



The assets, liabilities and wealth of Estonian households: Results of the Household Finance and Consumption Survey

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Abstract

This paper presents the results of the Estonian Household Finance and Consumption Survey (HFCS) that was carried out in 2013. The HFCS is the first comprehensive survey on household assets, liabilities, consumption and financial fragility in Estonia and provides comparative evidence about the financial position of Estonian households compared to the rest of the euro area. It is shown that: (1) The median net wealth of Estonian households was 43.6 thousand euros in 2013 with 95% confidence bounds between 39.3 and 47.9 thousand euros; (2) The most important component of wealth is the household main residence, which accounts for 50% of total real and financial assets, while mortgages on the household main residence account for 85% of total debt; (3) Around one third of households have debt and that debt is concentrated to young and high-income households; (4) The financial burden of Estonian households is lower than the euro area average, except for low-income indebted households; (5) Wealth is less equally distributed than income; and (6) The wealth distribution of Estonian households is less equal than the average across the euro area countries and this stems from large wealth inequalities across Estonian regions.

JEL Codes: D14, D31, E21

Keywords: household finance, Estonia, assets, liabilities, net wealth, financial fragility, income, consumption

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Non-technical summary

Microdata on households' assets and liabilities have always been recognised as a valuable tool for analysing financial stability. The importance of this type of dataset has increased further in the aftermath of the Great Recession as the concentration of debt to high-risk borrowers in the US was missed by policy-makers and became one of the triggers for the crisis. The need to understand the distribution of the assets and liabilities of euro area households motivated the European Central Bank to launch the Household Finance and Consumption Survey (HFCS), which is conducted by all the euro area national central banks.

The HFCS is a longitudinal survey that is carried out at three-year intervals. The first wave of the survey took place during the years 2008 – 2010. Since Estonia only became the member of the euro area in 2011 we started participating in the survey from the second wave. The fieldwork for the Estonian survey was carried out in the first half of 2013, while most of the other euro area countries conducted their fieldwork for the second wave later and their results are not yet available for comparison. Therefore the results of the Estonian HFCS are compared with the findings from the first wave for other euro area countries in the current overview. The data were collected from 2220 Estonian households, covering 4675 individuals.

This paper shows the main descriptive statistics for Estonian households' real and financial assets, collateralised and non-collateralised debt, financial fragility, net wealth, income, consumption and credit constraints. The paper follows closely the structure of the article describing the euro area survey results from the first wave of the HFCS (Eurosysteem Household Finance and Consumption Network (2013b)); however, topical sections for Estonia such as high levels of home-ownership, recent rapid debt accumulation, and wealth inequality receive more discussion in the Estonian report. The paper provides many descriptives that can be used as a starting point for research papers or policy analyses. In what follows we summarise only some basic findings that may have higher policy value or that were not known from earlier micro studies.

First, real assets form the dominant part of total assets in Estonia and financial assets play a much smaller role. This finding is affected by the high home ownership rate of Estonian households, which in turn can be related to the privatisation of household dwellings in the 1990s or to households' strong preference for owning rather than renting their home. In Estonia, 77% of households own their main residence, while only 60% of euro area households own their home on average. The household main residence is the most important component of assets, meaning that the value of the home is the

most influential factor for household wealth. Self-employment business wealth also plays an important role among real assets in Estonia; 20% of total real wealth consists of self-employment businesses, while this share is about two times lower in the euro area. Financial assets are poorly diversified and mainly consist of deposits. The findings of the relatively high home ownership rate and poor diversification of financial assets are not unique to Estonia, as they are also characteristic of other countries with lower than average income levels in the euro area, namely Slovakia, Slovenia, Portugal, Malta and Greece.

Second, credit market participation in Estonia is relatively similar to participation in the euro area, while the debt is more concentrated in young and high-income households. Participation in debt is somewhat lower in Estonia than in the euro area, as the participation rate is 37% in Estonia and 44% in the euro area. The concentration of debt, especially mortgage debt, to young households is again related to the privatisation process that took place in the 1990s in Estonia and enabled older cohorts to become home owners without mortgages, and it also arises because the market for housing loans was essentially absent before the 2000s.

Third, the financial fragility of households is relatively low in Estonia, and debt to asset and debt to income ratios are below the euro area averages. Low-income indebted households are vulnerable, but debt participation is very low among these households. There are also some indicators that show households' financial vulnerability to be higher in Estonia than in the euro area. The median loan to value ratio of the household main residence in Estonia exceeds the euro area median value, which is probably due to the more recent mortgage loans and to the majority of loans being issued during the years of the housing price boom. In addition, the financial buffers of Estonian households are low; the median household holds liquid assets worth a bit more than one month's gross income.

Fourth, the Estonian households' median net wealth is one of the lowest among the euro area countries while the inequality of net wealth is above the euro area average. The median net wealth of Estonian households is 43.6 thousand euros with 95% confidence bounds between 39.3 and 47.9 thousand euros. The average net wealth is much higher at 97.1 thousand euros with 95% confidence bounds between 83.8 and 110.4 thousand euros. Unlike in other countries with high home ownership rates, wealth inequality is high in Estonia, and the Gini coefficient of net wealth is 0.69. There are vast regional differences in net wealth that are caused mainly by strong disparities in real estate prices across Estonian regions. Net wealth is much higher in the two largest towns, Tallinn and Tartu, and in the summer resort islands; the rest of the regions sometimes have two to three times lower median levels of net

wealth despite home ownership rates being similarly high throughout the country.

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1. Introduction

This report gives an overview of the main results of the Household Finance and Consumption Survey (HFCS) which was carried out in Estonia in 2013. The survey was conducted as a part of a joint project run by all the euro area central banks and the ECB, which aim is to collect and analyse data on income, assets, debts and consumption expenditures at the household level. To achieve this purpose, the Household Finance and Consumption Network (HFCN) was established in December 2006 by the European Central Bank and the national central banks of the Eurosystem. The network was given a mandate to develop and conduct the HFCS and to act as a forum for research using the survey data on household finances.

This project was initiated to gain insights into the working of the monetary transmission mechanism and financial stability, which cannot be deduced from aggregate information on the assets and liabilities of households. For example, a change in the interest rates affects the consumption of net savers and net borrowers differently. The savers are likely to reduce their consumption and the borrowers to increase theirs when interest rates fall. The response of aggregate consumption to interest rate shocks depends on the share of indebted households, the level of their debt relative to their savings and income, and the type of debt held (Household Finance and Consumption Network (2009)). This information can only be obtained from micro-level data on household finances.

Recent economic history has shown that a small, highly indebted part of the population can have a substantial influence on market developments. Lending to high-risk borrowers in the USA and the packaging of these sub-prime loans into mortgage-backed securities with high credit ratings led to financial cataclysms not only in the US but also in European financial markets, ultimately causing the financial crisis of 2007–2008. This highlights the importance of knowing the distributions of household assets and liabilities.

The consequences of the sharp increases in household borrowing in many euro area countries in the run-up to the Great Recession might have been easier to understand if micro-level data on household balance sheets had been available. Had the data on over-indebtedness by specific household classes and on the distribution of debt been known, central banks would have been better able to detect the associated risks to the households and to the banking sector (Eurosystem Household Finance and Consumption Network (2013a)).

In Estonia, like in many other European countries, households suffered significant losses in income and wealth in the Great Recession. The consequences of this for consumption and ultimately for aggregate demand might have also been easier to detect if disaggregated data on household finances

had been available. The propagation of income and wealth shocks depends among other things on the level and the type of assets held by households, the amount of debt, and the coverage of loans by collaterals.

The economic developments described above, together with a multitude of other types of events, can be better studied through the use of micro-level data on household assets and liabilities alongside information on household incomes and consumption expenditures. An overview of the situations where analysis using this type of data proves to be useful is provided in the reports of the Household Finance and Consumption Network (Eurosysteem Household Finance and Consumption Network (2013a) and (2013b)).

For Estonia, the HFCS is the first source of information including data on household assets, liabilities and income in a single data set, thereby allowing analysis of the level and distribution of household wealth in Estonia. Prior to the HFCS survey, there was no unique source of data combining details of household demographic characteristics, incomes, assets and debts. Existing household-level survey data, such as the European Survey of Income and Living Conditions (EU-SILC) and the Household Budget Survey, cover detailed information on income and consumption expenditures but have only limited coverage of the level and type of household assets and liabilities.

The outline of the current report closely follows the structure of the article reviewing the HFCS results for all the euro area countries (Eurosysteem Household Finance and Consumption Network (2013b)). This makes it possible to compare the findings from the Estonian survey with the euro area averages. The paper is structured as follows: Section 2 covers briefly the methodology and structure of the survey; Section 3 explains the real and financial assets; Section 4 describes liabilities and Section 5 the financial fragility indicators; Section 6 summarises net wealth, which is the difference between assets and liabilities; Sections 7, 8 and 9 give an overview of income, consumption and credit constraints respectively; and the last Section summarises the findings.

2. Description of the survey

The main focus of the HFCS is to gather information on households' assets and liabilities. In addition, the survey covers information on related economic variables including income, employment, consumption, gifts and inheritances, and various demographic variables, such as the age, sex and education of household members.

The fieldwork of the HFCS took place between March and June 2013 in Estonia and interviews were conducted with 2220 households. The response

rate was 64%, which is high in comparison to similar surveys conducted in other countries (see Eurosystem Household Finance and Consumption Network (2013a)).

The sampling design was one-stage stratified systematic sampling. Ten strata were defined by the cross-section of five NUTS3 regions and two income groups (the highest income decile and the rest). The division into two income groups was based on the total net income for 2011 taken from the whole population records of the Estonian Tax and Customs Board, which cover income from employment, benefits, gains or losses from transfers of securities, and some other types of income. Since wealth is unequally distributed, a small fraction of wealthy households can have a strong impact on the structure of assets in the population. In order to gain better coverage of households' assets, the survey was targeted to oversample wealthy households. Since the register data on wealth was not available, the oversampling was based on income, so 20% of the sample was selected from the highest income decile and 80% from the rest of the population.

The survey was comprised of household and personal interviews, conducted using two different questionnaires: the household questionnaire and the personal questionnaire. The household interview was carried out with a financially knowledgeable person (FKP). The FKP is the person who is most knowledgeable about the household's financial matters. Personal interviews were carried out with all household members aged 16 or over. Other family members could provide answers for members who were not present. In total data were collected from 4675 individuals. The interview mode was CAPI (Computer Assisted Personal Interview).

The estimation weights were calculated to adjust for survey non-response and were calibrated for age, sex, degree of urbanisation, ethnicity, education, household size and home ownership status. Replicate weights were introduced for variance estimation, and bootstrap methods with replacement were used to create 1000 replication weights. Multiple imputation was applied to tackle item non-response. The imputation is not applied to the whole survey, but the key variables, such as the components of net wealth, income and consumption, are imputed. Five imputates are created based on the assumption of "missing at random". The methodology for weights and imputation is similar to that used in other euro area countries participating in the HFCS, please see Eurosystem Household Finance and Consumption Network (2013a) for more details.

Table 1: Household balance sheet

ASSETS	LIABILITIES
Real assets:	Collateralised debt:
Main residence	Mortgages on main residence
Other real estate property	Mortgages on other real estate property
Ownership of self-employed businesses	
Vehicles	
Valuables	
Financial assets:	Uncollateralised debt:
Sight accounts	Bank overdrafts
Saving accounts	Credit card debt
Life insurance policies	Other uncollateralised loans
Mutual funds	
Bonds	
Publicly traded stocks	
Ownership of non-self-employed businesses	
Money owed to household	
Voluntary pension funds, whole life insurance policies	
Other ¹	

The aim of the HFCS is to collect information on households' assets and liabilities, which together form the household balance sheet. An overview of the structure of assets and liabilities covered by the HFCS is given in Table 1.² The sum of all assets comprises household gross wealth. Deducting the total amount of household debt from gross wealth yields net wealth.

The current report provides comparisons of Estonian survey data with the results of the first wave of the HFCS for the other euro area countries. In the following sections the euro area statistics represent the averages over fifteen countries that were euro area members in 2013, excluding Ireland and Estonia, where the first wave of the HFCS was not carried out.³ For comparative analysis it is important to remember that the first waves of surveys of the other countries were carried out earlier than the Estonian survey. The field-

¹ Other financial assets can include options, futures, precious metals, royalties, etc.

² Note that the coverage of financial assets does not include households' cash holdings. No question on money kept outside bank accounts was included in the common core questionnaire of the HFCS, but this item is covered by the Estonian survey. However, in order to ensure comparability, cash holdings are also excluded from financial assets in this paper.

³ The following countries conducted the first wave of the HFCS: Belgium, Germany, Greece, Spain, France, Italy, Cyprus, Luxembourg, Malta, the Netherlands, Austria, Portugal, Slovenia, Slovakia, and Finland.

work took place between the end of 2008 and mid-2011 in different countries, although in most cases the surveys were carried out in 2010. Estonia joined the HFCS data collection from the second wave and the reference period for Estonian data is 2013 for assets and liabilities, and 2012 for income. This means that the Estonian HFCS lags the surveys of most other countries by three years, which hampers the comparability of the results. The comparison of the Estonian results with the euro area results from the second wave cannot be made before the end of 2016 because the data are not yet available.

The units of analysis in the current report are households. The reference population is all households living in non-institutional private settlements. The survey does not cover people living in collective homes or institutions (homes for the elderly, prisons, etc). To categorise the households using demographic variables which can only be applied to individuals, such as age or education level, we define the household reference person (HRP). This definition is based on the concept developed by the Canberra Group (UNECE (2011)) and it implies that the highest income earner in the household is usually chosen as the reference person. By this definition the following criteria should be applied to all household members in the order listed until a single appropriate reference person is identified:

- One of the partners in a registered or de facto marriage, with dependent children;
- One of the partners in a registered or de facto marriage, without dependent children;
- A lone parent with dependent children;
- The person with the highest income;
- The oldest person.

Table 2 presents a selection of the characteristics of the households covered by the Estonian survey and compares them to the euro area averages. The source for the euro area statistics is the report published by the Household Finance and Consumption Network (Eurosysteem Household Finance and Consumption Network (2013b)).

The figures presented in Table 2 indicate that household size in Estonia is fairly similar to the euro area average. The share of one-person households is somewhat larger in Estonia at 35.7 % than it is in the euro area, where it is 31.6%.

Table 2: Household structure by demographic characteristics in Estonia and in the euro area

	Estonia (% of households)	Euro area (% of households)
All Households	100.0	100.0
Household size		
1	35.7	31.6
2	29.8	32.1
3	16.3	16.6
4	12.8	14.1
5 and More	5.4	5.6
Housing status		
Owner-Outright	57.9	40.7
Owner-with Mortgage	18.7	19.4
Renter or Other	23.4	39.9
Age of Reference Person		
16–34	20.0	15.7
35–44	17.6	19.6
45–54	17.9	19.9
55–64	17.5	17.1
65–74	13.5	14.5
75+	13.5	13.2
Work Status of Reference Person		
Employee	57.4	47.9
Self-Employed	5.1	9.0
Retired	26.8	31.7
Other Not Working	10.6	10.7
Education of Reference Person		
Primary or Less	16.5	34.3
Secondary	49.5	41.3
Tertiary	34.0	24.4

Sources: Authors' calculations on the basis of the Estonian HFCS, Eurosystem Household Finance and Consumption Network (2013b).

Notes: Work status "Other not working" includes households where the reference person is unemployed, a student, permanently disabled, etc. The education level "Primary or no education" corresponds to the ISCED levels 0–2, "Secondary" corresponds to the ISCED levels 3–4, and "Tertiary" corresponds to the ISCED levels 5–6.

Here and in the tables presented in the following sections we use the age of the household's reference person as a proxy for household age, as it can be assumed that the reference person's age is correlated with the average age of all household members. Estonian households are relatively young compared to the euro area average. The share of households where the reference person is 16–34 years old is 20.1% in Estonia whereas it is only 15.7% in the euro area. This may indicate that children start living separately from their parents at relatively younger age in Estonia than they do in the euro area. An alterna-

tive explanation for this finding is that younger people have relatively higher incomes in Estonia than they do in the euro area (see Section 7). Thus, a younger person is more likely to be selected as a household reference person in a multi-generational household.

Like age, the education level of the reference person is used as an indicator of the household's education. The statistics presented in Table 2 imply that Estonians have a higher level of education than the euro area average. Reference people have a primary or lower education level in only 16.5% of Estonian households whereas the corresponding figure for the euro area is 34.3%. The share of households where the reference person's education level is tertiary is 34.0% in Estonia and 24.4% in the euro area.

Regarding the housing status, the statistics presented in Table 2 show that Estonians are more likely than the euro area average to be home owners, as 57.9% of Estonian households own their house without having a mortgage on it. The corresponding figure for the euro area is significantly lower at 40.7%. The share of renters is 23.4% in Estonia whereas it is almost twice as large in the euro area at 39.9%. The share of home owners with a mortgage is similar in Estonia to the euro area average: 18.7% and 19.4% accordingly.

The reference persons work for a salary in 57.4% of households in Estonia, this share being lower at 47.9% in the euro area. The percentage of households with self-employed reference persons is about twice lower in Estonia than in the euro area, at 5.1% against 9%. In total, the share of households where the reference person is employed is higher in Estonia than in the euro area and the difference stems from there being a smaller proportion of households where the reference person is retired.

3. Assets

This section focuses on households' asset holdings. Household assets consist of real and financial assets. (See Table 1 in Section 2 for the structure of real and financial assets.) First, we give an overview of households' participation in assets, i.e. what fraction of households own a given type of asset. Second, we present estimates of the median values of various asset types. The asset values shown are conditional on the household having that asset. We present medians as opposed to means since asset distributions are prone to having a few extremely high values and median values are less sensitive to extreme values. Finally, we analyse the composition of assets, i.e. the fractions of total assets that are accounted for by different asset types.

The statistics on real assets are presented in Tables 3, 4 and 5. For several cells in the tables the letter "N" is reported instead of a value. This indicates

that the value could not be calculated because there was an insufficient number of observations for the particular cell. If the number of observations is below 20 then the estimate is not reported.

3.1. Real assets

Five categories of real assets can be distinguished on the basis of the HFCS: the household main residence (HMR), other real estate property, vehicles, valuables, and self-employment businesses. The category of vehicles covers cars, motorbikes, trucks, boats, etc. Vehicles with a current lease contract are not considered as part of household assets. Valuables are defined as valuable jewellery, antiquities and art.

Table 3 displays the participation rates for real assets as a whole and for various real asset types. The participation rates are presented across household subsets grouped by demographic characteristics, income, home ownership status, etc. For comparison purposes, similar statistics for the euro area are presented in Table A1 in Appendix 2. The share of Estonian households that own real assets is 87.1%, which is slightly lower than the euro area average of 91.1%.

The median value of real assets, conditional on participation, is given in Table 4. Table A2 in Appendix 2 presents the same figures for the euro area. The median value of the total holdings of real assets is 52.0 thousand euros in Estonia. The average value for the euro area is approximately three times higher at 144.8 thousand euros. The value of real assets for Estonian households is lower mainly because real estate prices are lower, and they are especially restrained in the regions outside Tallinn, the capital city.

Figures 1 and 2 illustrate the relationship between participation in various real asset types and their median values on the one side and household income on the other. Both the participation rates and the median values of real assets are positively related with income. The ranking of the various asset types by their values is as follows: HMR, other real estate, self-employment businesses, vehicles, and valuables. The ranking is the same across the majority of income deciles.

Table 3: Participation in real assets by different household types

	(Any)Real Assets	Household Main Residence	Other Real Estate Property	Vehicles	Valuables	Self-Employment Business Wealth
All Households	87.1	76.5	32.0	52.1	8.6	11.7
S.E.	0.6	0.0	1.0	0.9	0.6	0.6
Household size						
1	75.6	63.4	18.4	23.6	6.5	4.4
2	90.6	81.1	37.2	56.9	8.9	10.4
3	94.8	85.6	35.1	72.5	9.9	17.3
4	96.6	83.1	43.8	81.7	10.5	23.0
5 and More	98.7	94.1	56.2	82.9	12.3	22.7
Housing status						
Owner-Outright	100.0	100.0	34.4	50.4	7.5	9.1
Owner-with Mortgage	100.0	100.0	43.1	78.1	12.4	21.5
Renter or Other	45.3	0.0	17.3	35.6	8.3	10.1
Percentile of Income						
Less than 20	72.0	62.0	16.0	19.3	3.0	2.1
20–39	82.1	73.1	23.9	34.2	7.1	3.9
40–59	87.3	77.6	31.3	47.6	7.0	9.2
60–79	95.0	82.5	39.5	76.0	9.2	16.4
80–100	99.2	87.2	49.4	83.6	16.8	26.7
Percentile of Net Wealth						
Less than 20	41.8	22.2	4.5	23.0	2.7	2.1
20–39	96.1	79.2	19.3	48.6	6.9	4.0
40–59	99.2	92.0	33.1	48.4	6.1	6.7
60–79	99.2	93.7	41.8	63.7	11.2	14.4
80–100	99.3	95.2	61.2	76.8	16.1	30.9
Age of Reference Person						
16–34	77.7	47.5	27.6	61.2	10.4	14.1
35–44	90.0	80.1	36.6	73.2	11.6	19.1
45–54	92.7	86.7	36.6	61.7	10.2	14.1
55–64	90.6	84.6	39.2	50.1	8.1	13.4
65–74	91.6	88.5	29.7	36.5	4.5	3.6
75+	80.8	78.5	19.5	16.6	4.6	0.8
Work Status of Reference Person						
Employee	91.3	78.9	37.5	66.3	10.9	11.0
Self-Employed	99.9	72.7	47.5	73.6	19.7	96.6
Retired	84.2	80.6	21.5	25.0	3.2	0.4
Other Not Working	65.9	54.6	21.5	33.3	4.4	3.0
Education of Reference Person						
Primary or Less	77.1	66.8	21.4	36.0	2.3	1.6
Secondary	87.7	78.5	31.3	53.1	6.4	11.4
Tertiary	91.1	78.2	38.2	58.5	14.9	16.9

Note: The table reports the share of households owning a given type of asset. S.E. stands for standard error.

Table 4: Median value of real assets conditional on participation (EUR, thousands)

	(Any) Real Assets	Household Main Residence	Other Real Estate Property	Vehicles	Valuables	Self-Employment Business Wealth
All Households	52.0	44.9	27.2	4.0	2.0	11.7
S.E.	1.6	1.5	2.1	0.2	0.2	4.3
Household size						
1	31.6	30.4	20.6	2.5	2.0	17.0
2	56.1	45.7	25.1	4.0	1.5	9.3
3	59.1	47.3	34.1	4.5	2.5	9.4
4	82.1	63.4	29.9	5.0	3.7	16.3
5 and More	91.7	60.0	32.7	5.9	N	24.1
Housing status						
Owner-Outright	49.3	38.7	21.8	4.0	1.7	9.4
Owner-with Mortgage	98.5	65.1	39.8	5.0	2.2	22.5
Renter or Other	8.3	N.A	27.9	3.0	1.8	12.5
Percentile of Income						
Less than 20	25.9	25.2	14.3	2.0	N	N
20–39	39.3	35.0	16.9	2.1	1.8	N
40–59	46.0	39.0	22.2	2.5	1.8	25.4
60–79	61.9	50.0	25.0	4.3	1.8	12.0
80–100	110.4	72.8	50.0	7.8	2.0	14.0
Percentile of Net Wealth						
Less than 20	3.0	4.8	5.8	1.5	N	N
20–39	17.6	15.3	7.6	3.0	1.8	N
40–59	41.1	35.3	15.1	4.0	1.7	3.2
60–79	73.2	60.0	24.9	4.7	1.9	14.2
80–100	187.0	101.1	69.0	7.3	2.6	39.8
Age of Reference Person						
16–34	46.4	55.6	32.4	4.5	1.8	10.3
35–44	73.6	60.0	33.1	5.0	1.8	11.2
45–54	59.1	46.4	33.8	5.0	2.8	21.7
55–64	52.9	40.0	19.7	4.0	2.0	18.1
65–74	42.6	34.6	21.5	3.0	N	N
75+	38.7	36.8	12.7	1.5	N	N
Work Status of Reference Person						
Employee	59.7	50.0	30.0	4.6	1.8	8.4
Self-Employed	132.2	72.2	55.4	8.0	2.1	20.3
Retired	36.1	31.7	13.9	1.9	N	N
Other Not Working	30.8	30.4	18.9	2.0	N	N
Education of Reference Person						
Primary or Less	25.8	27.5	10.3	2.4	N	N
Secondary	50.1	40.5	25.3	4.0	1.9	12.2
Tertiary	69.0	55.8	35.1	5.0	2.0	13.2

Note: N stands for “not calculated” since fewer than 20 observations are available. N.A means “not applicable”. S.E. stands for standard error.

