make people to take better decision with respect to their financial liabilities.

I did not find any relationship between emotional stability and savings. In all the cases, neuroticism was found to be insignificant in influencing the savings of households. This is a puzzle, according to the view of Nyhus and Webley (2001) who found that emotional stability is influencing positively liquid savings. One explanation is that Nyhus and Webley (2001) consider the personality attributes for the case of head family. On the contrary, my study does not focus on the difference between head and partner personality traits and as an effect, it is not known whether the head family or the partner participated in the study.

Even if income was found to be an important factor in determining the total savings amount only of renters, after separating the different types of savings, income was found as an important aspect for durable goods savings and debt savings. In both cases, income has a positive influence, which is in line with previous studies (Attanasio and Székely, 2000).

Concerning the probability to save, younger households and families with one or two members were found significant. This is in contrast with other studies which consider that people start to save when they are close to retirement (Demery and Duck, 2006; Fernandez et al. 2009). A possible explanation for this result is that young families usually save in order to buy a house or because of the prospect of having a child.

The results show that it is important to account the difference between house owners and renters. In some cases, the separation between owners and renters has shown that these categories are being influenced differentially by various items, which could not be observed while taking the overall sample of households.

Limitations and further research

Beside the advantages of using surveys as a research method, such as usefulness in describing characteristics of large populations or the possibility to obtain statistical significant results even after analyzing various items, surveys also present important weaknesses. Even if the number of responses was quite good, the response rate was not so high. This aspect was even more pronounced when I had to take into consideration various surveys which account for different variables (demographic, personality, economic situation).

A potential limitation to this paper is regarded to the time period over which the data has been collected. One individual which saves over the last two years but spends everything the third year, has made a saving only over the first two year; overall, the individual has not made any savings. In order to cover properly the savings behaviour of households, economic literature on this subject agree that this behaviour is better seen over large period of times. It would be interesting to see what the effects of demographic, house and personality variables would be over a longer period of time as a future study. Furthermore, considering that financial literacy is also an important aspect on household savings, a high level of financial knowledge could also have a positive influence over the different types of savings.

Apart from the time interval which influences savings, various measures of savings have been used. Other studies assert that there should be a clear difference between financial wealth and real wealth as the latter is not considered in all the cases as being an intended way of saving.

Different directions for future research concerning the determinants of household savings still remain. First, considering that this study was limited to Dutch households, it would be interesting to see what are the determinants of savings reflecting on other countries. Furthermore, as this thesis makes use of the advantages proposed by surveys, further variables could be added, such as political orientation or religion. The LISS Panel offers the possibility to study also different aspects of immigrants in the Netherlands, so this study could also be applied to this social category.