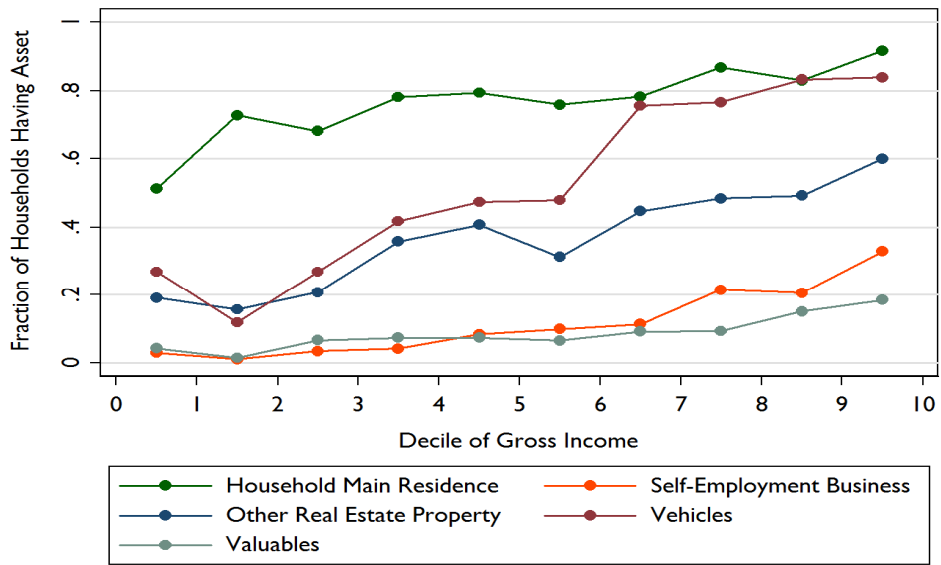


Figure 1: Participation in real assets by income deciles

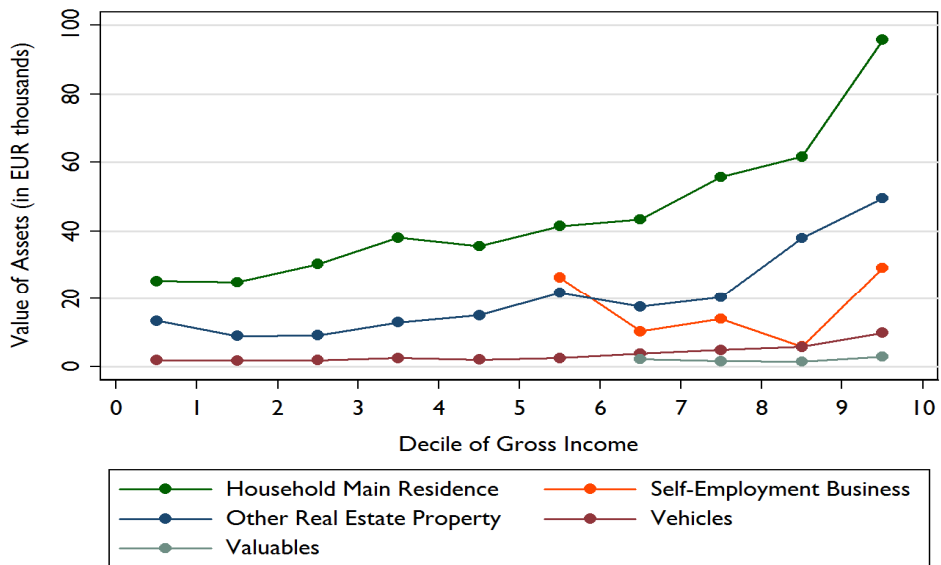


Figure 2: Median value of real assets by income deciles

Note: The data for some deciles are missing due to the insufficient number of observations. The median values are not shown when the income decile contains fewer than 20 observations.

3.1.1. Real estate property

The most commonly owned real asset is the household main residence – 76.5% of households own their home. This share is larger than in the euro area, where 60.1% of households own their HMR on average. Comparison with other euro area countries indicates that Estonia has a relatively high home ownership rate, as the rate is higher in only three countries: Slovakia, Spain and Slovenia (Eurosystem Household Finance and Consumption Network (2013b)). Other real estate property besides HMR is owned by 32% of households. This rate is also higher than the euro area average of 23.1%.

A likely reason for the relatively high real estate ownership rate in Estonia is that in the transition period in the 1990s most households were able to privatise their dwellings in exchange for privatisation vouchers.⁴ The result of the privatisation process was that the majority of families became the owners of their HMR. The same explanation applies for the high home ownership rates in the other two post-communist countries that participate in the HFCS, Slovakia and Slovenia. Box 1 gives an overview of how households have acquired their homes in Estonia. The role of privatisation during the transition period is clearly visible among the older cohorts, around half of whom acquired their homes through privatisation.

The real estate property ownership rate increases with income in Estonia (see Figure 1). This is the case for both HMRs and other real estate holdings, reflecting the fact that ownership of real estate is more affordable for households with higher income. The same tendency is also prevalent in the euro area (see Table A1 in Appendix 2).

As it is with income, the home ownership rate is positively related with households' net wealth. Only 22.2% of households in the lowest net wealth quintile own their HMR, whereas 95.2% of the highest quintile do. This is an expected result, since the most prevalent wealth component for households is their HMR. (See Table 5 for an overview of the composition of assets.)

Household size is also positively related with the ownership rates of the HMR and of other real estate property, although these relationships do not monotonically increase across size classes. Households owning their house (either with or without a mortgage on it) are more likely to own other real estate property than renters are, and the ownership rates are 34.4% for outright owners and 43.1% for owners with a mortgage. However, the share of households owning other real estate property is also surprisingly high among

⁴ Not all Estonian households were able to privatise their home. Families occupying dwellings that were returned to previous owners or their heirs through the restitution process could not privatise HMRs.

families that rent their main dwelling, being close to one fifth at 17.3%. (See Box 1 for the possible role of privatisation and restitution in other real estate ownership.)

The relative age of households is proxied by the age of the reference person. The breakdown of the HMR ownership rate by age groups is depicted in Figure 3. It shows that the youngest households, where the reference person is 16–34 years old, have a considerably lower home ownership rate than the others do. Their share is 47.5% whereas it is between 80% and 90% for other age groups and drops slightly to 78.5% for the oldest age group where the reference person is 75 or older. A similar pattern is present for other real estate property.

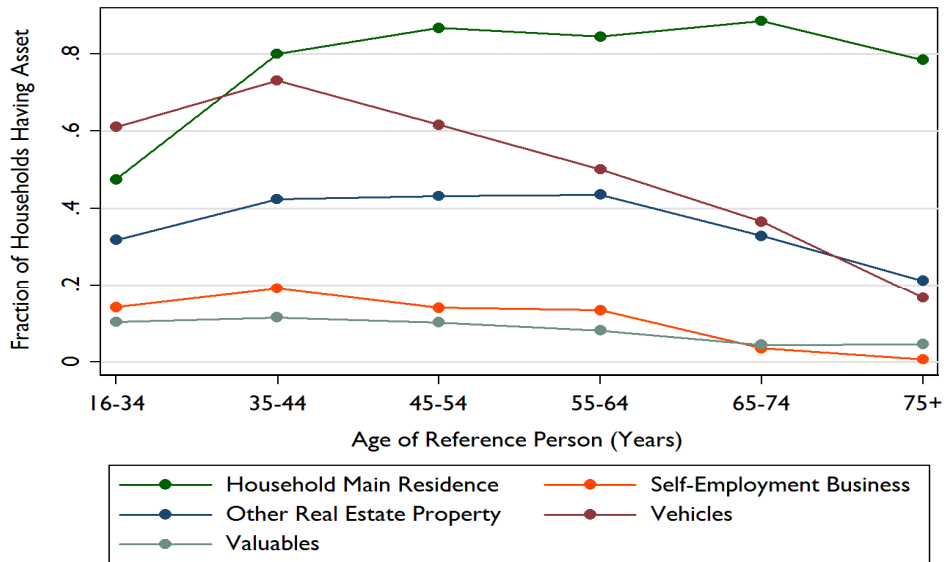


Figure 3: Participation in real assets by age groups

The education level of the household reference person is positively related with the ownership rate of the real estate property. A possible reason for this relationship is the positive association between education level and income.

The median values of different real assets presented in Table 4 imply that the most valuable real asset households hold is the HMR. Its median value is 44.9 thousand euros for Estonian households. This is followed by other real estate property, for which the median value is 27.2 thousand euros. The values of other real assets (vehicles, valuables and self-employment businesses) are considerably lower.

The value of real estate is positively related with income (see Figure 2) and net wealth. Interestingly, the values of both the HMR and other real estate property are negatively related with the age of the household reference person (although this relationship is not monotonic). As shown in Section 4, younger households are significantly more likely to have mortgages, and this has enabled them to buy real estate of better quality. Another possible reason for this finding is that younger households are more likely to live in bigger cities where real estate prices are higher. There has been a strong tendency to migrate to bigger cities and especially to the capital area during recent decades, and most of the migrants have been younger people. It is relevant to note that the relationship between the value of the real estate and household reference person's age is different in the euro area, where it is hump-shaped and peaks at the age of 45–64.

The value of the property owned by households where the reference person is self-employed is considerably larger than the value for households with the other employment statuses for the reference person (employees, retired persons or unemployed).

3.1.2. Vehicles

Slightly more than half of Estonian households (52.1%) own vehicles (see Table 3). The corresponding percentage for the euro area is 75.7%. The share of families owning cars or other vehicles is lower in Estonia than in the euro area most likely because of the lower level of income (see Section 7 for an overview of income).

The ownership rates of different types of assets are correlated across various household types: if, for example, larger households are more likely to own a certain type of assets then they are also more likely to own other types of assets. Therefore, similarly to the real estate, the propensity for owning vehicles increases with household size, income, net wealth and the education level of the reference person.

The relationship between vehicle ownership and household age is depicted in Figure 3. It has a hump-shaped pattern, which peaks at a younger age in Estonia than in the euro area. In Estonia, the age group which is the most likely to own vehicles is 35–44. In the euro area the most likely to own vehicles are households where the reference person is 35–64 years old. This is related with income, as households with higher incomes are more likely to be able to buy vehicles. As shown in Section 7, the group of households with reference persons aged 35–44 has the highest income level in Estonia.

Home owners are more likely to have vehicles than renters are. This regularity is possibly caused by renters having lower incomes than home owners. In the same vein, households where the reference person is employed (either self-employed or an employee) are more likely to own a vehicle.

The median value of the vehicles Estonian households hold is 4000 euros (see Table 4). This is nearly two times lower than in the euro area, where the corresponding figure is 7000 euros. Like the ownership rate, the median value of the vehicles households own increases with household size, income, net wealth and the education level of the reference person.

3.1.3. Valuables

The next type of real asset households have is valuables. Valuables are defined as valuable jewellery, antiquities and art. Households were instructed in the survey to count items or collections of items that are worth more than 500 euros, and 8.6% of Estonian households are in possession of valuables that satisfy this constraint. The corresponding figure for the euro area is much larger at 44.4%.

The ownership rate of valuables increases with family size, income, net wealth, and the education of the household reference person. Interestingly, household age is negatively related to the propensity for owning valuables. It has a mild hump-shape pattern peaking with the 35–44 age group, which is similar to the ownership pattern for vehicles. This pattern is different from that in the euro area, where older households are more likely to own valuables and it reflects the fact that younger households are more affluent in Estonia.

The median value of the valuables that households hold is 2000 euros in Estonia, whereas in the euro area it is 3400 euros. This value does not vary substantially across different household types.

3.1.4. Self-employment business wealth

The final category of real assets that is considered in the HFCS is self-employment business wealth. Among Estonian households, 11.7% have this type of wealth, which is similar to the euro area average of 11.1%. The ownership rate of self-employment business wealth increases with household income, net wealth and the education level of the reference person. It also increases with family size, although not monotonically.

The median value of self-employment business wealth is 11.7 thousand euros in Estonia, which is about one third of the euro area average of 30 thousand euros. The median value increases with family size and the household's net wealth. As a function of the age of the reference person it shows a hump-shaped pattern, peaking for households with reference persons aged 45–54. For this age group the median value of self-employment business wealth is 21.7 thousand euros, while it ranges from 10.3 thousand to 18.1 thousand euros for the other age groups. This pattern is different from that for the euro area, where the value of self-employment business wealth starts declining later, with the 65–74 age group. This particular age profile of the value of self-employment business wealth in Estonia may be the result of the transition process in the 1990s. The 45–54 age group were at the beginning of their careers in the 1990s and therefore more likely to start their own companies and to participate in the privatisation of state-owned firms that mainly took place in this decade. This can explain their relatively high level of business wealth.

3.1.5. The composition of real assets

Table 5 gives an overview of the composition of real assets, presenting the shares of various asset types in the total value of assets. The fractions of different assets are not given conditionally on households having these assets but as average shares across all households. For comparison purposes the composition of real assets for the euro area households is presented in Table A3 in Appendix 2.

The most valuable real asset households have is the HMR. On average it accounts for 55.7% of the value of total real assets. This share is higher for one-member households, home owners without a mortgage and households where the reference person is retired. The share of the value of HMR in total real assets is smaller than the average for households in the upper income and wealth quintiles.

Self-employment business wealth has the second largest share in the value of total assets for all households. This asset type accounts for about one fifth (19.7%) of the value of total assets. The share of self-employment business wealth is the largest for households where the reference person is self-employed and for households in the highest quintile of net wealth.

Other real estate property besides the HMR also accounts for about one fifth (19.4%) of the real assets portfolio. Vehicles and valuables comprise a modest share of total real assets at 4.4% and 0.8%, accordingly.

Table 5: The composition of real assets

	(Any)Real Assets	Household Main Residence	Other Real Estate Property	Vehicles	Valuables	Self- Employment Business Wealth
All Households	100.0	55.7	19.4	4.4	0.8	19.7
S.E.		3.6	1.6	0.4	0.2	4.9
Household size						
1	100.0	68.5	16.6	2.8	0.9	11.2
2	100.0	61.8	24.8	4.7	0.5	8.3
3	100.0	61.5	17.0	5.7	0.9	14.9
4	100.0	37.9	15.7	4.4	0.9	41.1
5 and More	100.0	56.8	23.4	4.5	N	14.6
Housing status						
Owner-Outright	100.0	66.2	20.7	4.7	0.7	7.8
Owner-with Mortgage	100.0	51.5	14.7	3.7	0.9	29.2
Renter or Other	100.0	0.0	35.8	6.7	1.0	56.4
Percentile of Income						
Less than 20	100.0	73.4	13.7	3.6	N	N
20–39	100.0	68.6	21.6	2.9	0.4	N
40–59	100.0	67.0	20.0	3.1	0.5	9.4
60–79	100.0	48.5	14.1	5.0	0.6	31.8
80–100	100.0	49.9	22.7	5.1	1.1	21.1
Percentile of Net Wealth						
Less than 20	100.0	68.3	19.2	9.6	N	N
20–39	100.0	77.1	10.2	10.3	1.0	N
40–59	100.0	78.4	13.8	6.4	0.5	1.0
60–79	100.0	73.0	16.2	5.4	0.6	4.9
80–100	100.0	46.9	21.5	3.5	0.8	27.3
Age of Reference Person						
16–34	100.0	54.4	24.9	8.4	0.7	11.6
35–44	100.0	55.2	18.3	4.5	0.8	21.2
45–54	100.0	41.5	18.7	3.9	1.1	34.8
55–64	100.0	56.6	21.4	4.6	0.3	17.2
65–74	100.0	74.1	18.9	3.1	N	N
75+	100.0	85.7	12.1	1.5	N	N
Work Status of Reference Person						
Employee	100.0	59.7	21.9	5.3	0.9	12.2
Self-Employed	100.0	23.4	14.4	3.5	0.7	58.1
Retired	100.0	81.8	15.2	2.2	N	N
Other Not Working	100.0	67.1	20.8	4.3	N	N
Education of Reference Person						
Primary or Less	100.0	72.9	20.6	4.8	N	N
Secondary	100.0	53.9	16.8	4.4	0.5	24.5
Tertiary	100.0	55.0	21.9	4.5	1.1	17.5

Note: N stands for “not calculated” since fewer than 20 observations are available. S.E. stands for standard error.

The structure of real assets in Estonia is similar to that in the euro area, with one notable exception. In Estonia the share of self-employment business wealth in the value of total real assets is much larger than it is in the euro area. The shares for this asset class differ by a factor of almost two. In Estonia self-employment business wealth constitutes 19.7% of real assets whereas in the euro area this share is 11.5%.

Box 1: Implications of privatisation and restitution for real estate ownership in Estonia

There have been two important changes in the ownership of housing in Estonia that explain the high home ownership rate. First, there was a massive nationalisation of private land and dwellings in the 1940s in connection with the Soviet occupation (Kährik (2000)). At the time of this nationalisation most of the Estonian population lived in rural areas and dwellings located in a city accounted for only a little more than one third of all dwellings (Statistics Estonia (2012)). After the 1940s, the state had control over housing distribution, construction and maintenance (Kährik (2000)). The Soviet occupation was accompanied by industrial development and massive immigration, which led to a rapid growth of cities. By the end of the Soviet era, the proportions of urban and rural dwellings had reversed and over 70% of dwellings were located in cities (Statistics Estonia (2012)). At that time public dwellings made up 65% of the housing stock, while most of the single family houses built during the Soviet era were in private ownership (Kährik (2000)).

The next massive change in the ownership of housing, this time privatisation, took place after 1991 when Estonia regained its independence. The aim of the privatisation was to establish private ownership as the dominant form so that the housing market would function under market economy incentives, and to establish social justice through the restitution of ownership rights of the property nationalised in the 1940s. The tenants in state-owned dwellings acquired the right to privatise their homes. If a dwelling was subject to restitution i.e. if the pre-war owners or their heirs had applied for the property to be returned, the public tenants did not have the right to privatise it (Kährik (2000)). This was a group of households that became private renters and the share of these households was estimated to be around 10% of the total population by Kährik (2000) and 3% by Lux et al. (2011). The rest of the public tenants could privatise their dwellings basically for no cost by using national capital vouchers. Kährik (2000) claims in her analysis that different income groups benefited equally from privatisation, as the status of a public tenant was determined by need and by the occupational and political position during the Soviet era and not by income. However, there is evidence that non-native Estonians and people aged 40–59 privatised their dwellings more frequently.

The private rental sector was underdeveloped for years and households had a strong preference for owning their HMR and not renting. Lux et al. (2011) claim in their analysis that the problems with the group of private tenants that did not have the right to privatise meant that the private rental sector became associated with "tensions, problems and insecurity" and was perceived as "residual and unpopular housing tenure". This perception and the low protection of tenancies are probably the reasons why Estonian households developed a strong preference for ownership and the housing system transformed quickly into the homeownership model.

Although it is by now more than 20 years since the peak of privatisation, the Estonian HFCS survey collected additional information about the acquisition of the home through privatisation and restitution, in order to understand the importance of this process for home ownership today.

The option of the home being acquired through purchase was split into three parts – purchase, privatisation or restitution. As the share of people that have become owners of their current home through the restitution process is marginal at 0.4%, this category is merged with the category of privatisation.

Figure 1.1 presents the form of home acquisition across age groups in 2013. It is clearly evident that older cohorts have acquired their homes more frequently through the privatisation process, while the younger cohorts that were not economically active 20 years ago have mostly acquired their homes by purchasing from the market. The cohorts that were middle-aged 20 years ago have frequently acquired their homes through privatisation, which overlaps with the findings of Kährik (2000). This structural difference in privatisation also plays an important role for the distribution of debt across age groups. As older cohorts became home-owners without mortgages, the debt is mostly concentrated among younger cohorts in Estonia.

Another implication of the privatisation and restitution process is that Estonian households frequently own other real estate property besides the HMR. The results of the HFCS indicate that 32% of households own other real estate property, which is 1.4 times higher than in the euro area. This high participation rate could be related to the low real estate prices outside the main towns, which allow households to buy second homes, but it could also reflect the rural dwellings and land that were obtained by restitution.

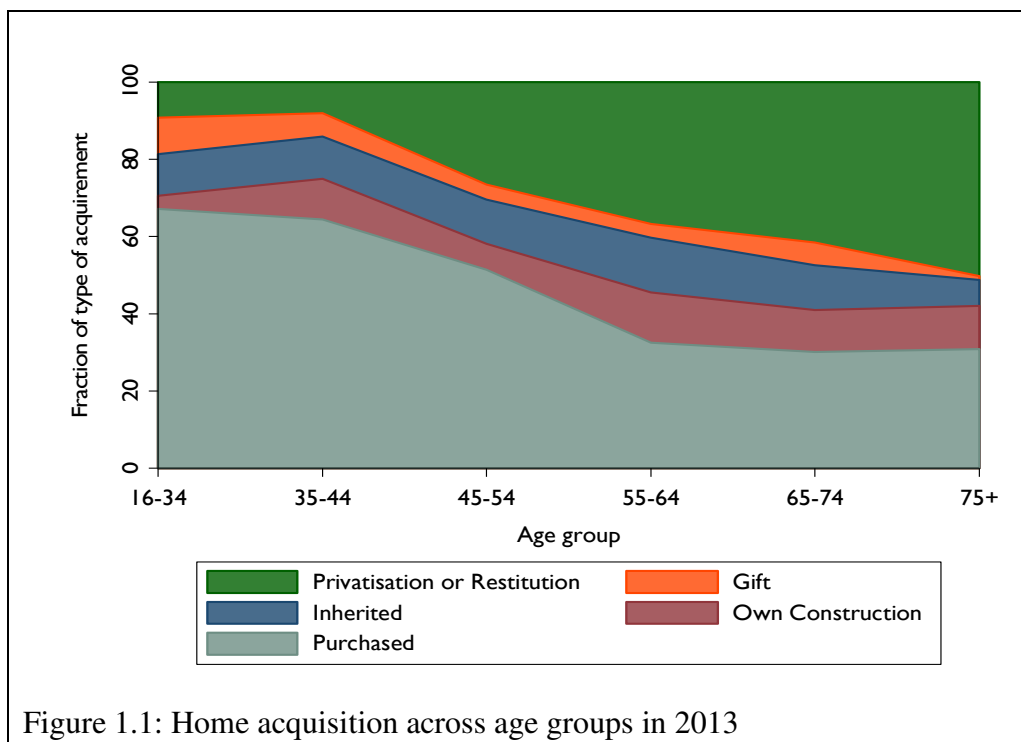


Figure 1.1: Home acquisition across age groups in 2013

3.2. Financial assets

The most common type of financial assets are the bank deposits kept on sight and savings accounts, which are held for transaction purposes and as a form of savings. The holdings of other financial assets, such as financial securities or voluntary pension funds, are the result of saving and investment decisions and reflect households' risk and time preferences as well as their level of financial literacy.

Table 6 presents the participation rates in various financial assets and their breakdowns by household types, distinguishing between the following asset types: deposits (consisting of sight and saving deposits), mutual funds and securities (including holdings of bonds and publicly traded shares), money owed to the households, voluntary private pension funds / whole life insurance, and other financial assets. This last category covers non-listed shares, financial derivatives, precious metals, and so forth.

The most prevalent financial assets are deposits. Nearly all Estonian households, 98.8%, have a deposit account. All the other types of financial assets shown in Table 6 are owned by only a minority of households. About one fifth (19.8%) own voluntary private pension funds or whole life insurance accounts, while 12.4% of households have lent money to other house-

holds, 5.8% have mutual funds or securities holdings and 3.6% own other financial assets.

Table 7 gives the median values for financial assets, conditionally on households holding a particular asset. Compared to real assets, the amounts of financial assets owned are modest. The median Estonian household holds financial assets worth a total value of 2.1 thousand euros. This amount is less than one fifth of the euro area average, which is 11.4 thousand euros. (Please see Table A5 in Appendix 2 for the euro area figures.)

The core questionnaire of the HFCS, which is the same for all the participating countries, does not cover households' cash holdings. The question on the amount of money held as cash was included in the Estonian survey, but for comparability purposes the overview of the financial assets of Estonian households presented in this Section excludes money held outside bank accounts. The estimated median amount of cash households have in Estonia is 50 euros. Given that this amount is relatively small, its exclusion has only a minor impact on the median value of total financial assets. (Typically the survey respondents tend to be reluctant to report how much money they have at home, so this estimate is likely to be downward biased.)

3.2.1. Deposits

Nearly all Estonian households, 98.8%, have bank deposits, and since this share is almost 100%, the ownership rate of deposits does not vary much across different household types (see Figure 4 and 5). It tends to increase with family size, income, net wealth and the education level of the reference person, but the variation in ownership rates is small.

Table 7 shows the median value of deposit holdings across different household types. The median amount that Estonian households hold on sight or savings accounts is 1200 euros, whereas the euro area average is 6100 euros (see Table A5 in Appendix 2). The median value of deposits increases with household income, net wealth, age and the education level of the reference person. The same patterns are present in the euro area. The variation is the sharpest across quintiles of net wealth: the value for the lowest quintile is 100 euros, whereas it is 5600 euros for the highest quintile. The differences in deposit values are also quite significant across the age groups. A median household where the reference person is 16–34 years old holds 500 euros on a deposit account whereas for the oldest age group of 75 and over, the amount deposited is 4000 euros.