Appendix

Figure A1: Distribution of liquid savings

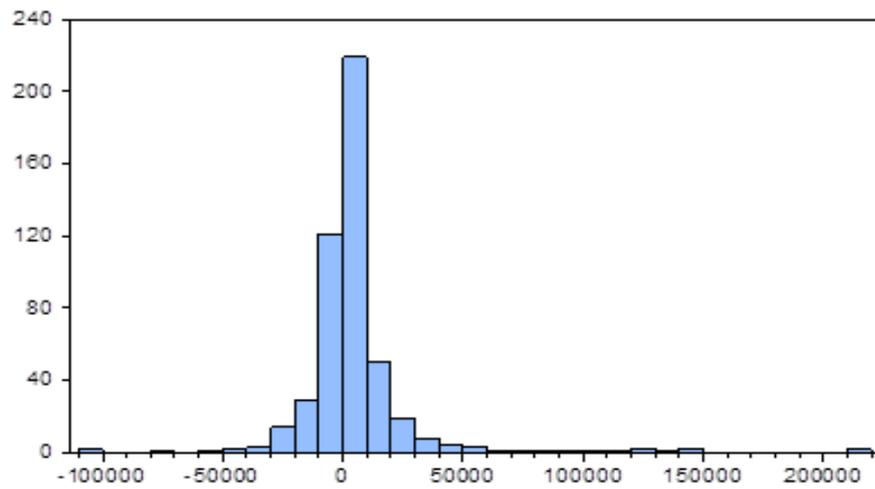


Figure A2: Distribution of investment savings

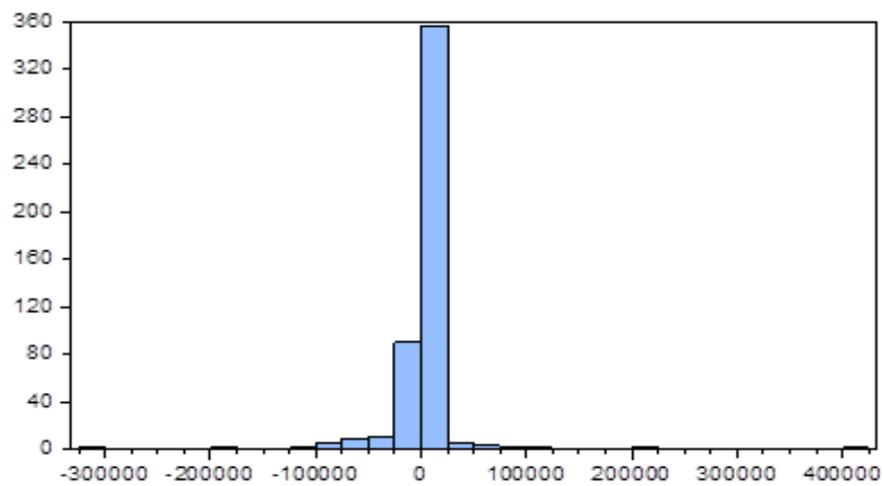


Figure A3: Distribution of durable goods savings

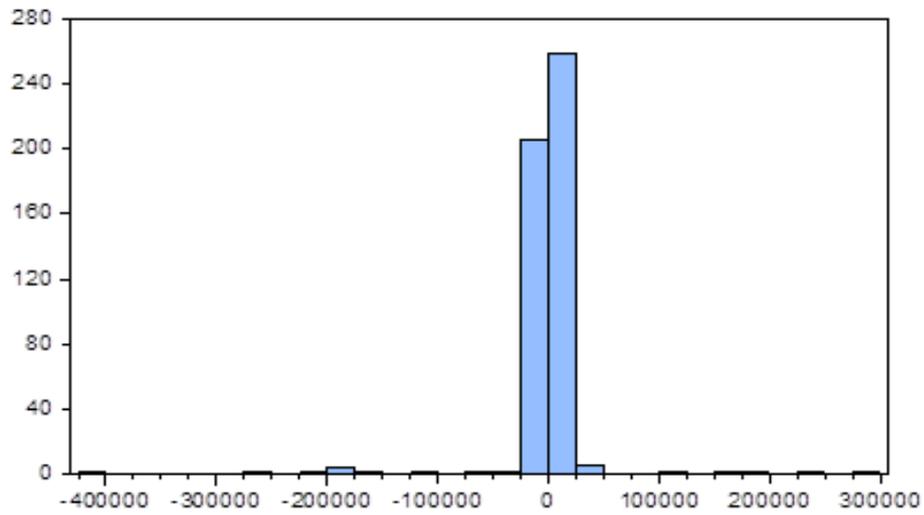


Figure A4: Distribution of debt savings

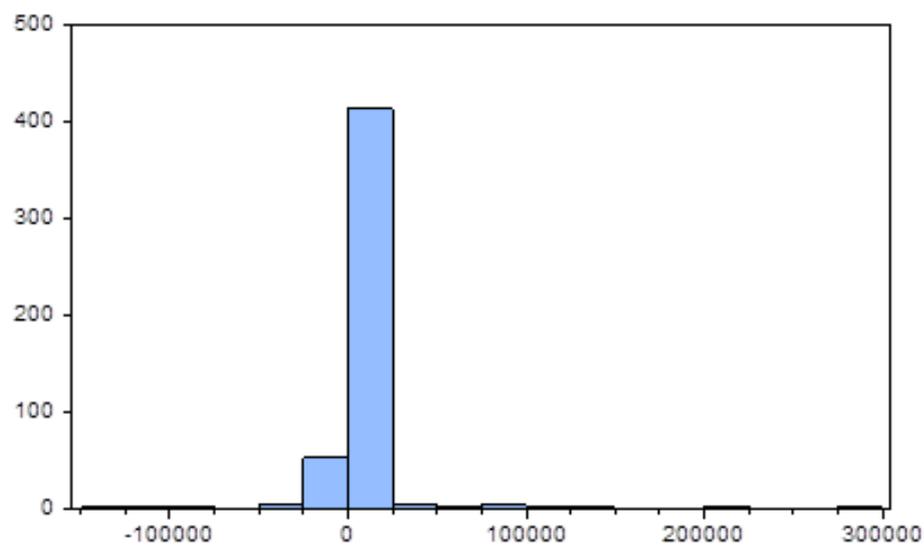


Table A1: Descriptive statistics – liquid, investment, durable goods and debt savings

	N	Liquid savings (x €1,000)	Investment savings (x €1,000)	Durable goods variation (x €1,000)	Debt Savings (x €1,000)
Total sample	489				
Mean		4.44	-2.31	-2.98	1.75
Median		0.40	0.00	0.00	0.00
Standard deviation		26.05	33.92	40.06	24.75
House-owners	267				
Mean		4.46	-5.13	-5.32	4.10
Median		0.65	0.00	-1.00	0.00
Std. dev		27.62	42.65	51.43	31.01
Non-owners	222				
Mean		4.41	1.07	-0.17	-1.06
Median		0.32	0.00	0.00	0.00
Std. dev.		24.08	18.16	18.60	13.42

Table A2: OLS regression - Liquid Savings (coefficients in bold are significant at 10% level)

	All households		Only for house owners		Only for renters	
	B	(sig)	B	(sig)	B	(sig)
Constant	2.525	0.731	40.749	0.066	10.246	0.589
34 years and younger	1.385	0.419	0.250	0.932	-1.500	0.532
35 – 44 years	1.611	0.262	-0.557	0.805	2.071	0.286
45 – 54 years	0.109	0.934	-0.985	0.628	-0.407	0.829
55 – 64 years	1.196	0.256	1.594	0.304	-0.295	0.841
Married	-0.972	0.521	-2.064	0.348	0.920	0.668
Primary education	-1.425	0.189	-3.293	0.051	-0.093	0.947
Middle education	-0.628	0.536	-0.578	0.685	-1.532	0.318
Male	-0.777	0.432	-1.657	0.306	0.251	0.844
One member	1.820	0.357	-1.263	0.689	3.483	0.189
Two members	0.156	0.898	-1.241	0.467	0.763	0.692
Partner	1.063	0.611	-0.046	0.988	1.091	0.687
Secure job	-0.353	0.827	-0.175	0.941	-0.849	0.710
Income	0.270	0.521	1.150	0.177	-0.245	0.616
House value	0.996	0.096	-2.212	0.184		
Mortgage value	-1.170	0.068	-1.274	0.093		
Rent value					-1.015	0.613
Openness	0.435	0.648	-0.330	0.809	2.297	0.100
Consciousness	-0.121	0.876	0.434	0.708	-0.548	0.605
Extraversion	0.469	0.499	-0.036	0.972	-1.217	0.205
Agreeableness	0.584	0.531	-1.260	0.368	-0.148	0.907
Neuroticism	-0.107	0.864	-0.192	0.847	-0.04	0.959
<i>Adjusted R-squared</i>		<i>0.007</i>		<i>0.018</i>		<i>-0.025</i>
<i>Observations</i>		<i>489</i>		<i>267</i>		<i>222</i>

Table A3: OLS regression - Investment Savings (coefficients in bold are significant at 10% level)

	All households		Only for house owners		Only for renters	
	B	(sig)	B	(sig)	B	(sig)
Constant	3.033	0.537	18.527	0.245	1.608	0.883
34 years and younger	2.181	0.057	2.498	0.239	0.345	0.803
35 – 44 years	1.866	0.052	3.212	0.049	0.339	0.762
45 – 54 years	2.048	0.021	3.477	0.018	-0.089	0.935
55 – 64 years	0.175	0.803	1.074	0.335	-1.053	0.219
Married	-0.249	0.805	-1.127	0.476	1.412	0.258
Primary education	-1.066	0.142	-1.483	0.221	-0.638	0.442
Middle education	-1.134	0.095	-1.440	0.161	-0.797	0.369
Male	0.226	0.732	-0.317	0.785	0.627	0.399
One member	0.427	0.746	-0.946	0.677	1.277	0.405
Two members	0.515	0.529	0.414	0.735	1.037	0.354
Partner	0.862	0.537	1.012	0.670	-0.093	0.952
Secure job	-1.069	0.325	-0.693	0.686	-1.035	0.434
Income	-0.150	0.593	-0.540	0.377	-0.067	0.812
House value	1.100	0.006	0.628	0.600		
Mortgage value	-1.404	0.001	-1.795	0.001		
Rent value					-0.153	0.895
Openness	-0.994	0.119	-0.863	0.380	-0.189	0.817
Conscientiousness	-0.899	0.086	-1.443	0.085	-0.516	0.401
Extraversion	0.589	0.204	1.146	0.129	-0.447	0.421
Agreeableness	1.027	0.100	0.633	0.530	1.392	0.059
Neuroticism	-0.151	0.719	0.064	0.929	-0.350	0.457
<i>Adjusted R-squared</i>		<i>0.062</i>		<i>0.036</i>		<i>-0.020</i>
<i>Observations</i>		<i>489</i>		<i>267</i>		<i>222</i>