Table 6: Participation in financial assets by different household types

	Financial Assets	Deposits	Mutual Funds and Securities	Money Owed to Households	Voluntary Pensions/ Whole Life Insurance	Other Financial Assets
All Households	98.8	98.6	5.8	12.4	19.8	3.6
S.E.	0.3	0.3	0.5	0.8	0.8	0.4
Household size						
1	96.8	96.2	3.6	12.6	9.8	2.3
2	99.7	99.7	7.1	9.0	17.4	3.0
3	100.0	100.0	4.8	12.6	24.5	4.8
4	100.0	100.0	7.2	17.9	39.3	6.6
5 and More	100.0	100.0	12.7	15.6	39.3	4.3
Housing status						
Owner-Outright	99.2	99.1	5.6	10.4	16.3	1.8
Owner-with Mortgage	100.0	100.0	8.4	15.8	41.0	7.6
Renter or Other	96.7	96.2	4.3	14.5	11.7	4.6
Percentile of Income						
Less than 20	96.6	96.4	2.1	9.7	4.7	1.1
20-39	97.9	97.9	2.3	8.5	6.1	1.1
40-59	99.5	99.5	6.2	12.7	15.3	2.3
60-79	99.9	99.2	5.9	15.0	29.9	5.3
80-100	100.0	100.0	12.5	15.9	43.2	8.0
Percentile of Net Wealth						
Less than 20	95.8	95.2	1.8	12.3	9.0	2.0
20-39	99.5	99.2	1.6	13.1	11.4	1.5
40-59	100.0	100.0	5.3	9.5	16.5	1.2
60-79	99.2	99.2	6.4	10.5	25.4	4.3
80-100	99.3	99.3	13.9	16.5	36.7	8.7
Age of Reference Person						
16-34	99.7	99.7	6.2	19.3	19.8	8.9
35-44	98.7	98.2	7.5	18.5	34.9	4.1
45-54	98.4	98.0	7.9	14.2	29.3	3.4
55-64	98.2	97.9	4.7	9.2	19.7	1.7
65-74	99.8	99.8	4.6	5.0	6.4	0.3
75+	97.9	97.9	2.8	2.9	1.2	0.8
Work Status of Reference Person						
Employee	99.5	99.2	8.0	15.0	29.0	4.6
Self-Employed	100.0	100.0	9.9	22.4	35.8	8.9
Retired	98.4	98.2	2.0	4.1	2.1	0.4
Other Not Working	95.3	95.3	1.5	14.2	7.1	3.2
Education of Reference Person						
Primary or Less	96.5	96.5	0.7	9.2	6.8	0.7
Secondary	98.8	98.5	4.0	14.0	16.3	2.3
Tertiary	99.8	99.6	10.9	11.5	31.3	6.8

Note: See notes for Tables 2, 3 and 4.

Table 7: Median value of financial assets conditional on participation (EUR, thousands)

	Financial Assets	Deposits	Mutual Funds and Securities	Money Owed to Households	Voluntary Pensions/Whole Life Insurance	Other Financial Assets
All Households	2.1	1.2	1.6	0.6	2.2	2.5
S.E.	0.1	0.1	0.3	0.1	0.1	0.3
Household size						
1	1.1	0.7	0.9	0.5	2.0	N
2	3.4	2.4	1.7	0.8	2.6	2.3
3	1.8	1.0	1.2	0.5	1.8	2.5
4	3.9	1.8	2.3	1.0	2.5	2.5
5 and More	2.8	1.3	1.0	0.6	2.3	N
Housing status						
Owner-Outright	2.9	2.0	2.3	0.6	2.4	1.7
Owner-with Mortgage	3.0	1.3	0.8	0.9	2.3	2.5
Renter or Other	0.5	0.3	N	0.5	1.5	2.6
Percentile of Income						
Less than 20	0.5	0.3	N	0.5	N	N
20–39	1.4	1.0	N	0.9	1.7	N
40–59	1.6	1.0	N	0.5	1.6	N
60–79	2.4	1.3	1.0	0.3	1.9	1.6
80–100	5.6	3.0	2.6	1.6	2.9	2.5
Percentile of Net Wealth						
Less than 20	0.1	0.1	N	0.2	0.6	N
20–39	1.3	0.9	N	0.2	1.3	N
40–59	2.5	1.6	1.3	0.5	2.0	N
60–79	4.8	3.0	1.1	0.9	2.2	1.8
80–100	10.3	5.6	2.9	2.5	3.7	4.3
Age of Reference Person						
16–34	0.8	0.5	0.8	0.3	0.9	2.2
35–44	2.0	1.0	1.2	0.5	2.1	2.6
45–54	2.0	0.9	1.4	0.8	2.4	2.2
55–64	2.7	1.5	3.4	1.0	3.3	N
65–74	3.4	3.1	N	N	4.2	N
75+	4.5	4.0	N	N	N	N
Work Status of Reference Person						
Employee	2.3	1.2	1.2	0.5	2.2	2.5
Self-Employed	4.7	1.4	N	6.2	2.9	N
Retired	3.1	2.9	N	0.6	N	N
Other Not Working	0.1	0.0	N	0.6	N	N
Education of Reference Person						
Primary or Less	0.7	0.3	N	0.8	1.2	N
Secondary	1.3	0.8	1.0	0.4	1.8	2.2
Tertiary	5.2	3.2	1.7	1.0	2.7	2.6

Note: See notes for Tables 2, 3 and 4.

Considering the household size, the largest amount of deposits is held by two-member households and the smallest by one-member households. Again, this pattern is similar to that in the euro area. Across households with different labour market status for the reference person, the largest amount of deposits is held by households where the reference person is retired. The median value for this household group is 2900 euros. The smallest amount of deposits – 40 euros – is held by the category “other not working”, which consists of households where the reference person is unemployed, a student, etc. Among households with different housing status, the largest amount of deposits is held by outright owners (HMR owners without a mortgage) and the lowest by renters. The median deposit values for these two groups are 2000 euros and 300 euros accordingly.

3.2.2. Mutual funds and securities

Mutual funds and securities are owned by only a small fraction of Estonian households – 5.8% of families own this type of financial assets. Such a low level of stock and bond market participation is not in accordance with economic theory, which suggests that all households which have accumulated savings should hold part of their wealth in stocks. This finding reflects the “stock market participation puzzle” which has frequently been documented by earlier studies and also applies to the findings of the HFCS for the euro area (Eurosystem Household Finance and Consumption Network (2013b)).

As for most of the other assets, the ownership rate for mutual funds and securities increases with household income (see Figure 4) and net wealth. Only 2.1% of households in the lowest income quintile own such assets, in contrast to 12.5% in the highest quintile.

The ownership rate of mutual funds and securities also increases quite sharply with the education level of the household’s reference person. Only 0.7% of households where the reference person has primary level of education participate in stock and bond markets, as opposed to 10.9% of households where the reference person has a tertiary level of education. This indicates that financial literacy may also play a role in households’ investment decisions.

The ownership rate for mutual funds and securities as a function of the age of the reference person displays a hump shape, which peaks for the 45–54 age group. This is in accordance with the life cycle theory of asset accumulation, according to which households accumulate savings over the period of employment and start to spend these savings after retirement. However, the peak in the ownership rate occurs earlier than the retirement age – in the age

group of 45–54 years old – which indicates that there might be differences in saving preferences across the age cohorts.

The ownership rate for mutual funds and securities also tends to rise with household size, although not monotonically. Regarding households with different employment status for the reference person, the ownership rate is much lower for households where the reference person is not working (either retired or “other not working” category). For these households the ownership rate is in the range of 1.5%–2.0%, whereas it ranges from 8.0% to 9.9% for households where the reference person is employed.

As shown in Table 7, the median value of holdings of mutual funds and securities in Estonia is 1500 euros. It is not possible to draw any conclusions about the differences in the median values of the holdings of mutual funds and securities across household types since the figures for many cells are not presented. This is because the number of observations is insufficient for the estimation of the value in a given cell. If this number is below 20 then the estimate is not reported, and this is indicated with the letter “N” in the table.

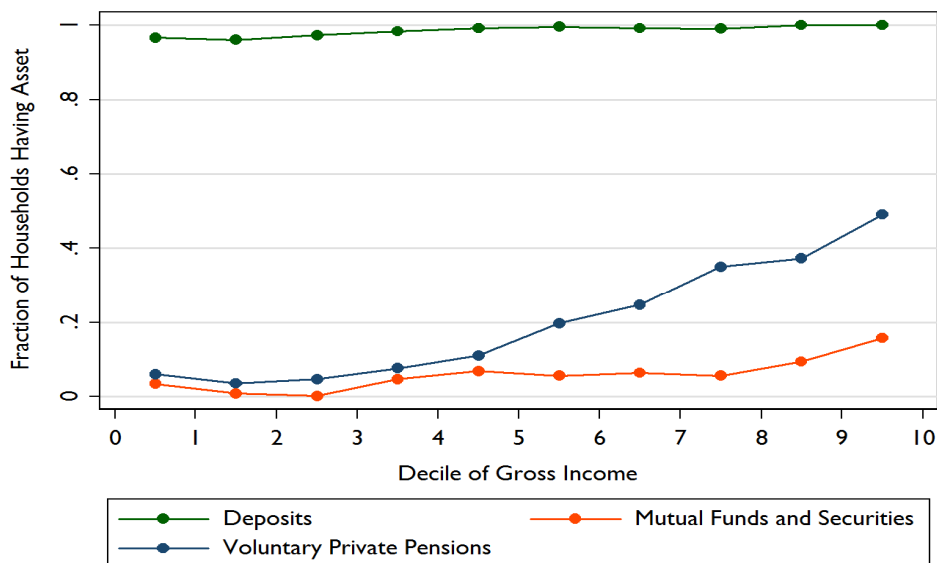


Figure 4: Participation in selected financial assets by income deciles

3.2.3. Voluntary private pensions / whole life insurance

The overview of the holdings of voluntary private pensions or whole life insurance funds shows how households save directly for retirement. Public pension plans, known as first pillar pensions, are not covered here because the net present value of future pension payments under these plans is difficult to estimate. We also do not consider in this report the savings in public pension funds with individual accounts, known as second pillar pensions, in order to keep the estimated results comparable with the euro area averages, since such funds are not included in the coverage of financial assets for the euro area households.

Approximately one fifth of households (19.8%) have savings in the form of voluntary pensions or whole life insurance. The corresponding figure for the euro area is about 1.5 times higher at 33%. The participation rate is strongly positively correlated with household income (see Figure 4) and net wealth. For the highest net wealth quintile the participation rate is 36.7%. This contrasts with only 9% participation for the lowest net wealth quintile.

The participation rate in voluntary pensions or whole life insurance displays a hump-shape pattern as a function of household's reference person's age (see Figure 5). It peaks for a relatively young age group, 35–44 year olds, which is not in accordance with the life cycle theory of savings. According to this theory people's savings should increase gradually until they reach retirement age and start decreasing thereafter. The divergence from this pattern may reflect different saving preferences across age cohorts, but it may also stem from relatively high income level of the 35–44 cohort and from the fact that these targeted saving items were established only in the end of 1990s (see Section 7 for an overview of households' income).

The participation rate in voluntary pensions or whole life insurance has a strong correlation with the education level of the household's reference person. It is 6.8% among households where the reference person has primary education and rises to 31.3% for households where the reference person has tertiary education. This may be related to more educated people having higher income – as was described before, the participation rate in these financial assets is strongly positively related with income. It may also stem from differences in financial literacy. More educated households have a higher level of financial literacy and are therefore more aware of the need to save for retirement and options for retirement saving (Agrawal et al. (2011)).

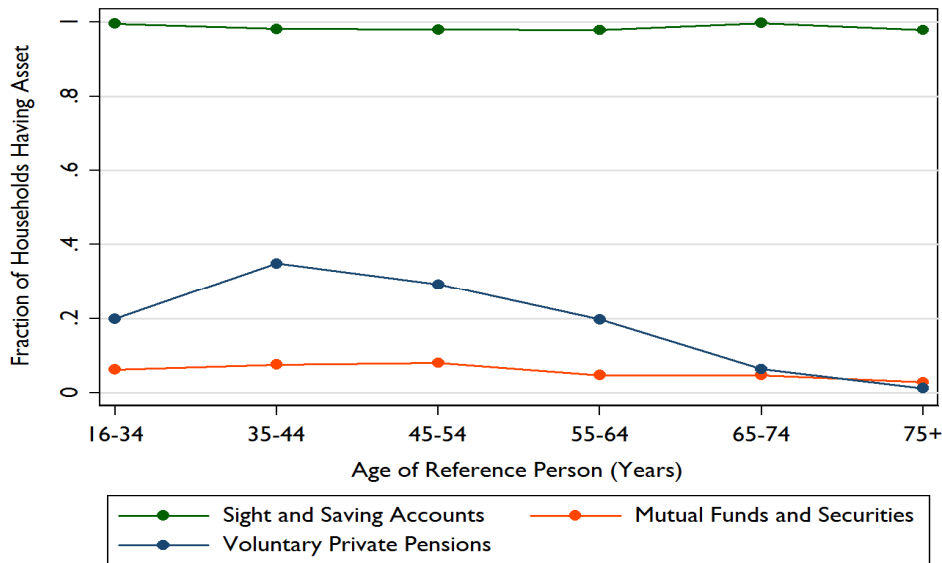


Figure 5: Participation in selected financial assets by age groups

The median household that has a voluntary private pension or whole life insurance holdings has accumulated 2200 euros in this type of savings in Estonia. This contrasts with the median value of 11900 euros for the euro area. The median amount increases with household income, net wealth and the education level of the reference person.

3.2.4. The composition of financial assets and total assets

The composition of financial assets is presented in Table 8. Estonian households mainly hold their accumulated financial assets on sight and saving accounts. Bank deposits make up 68% of the value of total financial assets. This share is much higher than the euro area average, which is 42.9% (see Table A6 in Appendix 2). This indicates that the average euro area household diversifies its portfolio of financial assets more than the average Estonian household does.

The share of deposits in total financial assets is especially large for households with retired reference persons. These households hold 94.9% of their financial assets as bank deposits. The fraction of deposits in total financial wealth is below average for households in the upper quintiles of income and net wealth distributions.

Table 8: The composition of financial assets

	Financial Assets	Deposits	Mutual Funds and Securities	Money Owed to Households	Voluntary Pensions/Whole Life Insurance	Other Financial Assets
All Households	100.0	68.0	4.8	8.9	7.9	10.4
S.E.		4.9	1.3	2.2	0.9	5.9
Household size						
1	100.0	65.2	3.5	16.6	5.3	N
2	100.0	82.7	3.1	5.2	7.1	1.9
3	100.0	73.8	2.7	2.9	7.0	13.7
4	100.0	46.7	10.0	13.4	12.0	17.9
5 and More	100.0	55.7	7.3	2.7	10.8	N
Housing status						
Owner-Outright	100.0	80.3	3.1	5.1	7.1	4.4
Owner-with Mortgage	100.0	49.6	4.5	7.2	12.4	26.3
Renter or Other	100.0	45.1	N	27.9	4.3	10.5
Percentile of Income						
Less than 20	100.0	68.1	N	24.9	N	N
20-39	100.0	84.1	N	3.7	1.7	N
40-59	100.0	86.7	N	3.8	4.7	N
60-79	100.0	70.5	7.2	6.8	10.2	5.3
80-100	100.0	56.6	5.8	9.9	10.9	16.8
Percentile of Net Wealth						
Less than 20	100.0	76.0	N	6.2	10.6	N
20-39	100.0	86.0	N	3.6	7.3	N
40-59	100.0	83.2	4.0	3.5	8.3	N
60-79	100.0	79.5	2.1	9.3	7.8	1.3
80-100	100.0	60.4	6.2	10.1	7.9	15.4
Age of Reference Person						
16-34	100.0	49.3	4.4	11.6	7.2	27.4
35-44	100.0	49.0	10.6	12.0	10.8	17.7
45-54	100.0	63.7	3.9	10.9	11.9	9.6
55-64	100.0	71.4	2.9	13.0	10.6	N
65-74	100.0	89.7	N	N	3.7	N
75+	100.0	95.8	N	N	N	N
Work Status of Reference Person						
Employee	100.0	64.4	5.9	4.2	10.4	15.1
Self-Employed	100.0	44.9	N	38.7	7.4	N
Retired	100.0	94.9	N	1.6	N	N
Other Not Working	100.0	37.9	N	48.5	N	N
Education of Reference Person						
Primary or Less	100.0	76.6	N	19.0	3.5	N
Secondary	100.0	75.9	3.5	13.3	5.7	1.5
Tertiary	100.0	63.0	5.9	5.5	9.6	16.1

Note: See notes for Tables 2, 3 and 4.

On average, euro area households hold a larger fraction of their financial wealth as voluntary private pension and whole life insurance funds than Estonian households do. These assets account for 26.3% of the total portfolio of financial assets of euro area households, whereas for Estonian households this share is 7.9%.

About one tenth (8.9%) of financial assets in Estonia consists of money owed to households. This share is substantially larger than in the euro area, where it comprises 2.2% of total financial assets. The composition of financial assets in Estonia is similar to that of other Central and Eastern European countries participating in the survey (Eurosystem Household Finance and Consumption Network (2013b)). It is typical of these countries that the bulk of financial assets are held as deposits, while the rest of the financial instruments have smaller importance.

Table 9 shows the composition of total assets, including both real and financial assets. Real assets play a dominant role, accounting for 89.8% of the total value of assets. The most important real asset is the HMR, which comprises 50.1% of total assets. Real estate holdings, including the HMR and other real estate, make up 67.5% of the total value of assets. The prominent role of real estate among household assets implies that movements in real estate prices have a strong impact on household wealth.

4. Debt

4.1. Debt participation

Table 10 gives an overview of the percentages of indebted households across different debt types. For comparison purposes, the same figures are presented for the euro area in Table A7 in Appendix 2. Slightly more than one third of Estonian households (36.8%) have outstanding debt. This share is lower than the euro area average, which is 43.7%. About one fifth of households (20.7%) have mortgage debt and the vast majority of them use the household main residence as collateral, as 18.7% have borrowed against the HMR and only 2.7% have mortgages related to other property.

The households that have mortgages related to the HMR are also more likely to have non-collateralised loans, as about 43.5% of them have non-mortgage debt. This share is much lower for households who rent their main residence or own their HMR without an associated mortgage (18% and 28.2% accordingly).

Table 9: The composition of total assets of Estonian households

	Assets	Household Main Res- dence	Other Real Estate Property	Other Real Assets	Deposits	Voluntary Pensions/ Whole Life Insurance	Other Financial Assets
All Households	100.0	50.1	17.4	22.3	6.9	0.8	2.4
S.E.		3.0	1.4	4.3	0.6	0.1	0.8
Household size							
1	100.0	59.6	14.5	13.0	8.4	0.7	3.8
2	100.0	53.9	21.6	11.8	10.5	0.9	1.1
3	100.0	56.3	15.6	19.7	6.2	0.6	1.6
4	100.0	35.0	14.5	42.7	3.5	0.9	3.4
5 and More	100.0	52.6	21.7	18.4	4.1	0.8	2.5
Housing status							
Owner-Outright	100.0	58.5	18.3	11.6	9.3	0.8	1.4
Owner-with Mortgage	100.0	48.3	13.8	31.7	3.1	0.8	2.4
Renter or Other	100.0	0.0	28.9	51.9	8.6	0.8	9.7
Percentile of Income							
Less than 20	100.0	64.7	12.1	11.4	8.1	N	3.5
20–39	100.0	60.6	19.1	8.6	9.8	0.2	1.7
40–59	100.0	60.3	18.0	11.7	8.7	0.5	0.9
60–79	100.0	44.6	13.0	34.4	5.6	0.8	1.5
80–100	100.0	44.5	20.2	24.5	6.1	1.2	3.5
Percentile of Net Wealth							
Less than 20	100.0	57.0	16.0	10.4	12.5	1.8	2.2
20–39	100.0	66.6	8.8	10.9	11.8	1.0	0.9
40–59	100.0	70.2	12.3	7.1	8.7	0.9	0.9
60–79	100.0	64.6	14.3	9.6	9.1	0.9	1.5
80–100	100.0	42.5	19.5	28.6	5.7	0.7	3.0
Age of Reference Person							
16–34	100.0	47.8	21.9	18.2	5.9	0.9	5.2
35–44	100.0	50.7	16.8	24.3	4.0	0.9	3.3
45–54	100.0	38.5	17.4	36.9	4.4	0.8	2.0
55–64	100.0	51.0	19.3	19.9	7.1	1.1	1.8
65–74	100.0	62.7	15.9	6.0	13.8	0.6	0.6
75+	100.0	70.9	10.0	1.8	16.5	N	0.7
Work Status of Reference Person							
Employee	100.0	53.4	19.6	16.4	6.8	1.1	2.6
Self-Employed	100.0	22.1	13.6	58.7	2.5	0.4	2.6
Retired	100.0	69.7	12.9	2.5	14.1	N	0.5
Other Not Working	100.0	60.8	18.8	11.1	3.5	N	5.5
Education of Reference Person							
Primary or Less	100.0	66.0	18.7	5.9	7.2	0.3	1.9
Secondary	100.0	50.0	15.6	27.2	5.4	0.4	1.3
Tertiary	100.0	47.8	19.0	20.0	8.3	1.3	3.6

Note: See notes for Tables 2, 3 and 4.

Table 10: Participation in debt by different household types

	Total Debt	Mortgage Debt	HMR Mortgage	Other Property Mortgage	Non-Mortgage Debt	Credit Line/Overdraft Debt	Credit Card Debt	Other Non-Mortgage Debt
All Households	36.8	20.7	18.7	2.7	25.1	9.6	8.4	13.2
S.E.	1.0	0.7	0.7	0.3	0.9	0.6	0.6	0.7
Household size								
1	19.9	8.3	7.5	0.8	14.7	4.5	3.7	9.4
2	31.8	14.7	13.0	2.3	22.9	7.0	6.5	13.2
3	54.7	32.7	29.7	4.5	35.6	15.6	12.7	17.5
4	62.7	45.7	42.3	5.8	40.8	16.7	19.3	17.5
5 and More	61.8	40.1	34.9	5.2	38.3	23.5	11.7	15.6
Housing status								
Owner-Outright	19.4	2.0	0.0	2.0	18.0	6.9	6.2	9.9
Owner-with Mortgage	100.0	100.0	100.0	3.9	43.3	20.8	19.4	16.1
Renter or Other	29.3	3.7	0.0	3.7	28.2	7.3	5.0	19.2
Percentile of Income								
Less than 20	16.5	5.6	4.5	1.5	12.6	5.1	1.2	7.8
20–39	20.2	5.6	5.1	0.5	16.5	3.9	4.8	9.3
40–59	34.2	13.0	11.6	2.0	26.9	8.1	8.0	15.4
60–79	49.0	29.1	26.5	3.2	33.9	15.5	12.8	16.9
80–100	64.2	50.1	45.8	6.5	35.7	15.6	15.4	16.6
Percentile of Net Wealth								
Less than 20	33.3	8.3	7.2	1.2	29.8	8.9	4.5	22.1
20–39	34.9	17.2	16.3	1.0	26.2	10.8	7.3	15.0
40–59	30.9	19.5	17.8	1.8	18.7	7.4	7.0	8.1
60–79	38.2	25.1	23.2	3.3	24.2	9.6	10.4	11.0
80–100	46.7	33.3	29.0	6.3	26.6	11.5	12.8	9.9
Age of Reference Person								
16–34	54.3	28.6	25.7	4.3	39.0	10.6	11.8	25.8
35–44	65.6	45.8	42.3	5.2	41.3	17.4	16.0	18.4
45–54	48.2	27.2	23.9	3.8	31.3	17.5	11.5	13.0
55–64	23.3	8.8	7.8	1.2	17.7	6.4	4.6	9.3
65–74	10.4	2.8	2.5	0.4	8.6	0.9	2.5	5.4
75+	1.8	0.5	0.5	0.0	1.3	0.6	0.1	0.9
Work Status of Reference Person								
Employee	50.0	29.4	26.9	3.5	33.6	13.5	12.1	17.2
Self-Employed	49.0	38.8	32.6	8.7	28.5	8.7	14.2	11.4
Retired	6.9	1.3	1.1	0.1	5.7	0.9	0.9	4.2
Other Not Working	34.8	13.7	11.6	2.3	26.8	11.3	4.5	15.6
Education of Reference Person								
Primary or Less	26.8	9.2	7.6	1.5	22.2	8.8	5.0	13.6
Secondary	36.4	20.0	17.7	2.8	25.7	10.5	8.4	13.3
Tertiary	42.3	27.2	25.4	3.2	25.7	8.8	10.0	13.0

Note: See notes for Tables 2, 3 and 4.

The patterns of debt prevalence in Estonia and in the euro area are similar across different debt types as well as across household types. For most debt types the percentages of indebted households are somewhat lower than they are in the euro area, the exception being credit card loans, for which the share of households that have this type of debt is about twice higher in Estonia than in the euro area (8.4% and 4.3% accordingly).

The debt prevalence increases with family size, income (see Figure 6), and the education level of the household reference person (HRP), like in the euro area. The last two regularities are interrelated, since more educated people also tend to have higher incomes. Net wealth is positively related with the propensity to have mortgage debt, whereas it is not correlated with the likelihood of having non-collateralised debt.

There is a hump-shaped pattern of debt prevalence across the age groups of household reference persons, which is again similar to what is found in the euro area (see Figure 7). The households where the reference person is between 35 and 44 years old are the most likely to have outstanding debt. This age profile of the debt burden is consistent with the idea that households smooth consumption across the life cycle (Eurosystem Household Finance and Consumption Network (2013b)).

Younger households in Estonia are as likely to have debts as are the households in the euro area, whereas older households, where the reference person is 45 or older, are less likely to have debts and this difference with the euro area increases with age. The propensity to have outstanding debts is 65.6% for the 35–44 age group, decreases to 48.2% for the 45–54 age group, then more than halves to 23.3% for the 55–64 age group and drops further to 10.4% for the 65–74 age group.

The differences in the propensity to borrow across age groups are even more pronounced in the case of mortgage debts. Comparing Estonian figures with the euro area averages indicates that younger households where the reference person is 16–44 years old are more likely to have mortgage debt than the households in the same age group in the euro area, whereas for the older households, for which the reference person is above 44 years old, the opposite holds. Nearly half, 45.8%, of households with reference persons aged 35–44 have mortgages. This share falls to 27.2% for households where the reference person is 45–54 years old and drops further to 8.8% for the 55–64 age group. Since mortgage debts are typically taken on for time periods which span decades, the sharp drop in the propensity to have mortgage debt after the HRP is 54 years old indicates that older households were also less likely to have had mortgage debts when the HRP was in the younger age groups.

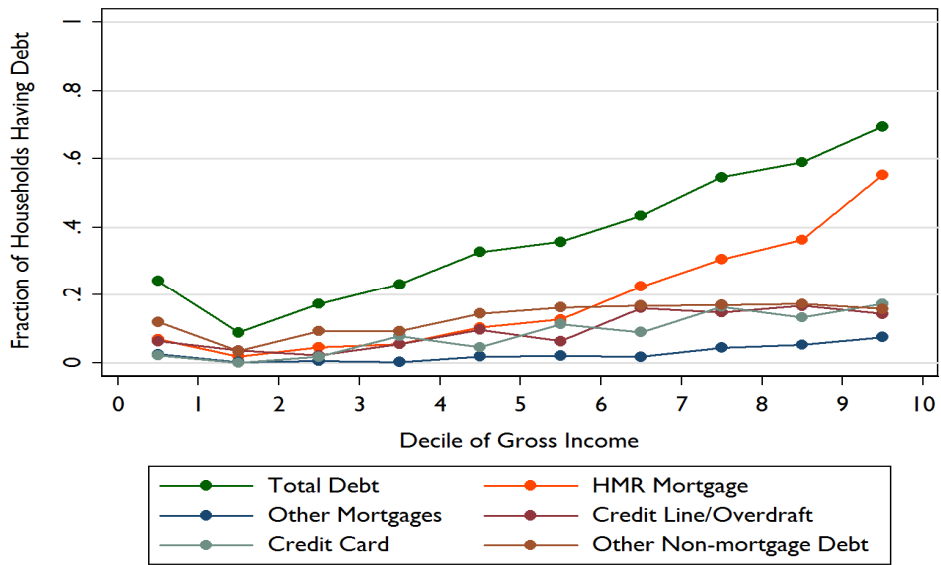


Figure 6: Debt participation by income deciles

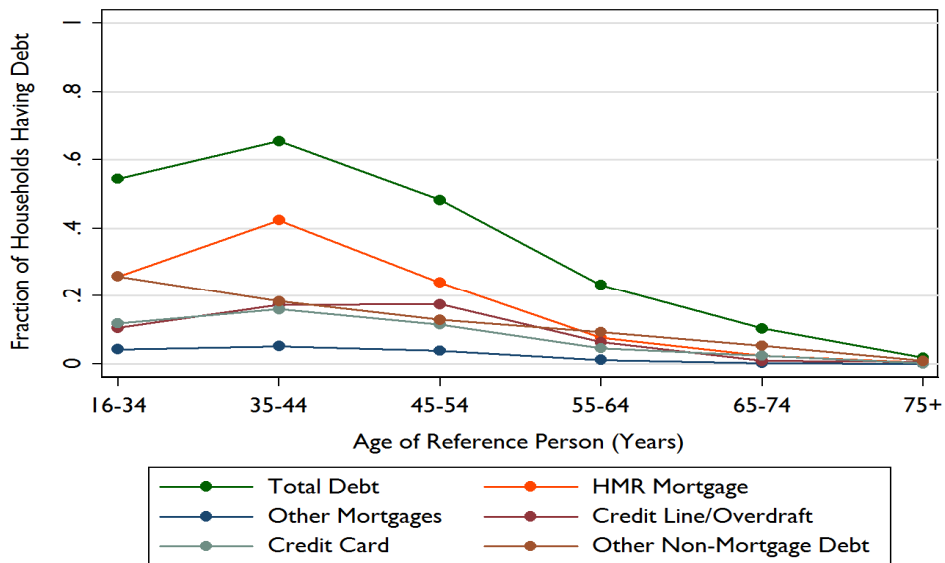


Figure 7: Debt participation by age groups

There are several possible reasons for this divergence in credit market participation across age groups. First, it may reflect different preferences for borrowing across age cohorts. Second, the pattern described above may be caused by insufficient access to loans when the members of 55+ households were younger and eligible for long-term mortgage loans. The retail market

for collateralised loans developed quite recently in Estonia, starting from the early 2000s. (Box 2 gives an overview of credit market development in Estonia.) Third, the majority of Estonian households were able to privatise their dwellings in the transition period in the 1990s, which enabled older households to become home owners without needing to get mortgages. (See more discussion of the implications of privatisation in Box 1.) Fourth, households in the 35–44 age group have higher incomes than older households and debt participation is positively related with income.

4.2. Debt holdings

Table 11 presents the median amounts of the outstanding balances of different types of debt. Like the previous statistics, these values are provided conditionally on the households having a given type of debt. For comparison purposes, the same figures are shown for the euro area in Table A8 in Appendix 2.

The outstanding values for different types of debt are much lower in Estonia than they are in the euro area. This is consistent with Estonian households also having lower levels of income and assets. (How large debt holdings are relative to income and assets is discussed in the next section.) The median household that has debt owes 6300 euros. The median outstanding amounts of collateralised and non-collateralised debt are 27 000 euros and 700 euros. The statistics presented in Table 10 indicate that approximately 10% of households have sight account overdraft debt. The outstanding value of this type of debt is very low at only 14 euros (which is rounded to zero in Table 11). The median amount of credit card debt is 400 euros and other non-mortgage debt is 1400 euros.

The amounts of total debt owed increase with income, net wealth and the education level of the reference person. Practically all of the variation in the outstanding values of total debt for different household groups is driven by the heterogeneity of collateralised loans, whereas the outstanding amounts of non-collateralised loans vary much less across household types.

Comparing the households with different housing statuses shows that HMR owners with associated mortgages have the highest amount of outstanding debt, as may be expected. The outstanding value of total debt is 28 700 euros for them, whereas this figure is 800 euros for owners without mortgages and 1300 euros for renters.

Table 11: Median values of debt, conditional on participation (EUR, thousands)

	Total Debt	Mortgage Debt	HMR Mortgage	Other Property Mortgage	Non-Mortgage Debt	Credit Line/Overdraft Debt	Credit Card Debt	Other Non-Mortgage Debt
All Households	6.3	27.0	27.6	21.8	0.7	0.0	0.4	1.4
S.E.	1.0	2.2	2.2	5.6	0.1	0.0	0.1	0.2
Household size								
1	3.0	25.9	30.5	N	0.7	0.0	0.3	1.3
2	3.6	21.0	20.0	N	0.8	0.1	0.3	1.4
3	9.3	30.0	29.2	24.8	0.6	0.0	0.3	1.6
4	19.9	35.6	33.9	53.2	0.9	0.3	0.5	1.7
5 and More	5.8	25.9	26.5	N	0.6	0.0	0.6	1.4
Housing status								
Owner-Outright	0.8	11.5	N.A	11.5	0.7	0.0	0.3	1.3
Owner-with Mortgage	28.7	28.0	27.6	24.0	0.6	0.2	0.5	1.4
Renter or Other	1.3	49.5	N.A	49.5	0.9	0.0	0.4	1.8
Percentile of Income								
Less than 20	1.1	8.5	N	N	0.5	N	N	0.8
20–39	0.9	17.0	20.7	N	0.5	N	N	0.8
40–59	2.7	28.1	28.6	N	0.7	0.0	0.3	1.8
60–79	6.4	20.2	21.9	N	0.8	0.0	0.4	1.8
80–100	23.7	39.3	36.4	50.7	1.0	0.2	0.6	1.4
Percentile of Net Wealth								
Less than 20	2.5	33.5	33.5	N	0.9	0.0	0.5	1.5
20–39	3.7	23.5	22.6	N	0.7	0.1	0.3	1.1
40–59	6.2	18.9	19.6	N	0.5	0.0	0.3	1.3
60–79	10.1	29.6	29.1	N	0.7	0.2	0.3	1.2
80–100	13.9	29.6	32.9	15.7	0.8	0.1	0.6	2.0
Age of Reference Person								
16–34	6.6	37.0	35.0	45.9	1.0	0.0	0.3	1.7
35–44	16.0	30.6	30.8	23.0	0.6	0.1	0.5	1.3
45–54	4.8	14.8	15.6	N	0.6	0.0	0.5	1.2
55–64	1.8	13.0	13.8	N	0.7	0.1	0.5	1.2
65–74	0.8	N	N	N	0.3	N	N	N
75+	N	N	N	N	N	N	N	N
Work Status of Reference Person								
Employee	7.8	27.2	27.7	18.4	0.8	0.1	0.5	1.6
Self-Employed	30.5	45.6	43.0	N	1.5	N	0.8	N
Retired	0.5	N	N	N	0.4	N	N	0.5
Other Not Working	1.8	14.6	15.8	N	0.5	0.0	N	0.9
Education of Reference Person								
Primary or Less	1.3	12.2	12.7	N	0.6	0.0	N	1.0
Secondary	5.0	25.8	25.8	24.0	0.7	0.0	0.4	1.1
Tertiary	13.2	33.3	34.6	24.9	0.9	0.2	0.5	2.0

Note: See notes for Tables 2, 3 and 4.

The age distribution of the outstanding debt has a hump shape, with the value of debt peaking for the group of households where the reference person is aged 35–44. The median value of total debt for this age group is 16 000 euros, whereas it is much lower for all other age groups, ranging from 800 to 6600 euros. This relatively large value for the outstanding debt of the 35–44 age group is caused by the larger outstanding amount of collateralised debt for this age group, as the value of non-collateralised loans is similar to the values for other age groups.

4.3. The composition of debt

Table 12 gives an overview of the composition of household debt. For comparison purposes the same figures for the euro area are shown in Table A9 in Appendix 2. Most of the outstanding debt Estonian households have is mortgage debt, which makes up 94.7% of the total value of debt. This fraction is lower in the euro area, where mortgage debt comprises 82.2% of the total debt.

The main bulk of mortgage debt in Estonia consists of mortgages where the collateral is the HMR. The share of HMR-related mortgages in total debt is 84.5%, while the share of mortgages related to other property is 10.2%. This proportion is smaller than in the euro area, where other property related mortgages make up 19.7% of the total value of debt.

The share of non-mortgage debt is 5.3% in Estonia. Across households with different housing statuses this share is the lowest for HMR owners with an associated mortgage. For this household group the share of non-mortgage debt is 1.4%, whereas it is considerably larger for owners of the HMR who do not have a mortgage on their residence and for renters. For the first group it is 46.2% and for the second group 27.1%.

The fraction of non-mortgage debt in total debt is above average for households in the lowest net wealth quintile and for households where the reference person is not employed. It is also above average for households where the reference person has only primary level education.

Table 12: The composition of debt

	Total Debt	Mortgage Debt	HMR Mortgage	Other Property Mortgage	Non-Mortgage Debt	Credit Line/Overdraft Debt	Credit Card Debt	Other Non-Mortgage Debt
All Households	100.0	94.7	84.5	10.2	5.3	0.4	0.7	4.2
S.E.		0.6	1.6	1.6	0.6	0.1	0.1	0.6
Household size								
1	100.0	91.2	88.8	N	8.8	0.3	0.7	7.7
2	100.0	89.6	75.9	N	10.4	0.4	1.1	9.0
3	100.0	95.8	84.0	11.9	4.2	0.4	0.6	3.2
4	100.0	96.9	85.3	11.6	3.1	0.4	0.6	2.0
5 and More	100.0	97.5	91.2	N	2.5	0.4	0.5	1.6
Housing status								
Owner-Outright	100.0	53.8	0.0	53.8	46.2	2.3	5.3	38.7
Owner-with Mortgage	100.0	98.6	95.6	3.0	1.4	0.3	0.4	0.8
Renter or Other	100.0	72.9	0.0	72.9	27.1	1.0	1.4	24.7
Percentile of Income								
Less than 20	100.0	88.0	N	N	12.0	N	N	11.4
20–39	100.0	90.6	89.8	N	9.4	N	N	7.8
40–59	100.0	85.1	78.0	N	14.9	0.2	1.1	13.7
60–79	100.0	93.5	87.0	N	6.5	0.5	1.0	4.9
80–100	100.0	97.5	86.0	11.4	2.5	0.4	0.5	1.7
Percentile of Net Wealth								
Less than 20	100.0	83.5	68.8	N	16.5	0.3	0.8	15.4
20–39	100.0	93.9	88.0	N	6.1	0.7	0.6	4.9
40–59	100.0	95.8	89.1	N	4.2	0.3	0.9	3.0
60–79	100.0	97.3	88.4	N	2.7	0.4	0.5	1.8
80–100	100.0	96.2	83.8	12.4	3.8	0.4	0.8	2.6
Age of Reference Person								
16–34	100.0	93.9	81.4	12.5	6.1	0.1	0.5	5.5
35–44	100.0	96.9	88.8	8.2	3.1	0.4	0.5	2.1
45–54	100.0	93.5	80.9	N	6.5	0.8	1.3	4.4
55–64	100.0	86.2	79.3	N	13.8	0.6	1.5	11.7
65–74	100.0	N	N	N	7.3	N	N	N
75+	N	N	N	N	N	N	N	N
Work Status of Reference Person								
Employee	100.0	94.6	86.2	8.4	5.4	0.4	0.7	4.3
Self-Employed	100.0	97.5	79.1	N	2.5	N	0.9	N
Retired	100.0	N	N	N	9.0	N	N	8.4
Other Not Working	100.0	89.2	71.4	N	10.8	0.3	N	10.3
Education of Reference Person								
Primary or Less	100.0	84.3	77.4	N	15.7	0.4	N	14.2
Secondary	100.0	94.3	82.7	11.6	5.7	0.5	0.8	4.4
Tertiary	100.0	95.8	86.5	9.2	4.2	0.3	0.5	3.4

Note: See notes for Tables 2, 3 and 4.

Box 2: Developments in the household credit market in Estonia

The market for housing loans was essentially absent in Estonia in 1990s. The demand for mortgages was partly limited by the generous privatisation and restitution that ensured home ownership for the majority of population. The stock of dwellings per inhabitant was even larger than in some high-income countries (Lux et al. (2012)). At the same time, the supply of mortgages for housing purposes was limited and interest rates were very high, see Figures 2.1. and 2.2. The credit market for the corporate sector took off much faster than for the housing sector. The ratio of households' stock of loans to GDP was still 7% in 1999, while that of corporations was already 18%.

The next ten years brought remarkably fast developments in the household debt market. Housing credit stock was growing by more than 50% a year from 2001 until the global financial crisis, with a peak in 2006 and 2007, see Figure 2.1. The ratio of housing credit to GDP reached 50% by the end of 2008, which is similar to the euro area average. The steep crisis in 2009 reversed the fast credit growth to a mild decline, and although real GDP resumed growth from 2010, the recovery in credit growth has been much more modest. Both demand and supply factors had a role in the boom-bust cycle in the household credit market. The early 2000s started with good growth prospects and a positive expectations shock related to the EU accession in 2004, which led to massive capital inflows that financed the high growth rates during the boom years. Estonian entry to the European Union was probably the first trigger that brought interest rates down in the middle of the 2000s. The structural changes in the banking sector also played a role. Two major banks were sold from domestic to foreign ownership, and together with new subsidiaries of foreign banks they were fighting for market share using a basically unlimited supply of liquidity from parent banks. The average interest margins for mortgage loans dropped approximately by a factor of ten from 10% to 1% in five years during the early 2000s, see Figure 2.2.

The bust in 2009 was also remarkable for peacetime, as the economy dropped by 14% within a year. The strong decline in economic activity was a result of the coincidence of the collapse of both domestic and foreign demand. Capital inflows that had been financing the growth stopped suddenly and the prospects in foreign markets worsened considerably (Purfield and Rosenberg (2010)). The main adjustment channel for the crisis was internal devaluation through fiscal and nominal wage adjustment, while devaluation of the currency was avoided and the banking system was supported by parent banks (Purfield and Rosenberg (2010)). The decline in the credit stock during the recovery years has been associated with the negative income shock that explains most of the decline in credit demand, while credit constraints were also unusually severe during the early years of recovery (Meriküll (2015)).

Credit terms have not returned to their pre-crisis levels and post-crisis borrowing has been much more cautious, reflecting the deleveraging process.

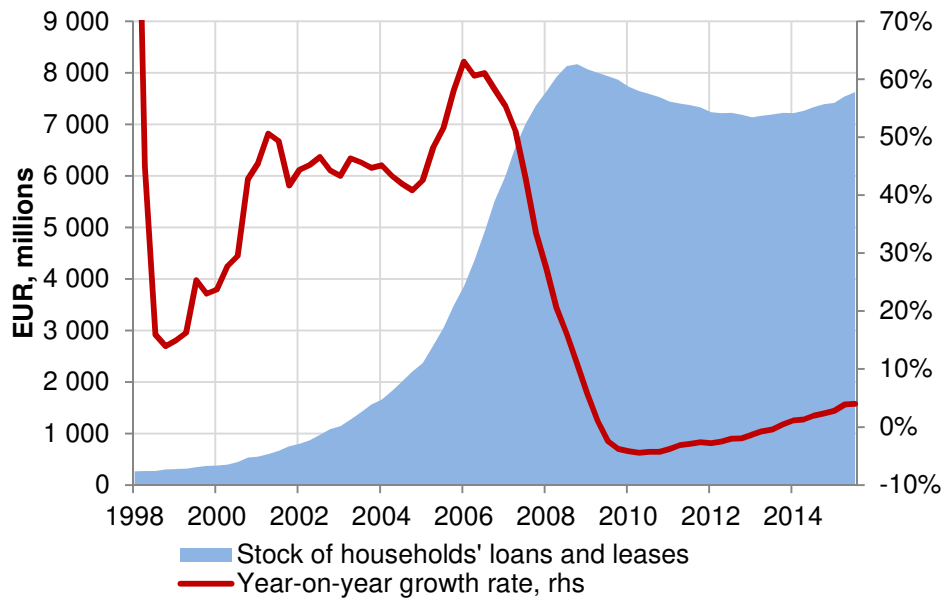


Figure 2.1: Stock of loans and leases of households in Estonia
Source: Bank of Estonia.



Figure 2.2: Interest margin of mortgages in Estonia
Source: Bank of Estonia.

5. Financial fragility indicators

The HFCS data provide information on how vulnerable Estonian households are to financial or economic risk. It is possible to calculate various indicators which are commonly used in the literature as measures of financial fragility, such as the debt-to-asset ratio, debt-to-income ratio, debt service ratio, and loan-to-value ratio of the HMR. (A description of how these ratios are calculated is given in Appendix 1.) All these ratios are estimated as the median values conditionally on households having debt. In addition, it is possible to obtain information on how large the financial buffers of households are, i.e. what the value of liquid assets is that can be accessed in the case of an adverse shock. This is measured by the net liquid assets to income ratio, where the net liquid assets consist of deposits, mutual funds, bonds, stocks and non-self-employment business wealth, from which sum the non-collateralised debt is deducted.

Table 13 presents the financial fragility indicators. For comparison purposes, the same figures for the euro area are presented in Table A10 in Appendix 2. The median debt-to-asset ratio is 15.3% and debt-to-income ratio is 38.3%. Both of these figures are lower than the euro area averages, which are 21.8% and 62% accordingly. In Section 4 it was discussed that the debt participation is lower in Estonia than in the euro area (see Table 10). The figures presented in Table 13 indicate that not only do fewer households have debt in Estonia, but the debt burden of indebted households is also below the euro area average.

The comparison of financial fragility indicators across different household types shows that they exhibit substantial heterogeneity. Although all the Estonian figures tend to be lower than the euro area averages, the distributions of the debt burden are similar, and with only a few exceptions the debt-to-asset ratios and the debt-to-income ratios display the same patterns across different household types in Estonia that they do in the euro area.

There is no clear association between household size and the measures of the financial burden. Across households with different housing status, renters have the largest debt-to-asset ratio. It is 50.0% for renters, while the ratio is 27.8% for households owning their main residence and having a mortgage on it and only 1.3% for owners without a mortgage. On the other hand, the alternative measure of the debt burden, the debt-to-income ratio, is much lower for renters (15.4%) than it is for owners with mortgages (114.9%). Thus, the two measures yield very different implications for the debt burden for households with different housing status. The reason why renters have a relatively high debt-to-asset ratio is the low value of their assets. As discussed in Section 3, the bulk of household assets is made up by the value of the HMR. As

renters do not have this asset, the total value of their assets tends to be much lower than it is for households who own their main residence. On the other hand, since renters mostly do not have mortgage debt, they have a lower debt burden relative to their income than HMR owners with an associated mortgage.

Debt-to-asset and debt-to-income ratios are not correlated with household income and household net wealth is negatively related with the debt-to-asset ratio. Whereas this ratio is 100.0% for the households in the lowest net wealth quintile, it drops significantly and is only 19.4% for the next-to-lowest quintile and falls further, reaching 4.8% for the upper quintile. The debt-to-income ratio tends to increase with net wealth – it is 21.5% for the lowest quintile and 49.7% for the highest.

Consistently with the principle of consumption smoothing across the life cycle, households with younger reference persons have a larger debt burden. Debt-to-asset ratios fall monotonically across age groups from the youngest to the oldest. Debt-to-income ratios exhibit a hump-shaped pattern, with this ratio being the largest (68.3%) for the households where the reference person is 35–44 years old and considerably lower for the age groups of 45 and beyond. In Section 4 it was discussed that debt participation is at the same level in Estonia as in the euro area for younger households, whereas it drops significantly below the euro area level for the households where the reference person is above 44 years old. The same pattern can be detected for the debt burden of indebted households. Debt-to-asset and debt-to-income ratios are close to the euro area levels for younger households, albeit below the euro area averages, whereas they are significantly below the euro area levels for older households, with the dividing line for the reference person's age being 44 years. This difference may have several causes. First, households with a reference person aged over 44 may have a lower preference for borrowing than younger households do. Second, it may reflect the unavailability of household loans at the time these households were younger and able to obtain the mortgages with long durations. As discussed before, Estonian commercial banks started offering loans to individuals on a large scale basis relatively recently in Estonia (see Box 2). The large-scale development of the market for collateralised loans only started at the beginning of the current century. Third, most of the households with older reference persons were able to privatise their homes in the 1990s (see Box 1). This means that they became owners of their HMR without needing to borrow money for it whereas younger households did not have this chance.

Table 13: Households' financial fragility indicators

	Debt-Asset Ratio	Debt-Income Ratio	Debt Service- Income Ratio	Loan-Value Ratio of HMR	Net Liquid Assets-Income Ratio
All Households	15.3	38.3	9.7	44.0	9.8
S.E.	1.7	4.0	0.4	2.8	0.8
Household size					
1	32.7	46.1	13.0	60.6	11.8
2	9.1	29.6	9.3	30.7	16.5
3	13.9	36.4	8.5	47.7	5.1
4	20.4	71.9	9.8	40.4	6.8
5 and More	7.8	31.2	8.9	36.6	5.1
Housing status					
Owner-Outright	1.3	5.7	7.9	N.A	17.9
Owner-with Mortgage	27.8	114.9	10.6	44.0	5.2
Renter or Other	50.0	15.4	10.2	N.A	3.7
Percentile of Income					
Less than 20	20.0	95.1	61.1	N	22.0
20–39	5.7	17.3	17.1	58.1	14.6
40–59	16.1	23.5	14.3	47.5	9.0
60–79	14.6	32.5	9.5	39.9	6.8
80–100	19.2	54.8	7.2	43.9	7.2
Percentile of Net Wealth					
Less than 20	100.0	21.5	11.3	102.0	1.3
20–39	19.4	32.9	11.5	67.9	7.3
40–59	12.7	35.0	8.8	41.8	13.7
60–79	10.9	40.6	9.4	40.8	15.4
80–100	4.8	49.7	9.5	23.6	25.5
Age of Reference Person					
16–34	34.0	60.7	9.9	58.2	3.5
35–44	20.4	68.3	9.7	41.3	4.7
45–54	5.4	25.0	9.4	29.5	6.1
55–64	3.5	11.3	9.0	16.1	12.0
65–74	2.2	11.0	12.6	N	41.2
75+	N	N	N	N	74.5
Work Status of Reference Person					
Employee	15.6	37.2	9.0	44.1	6.4
Self-Employed	16.3	113.8	12.0	39.3	5.8
Retired	2.6	10.5	13.3	N	52.4
Other Not Working	23.3	38.0	16.7	44.4	1.8
Education of Reference Person					
Primary or Less	10.5	18.4	11.0	42.8	3.8
Secondary	14.2	36.1	10.0	45.2	6.3
Tertiary	17.2	62.2	9.0	42.2	18.9

Note: See notes for Tables 2, 3 and 4.

The debt-to-income ratio exhibits a lot of variation across households where the reference person has different working status. It is the largest (113.8%) for households where the reference person is self-employed and the lowest (10.5%) for those where the reference person is retired. The debt-to-asset ratio is highest (23.3%) for households where the reference person is not working and lowest (2.6%) for those households where the reference person is retired.

The education level of the reference person is positively related with the debt burden. The variation across education levels is stronger for the debt-to-income ratio than for the debt to-asset ratio.

Another measure of the debt burden besides the two ratios discussed above is the debt service ratio, which measures the ratio of the household's total monthly debt payments to its gross monthly income. Besides the outstanding stock of debt, the factors affecting the level of this ratio are the durations and the interest rates of the loans. The debt service ratio is 9.7% in Estonia, whereas the corresponding figure for the euro area is 13.9%. Thus it is somewhat lower in Estonia, but the difference with the euro area is not as strong as it was for the debt-to-asset and debt-to-income ratios. This implies, all else being equal, that the outstanding loans in Estonia are of a shorter duration and/or have higher interest rate payments than do the loans in the euro area.