Table A4: OLS regression - Durable goods Savings (coefficients in bold are significant at 10% level)

	All households		Only for house owners		Only for renters	
	B	(sig)	B	(sig)	B	(sig)
Constant	7.104	0.275	26.341	0.195	18.264	0.252
34 years and younger	0.371	0.806	-1.915	0.478	0.631	0.754
35 – 44 years	-0.326	0.797	-1.601	0.440	-0.587	0.718
45 – 54 years	0.324	0.782	-0.870	0.641	-0.595	0.707
55 – 64 years	-0.323	0.728	-0.214	0.880	-1.369	0.270
Married	-1.560	0.245	-3.870	0.056	0.513	0.776
Primary education	1.178	0.220	1.145	0.459	0.771	0.521
Middle education	0.884	0.326	0.770	0.556	0.634	0.622
Male	-0.951	0.277	-0.575	0.698	-2.200	0.042
One member	0.228	0.895	-0.128	0.964	0.645	0.771
Two members	0.237	0.826	-0.811	0.605	1.403	0.386
Partner	1.680	0.364	3.490	0.251	0.893	0.694
Secure job	1.938	0.178	1.243	0.570	3.021	0.116
Income	0.600	0.100	1.267	0.105	0.002	0.994
House value	-0.157	0.766	-0.514	0.736		
Mortgage value	0.132	0.815	0.349	0.615		
Rent value					-3.072	0.069
Openness	0.389	0.644	-0.632	0.614	1.660	0.162
Conscientiousness	-1.436	0.038	-1.965	0.066	-0.960	0.281
Extraversion	0.177	0.772	0.459	0.633	0.355	0.659
Agreeableness	-0.025	0.975	-0.696	0.588	-0.021	0.984
Neuroticism	-0.381	0.494	-0.968	0.293	0.349	0.609
<i>Adjusted R-squared</i>	<i>0.001</i>		<i>-0.020</i>		<i>0.001</i>	
<i>Observations</i>	<i>489</i>		<i>267</i>		<i>222</i>	

Table A5: OLS regression - Debt Savings (coefficients in bold are significant at 10% level)

	All households		Only for house owners		Only for renters	
	B	(sig)	B	(sig)	B	(sig)
Constant	-8.531	0.048	-2.173	0.854	-6.806	0.580
34 years and younger	1.157	0.251	3.397	0.031	-0.268	-0.863
35 – 44 years	0.609	0.470	0.549	0.649	0.943	0.453
45 – 54 years	0.280	0.719	0.723	0.505	0.031	0.979
55 – 64 years	0.354	0.567	-0.153	0.852	1.037	0.279
Married	0.688	0.439	0.552	0.638	0.980	0.482
Primary education	1.326	0.037	2.644	0.003	-0.291	0.753
Middle education	0.386	0.518	2.048	0.007	-1.661	0.095
Male	-1.149	0.048	-1.792	0.038	-0.325	0.695
One member	1.582	0.173	1.038	0.538	2.114	0.219
Two members	0.849	0.237	0.163	0.858	1.377	0.272
Partner	1.146	0.351	2.588	0.144	-0.027	0.987
Secure job	0.992	0.299	2.109	0.098	0.525	0.723
Income	0.484	0.051	-0.327	0.471	0.584	0.067
House value	-0.489	0.164	-0.325	0.714		
Mortgage value	0.575	0.126	0.275	0.496		
Rent value					-0.05	0.965
Openness	0.813	0.146	2.079	0.004	-0.065	0.942
Consciousness	-0.178	0.698	-0.079	0.897	-0.424	0.536
Extraversion	0.816	0.045	0.338	0.545	0.832	0.182
Agreeableness	-0.930	0.090	-1.428	0.057	-0.004	0.996
Neuroticism	-0.172	0.641	-0.094	0.860	-0.495	0.348
<i>Adjusted R-squared</i>		<i>0.021</i>		<i>0.073</i>		<i>0.003</i>
<i>Observations</i>		<i>489</i>		<i>267</i>		<i>222</i>

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