In general, the debt service ratio shows very little variation across different household types. The only exception to this rule is for households with different income levels, where there is a strong negative relationship between household income and the debt service ratio.

Table 13 also includes the loan-to-value ratio of the HMR. It gives the ratio of the outstanding amount of the mortgage to the value of the HMR, conditionally on there being a mortgage on the HMR. Unlike the previous measures of the debt burden, the value of this indicator for Estonia (44.0%) is larger than the corresponding value for the euro area (37.3%). The relatively large value of this ratio may reflect the fact that the bulk of mortgage loans were issued in the boom years of 2005–2007, when real estate values were inflated. Estonia experienced a larger drop in real estate prices in the crisis years than most of the euro area countries did, which resulted in an increase in loan-to-value ratios. Furthermore, the values of down payments were lowered relative to the amounts borrowed in Estonia during the boom years. As a result of the boom-bust cycle in the housing market, the loan-to-value ratio of the main residence was above 100% for 8.9% of households in 2013.

The loan-to-value ratio may also be higher in Estonia than in the euro area because most of the loans issued are relatively recent. As discussed above,

commercial banks started issuing mortgages on a large-scale basis at the beginning of the 2000s, and the majority of mortgages were given out in the boom years of 2005–2007. This means that collateralised loans have a relatively long remaining duration and a high value of the outstanding principal balance.

The loan-to-value ratio of the HMR declines across the quintiles of net wealth, from 102.0% for the lowest quintile to 23.6% for the highest quintile. It is also negatively related with the age of the household's reference person, again in accordance with the consumption smoothing principle. For the last two age groups this ratio is missing since there is an insufficient number of observations.

The final indicator of households' financial fragility that is presented in Table 13 is the ratio of net liquid assets to income. This measure provides information on how large the financial buffer is that households hold as insulation against adverse shocks to income or consumption. A median household in the euro area has 18.6% of its annual income available in the form of liquid assets. The same figure for Estonia is about half that at 9.8%. This indicates that the median Estonian household holds liquid assets worth the equivalent of a bit more than one month's income.

The ratio of net liquid assets to income is significantly larger for home owners without an associated mortgage than for owners with a mortgage and for renters. The ratios are 17.9%, 5.2% and 3.7%, accordingly. This indicator is negatively related with households' gross income. It is worth noting that this relationship is the other way around for the euro area where the ratio of liquid assets to income increases with income.

The ratio of net liquid assets to income is positively related with households' net wealth, and the age and education level of the reference person. These patterns are analogous to those in the euro area. The ratio is significantly higher for households where the reference person is retired. For these households the median ratio of net liquid assets to income is 52.4%, indicating that the stock of liquid assets that they hold is approximately equal to six months' income. It is many times lower for households with a different labour market status of the reference person, ranging from 1.8% to 6.4%.

Figures 8 and 9 allow the distribution of the debt burden to be examined in more detail. Figure 8 shows the fraction of indebted households that have a debt-to-asset ratio above a given threshold and Figure 9 displays the same relationship for debt service ratios. These plots are presented for five income quintiles. The vertical dashed lines in Figure 8 show the distribution at fixed threshold values, and the chosen cut-off points are 0.75, 1 and 2. Approximately 35% of households in the lowest income quintile have debt-to-asset

ratios greater than 0.75 and about 30% have debt-to-asset ratios greater than 1. (Debt-to-asset ratios are calculated for indebted households only.) These values are similar to the euro area averages. The fractions of households whose debt-to-asset values are above the given thresholds are smaller for higher income groups. Consequently, the debt burden is the highest for indebted low-income households.

The plotted curves presented in Figure 9, although based on a different measure of the debt burden, yield the same implications as the information in Figure 8. The fractions of households whose debt service ratios are above the given thresholds are the highest among the households in the lowest income quintile. On this figure the cut-off points are 0.2, 0.3 and 0.4. Approximately 75% of the households have debt service ratios above 0.2, 70% above 0.3 and 60% above 0.4. The differences across income groups are more pronounced for the debt service ratios than for the debt-to-asset ratios. A comparison with the euro area values indicates that the lowest two income quintiles have a considerably higher burden of debt servicing in Estonia than they do in the euro area. The fraction of households in the lowest income quintile who have debt service ratios above 0.2 is approximately 60%, the fraction above 0.3 is 45% and above 0.4 it is about 37% in the euro area (Eurosystem Household Finance and Consumption Network, 2013b).

These results highlight the vulnerability to potential adverse shocks of Estonian low-income households who have obtained debts. In the previous Section it was shown that 16.5% of households in the lowest income quintile have debt obligations. Because of the high level of their debt service ratios, these households are strongly exposed to the risk of not being able to service their debts if hit by a negative income shock. (Note that the debt service ratios are calculated with respect to gross income. They would be even higher in terms of net income.)

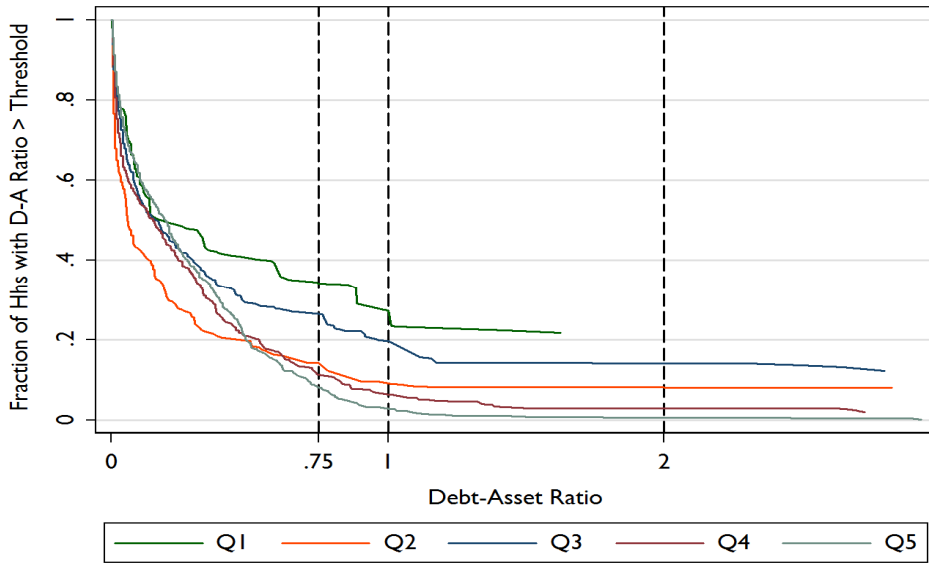


Figure 8: Distribution of debt-to-asset ratio, by income quintiles

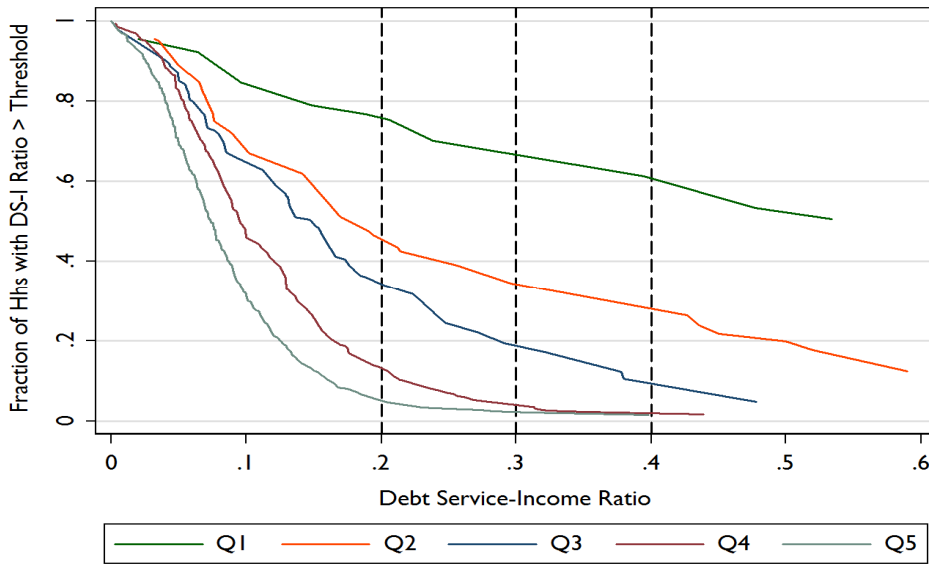


Figure 9: Distribution of debt service ratio, by income quintiles

6. Net wealth

This section provides the analysis of households' net wealth, which is obtained by deducting household liabilities from assets. The median value of net wealth for Estonian households was 43.6 thousand euros, which is about 2.5 times lower than the euro area average of 109.2 thousand euros. (Please see Table A11 in Appendix 2 for the euro area net wealth.) Figure 10 illustrates the levels of median net wealth across euro area countries. The Estonian HFCS was conducted in 2013, three to five years later than the surveys in most other countries. For better comparability we have converted the net wealth levels of other countries to 2013 values using two price indices: HICP and the housing price index. The converted values are also presented in Figure 10. Households in Luxembourg have the highest value of median net wealth in the euro area, followed by those in Cyprus and Malta. Estonian households have the lowest level. The second lowest is in Germany, where the median value of net wealth was 51.4 thousand euros.

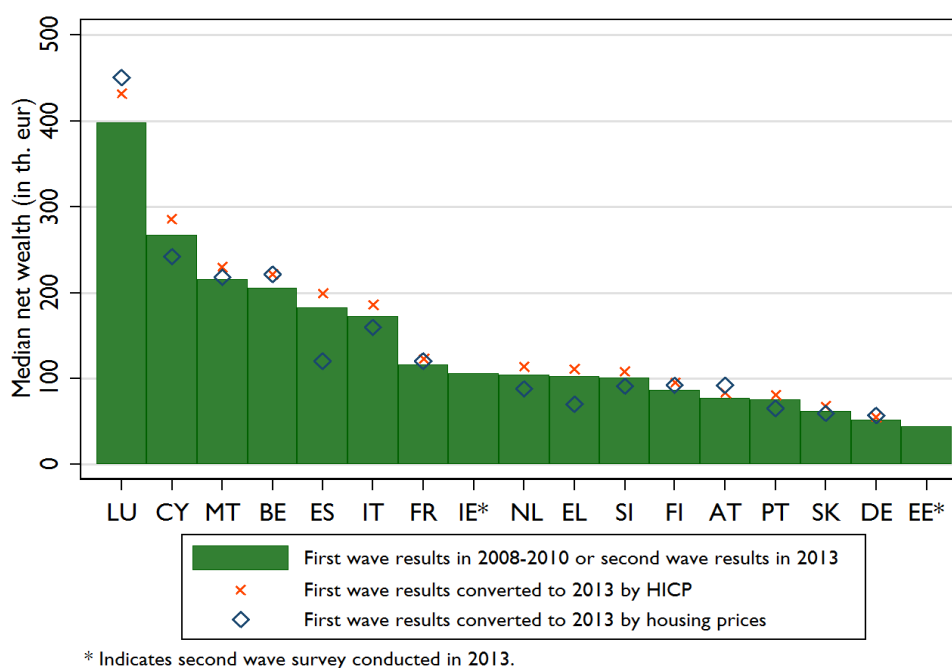


Figure 10: Median net wealth in euro area countries

Sources: Authors calculations on the basis of the Estonian HFCS; Eurosystem Household Finance and Consumption Network (2013b); Eurostat for HICP [code: prc_hicp_aind] and housing prices [code: prc_hpi_a]. Housing prices for Greece (EL) are taken from ECB Statistical Data Warehouse [name: Residential property prices].

6.1. Inequality of net wealth

An overview of the mean and median levels of net wealth in Estonia is presented in Table 15. The median value of net wealth for Estonian households is 43.6 thousand euros with 95% confidence bounds between 39.3 and 47.9 thousand euros. The mean level of net wealth is 97.1 thousand euros with 95% confidence bounds between 83.8 and 110.4 thousand euros. The mean level of net wealth is much higher than the median, which indicates that wealth is unevenly distributed. This can be further illustrated by looking at the differences in net wealth across income percentiles, which are presented in Figure 11. Households in the lowest net wealth decile mostly have zero or negative net wealth, meaning that they have no assets or that the value of their liabilities is equal to or greater than the value of the assets. The value of the net wealth of the 10th percentile is only 440 euros. The level of net wealth increases only gradually for the first half of the deciles but starts to grow at an accelerating pace after the fifth decile. The value at the 80th percentile is 113.7 thousand euros and at the 90th it is 195.4 thousand euros.

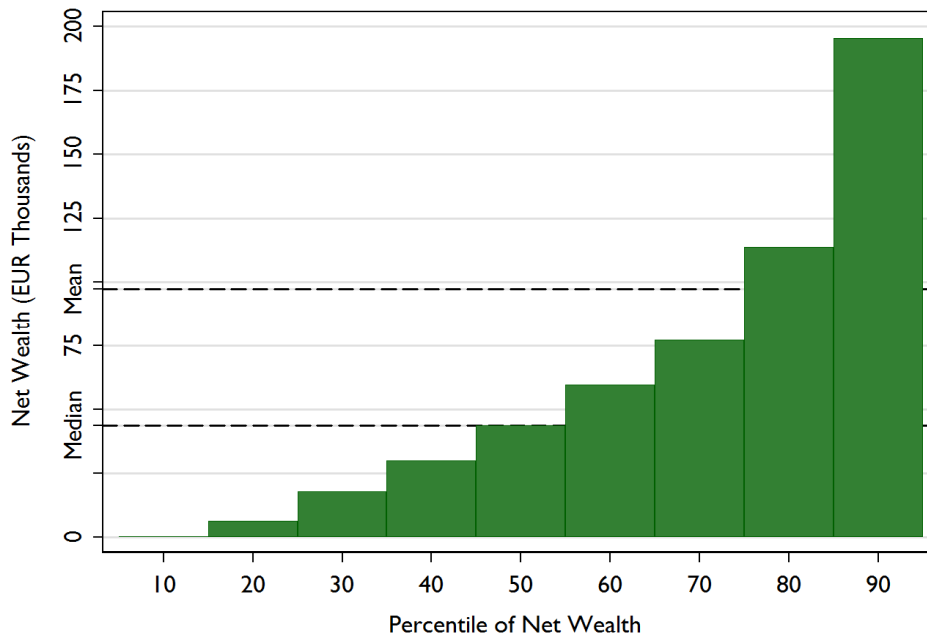


Figure 11: Net wealth by percentiles

The inequality of the wealth distribution can also be illustrated by the Lorenz curve, which is depicted as a red curve in Figure 12. The Lorenz curve plots the fractions of net wealth held by different percentages of households. The diagonal dashed line on Figure 12 would coincide with the Lorenz curve

if net wealth were divided equally. The further the Lorenz curve lies from the diagonal line, the less equal the net wealth distribution is.

Figure 12 indicates that net wealth is relatively unevenly distributed in Estonia. The distribution of net wealth is less even than the distribution of income (see Section 7 for a comparison). The Lorenz curve shows that the bottom 20% of households hold almost no net wealth, as their share of the total net wealth is 0.15%. The upper 60% of households own 96.2% and the upper 20% own 70.7% of net wealth. The latter share is somewhat higher than the corresponding figure for the euro area (67.6%) which indicates that net wealth is less evenly distributed in Estonia than in the euro area.

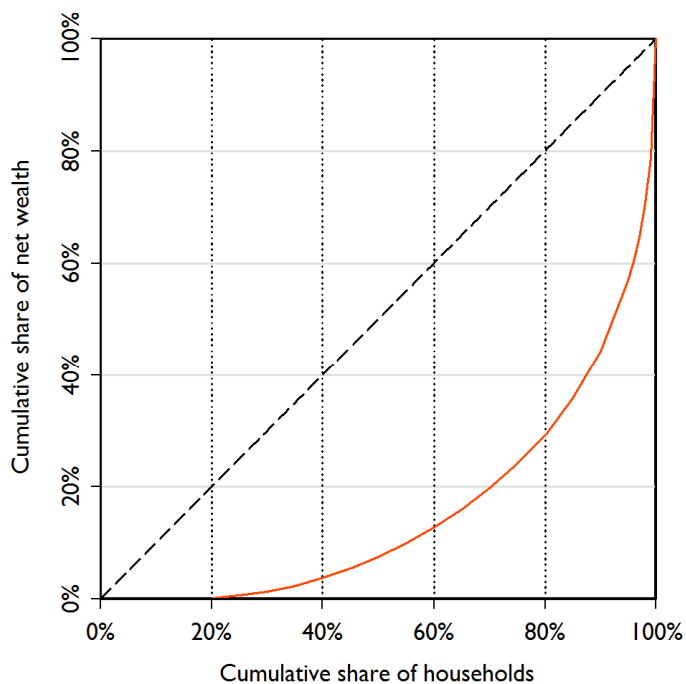


Figure 12: Fraction of net wealth held by given per cent of households (Lorenz curve)

Table 14 gives an overview of the Gini coefficients⁵ of net wealth across the euro area countries. The Estonian value of the Gini coefficient is one of

⁵ The Gini coefficient is the ratio of the area to the left of the Lorenz curve and under the 45 degree line to the total area under the 45 degree line. If there was perfect equality the value of the coefficient would be 0, whereas a coefficient of 1 indicates total wealth inequality. Theoretically, the value can be greater than 1 if some households have negative net wealth. The coefficients presented in Table 14 also contain negative values of net wealth. Among Estonian households, 3.2% have negative net wealth and excluding them gives a somewhat lower Gini coefficient of 0.67.

the highest in this group. It is higher than in Estonia in only three euro area countries: Austria, Cyprus and Germany. The Gini coefficient of net wealth in Estonia is 0.69. For comparison, the population-weighted euro area average value is 0.68 and the unweighted mean across the euro area countries that participated in the first wave of the HFCS is 0.63.

Carroll et al. (2014) report that inequality is lower in the euro area than in the US, but point out large differences in wealth inequality between the euro area countries. One of the main factors behind wealth inequality is home-ownership; countries with low home-ownership rates, such as Austria and Germany, tend to have higher wealth inequality. Estonia is an exceptional case in the euro area where the home-ownership rate is high, like in other countries with a post-communist background such as Slovenia and Slovakia, but unlike those countries the wealth inequality is high.

Table 14: Gini coefficients of net wealth

	Date of refer- ence	HFCS: net wealth	HFCS: equivalised net wealth
Austria	2010	0.76	0.74
Belgium	2010	0.61	0.62
Cyprus	2010	0.70	0.68
Estonia	2013	0.69	0.67
Germany	2010	0.76	0.75
Ireland	2013	0.64	-
Finland	2009	0.66	0.65
France	2009	0.68	0.68
Greece	2009	0.56	0.55
Italy	2010	0.61	0.61
Luxembourg	2010	0.66	0.65
Malta	2010	0.60	0.58
Netherland	2009	0.66	0.67
Portugal	2010	0.67	0.67
Slovenia	2010	0.53	0.52
Slovakia	2010	0.45	0.45
Spain	2008	0.58	0.58
Euro area , first wave		0.68	0.68
Cross-country average, first wave		0.63	0.63

Note: Euro area first wave denotes Gini coefficients of the pooled sample of all countries that participated in the first wave; cross-country average denotes the average of the country level Ginis from the first wave. Equivalised net wealth is wealth per equalised number of household members and it adjusts the measure to household size and composition. The definition of equivalised household members is based on the OECD equivalence scale, which gives a weight of 1.0 to the first person aged 14 or more, a weight of 0.5 to other people aged 14 or more and a weight of 0.3 to people aged 0–13.

Sources: Authors' calculations on the basis of the HFCS. The Gini coefficient of wealth for Ireland is obtained from Lawless et al. (2015).

6.2. Differences in net wealth across Estonian regions

There are large regional differences in net wealth in Estonia. Table 15 shows the mean and median net wealth levels across Estonian regions. The figures presented in the table indicate that the wealthiest regions are Tallinn (the capital city), Harjumaa (the region surrounding the capital city), Tartumaa (the region with the second largest city), and Saaremaa and Hiiumaa (islands off the west coast of Estonia). The other Estonian regions have two to three times lower levels of median net wealth than these wealthiest regions.

Table 15: Net wealth and its components across Estonian regions in 2013 (EUR, thousands)

	Median Net Wealth	Mean Net Wealth	Median HMR	Median Real Assets	Median Financial Assets	Median Debt
Tallinn	57.7	94.8	56.9	64.0	2.9	11.7
S.E.	2.5	5.6	3.1	2.5	0.4	3.5
Harjumaa, excluding Tallinn	63.9	161.5	61.5	86.4	3.2	16.2
S.E.	7.8	17.4	8.8	11.8	0.8	5.0
Ida-Virumaa	24.3	51.4	20.0	25.6	1.0	1.4
S.E.	2.9	11.1	1.6	3.4	0.2	0.7
Jõgevamaa	28.4	46.3	16.4	28.0	0.9	1.1
S.E.	7.1	10.9	7.8	8.0	0.7	1.9
Järvamaa	23.7	90.3	29.0	30.0	2.0	3.3
S.E.	10.5	31.4	10.1	11.7	0.9	1.1
Läänemaa	32.8	67.9	40.0	46.2	0.8	6.3
S.E.	12.8	15.4	9.9	16.0	0.7	9.6
Lääne-Virumaa	20.5	47.4	20.5	25.0	1.1	1.7
S.E.	4.8	8.9	4.5	4.5	0.5	1.1
Põlvamaa	21.7	52.8	15.6	22.9	0.9	7.5
S.E.	9.8	22.4	4.5	9.6	0.9	3.8
Pärnumaa	40.6	88.3	38.8	50.2	3.3	8.0
S.E.	7.0	11.4	4.0	7.9	0.8	2.8
Raplamaa	32.0	127.0	28.1	36.1	1.1	1.5
S.E.	11.5	52.0	9.9	13.4	0.6	4.1
Saare- and Hiiumaa	61.0	114.5	48.6	66.5	3.8	8.3
S.E.	16.6	19.7	15.5	13.3	1.4	4.8
Tartumaa	56.2	161.7	60.0	69.9	2.4	14.0
S.E.	5.8	52.1	4.3	5.1	0.5	5.2
Valgamaa	24.4	49.8	16.4	23.4	2.3	1.0
S.E.	5.4	12.4	6.5	8.2	0.7	2.2
Viljandimaa	20.0	46.2	20.6	28.8	1.5	1.9
S.E.	5.2	9.3	5.8	7.2	0.6	2.0
Võrumaa	40.4	76.1	29.1	44.3	1.4	2.4
S.E.	10.8	16.1	5.9	9.5	0.6	1.4

Notes: * Counties Saaremaa and Hiiumaa have been merged due to the small sample size. See notes for Tables 2, 3 and 4.

The differences in net wealth across regions are mostly driven by disparities in real estate prices. Given that debt is also concentrated in the main cities, the regional differences in real assets are even higher than those in net wealth. The demographic trends have been influenced by net migration from the other Estonian regions to Harjumaa (including Tallinn) and Tartumaa. Divergent population flows across regions have affected the demand for real estate, which in turn has caused heterogeneity in real estate prices. In addition, residents of Harjumaa and Tartumaa have higher incomes than residents of the rest of Estonia, which affects real estate prices and the accumulation of wealth positively in these regions.

Median net wealth is also above average in Saaremaa and Hiiumaa. The possible reason for this finding is that Saaremaa and Hiiumaa are popular holiday resorts where many households have summer homes. The demand for this type of housing has kept real estate prices higher in these regions than in the rest of Estonia.

6.3. Net wealth by various household characteristics

Table 16 presents holdings of assets, liabilities and net wealth across various household groups. The mean gross value of assets for Estonian households is 105.6 thousand euros with 95% confidence bounds between 92.1 and 119.1 thousand euros, and the mean value of liabilities is 8.6 thousand euros with 95% confidence bounds between 7.8 and 9.5 thousand euros. Their difference is approximately equal to the mean value of net wealth, which is 97.2 thousand euros. The mean values of assets and liabilities are quite heterogeneous across households with different characteristics.

The median value of net wealth increases with household size. This is an expected result, since larger households have more income earners and therefore higher income. The fifth column in Table 16 shows what fraction of net wealth is owned by different household groups. Looking at the figures across household size groups shows that four-member households own about 26.5% of net wealth and two-member households own 29.9%. The shares are smaller for other size groups.

The values of assets and liabilities increase with household income but the growth of assets outpaces the growth of liabilities. Consequently, net wealth is also positively related with household income. The increase in the value of net assets across income quintiles is quite substantial, indicating a strong positive correlation between wealth and income. The mean value of net wealth for the lowest income quintile is 36.1 thousand euros, which contrasts with the value of 199.0 thousand euros for the highest income quintile. The two

largest income quintiles also hold substantial shares of net assets, as 66.0% of net wealth belongs to these two quintiles.

Across households with different housing status, owners with mortgages have the highest median value of net wealth, followed by outright owners. The point estimates for them are 69.5 thousand euros and 56.6 thousand euros accordingly. In contrast, the median level of net wealth among renters is only 1.5 thousand euros. This illustrates the importance of the HMR in the composition of assets.

Looking at households with different work statuses indicates that households where the reference person is self-employed are considerably wealthier than others. The median value of their net wealth is 116.4 thousand euros and the mean value is 378.1 thousand euros. Although these households make up only 5.1% of households, they hold approximately one fifth (19.9%) of net wealth. The lowest level of net wealth is held by households in the “other not working” category, where the reference person is unemployed, a student or otherwise inactive in the labour market. Their median level of net wealth is 9.5 thousand euros and the mean level is 35.8 thousand euros.

Net wealth is positively related with the education level of the household’s reference person. Households where the reference person has primary education have a median level of 16.8 thousand euros worth of net wealth, whereas households where the reference person has tertiary education have 65.0 thousand euros. This positive relationship may stem from the higher income of the better educated, but may also reflect different preferences. It has been shown that more educated people have less myopic preferences and therefore tend to save more than less educated people (Solmon (1975)).

Net wealth displays a hump-shaped pattern as a function of the age of the household’s reference person. The median value of net wealth peaks earlier than the mean value – it peaks for the 35–44 age group, while the mean value peaks for the 45–54 age group. The fraction of wealth held is the largest for the 45–54 age group, and the households in this group hold about a quarter (26.6%) of net wealth.

Figure 13 presents a breakdown of mean net wealth by its components across the age groups. It illustrates that households’ wealth is mostly determined by the value of real assets, whereas the role of financial assets and liabilities in the composition of net wealth is modest. As was discussed in Section 3, the most valuable real assets are real estate holdings, so the average value of net wealth is mainly driven by the level of real estate prices.

Figure 13 illustrates that the value of liabilities Estonian households have is modest relative to assets and liabilities are concentrated in younger cohorts. Households where the reference person is older than 54 have a negligible amount of outstanding debt on average.

Table 16: Net wealth, breakdown by different household characteristics

	Median (1000)	Mean (1000)	Mean Assets (1000)	Mean Liabilities (1000)	Share of Total Net Wealth (%)	Share of House- holds (%)
All Households	43.6	97.1	105.6	8.6	100.0	100.0
S.E.	2.1	6.8	6.9	0.4		
Household size						
1	21.2	49.0	52.0	3.2	18.0	35.7
2	55.8	97.5	102.5	5.1	29.9	29.8
3	53.8	97.7	110.3	12.6	16.4	16.3
4	69.9	201.6	224.6	23.0	26.5	12.8
5 and More	81.6	164.6	182.4	17.9	9.2	5.4
Housing status						
Owner-Outright	56.6	98.8	99.5	0.7	58.9	57.9
Owner-with Mortgage	69.5	172.6	213.4	40.8	33.2	18.7
Renter or Other	1.5	32.7	35.0	2.5	7.9	23.4
Percentile of Income						
Less than 20	14.6	36.1	38.0	2.0	7.5	20.1
20–39	30.8	62.0	63.8	1.9	12.7	20.0
40–59	39.4	67.4	71.4	4.3	13.8	20.0
60–79	60.1	121.2	130.1	9.0	25.0	20.0
80–100	93.7	199.0	224.9	26.0	41.0	20.0
Percentile of Net Wealth						
Less than 20	0.5	0.7	5.6	4.9	0.1	20.0
20–39	17.8	17.7	23.5	5.9	3.6	20.0
40–59	43.6	43.7	49.4	5.7	9.0	20.0
60–79	77.0	80.1	90.9	10.7	16.5	20.0
80–100	195.6	343.9	357.5	15.9	70.7	20.0
Age of Reference Person						
16–34	21.1	49.4	62.9	13.5	10.2	20.0
35–44	57.3	133.3	154.1	21.3	24.1	17.6
45–54	55.0	143.7	151.7	8.4	26.6	17.9
55–64	49.7	106.2	109.1	2.9	19.1	17.5
65–74	46.8	86.5	87.4	0.9	12.0	13.5
75+	35.1	57.6	57.7	0.1	8.0	13.5
Work Status of Reference Person						
Employee	52.0	101.3	113.1	11.9	59.9	57.4
Self-Employed	116.4	378.2	402.0	23.9	19.9	5.1
Retired	32.7	58.8	59.4	0.6	16.2	26.8
Other Not Working	9.5	35.8	39.6	4.0	3.9	10.6
Education of Reference Person						
Primary or Less	16.8	43.0	44.8	1.9	7.3	16.5
Secondary	41.3	90.5	98.1	7.7	46.1	49.5
Tertiary	65.0	133.0	146.2	13.2	46.6	34.0

Note: See notes for Tables 2, 3 and 4.

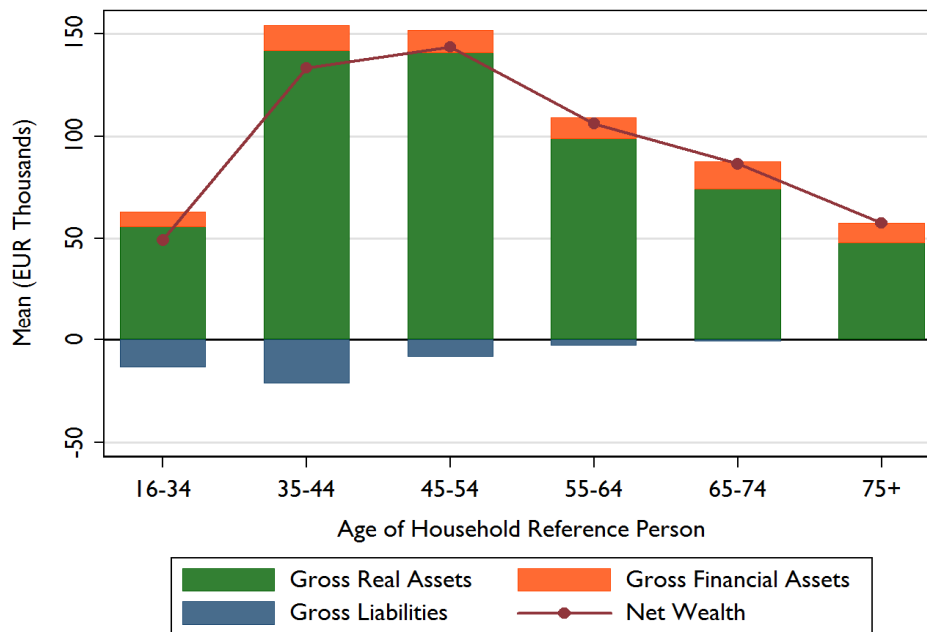


Figure 13: Mean net wealth by components and age

Note: Liabilities are not reported for the 75+ age group as there are fewer than 20 observations in the group.

7. Income

This section gives an overview of households' income. Wealth and income tend to be positively related for two reasons. First, households with higher incomes tend to save a larger fraction of their income than low-income households do and thus they accumulate more wealth. Second, the permanent income hypothesis posits that households which are earning above-average income in the current period and expect that their earnings will diminish in the future increase their saving, which also results in a larger accumulation of wealth. On the other hand, households with temporarily low income levels dissave, which reduces their net asset holdings. As a consequence, the cross-sectional distributions of income and wealth tend to be positively correlated.

We cover gross income (i.e. the household income including income taxes and social contributions) to make the results comparable with the euro area figures. The reference period for income is 2012, which is the calendar year preceding the fieldwork period of the Estonian HFCS. The figures presented refer to total household income including labour and non-labour sources.

An overview of household income and its distribution across various household groups is provided in Table 17. For comparison purposes, the same statistics for the euro area are presented in Table A12 in Appendix 2. The median household income in Estonia is 11.1 thousand euros with 95% confidence bounds between 10.4 and 11.7 thousand euros. The euro area average of 28.6 thousand euros is about 2.6 times higher than the Estonian point estimate. The difference between euro area and Estonian household incomes is of a similar magnitude to the difference in net wealth. As was shown in Section 6, the median net wealth is 2.5 times higher in the euro area than in Estonia.

The mean value of household income in Estonia is 17.1 thousand euros with 95% confidence bounds between 16.4 and 17.8 thousand euros. This exceeds the median by about 1.5 times. The difference between mean and median incomes is larger in Estonia than in the euro area, which indicates that income is less evenly distributed in Estonia.

The figures presented in Table 17 imply that larger households have higher incomes, as can be expected since the number of breadwinners in the family increases with household size. It is also evident that income is strongly related with housing status. Owners that have mortgages on the HMR have more than two times higher median income than owners without mortgages and renters. The incomes for these groups are 26.0, 9.5 and 6.9 thousand euros respectively.

As can be seen from Figure 14, household income has a hump-shaped pattern in relation to age. It peaks for the group of households with reference persons aged 35–44 and declines thereafter. In Estonia the peak occurs for a younger age group than in the euro area, where income is the highest for the 45–54 cohort. This difference is most probably caused by the consequences of the economic transition that Estonia experienced in the 1990s and early 2000s. The transition enabled younger cohorts to get an education that suited the needs of employers better, so they have higher human capital and higher incomes than the cohorts of 45+ year olds. As it is caused by transition, this age-income pattern should be a temporary phenomenon. It can be expected that as time passes and the younger cohorts gradually get older, the relationship between income and age in Estonia should start to resemble that in the euro area.

Another possible reason for the high income level of the group of households with reference persons aged 35–44 is that in Estonia it is likely that people become employed at a relatively younger age than their peers in the rest of the euro area countries. It is common for young people in Estonia to work in parallel to their university studies, and the youth unemployment rate

is below the euro area average in Estonia. This means that 35–44 year olds have relatively long work tenure, which may explain their high income level.

A third reason why the 35–44 cohort is relatively affluent is that employees tend to get promoted faster in Estonia (and in other Central and Eastern European countries) than in Western European countries.⁶ The greater probability of promotion reflects the better human capital of younger cohorts, which was discussed above, but may also be caused by different norms in society for the preferable age of managers.

Expectedly, income is strongly related with the work status of the reference person. Households where the reference person is employed have multiple times higher incomes than households where the reference person is either retired or otherwise not employed. Median income is 17.4 thousand euros for households where the reference person is an employee and 23.4 thousand euros for households with self-employed reference persons. In contrast, it is 4.4 thousand euros for households where the reference person is retired and 3.8 thousand euros for households where the reference person is in the “other not working” category.

Household income is strongly positively related with the education level of the reference person. There is a difference in incomes of more than three times between households where the reference person has primary education and tertiary education, with the former earning 5.5 thousand euros and the latter 16.8 thousand euros.

The findings from the HFCS for the euro area countries indicate that net wealth is less equally distributed than income (Eurosystem Household Finance and Consumption Network (2013b)). The results of the Estonian HFCS show that this is also the case in Estonia. Figure 15 depicts the Lorenz curves for income and net wealth in Estonia. As can be seen, the Lorenz curve for income lies above the Lorenz curve for net wealth, meaning the curve for income is closer to the diagonal line depicting perfect equality than the curve for wealth is. This implies that net wealth is less equally distributed than income. The share of income received by the richest 20% of households is 53.4%, whereas their share of net wealth is 70.7%.

⁶ The Eurostat statistics show that the share of people aged 15–39 among managers is higher in CEE countries than in Western European countries.

Table 17: Household income, breakdown by different household characteristics

	Median (1000)	Mean (1000)	Share of Total Income (%)	Share of House- holds (%)
All Households	11.1	17.1	100.0	100.0
S.E.	0.3	0.3		
Household size				
1	4.1	7.8	16.4	35.8
2	10.9	16.4	28.5	29.8
3	18.7	23.1	22.0	16.3
4	25.3	31.7	23.6	12.7
5 and More	25.8	29.9	9.5	5.4
Housing status				
Owner-Outright	9.5	14.8	50.0	57.8
Owner-with Mortgage	26.0	31.6	34.5	18.7
Renter or Other	6.9	11.3	15.5	23.5
Percentile of Income				
Less than 20	3.3	2.7	3.2	20.1
20–39	6.2	6.1	7.1	19.9
40–59	11.1	11.1	13.0	20.0
60–79	19.5	19.9	23.3	20.0
80–100	36.8	45.7	53.4	20.0
Percentile of Net Wealth				
Less than 20	5.4	8.7	10.2	20.0
20–39	8.5	12.1	14.2	20.0
40–59	9.8	14.7	17.1	20.0
60–79	14.4	19.3	22.6	20.0
80–100	23.2	30.6	35.9	20.1
Age of Reference Person				
16–34	15.0	19.4	22.6	20.0
35–44	20.4	26.1	27.0	17.6
45–54	14.7	20.8	21.9	18.0
55–64	10.8	15.5	15.8	17.5
65–74	7.4	9.9	7.8	13.5
75+	4.2	6.2	4.9	13.5
Work Status of Reference Person				
Employee	17.4	22.1	74.4	57.4
Self-Employed	23.4	35.4	10.6	5.1
Retired	4.4	6.6	10.3	26.8
Other Not Working	3.8	7.7	4.8	10.7
Education of Reference Person				
Primary or Less	5.5	8.5	8.3	16.5
Secondary	10.9	15.4	44.5	49.5
Tertiary	16.8	23.8	47.2	34.0

Note: See notes for Tables 2, 3 and 4.

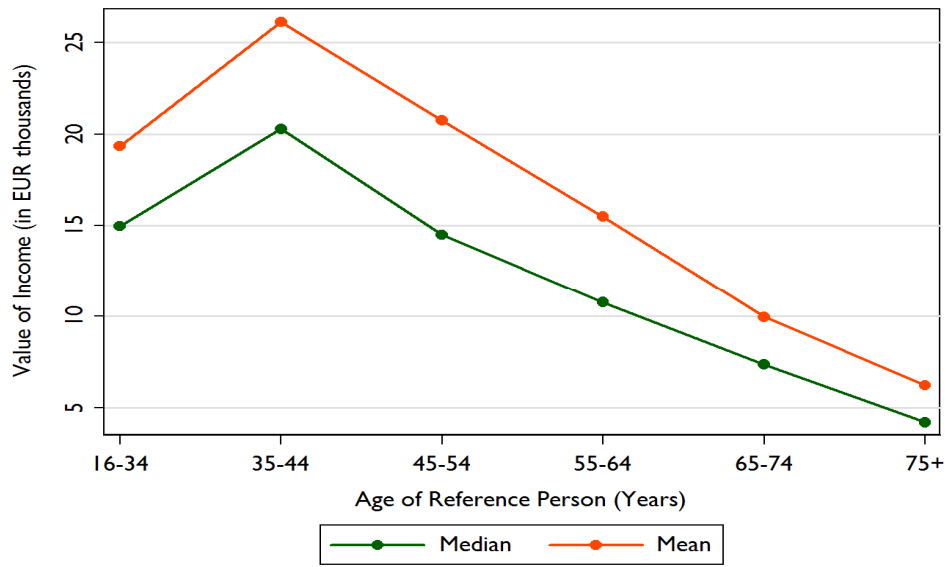


Figure 14: The level of income across age groups

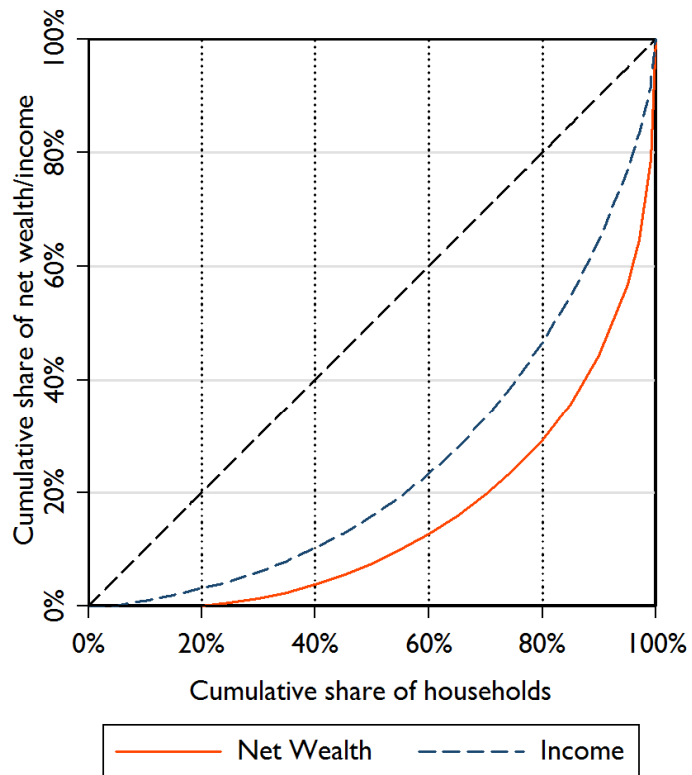


Figure 15: Fractions of income and net wealth held by given per cent of households (Lorenz curves)

8. Consumption

The first wave of the HFCS covers only food consumption, which is the amount of money spent on food expenditure at home and outside the home. In the second wave the coverage of consumption is extended to include expenditure on utilities and total non-durable consumption. Since the questionnaire of the Estonian HFCS is in compliance with the second wave of HFCSs in other countries, it included the questions on utilities and consumption of non-durables. In this Section we will first give an overview of food consumption, which can be compared with the results for the euro area. After that we analyse the other consumption categories.

8.1. Food consumption

An overview of food consumption across households with different characteristics is given in the first three columns of Table 18. Euro area food consumption is presented in Table A13 in Appendix 2 for comparison purposes. The general patterns of food consumption across the various subpopulations resemble the patterns of income. This is not surprising since food consumption is positively correlated with income, although it is not entirely proportional, i.e. there is not a one-to-one relationship between food consumption and income. Food (at least food eaten at home) is a necessity good; as households become more affluent their food consumption increases but they spend a lower proportion of their income on food. This means that food consumption is more equally distributed than income. That regularity is illustrated by Figure 16, which presents the Lorenz curves for net wealth, income and food consumption. The Lorenz curve for food consumption is the closest to the 45 degree line reflecting perfect equality, which shows that out of these three variables food consumption is the most equally distributed.

The statistics presented in Table 18 show that food consumption is strongly dependent on household size, as might be expected. The annual median food consumption for single people is 1.8 thousand euros, whereas it is 6.1 thousand euros for households with five or more members. Food consumption is also positively correlated with net wealth. The median expenditure on food rises from 2.1 thousand euros for the lowest net wealth quintile to 4.8 thousand euros for the highest quintile.

Table 18: Food and utilities consumption

	Food Consumption			Consumption of Utilities		
	Median (1000)	Mean (1000)	Share of Total Income (%)	Median (1000)	Mean (1000)	Share of Total Income (%)
All Households	3.4	3.8	28.4	1.7	1.8	13.2
S.E.	0.2	0.0	0.7	0.1	0.0	0.3
Household size						
1	1.8	2.1	35.0	1.2	1.2	20.1
2	3.6	3.8	28.4	1.8	1.9	14.0
3	4.8	4.9	24.3	1.9	2.2	10.4
4	5.4	6.0	20.4	2.4	2.6	8.7
5 and More	6.1	6.7	23.6	2.4	2.6	9.6
Housing status						
Owner-Outright	3.0	3.6	30.3	1.8	1.8	15.5
Owner-with Mortgage	4.8	5.5	18.3	2.2	2.5	8.2
Renter or Other	2.4	3.0	33.8	1.2	1.2	13.1
Percentile of Income						
Less than 20	1.8	1.9	55.4	1.0	1.1	37.7
20–39	2.4	2.6	39.5	1.4	1.5	23.8
40–59	3.0	3.4	28.4	1.6	1.7	14.2
60–79	4.3	4.7	22.3	1.8	2.1	9.6
80–100	6.0	6.4	14.6	2.4	2.6	5.6
Percentile of Net Wealth						
Less than 20	2.1	2.5	36.5	1.1	1.2	15.2
20–39	3.0	3.2	30.7	1.4	1.6	15.8
40–59	3.1	3.5	28.8	1.7	1.8	14.7
60–79	3.7	4.3	26.7	1.8	2.0	12.4
80–100	4.8	5.6	21.8	2.1	2.4	8.8
Age of Reference Person						
16–34	3.6	4.2	24.7	1.6	1.7	9.9
35–44	4.8	5.1	22.6	1.8	2.1	8.8
45–54	3.8	4.4	25.1	1.8	2.1	12.3
55–64	3.2	3.6	28.8	1.7	1.8	13.9
65–74	2.4	2.9	36.7	1.3	1.5	16.7
75+	1.8	2.1	38.1	1.2	1.3	24.3
Work Status of Reference Person						
Employee	4.2	4.6	22.4	1.8	2.0	10.0
Self-Employed	5.0	6.1	22.7	2.1	2.7	9.5
Retired	1.8	2.3	39.5	1.2	1.3	22.9
Other Not Work- ing	2.2	2.6	48.2	1.2	1.3	24.8
Education of Reference Person						
Primary or Less	2.4	2.7	36.3	1.2	1.3	17.1
Secondary	3.6	3.8	29.9	1.7	1.8	13.7
Tertiary	3.7	4.3	22.9	1.8	2.0	10.7

Note: See notes for Tables 2, 3 and 4.

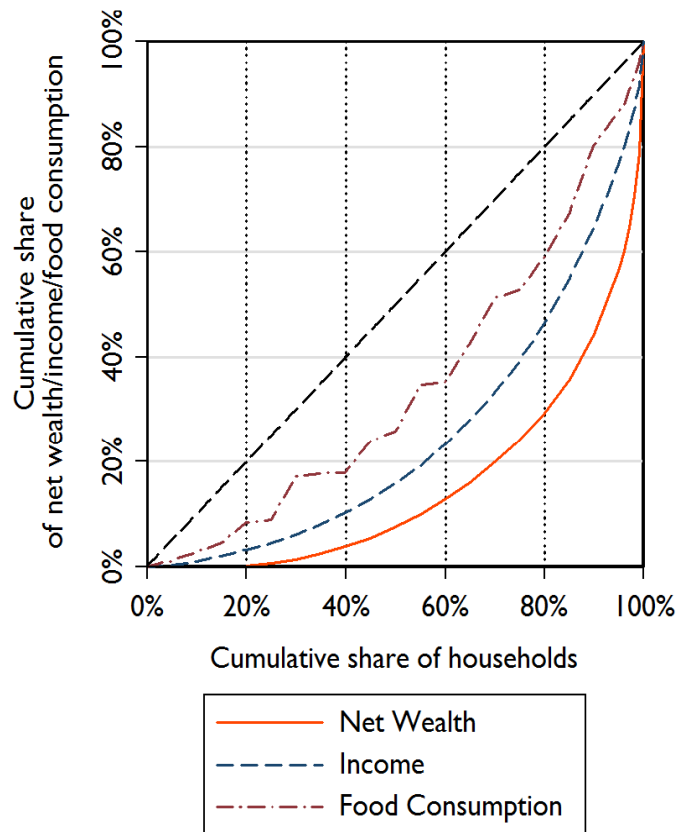


Figure 16: Fractions of food consumption, gross income and net wealth held by given per cent of households (Lorenz curves)

Food consumption as a function of age has a hump-shaped pattern which closely resembles the relationship between age and income. Households with reference persons aged 35–44 spend the highest amount of money on food at 4.8 thousand euros a year. The difference with other age groups is substantial, standing at one thousand euros or more. This contrasts with the age / consumption profile for the euro area, which is quite flat. The lowest amount (1.8 thousand euros) is spent by households where the reference persons are 75 or more years old. This reflects lower incomes and smaller household sizes among this group.

The third column in Table 18 gives an overview of food consumption as a share of the total gross income of households. The median share of income spent on food is 28.4% in Estonia and the corresponding share for the euro area is lower at 18.4%. Since the median income is higher in the euro area than in Estonia, the median household spends a lower share of income on

food. As was discussed above, food consumption increases less than proportionally with income.

Smaller households spend a larger proportion of income on food. In households consisting of single people this share is 35% and it falls to 20.4% for four-member households. The fraction of income spent on food is negatively related with households' net wealth and positively related with the age of the reference person.

8.2. Consumption of utilities

The median Estonian household spends 1700 euros on utilities annually, two times less than it spends on food. The mean expenditure on utilities is 1800 euros, which is quite close to the median. Consumption of utilities increases with family size. One-member households spend 1200 euros a year on utilities on average and this rises to 2600 euros for families with four or more members.

Utilities consumption is positively related with income. Households in the lowest income quintile spend 1000 euros per year on utilities, whereas upper quintile households spend 2400 euros. The expenditures on utilities also increase with household net wealth and with the education level of the reference person. They have a hump-shape pattern as a function of age.

The share of utilities consumption in total income is 13.2% in Estonia. Like food, utilities are necessity goods, and their consumption increases less than proportionately with income. This implies that the share of utilities consumption in total income decreases across income quintiles. Households in the lowest quintile spend 37.6% of their income on utilities, while upper quintile households spend only 5.6%.

The share of utilities consumption in total income is negatively related with family size, net wealth and the education level of the household reference person. It increases across age groups, although not monotonically. Households where the reference person is working spend approximately 10% of their income on utilities, whereas these expenditures make up almost a quarter of income for households where the reference person is not employed ("retired" or "other not working" categories).

8.3. Total consumption of non-durables

The median and mean total consumption of non-durables are presented in Table 19. The total consumption of non-durables contains consumption of other non-durable goods and services in addition to the food and utilities con-

sumption presented previously. The category of other non-durable consumption contains expenditures on items such as clothing, transport, entertainment, children's activities, etc. The median Estonian household spends 6.5 thousand euros per year on total consumption of non-durables. The consumption of non-durables is relatively equally distributed across households, which is similar to consumption components presented earlier, i.e. food and utilities consumption. The mean consumption of non-durables is 7.4 thousand euros per year.

The consumption of non-durables increases with household size, income, wealth and education, while the relationship to age is hump-shaped with the age categories in the middle having the highest consumption. Households where the reference person is retired or not working have substantially lower consumption than households with an employed reference person.

The median household spends 56.5% of its total gross income on consumption of non-durables. As was already discussed above, consumption increases less than proportionally with income, which implies that there could be substantial differences in the share of consumption in income across income and wealth quintiles. The households from the lowest income quintile spend close to 100% of their income on non-durables, while households from the highest income quintile spend only slightly over one quarter of their income on non-durables. A similar but less steep negative relationship is observed with net wealth, household size and education. Older households and households with reference persons who are retired or not working also spend a high share of their income on non-durables. Interestingly the share of income spent on non-durables is relatively flat for all age groups below the age of 65. The groups aged over 65 consist mostly of retired people who have high non-durable consumption shares due to lower income, since pensions are quite low compared to wage income.

Table 19: Total consumption of non-durables

Total Consumption of Non-durables			
	Median (1000)	Mean (1000)	Share of Total Income (%)
All Households	6.5	7.4	56.5
S.E.	0.1	0.1	1.2
Household size			
1	3.6	4.2	75.4
2	6.8	7.4	57.9
3	8.5	9.4	46.8
4	10.2	11.6	41.4
5 and More	11.7	12.3	46.4
Housing status			
Owner-Outright	6.2	7.0	62.2
Owner-with Mortgage	9.6	10.8	37.7
Renter or Other	4.8	5.7	67.5
Percentile of Income			
Less than 20	3.2	3.7	99.8
20–39	4.6	5.2	80.2
40–59	6.1	6.6	56.3
60–79	8.4	9.1	43.5
80–100	11.4	12.4	28.6
Percentile of Net Wealth			
Less than 20	3.9	4.8	70.5
20–39	5.6	6.3	61.9
40–59	6.1	6.9	59.3
60–79	7.5	8.2	52.7
80–100	9.2	10.8	42.8
Age of Reference Person			
16–34	7.2	8.2	48.2
35–44	9.0	9.7	43.6
45–54	7.8	8.6	50.0
55–64	6.2	6.9	53.2
65–74	4.8	5.5	72.3
75+	3.6	4.2	79.0
Work Status of Reference Person			
Employee	8.0	8.8	44.5
Self-Employed	10.1	12.2	45.1
Retired	3.7	4.4	79.7
Other Not Working	4.0	4.9	96.7
Education of Reference Person			
Primary or Less	4.2	5.1	74.3
Secondary	6.6	7.4	58.7
Tertiary	7.5	8.6	46.1

Note: See notes for Tables 2, 3 and 4.

9. Credit constraints

Households can be divided into two groups on the basis of their ability to borrow. The first group consists of households that are able to smooth consumption by borrowing money when income is below the expected average level and by saving part of the income when it is above the expected average. The second group consists of credit constrained households who can only smooth consumption asymmetrically: they can save part of their income if it exceeds the expected average, but cannot borrow to smooth consumption in response to negative income shocks.

The HFCS contains a block of questions which can be used to assess how large the fraction of credit constrained households is. The evaluation of credit constraints is based on households' self-assessment of their ability to borrow money from a financial institution. Within the last three years 18.8% of Estonian households applied for credit (see Table 20). Out of these households, 10.2% were not granted the loan they asked for or were given less credit than they wanted. In addition, 5.5% of households did not apply for credit since they believed that they would not be eligible for a loan. Adding up these discouraged households and those who faced a direct credit constraint yields the result that 6.8% of Estonian households are subject to credit constraints. This share is lower than the euro area average, which is 8.1% (see Table A14 in Appendix 2).

The fraction of households facing credit constraints increases with family size. This share is 4.1% among single people and gradually increases to 15.6% for households with five or more members. The share of credit-constrained households is larger among renters than among owners of the HMR. It decreases with the age of the reference person, mainly because younger households were more likely to have applied for credit within the last three years. It also declines with the education level of the household's reference person.

In the euro area the share of credit constrained households is negatively related with income. Differently from the euro area, there is no strong pattern of a relationship between income and credit constraints in Estonia.

Table 20: Credit constraints, breakdown by different household characteristics

	Applied for Credit With- in Last 3 Years	Not Applying for Credit Due to Per- ceived Credit Constraint	Refused or only reduced credit (among those applying in last 3 years)	Credit- Constrained Household
All Households	18.8	5.5	10.2	6.8
S.E.	0.8	0.5	1.5	0.6
Household size				
1	9.7	3.7	9.9	4.1
2	15.6	4.4	5.5	5.0
3	29.7	8.3	9.7	10.3
4	33.1	8.1	12.0	10.2
5 and More	30.6	9.6	21.2	15.6
Housing status				
Owner-Outright	11.2	3.1	9.4	4.0
Owner-with Mortgage	41.2	5.9	9.4	8.5
Renter or Other	19.8	11.2	13.0	12.2
Percentile of Income				
Less than 20	6.2	5.2	23.6	5.7
20–39	6.1	3.9	3.0	4.0
40–59	15.4	7.0	11.3	7.9
60–79	27.8	7.3	9.7	9.8
80–100	38.8	4.1	9.2	6.6
Percentile of Net Wealth				
Less than 20	16.7	10.8	10.6	11.2
20–39	19.5	5.7	12.9	7.6
40–59	14.9	3.6	6.4	4.5
60–79	19.2	3.6	7.6	4.7
80–100	23.9	3.9	12.4	5.8
Age of Reference Person				
16–34	34.2	11.8	8.6	13.2
35–44	30.4	9.7	8.5	11.5
45–54	20.7	4.5	12.8	6.6
55–64	12.5	2.5	18.5	4.2
65–74	4.4	0.7	N	0.7
75+	1.1	0.7	N	0.7
Work Status of Reference Person				
Employee	26.5	6.1	9.3	7.7
Self-Employed	28.7	8.2	16.3	11.0
Retired	2.7	0.7	N	0.7
Other Not Working	13.5	13.5	19.1	14.9
Education of Reference Person				
Primary or Less	12.0	7.7	8.2	7.9
Secondary	20.0	5.5	11.8	7.2
Tertiary	20.5	4.5	8.7	5.7

Note: See notes for Tables 2, 3 and 4.

10. Conclusions

This paper gives an overview of the main results of the Household Finance and Consumption Survey which was carried out in 2013 in Estonia. The survey focuses mainly on wealth, providing estimates of households' assets and liabilities. In addition, it covers household income and consumption, and indicators of financial fragility. Similar surveys were carried out in other euro area countries in 2008–2011, which enables us to compare the findings from the Estonian HFCS with those from the rest of the euro area.

The median level of household net wealth in Estonia was 43.6 thousand euros with the 95% confidence bounds between 39.3 and 47.9 thousand euros. This is about two and a half times lower than the euro area average of 109.2 thousand euros. The most important component of wealth is the household main residence, which accounts for 50.1% of total assets. Real estate holdings including the household main residence and other real estate property make up 67.5% of the total value of assets. The prominent role of real estate among household assets implies that movements in real estate prices have a strong impact on household wealth.

The distribution of net wealth is less equal than the distribution of income. Net wealth is less evenly distributed in Estonia than in most other euro area countries. The Gini coefficient of net wealth is 0.69 for Estonia, while the unweighted average cross-country value for the euro area countries is 0.63. One of the main factors behind wealth inequality is home ownership; countries with low home-ownership rates, such as Austria and Germany, tend to have higher wealth inequality. Estonia is an exceptional case in the euro area where the home-ownership rate is high, like in other countries with a post-communist background such as Slovenia and Slovakia, but wealth inequality is also relatively high, unlike in those countries.

Real assets form the dominant part of wealth while the share of financial assets in the total value of assets is only 10.2%. The main component of financial assets is deposits. Holdings on bank sight and saving accounts make up 68% of total financial assets in Estonia, which is a substantially higher share than the euro area average of 39%. This indicates that an average euro area household diversifies its portfolio of financial assets more than an Estonian household does. Nearly all households (98.6%) have bank deposits in Estonia.

Slightly more than one third of Estonian households (36.8%) have outstanding debt. This share is lower than the euro area average, which is 43.7%. The vast majority of the liabilities of Estonian households are collateralised, and mortgage debt accounts for 94.7% of the total value of debt. In turn, most

of the mortgage debt consists of loans where the collateral is the household main residence. Mortgages on HMRs make up 84.5% of the total debt.

In accordance with the life cycle hypothesis of consumption, participation in the credit market is dependent on age, exhibiting a hump-shape pattern that peaks for the 35–44 age group. Younger Estonian households, where the reference person is 16–44 years old, are as likely to participate in the credit market as the euro area households in the same age groups. For the older cohorts the likelihood of having outstanding debts falls below the euro area level and this difference increases with the age of the reference person. Whereas the debt participation rate is 65.6% among the Estonian households where the reference person is aged 35–44, it drops to 23.3% for the 55–64 age group and falls further to 10.4% for the 65–74 group. There are several possible reasons for these substantial differences in credit market participation. First, they may reflect varying preferences for borrowing across age cohorts. Second, this pattern may be caused by members of households aged 55+ having had insufficient access to loans when they were younger and were eligible for long-term mortgage loans. The retail market for collateralised loans developed quite recently in Estonia, starting from the early 2000s. Third, the majority of Estonian households were able to privatise their dwellings in the transition period in the 1990s, which enabled older households to become home owners without needing to get mortgages. Fourth, households in the 35–44 age group have higher incomes than older households and debt participation is positively related with income.

The debt burden of Estonian households is below the euro area average. The median debt-to-asset ratio is 15.3% and the debt-to-income ratio is 38.3% in Estonia, while the corresponding figures for the euro area are 21.8% and 62%. These indicators are calculated for indebted households only, i.e. they are conditional on the households having debt. Although younger Estonian households are as likely to participate in the credit market as euro area households are, their debt burden is lower than in the euro area, which means that on average they have borrowed less money relative to their income and assets.

The burden of debt servicing, measured by the debt-service-to-income ratio, is similar in Estonia to the euro area average, except for households in the lowest income quintile. These households spend a median share of 61.1% of their gross income on debt repayments, while the corresponding figure for the euro area is 26.5%. Because of the high level of the debt service ratio the indebted households in the lowest income quintile are strongly exposed to the risk of not being able to service their debts if hit by adverse income or consumption shocks. However, the share of such households among the total population is not very large, as only 3% of households are in the lowest income quintile and have outstanding debt.

The median loan-to-value ratio for the HMR is 44% in Estonia, which is above the euro area ratio of 37.3%. The relatively large value of this ratio is the result of the recent credit market cycle. The bulk of the mortgage loans were issued in the boom years of 2005–2007, when the real estate values were high. Estonia experienced a more amplified boom-bust cycle in the real estate market than most of the other euro area countries did, which resulted in inflated loan-to-value ratios after the crisis. The loan-to-value ratio of the main residence was above 100% for 8.9% of households in 2013.

The extent of the financial buffers that households have is measured by the ratio of net liquid assets to income. The value of this ratio is 9.8%, indicating that a median Estonian household holds liquid assets equivalent to somewhat more than one month's income. The corresponding figure for the euro area is about two times larger, 18.6%.

In conclusion, the results of the HFCS imply that the fraction of households participating in the credit market and the debt burden of indebted households are lower in Estonia than in the euro area. At the same time, Estonian households have lower financial buffers.

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Appendices

Appendix 1: Indicators of financial fragility - definitions⁷

Debt-to-asset ratio: Ratio of total liabilities (debt) to total assets. Defined for indebted households.

Debt-to-income ratio: Ratio of total liabilities to total annual gross household income. Defined for indebted households.

Debt service ratio: Ratio of total monthly debt payments to household gross monthly income. Defined for indebted households. The debt payments for credit lines/overdraft debt and credit card debt are not covered, since this information was not collected in the HFCS.

Loan-to-value ratio of the HMR: Ratio of the outstanding balance of the HMR mortgage to the current value of the HMR. Defined for households with HMR mortgages.

The ratio of net liquid assets to income: Ratio of net liquid assets to total annual gross household income. Net liquid assets are calculated as the sum of the value of deposits, mutual funds, bonds, non-self-employment business wealth, and publicly traded shares; net of credit line / overdraft debt, credit card debt and other non-mortgage debt. Defined for all households.

⁷ The source of the definitions is “The Eurosystem Household Finance and Consumption Survey Results from the First Wave”, published by the Eurosystem Household Finance and Consumption Network (2013b).

Appendix 2: Euro area results from the first wave of HFCS

Table A1: Euro area participation in real assets

	(Any)Real Assets	Household Main Resi- dence	Other Real Estate Property	Vehicles	Valuables	Self- Employment Business Wealth
All Households	91.1	60.1	23.1	75.7	44.4	11.1
S.E.	0.3	0.2	0.4	0.4	0.6	0.2
Household size						
1	81.4	43.8	14.3	50.5	42.2	4.6
2	94.6	65.7	26.6	82.1	45.5	10.4
3	95.3	66.9	26.6	89.1	43.9	14.8
4	98.1	73.3	29.5	93.2	46.2	19.3
5 and More	96.3	66.3	25.8	90.7	47.5	19.3
Housing status						
Owner-Outright	100.0	100.0	34.8	80.0	51.2	12.3
Owner-with Mortgage	100.0	100.0	24.0	89.5	37.4	16.1
Renter or Other	77.8	0.0	10.7	64.0	40.8	7.3
Percentile of Income						
Less than 20	78.6	47.0	12.9	44.1	36.0	4.1
20–39	87.8	50.6	16.4	69.5	45.2	6.6
40–59	93.8	58.8	20.4	83.8	45.4	8.6
60–79	96.8	66.4	25.9	90.0	49.4	12.8
80–100	98.6	77.6	39.7	92.8	46.1	23.1
Percentile of Net Wealth						
Less than 20	66.2	4.8	1.9	48.7	34.8	2.3
20–39	90.8	28.7	8.3	73.2	39.2	7.3
40–59	98.9	78.9	19.1	79.4	39.6	8.5
60–79	99.9	93.4	26.9	86.0	51.8	10.3
80–100	99.9	94.8	59.1	90.3	56.4	26.9
Age of Reference Person						
16–34	84.3	31.9	9.9	71.4	39.7	8.6
35–44	93.2	57.1	19.0	85.5	42.4	15.1
45–54	94.0	64.3	27.3	85.3	43.0	16.4
55–64	93.7	71.3	32.4	83.2	48.8	14.4
65–74	92.2	71.0	29.3	71.9	44.9	5.4
75+	87.5	65.2	19.5	45.1	48.6	1.8
Work Status of Reference Person						
Employee	93.5	56.9	20.3	85.7	42.4	5.6
Self-Employed	98.5	71.1	43.9	89.8	51.3	79.9
Retired	90.9	69.5	25.9	64.4	49.7	3.1
Other Not Working	74.9	37.3	10.8	50.1	33.5	1.7
Education of Reference Person						
Primary or Less	90.9	61.9	21.6	66.5	50.1	8.2
Secondary	89.3	55.4	19.2	78.6	40.7	11.0
Tertiary	94.6	65.4	31.6	83.1	42.7	15.3

Source of tables in Appendix 2: Eurosystem Household Finance and Consumption Network (2013b)

Table A2: Euro area median value of real assets conditional on participation (EUR, thousands)

	(Any)Real Assets	Household Main Residence	Other Real Estate Property	Vehicles	Valuables	Self-Employment Business Wealth
All Households	144.8	180.3	103.4	7.0	3.4	30.0
S.E.	2.8	0.3	3.6	0.1	0.1	1.8
Household size						
1	65.4	141.5	94.4	4.1	2.7	7.7
2	160.4	189.6	110.4	6.4	4.0	24.5
3	167.9	180.3	101.7	8.0	3.7	30.0
4	206.4	200.0	113.8	9.7	3.7	49.6
5 and More	183.0	204.0	107.6	8.0	4.0	30.1
Housing status						
Owner-Outright	211.5	175.2	104.0	8.0	4.4	43.1
Owner-with Mortgage	230.0	200.0	119.9	8.9	5.0	32.7
Renter or Other	5.1	N.A	91.6	5.0	2.0	10.7
Percentile of Income						
Less than 20	57.1	102.1	46.4	3.0	1.3	7.0
20–39	80.8	150.0	69.2	4.5	2.4	18.0
40–59	126.0	170.0	90.0	6.0	3.0	25.1
60–79	180.5	199.3	109.3	8.4	4.7	23.3
80–100	288.3	250.0	178.1	12.0	8.0	52.0
Percentile of Net Wealth						
Less than 20	2.0	131.3	54.8	2.0	1.0	1.7
20–39	13.8	50.0	17.6	6.0	2.7	2.9
40–59	111.7	112.5	44.4	6.0	2.7	13.4
60–79	217.9	200.0	75.7	8.8	4.0	30.0
80–100	456.5	300.3	200.0	11.9	8.9	100.0
Age of Reference Person						
16–34	15.0	167.5	99.4	6.0	2.5	14.8
35–44	143.1	193.8	106.4	7.4	3.1	30.1
45–54	173.3	200.0	111.2	8.0	3.8	32.9
55–64	189.2	199.0	119.7	8.0	4.5	33.2
65–74	162.3	168.0	101.3	6.0	4.0	15.3
75+	126.0	150.1	86.6	3.5	3.0	9.6
Work Status of Reference Person						
Employee	134.6	187.8	100.0	7.5	3.3	20.0
Self-Employed	276.4	203.0	149.4	10.0	5.1	38.7
Retired	152.5	166.6	99.6	5.2	3.5	15.2
Other Not Working	39.9	150.1	88.8	4.0	1.5	20.0
Education of Reference Person						
Primary or Less	119.9	150.0	71.9	5.4	2.2	30.0
Secondary	128.7	180.6	105.1	7.0	3.9	30.0
Tertiary	210.4	225.6	150.0	8.0	6.0	26.0

Table A3: The composition of real assets in the euro area

	(Any)Real Assets	Household Main Residence	Other Real Estate Property	Vehicles	Valuables	Self-employ- ment Business Wealth
All Households	100.0	60.8	22.7	2.9	2.0	11.5
S.E.		1.0	0.6	0.1	0.1	1.1
Household size						
1	100.0	66.7	22.6	2.3	3.2	5.3
2	100.0	60.0	25.4	2.7	2.1	9.8
3	100.0	60.8	21.7	3.6	1.6	12.4
4	100.0	61.0	20.1	3.5	1.5	13.9
5 and More	100.0	52.2	19.2	2.7	1.5	24.4
Housing status						
Owner-Outright	100.0	62.1	22.2	2.3	1.8	11.6
Owner-with Mortgage	100.0	70.1	16.4	2.7	1.3	9.5
Renter or Other	100.0	0.0	60.3	11.7	7.7	20.3
Percentile of Income						
Less than 20	100.0	76.8	15.9	2.2	1.8	3.4
20–39	100.0	72.8	16.8	2.9	2.2	5.3
40–59	100.0	70.1	18.3	3.4	2.2	6.0
60–79	100.0	67.7	19.9	3.5	2.2	6.8
80–100	100.0	49.0	28.1	2.7	1.9	18.3
Percentile of Net Wealth						
Less than 20	100.0	63.5	15.6	11.9	5.9	3.0
20–39	100.0	67.3	10.4	14.3	6.1	1.9
40–59	100.0	81.4	9.5	4.8	2.3	2.0
60–79	100.0	81.6	10.8	3.4	1.9	2.4
80–100	100.0	50.0	29.6	1.8	1.8	16.7
Age of Reference Person						
16–34	100.0	65.9	17.3	5.1	2.6	9.1
35–44	100.0	61.2	16.7	3.5	1.6	17.0
45–54	100.0	59.0	22.7	3.4	1.7	13.2
55–64	100.0	54.9	26.0	2.7	2.0	14.4
65–74	100.0	61.5	28.2	2.3	2.4	5.7
75+	100.0	73.1	20.7	1.3	2.8	2.2
Work Status of Reference Person						
Employee	100.0	68.4	19.1	4.0	1.9	6.6
Self-Employed	100.0	35.1	27.1	2.3	1.4	34.1
Retired	100.0	68.3	24.7	2.1	2.7	2.2
Other Not Working	100.0	72.6	20.2	3.0	2.1	2.2
Education of Reference Person						
Primary or Less	100.0	69.2	19.4	2.9	2.0	6.6
Secondary	100.0	61.7	19.1	3.4	2.0	13.8
Tertiary	100.0	54.5	28.4	2.5	2.2	12.4

Table A4: Euro area participation in financial assets

	Financial Assets	Deposits	Mutual Funds	Bonds	Shares (Publicly Traded)	Money Owed to Households	Voluntary Pensions/Whole Life Insurance	Other Financial Assets
All Households	96.8	96.4	11.4	5.3	10.1	7.6	33.0	6.0
S.E.	0.1	0.1	0.3	0.2	0.3	0.3	0.4	0.3
Household size								
1	96.2	95.8	10.2	4.2	7.8	9.4	24.9	5.6
2	97.5	97.1	12.5	6.8	11.8	7.7	33.3	7.3
3	97.0	96.6	11.5	5.0	9.6	6.3	36.4	4.9
4	97.2	96.6	12.5	5.1	11.9	5.6	43.8	5.9
5 and More	95.4	94.9	7.7	3.8	9.7	6.5	39.0	4.9
Housing status								
Owner-Outright	96.6	96.3	11.9	8.9	12.4	5.1	28.8	6.3
Owner-with Mortgage	98.7	98.1	16.2	3.7	13.6	7.8	47.6	7.4
Renter or Other	96.2	95.7	8.5	2.4	6.0	10.1	30.1	5.2
Percentile of Income								
Less than 20	90.5	89.9	3.4	1.5	2.2	6.7	13.2	2.7
20–39	96.8	96.5	4.6	3.0	4.2	6.5	20.4	2.6
40–59	98.5	98.2	8.9	4.6	7.2	8.3	31.1	5.4
60–79	99.0	98.6	13.2	6.2	12.3	7.4	41.9	7.3
80–100	99.4	99.0	26.5	11.1	24.4	9.2	58.3	12.2
Percentile of Net Wealth								
Less than 20	93.2	92.5	2.0	0.2	1.2	7.8	15.9	1.7
20–39	96.7	96.3	8.1	1.7	5.0	10.2	32.7	4.6
40–59	96.4	96.1	10.4	3.9	8.0	5.9	31.5	4.7
60–79	98.4	98.1	12.4	6.6	11.0	5.7	35.8	5.4
80–100	99.5	99.1	23.9	14.1	25.2	8.6	49.1	13.8
Age of Reference Person								
16–34	97.4	97.1	9.7	1.7	6.7	10.3	33.7	4.8
35–44	97.5	97.0	12.9	3.4	10.1	9.0	41.1	6.3
45–54	97.0	96.7	13.0	5.0	11.2	8.0	43.7	5.4
55–64	97.2	96.4	13.1	7.6	13.3	7.5	37.7	7.4
65–74	96.4	96.1	10.9	8.1	10.4	5.8	19.4	7.3
75+	95.0	94.7	6.9	6.6	7.6	4.2	12.8	4.9
Work Status of Reference Person								
Employee	97.9	97.6	13.3	4.2	11.4	7.9	42.3	5.7
Self-Employed	96.9	96.6	12.7	7.9	12.5	12.6	44.7	10.4
Retired	95.9	95.6	9.4	7.5	9.3	5.5	19.0	6.4
Other Not Working	94.9	94.1	6.8	1.5	3.8	8.6	21.9	3.0
Education of Reference Person								
Primary or Less	93.6	93.1	4.0	4.0	4.2	4.5	19.0	2.4
Secondary	98.2	97.9	10.8	5.2	9.2	8.9	36.4	6.1
Tertiary	99.0	98.7	22.6	7.2	19.6	9.9	46.8	11.1

Table A5: Euro area median value of financial assets (EUR, thousands)

	Financial Assets	Deposits	Mutual Funds	Bonds	Shares (Publicly Traded)	Money Owed to Households	Voluntary Pensions/Whole Life Insurance	Other Financial Assets
All Households	11.4	6.1	10.0	18.3	7.0	3.0	11.9	4.1
S.E.	0.4	0.2	0.2	1.4	0.6	0.2	0.4	0.6
Household size								
1	7.3	4.9	11.3	18.4	7.5	2.5	9.6	2.8
2	15.9	8.3	10.0	19.2	8.6	3.4	14.9	4.9
3	11.6	6.0	8.2	20.0	6.8	4.0	10.8	3.3
4	13.4	6.9	9.3	15.0	5.1	4.0	11.9	6.0
5 and More	10.0	5.0	7.1	20.0	5.2	4.8	10.2	3.9
Housing status								
Owner-Outright	17.7	10.0	15.0	20.0	10.0	5.3	16.1	6.0
Owner-with Mortgage	16.8	7.6	6.6	10.0	4.8	5.4	15.0	4.0
Renter or Other	5.4	3.1	7.4	14.6	5.1	2.0	6.6	2.4
Percentile of Income								
Less than 20	2.5	1.7	10.5	18.2	5.4	1.8	4.4	1.4
20-39	5.0	3.4	5.3	15.1	4.0	2.3	5.1	2.0
40-59	10.5	5.8	8.1	15.0	4.1	2.6	8.6	1.7
60-79	18.1	9.4	7.9	15.7	5.0	3.0	11.8	4.8
80-100	49.9	19.1	12.5	20.0	10.0	5.5	23.0	6.5
Percentile of Net Wealth								
Less than 20	1.2	0.8	1.6	N	1.4	1.0	1.6	0.9
20-39	10.4	6.0	4.8	8.6	3.1	2.2	6.4	1.4
40-59	11.4	6.4	7.3	10.0	4.3	3.0	11.8	3.1
60-79	19.4	10.0	9.1	15.0	4.7	4.7	14.2	3.2
80-100	60.1	22.0	20.3	26.2	13.9	10.0	29.1	10.0
Age of Reference Person								
16-34	5.0	3.1	3.5	4.4	2.9	1.0	4.0	1.3
35-44	10.3	5.0	6.2	11.5	5.0	3.0	9.8	4.8
45-54	14.0	6.3	11.0	16.1	6.0	3.8	15.0	6.0
55-64	18.6	8.2	14.8	20.0	10.0	3.9	20.0	5.1
65-74	13.9	8.1	20.0	20.4	12.7	6.5	15.1	3.1
75+	12.0	8.3	24.0	25.0	10.0	3.8	23.4	5.6
Work Status of Reference Person								
Employee	11.5	6.0	7.1	11.0	5.0	2.2	10.0	3.5
Self-Employed	22.6	9.5	15.5	20.0	12.2	4.3	17.8	9.7
Retired	14.0	8.5	19.8	21.1	11.9	5.0	18.1	4.3
Other Not Working	2.0	1.1	6.5	16.6	5.2	1.2	6.1	1.4
Education of Reference Person								
Primary or Less	5.3	3.8	12.1	16.8	6.1	3.0	9.2	4.8
Secondary	10.9	6.0	7.8	15.3	5.4	2.5	10.1	3.0
Tertiary	29.4	12.5	11.5	20.1	8.8	4.4	17.5	5.0

Table A6: The composition of financial assets in the euro area

	Financial Assets	Deposits	Mutual Funds	Bonds	Shares (Publicly Traded)	Money Owed to Households	Voluntary Pensions/Whole Life Insurance	Other Financial Assets
All Households	100.0	42.9	8.7	6.6	7.9	2.2	26.3	5.3
S.E.		0.8	0.5	0.7	0.4	0.2	0.6	0.8
Household size								
1	100.0	44.6	10.2	7.8	6.4	2.1	25.4	3.6
2	100.0	41.2	9.4	6.5	9.1	2.2	25.0	6.5
3	100.0	44.9	7.7	6.4	8.2	2.3	26.8	3.6
4	100.0	44.6	6.4	5.4	6.6	2.4	29.2	5.3
5 and More	100.0	39.2	5.4	4.6	8.7	2.4	31.6	8.2
Housing status								
Owner-Outright	100.0	43.5	8.7	8.6	9.1	1.7	22.4	6.0
Owner-with Mortgage	100.0	40.3	7.8	2.7	6.4	2.9	35.9	4.0
Renter or Other	100.0	43.8	9.7	4.6	6.3	3.1	27.8	4.7
Percentile of Income								
Less than 20	100.0	57.2	8.5	6.2	3.6	3.9	18.5	2.0
20–39	100.0	58.9	5.6	6.0	3.7	3.2	19.4	3.2
40–59	100.0	53.7	7.8	6.4	4.3	2.8	22.7	2.3
60–79	100.0	48.5	6.8	5.6	5.9	2.1	27.3	3.9
80–100	100.0	34.5	10.1	7.1	10.6	1.9	28.6	7.2
Percentile of Net Wealth								
Less than 20	100.0	65.7	1.8	N	1.2	4.4	26.1	0.6
20–39	100.0	62.3	5.4	1.4	1.7	3.9	23.9	1.3
40–59	100.0	55.4	5.5	2.5	2.9	1.9	30.0	1.7
60–79	100.0	53.5	6.7	4.1	4.1	1.8	28.2	1.7
80–100	100.0	35.4	10.4	8.6	10.6	2.2	25.4	7.4
Age of Reference Person								
16–34	100.0	56.7	5.1	1.1	4.6	1.7	26.3	4.3
35–44	100.0	43.3	6.8	3.5	7.0	2.9	30.0	6.4
45–54	100.0	40.4	8.8	3.9	6.7	2.8	32.7	4.7
55–64	100.0	39.0	9.9	7.1	7.7	2.0	27.9	6.3
65–74	100.0	44.0	10.7	10.0	10.4	2.2	18.3	4.4
75+	100.0	46.0	7.6	10.6	9.4	1.3	20.2	4.8
Work Status of Reference Person								
Employee	100.0	44.4	8.2	3.8	7.1	1.7	30.3	4.4
Self-Employed	100.0	34.0	8.3	6.6	8.8	3.8	27.4	11.2
Retired	100.0	45.2	9.4	9.8	9.0	2.0	20.5	4.2
Other Not Working	100.0	46.4	11.0	4.3	4.9	3.5	27.6	2.4
Education of Reference Person								
Primary or Less	100.0	51.3	5.1	7.1	4.7	2.5	26.1	3.1
Secondary	100.0	45.6	7.1	6.3	6.6	2.0	27.9	4.5
Tertiary	100.0	37.7	11.4	6.5	10.1	2.3	25.2	6.7

Table A7: Euro area debt participation

	Total Debt	Mortgage Debt	HMR Mortgage	Other Property Mortgage	Non-Mortgage Debt	Credit Line/Overdraft Debt	Credit Card Debt	Other Non-Mortgage Debt
All Households	43.7	23.1	19.4	5.6	29.3	10.2	4.3	22.4
S.E.	0.4	0.3	0.3	0.2	0.5	0.4	0.2	0.4
Household size								
1	29.2	10.7	8.5	3.1	21.3	9.2	2.7	15.1
2	39.7	20.7	16.7	5.6	26.0	9.3	3.7	19.4
3	55.6	31.2	26.8	6.6	37.0	11.8	6.0	29.7
4	63.6	40.9	35.3	8.7	39.4	10.9	6.1	32.1
5 and More	64.0	38.7	33.4	9.2	44.4	15.1	6.4	34.5
Housing status								
Owner-Outright	24.6	6.4	0.0	6.5	20.1	4.3	3.0	16.3
Owner-with Mortgage	100.0	100.0	100.0	9.3	39.4	14.3	8.7	29.3
Renter or Other	35.9	3.0	0.0	3.0	33.9	14.3	3.5	25.2
Percentile of Income								
Less than 20	22.9	6.6	5.8	1.0	18.4	6.5	1.8	13.5
20-39	35.0	12.5	10.6	2.3	26.7	9.4	2.9	19.9
40-59	43.7	20.4	17.8	4.2	31.0	9.8	4.3	25.2
60-79	55.8	32.9	27.5	7.6	36.8	12.4	6.1	28.7
80-100	61.3	43.4	35.1	13.0	33.9	13.1	6.4	24.6
Percentile of Net Wealth								
Less than 20	44.1	5.6	4.5	1.5	41.9	17.8	3.2	33.5
20-39	38.0	15.0	13.6	2.0	29.9	12.8	4.2	21.5
40-59	46.1	32.4	29.4	4.7	27.2	8.3	5.6	20.3
60-79	45.1	31.0	27.2	5.9	24.4	6.4	4.3	19.0
80-100	45.3	31.7	22.2	13.9	23.3	6.0	4.2	17.6
Age of Reference Person								
16-34	55.3	22.3	20.1	3.6	41.8	13.5	5.1	34.5
35-44	61.8	37.2	33.6	6.7	40.1	13.1	6.6	31.3
45-54	55.8	32.4	26.5	8.7	36.8	13.2	5.4	27.7
55-64	43.1	22.5	16.8	7.5	27.3	10.0	4.2	20.1
65-74	23.7	11.7	8.7	4.2	15.3	6.2	1.9	9.9
75+	7.7	2.7	1.9	1.0	5.5	2.4	1.0	3.1
Work Status of Reference Person								
Employee	57.9	32.6	28.3	6.7	38.3	13.2	5.7	29.9
Self-Employed	56.8	35.2	27.1	12.8	35.1	11.7	7.0	26.2
Retired	19.5	8.9	6.3	3.2	12.9	4.9	1.7	8.8
Other Not Working	39.5	11.5	10.1	1.9	31.8	10.6	2.7	25.4
Education of Reference Person								
Primary or Less	30.3	13.7	11.3	3.0	21.9	5.6	2.8	17.8
Secondary	48.7	23.2	19.8	5.3	34.4	14.8	4.3	25.0
Tertiary	54.1	36.3	30.0	9.8	31.2	9.0	6.4	24.3

Table A8: Euro area median value of debt conditional on participation (EUR, thousands)

	Total Debt	Mortgage Debt	HMR Mortgage	Other Property Mortgage	Non-Mortgage Debt	Credit Line/Overdraft Debt	Credit Card Debt	Other Non-Mortgage Debt
All Households	21.5	68.4	65.2	56.8	5.0	1.5	0.9	6.1
S.E.	1.0	1.9	2.2	3.6	0.1	0.2	0.1	0.3
Household size								
1	8.9	65.8	61.5	49.7	3.3	1.0	1.0	4.8
2	18.0	60.0	60.0	49.5	4.7	1.5	0.8	6.6
3	28.1	70.0	65.3	69.2	5.4	2.0	0.9	6.8
4	40.2	70.0	66.3	63.9	6.0	2.5	0.8	7.3
5 and More	40.0	81.4	81.2	50.8	5.0	2.0	0.8	6.2
Housing status								
Owner-Outright	10.0	41.9	N.A	41.9	6.4	2.0	0.9	9.0
Owner-with Mortgage	75.3	70.0	65.2	62.0	5.4	2.0	1.0	7.0
Renter or Other	4.3	72.4	N.A	72.4	3.8	1.1	0.7	5.0
Percentile of Income								
Less than 20	5.0	42.6	43.2	40.1	2.9	0.8	0.8	3.4
20–39	7.7	46.5	48.7	30.6	3.0	0.9	1.0	4.3
40–59	14.9	54.9	53.4	55.3	4.6	1.5	1.1	5.6
60–79	29.6	66.8	66.9	48.2	6.0	2.2	0.8	7.0
80–100	63.1	92.8	89.2	72.5	7.0	2.6	0.8	10.0
Percentile of Net Wealth								
Less than 20	5.0	149.2	151.9	132.5	4.2	1.0	0.9	5.0
20–39	9.2	78.2	81.0	46.4	3.7	1.5	1.0	5.0
40–59	47.5	69.0	68.2	54.1	5.0	2.0	0.7	6.7
60–79	33.9	50.2	50.3	39.6	5.9	2.4	0.9	7.5
80–100	45.7	66.0	54.8	59.8	7.0	3.1	0.9	10.5
Age of Reference Person								
16–34	14.7	99.4	97.1	76.5	5.0	1.0	1.0	6.1
35–44	39.6	75.7	74.7	62.2	4.5	1.7	0.8	5.6
45–54	28.0	60.0	54.5	58.3	5.9	2.0	1.0	7.8
55–64	15.4	45.8	47.5	40.0	5.0	2.0	0.7	6.2
65–74	11.2	37.3	35.6	52.4	3.1	1.4	0.9	5.6
75+	4.3	40.0	38.4	40.0	1.7	0.8	0.9	3.6
Work Status of Reference Person								
Employee	27.7	71.0	70.1	57.2	5.0	1.6	0.8	6.2
Self-Employed	48.2	80.8	67.6	70.0	8.0	3.0	1.2	10.1
Retired	9.0	34.3	35.0	33.3	3.3	1.4	0.8	4.8
Other Not Working	6.9	56.4	55.0	52.0	3.5	0.7	0.8	4.8
Education of Reference Person								
Primary or Less	12.4	48.0	48.8	37.0	4.8	1.5	1.0	5.4
Secondary	15.0	65.2	64.3	49.6	4.2	1.5	0.9	5.6
Tertiary	54.6	86.9	80.2	70.3	6.4	2.0	0.7	8.7

Table A9: The composition of debt in the euro area

	Total Debt	Mortgage Debt	HMR Mortgage	Other Property Mortgage	Non-Mortgage Debt	Credit Line/Overdraft Debt	Credit Card Debt	Other Non-Mortgage Debt
All Households	100.0	82.8	63.2	19.7	17.2	1.4	0.2	15.5
S.E.		0.7	1.1	1.1	0.7	0.1	0.0	0.6
Household size								
1	100.0	78.6	59.1	19.5	21.4	2.2	0.3	18.9
2	100.0	82.5	59.3	23.3	17.5	1.5	0.2	15.8
3	100.0	82.8	65.1	17.7	17.2	1.4	0.2	15.6
4	100.0	84.6	66.6	18.0	15.4	1.0	0.2	14.2
5 and More	100.0	85.3	67.3	18.0	14.7	1.2	0.1	13.4
Housing status								
Owner-Outright	100.0	54.1	0.0	54.1	45.9	1.8	0.4	43.7
Owner-with Mortgage	100.0	93.6	85.1	8.4	6.4	0.7	0.1	5.6
Renter or Other	100.0	48.5	0.0	48.5	51.5	6.1	0.6	44.8
Percentile of Income								
Less than 20	100.0	70.0	58.3	11.7	30.0	2.5	0.5	27.1
20–39	100.0	77.8	65.1	12.7	22.2	1.9	0.4	20.0
40–59	100.0	80.4	63.3	17.1	19.6	1.5	0.3	17.8
60–79	100.0	82.8	66.5	16.3	17.2	1.6	0.2	15.4
80–100	100.0	85.6	61.5	24.0	14.4	1.2	0.1	13.2
Percentile of Net Wealth								
Less than 20	100.0	64.4	48.5	16.0	35.6	3.1	0.3	32.2
20–39	100.0	83.5	72.9	10.6	16.5	2.1	0.3	14.1
40–59	100.0	87.8	77.2	10.6	12.2	0.9	0.2	11.0
60–79	100.0	86.3	72.4	13.9	13.7	1.1	0.2	12.5
80–100	100.0	84.0	48.3	35.8	16.0	1.1	0.1	14.8
Age of Reference Person								
16–34	100.0	81.0	67.0	14.0	19.0	1.0	0.2	17.7
35–44	100.0	85.7	71.1	14.6	14.3	0.9	0.2	13.3
45–54	100.0	81.8	60.2	21.6	18.2	1.6	0.2	16.4
55–64	100.0	80.6	53.1	27.5	19.4	2.4	0.2	16.7
65–74	100.0	82.6	46.9	35.7	17.4	2.4	0.2	14.8
75+	100.0	85.4	43.4	42.0	14.6	2.5	0.4	11.7
Work Status of Reference Person								
Employee	100.0	84.4	68.2	16.2	15.6	1.1	0.2	14.3
Self-Employed	100.0	80.3	50.6	29.8	19.7	2.0	0.3	17.4
Retired	100.0	81.7	48.3	33.5	18.3	2.4	0.3	15.5
Other Not Working	100.0	72.9	60.1	12.8	27.1	1.6	0.3	25.2
Education of Reference Person								
Primary or Less	100.0	78.3	62.2	16.1	21.7	1.7	0.3	19.7
Secondary	100.0	82.5	63.7	18.7	17.5	1.9	0.2	15.4
Tertiary	100.0	84.7	63.0	21.6	15.3	0.9	0.1	14.3

Table A10: Euro area indicators of debt burden and financial fragility

	Debt-Asset Ratio	Debt-Income Ratio	Debt Service- Income Ratio	Mortgage Debt Service- Income Ratio	Loan-Value Ratio of HMR	Net Liquid Assets-Income Ratio
All Households	21.8	62.0	13.9	15.9	37.3	18.6
S.E.	0.6	2.1	0.3	0.2	0.9	0.5
Household size						
1	33.7	42.8	14.2	18.8	42.5	24.0
2	18.0	49.1	12.6	14.9	35.3	25.7
3	21.7	72.0	14.0	16.3	38.2	12.8
4	18.7	88.5	14.6	15.5	33.3	12.4
5 and More	25.2	78.2	15.8	16.4	40.0	5.5
Housing status						
Owner-Outright	3.7	27.4	11.3	12.5	N.A	36.8
Owner-with Mortgage	29.8	174.9	18.3	16.3	37.3	15.3
Renter or Other	41.5	16.2	8.0	14.4	N.A	8.8
Percentile of Income						
Less than 20	36.2	67.8	26.5	40.0	32.9	10.8
20–39	26.1	39.6	16.5	23.2	33.9	14.4
40–59	22.2	51.8	15.0	19.6	34.2	17.7
60–79	21.1	68.7	14.0	15.8	38.0	20.3
80–100	17.7	75.6	11.2	11.4	39.5	30.6
Percentile of Net Wealth						
Less than 20	108.2	24.7	10.4	22.3	112.4	0.7
20–39	27.0	30.6	13.3	19.2	74.5	19.1
40–59	30.4	131.0	17.9	17.2	44.9	20.6
60–79	12.4	81.1	14.4	14.4	24.0	31.7
80–100	7.1	75.7	12.7	12.9	17.7	66.0
Age of Reference Person						
16–34	46.4	64.3	15.4	20.5	56.5	7.7
35–44	29.4	96.4	16.1	17.1	40.4	10.9
45–54	17.6	66.5	13.0	13.7	29.1	12.4
55–64	10.9	39.8	11.7	12.7	24.9	24.2
65–74	8.4	37.1	12.2	15.1	20.0	37.3
75+	6.3	15.8	8.4	11.0	19.1	49.6
Work Status of Reference Person						
Employee	26.6	68.7	13.9	15.7	40.0	13.0
Self-Employed	13.6	91.0	16.7	16.8	33.7	19.0
Retired	7.9	30.7	11.3	13.3	19.9	41.0
Other Not Working	42.8	43.5	15.1	20.0	34.4	4.2
Education of Reference Person						
Primary or Less	18.8	49.8	15.1	17.6	31.8	13.4
Secondary	23.1	47.0	12.8	15.4	37.4	17.2
Tertiary	22.4	104.1	15.2	15.4	40.0	31.2

Table A11: Euro area net wealth

	Median (1,000)	Mean (1,000)	Mean Assets (1,000)	Mean Liabilities (1,000)	Share of Total Net Wealth (%)	Share of House- holds (%)
All Households	109.2	230.8	257.4	26.6	100.0	100.0
S.E.	1.9	4.2	4.3	1.0		
Household size						
1	39.6	134.9	146.6	11.7	18.5	31.6
2	148.2	279.4	303.5	24.0	38.9	32.1
3	135.2	246.7	282.0	35.3	17.7	16.5
4	175.4	285.4	331.0	45.7	17.5	14.1
5 and More	121.6	307.9	359.0	51.1	7.5	5.6
Housing status						
Owner-Outright	241.2	391.3	401.7	10.5	69.1	40.7
Owner-with Mortgage	171.1	266.6	368.4	101.8	22.4	19.4
Renter or Other	9.1	49.5	56.0	6.5	8.6	39.9
Percentile of Income						
Less than 20	26.7	89.2	95.2	6.0	7.7	20.0
20–39	53.2	124.9	135.0	10.1	10.8	20.0
40–59	104.9	172.5	191.5	19.1	14.9	20.0
60–79	157.2	226.8	260.9	34.2	19.7	20.0
80–100	295.3	540.8	604.3	63.6	46.8	20.0
Percentile of Net Wealth						
Less than 20	1.2	-2.8	13.9	16.7	-0.2	20.1
20–39	27.0	29.4	46.5	17.1	2.5	19.9
40–59	109.2	111.9	143.2	31.4	9.7	20.0
60–79	230.6	235.1	262.0	27.0	20.4	20.0
80–100	506.2	780.7	821.3	40.7	67.6	20.0
Age of Reference Person						
16–34	16.1	71.3	105.1	33.8	4.9	15.7
35–44	94.5	191.3	236.1	44.9	16.2	19.6
45–54	148.3	266.6	301.3	34.6	22.9	19.9
55–64	186.6	344.4	366.0	21.7	25.5	17.1
65–74	163.9	283.6	294.5	10.9	17.8	14.5
75+	126.1	220.9	223.2	2.3	12.7	13.2
Work Status of Reference Person						
Employee	90.7	180.2	216.7	36.5	37.4	47.9
Self-Employed	269.1	585.8	639.0	53.2	22.8	9.0
Retired	152.3	252.7	259.9	7.2	34.8	31.7
Other Not Working	11.1	98.5	111.4	12.8	4.6	10.7
Education of Reference Person						
Primary or Less	100.0	166.3	178.3	12.0	24.7	34.3
Secondary	87.7	205.1	230.0	25.0	36.7	41.3
Tertiary	179.6	363.8	413.5	49.7	38.5	24.4

Table A12: Euro area income

	Median (1,000)	Mean (1,000)	Share of Total In- come (%)	Share of Households (%)
All Households	28.6	37.8	100.0	100.0
S.E.	0.3	0.3		
Household size				
1	17.7	23.1	19.3	31.6
2	31.4	41.0	34.8	32.1
3	36.1	44.4	19.4	16.5
4	41.2	50.9	19.0	14.1
5 and More	41.4	50.4	7.5	5.6
Housing status				
Owner-Outright	28.4	38.9	41.9	40.7
Owner-with Mortgage	43.3	52.6	26.9	19.4
Renter or Other	23.1	29.6	31.2	39.9
Percentile of Income				
Less than 20	10.0	9.2	4.9	20.0
20–39	19.0	19.0	10.1	20.0
40–59	28.6	28.9	15.2	20.0
60–79	42.5	42.9	22.7	20.0
80–100	72.3	89.3	47.2	20.0
Percentile of Net Wealth				
Less than 20	17.4	21.7	11.5	20.1
20–39	25.4	30.1	15.9	19.9
40–59	27.5	33.2	17.6	20.0
60–79	33.2	39.8	21.0	20.0
80–100	50.0	64.4	34.0	20.0
Age of Reference Person				
16–34	24.9	29.7	12.4	15.7
35–44	34.3	42.3	21.9	19.6
45–54	37.0	47.3	24.8	19.9
55–64	34.0	45.1	20.3	17.1
65–74	24.2	31.5	12.0	14.5
75+	18.1	24.3	8.5	13.2
Work Status of Reference Person				
Employee	35.9	43.3	54.8	47.9
Self-Employed	41.2	60.3	14.3	9.0
Retired	22.4	29.4	24.7	31.7
Other Not Working	13.7	19.1	5.4	10.7
Education of Reference Person				
Primary or Less	19.5	24.8	22.4	34.3
Secondary	30.2	37.1	40.5	41.3
Tertiary	45.2	57.3	37.0	24.4

Table A13: Euro area food consumption

	Median (1,000)	Mean (1,000)	Share of Total Income (%)
All Households	5.4	6.4	18.4
S.E.	0.0	0.0	0.2
Household size			
1	3.6	4.3	19.1
2	5.5	6.6	17.9
3	6.0	7.2	17.8
4	7.2	8.6	18.0
5 and More	7.8	9.4	19.6
Housing status			
Owner-Outright	6.0	6.7	19.9
Owner-with Mortgage	6.5	7.7	14.9
Renter or Other	4.4	5.4	18.9
Percentile of Income			
Less than 20	3.3	3.9	35.9
20–39	4.6	5.1	23.4
40–59	5.4	6.3	18.9
60–79	6.1	7.5	15.0
80–100	7.8	9.3	10.3
Percentile of Net Wealth			
Less than 20	3.6	4.5	21.2
20–39	4.8	5.6	19.2
40–59	5.2	6.1	18.8
60–79	6.0	7.1	18.2
80–100	7.2	8.6	14.9
Age of Reference Person			
16–34	4.3	5.1	17.6
35–44	6.0	7.0	17.1
45–54	6.0	7.4	16.8
55–64	6.0	7.0	17.7
65–74	5.1	6.2	21.1
75+	3.9	4.9	22.1
Work Status of Reference Person			
Employee	6.0	6.9	16.3
Self-Employed	6.4	7.5	15.2
Retired	4.8	5.9	21.1
Other Not Working	3.6	4.7	26.3
Education of Reference Person			
Primary or Less	4.8	5.7	23.5
Secondary	5.4	6.3	17.4
Tertiary	6.0	7.5	14.0

Table A14: Euro area credit constraints

	Applied for Credit Within Last 3 Years	Not Applying for Credit Due to Perceived Credit Con- straint	Refused or only reduced credit (among those applying in last 3 years)	Credit- Constrained Household
All Households	22.8	6.1	16.4	8.1
S.E.	0.5	0.3	0.9	0.3
Household size				
1	14.2	6.4	22.0	8.0
2	21.9	4.4	13.9	6.2
3	29.5	7.7	17.2	10.3
4	32.4	6.0	13.7	8.5
5 and More	36.7	10.8	16.6	12.7
Housing status				
Owner-Outright	16.9	3.2	10.7	4.2
Owner-with Mort- gage	40.2	4.3	11.8	7.5
Renter or Other	19.2	9.6	25.1	11.9
Percentile of Income				
Less than 20	12.0	8.8	35.0	10.5
20–39	20.4	8.1	23.8	10.4
40–59	21.9	7.1	18.6	9.0
60–79	29.9	4.6	12.7	6.9
80–100	29.5	2.2	7.7	3.7
Percentile of Net Wealth				
Less than 20	22.8	13.5	28.0	16.2
20–39	21.5	6.9	18.9	9.1
40–59	25.5	5.1	14.8	7.2
60–79	22.5	2.5	10.1	3.9
80–100	21.7	1.7	8.6	3.1
Age of Reference Person				
16–34	31.6	8.8	18.3	12.0
35–44	32.2	8.6	16.4	11.0
45–54	27.2	6.6	17.7	9.4
55–64	20.6	5.7	15.0	7.0
65–74	12.8	3.3	8.4	4.0
75+	3.8	2.1	21.8	2.5
Work Status of Reference Person				
Employee	30.9	6.2	14.8	8.7
Self-Employed	30.6	9.0	19.4	11.6
Retired	10.5	3.0	12.4	3.7
Other Not Working	16.3	12.8	32.9	14.9
Education of Reference Person				
Primary or Less	16.4	6.7	21.9	8.6
Secondary	25.4	7.0	17.3	9.3
Tertiary	25.8	4.1	11.2	5.6

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