



# **Indebtedness of households and the cost of debt by household type and income group**

**Research note 10/2014**

Eva Sierminska  
*December 2014*



**EUROPEAN COMMISSION**

Directorate-General for Employment, Social Affairs and Inclusion  
Directorate A — Analysis, Evaluation, External Relations  
Unit A.2 — Social analysis

Contact: Bartek LESSAER

E-mail: <mailto:Bartek.LESSAER@ec.europa.eu>

European Commission  
B-1049 Brussels

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## **Abstract**

The research note examines the indebtedness of households in the EU. It focuses on several aspects of household indebtedness and considers the structure of debt, including bank loans and other types of credit from banks and individuals. It compares differences among household types, particularly for the young and the middle-income groups. It examines the costs of servicing debt and how far this imposes a burden on households with differing levels of income. It identifies those that have been experiencing financial distress, which have been increasing in number, and considers their coping mechanisms..

The analysis is based on the new Household Finance and Consumption Survey (HFCS), which provides harmonised information for 15 eurozone member countries on household balance sheets and related economic and demographic variables, including income, private pensions, employment, measures of consumption, gifts and inheritances and other behavioral variables. The sample consists of over 62 000 households and the first wave was carried out between the end of 2008 and the middle 2011.

## Introduction

This research note examines indebtedness of households in the EU. Usually, people take-up loans in order to smooth consumption or to finance new projects. The availability of loans is usually governed by the institutional framework within a country. Where loan access is limited and there are liquidity constraints households have the option of selling their assets, using up their savings, asking friends or relatives for help or not paying their bills.

Indebtedness of households has been increasing over the last decade and it is attracting attention from policy makers, because it could have an effect on the sustainability of household's indebtedness and the stability of the financial system. An excessive accumulation of debts combined with household's liquidity constraints could cause deterioration in household's economic well-being thus increasing their vulnerability towards social exclusion and poverty.

In a previous Research Note (RN 4/2010) the topic of over-indebtedness was thoroughly examined by focusing on the built up of debt two years prior to the crisis and to what extent it had been associated with problems of servicing interest charges and debt repayments among the households concerned with a special focus on households with children and the age of the household.

In this note we focus on several aspects of household indebtedness, more generally. First, we look at the structure of debt, including bank loans and other types of credit from banks and individuals and compare these differences among different household types. We discuss some conceptual issues of household indebtedness as outlined in previous work. Next, we focus on the costs of servicing the debt in question and how far this imposes a burden on households with differing levels of income. The concern is that the share of households that are experiencing financial difficulties in the EU has been steadily increasing over the past few years.

For the analysis, we rely on the new Household Finance and Consumption Survey (HFCS) collected in the years 2009-2010 (thus in some cases during the crisis), which provides harmonised information for 15 euro zone members on household balance sheets and related economic and demographic variables, including income, private pensions, employment, measures of consumption, gifts and inheritances and other behavioural variables. The data is described in the following section.

## Data source and analysis set-up

### Household Finance and Consumption Survey

The data used in this research note comes from Eurosystem's Household Finance and Consumption Survey (HFCS).<sup>1</sup> This is a joint project run by the eurozone's central banks and national statistical institutes, and it provides harmonised information for 15 eurozone members on household balance sheets and related economic and demographic variables, including income, private pensions, employment, measures of consumption, gifts and inheritances. The sample contains over 62,000 households. The first wave was conducted between the end of 2008 and the middle of 2011, though most countries carried out data collection in 2010. (We discuss this later in the research note.) Each country covered by the dataset provides nationally representative information, and the surveys follow common methodological guidelines. This concerns, in particular, definition of the variables, imputations and the preparation of the data for analysis.

Since the main focus of the HFCS study is household wealth, most participating countries apply oversampling of wealthy households. The distribution of wealth is skewed in most societies; consequently it is important to have a relatively high

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<sup>1</sup> Information about the survey can be found at [http://www.ecb.europa.eu/home/html/researcher\\_hfcn.en.html](http://www.ecb.europa.eu/home/html/researcher_hfcn.en.html)

proportion of wealthy households in the sample, in order to ensure adequate representation of the full wealth distribution. Nine countries used some type of oversampling procedure in the HFCS study (the exceptions were Italy, the Netherlands, Malta, Slovakia, Austria and Slovenia), but countries applied different strategies to oversample wealthy households, based on data availability. In Spain and France, oversampling was based on wealth data; while in Finland and Luxembourg, individual-level income data was used. In Cyprus, household-level electricity consumption was used as a proxy for wealth; in Belgium and Germany, the proxy for wealth was regional-level income, and in Greece it was regional real estate prices. Full details of the sampling methodology can be found in HFCN (2013a).

Wealth (or net worth) comprises of assets and liabilities. Assets consist of both financial and non-financial assets. Financial assets include assets used in transactions (e.g. sight and saving accounts), as well as those that form part of an investment portfolio (e.g. financial investment products such as bonds, shares and mutual funds, and insurance-type products such as voluntary private pension plans and whole life insurance). Five different categories of non-financial assets can be distinguished: main residence, other real estate property, vehicles, valuables and self-employment businesses.

Liabilities consist of those that are secured by real estate (collateralised) and those that are not secured by real estate (non-collateralised). The first category includes all outstanding amounts of main residence mortgages and other real estate property mortgages. The second category includes outstanding amounts of debt on credit cards, lines of credit and bank overdrafts; and any other non-collateralised loans from banks, other commercial providers and private loans.

For income, we use the HFCS-defined gross income measure (net income is not available), which consists of employee income, self-employment income, income from public, occupational and private pension plans, regular social and private transfers, rental income, income from financial investments, income from private businesses other than self-employment, and gross income from other sources.

All values are in euros and the collection dates can be found in RN 10/2013.

## **Household types**

In our analysis we identify the indebtedness of the whole population, but we also focus on particular household types in order to assess their vulnerability or exposure to debt. In this case, we identify singles (one-person households), single-parents, couple households with children, and couple households without children (two-person households). Multi-family households (with or without children) are combined in the 'other' category as their asset, as well as debt ownership may be more complicated. For example, as we might find a young family living with one set of parents, we would be unable to distinguish whether the home and/or debt belong to them or the parents, as amounts are recorded at the household level. The share of these types of households is documented in the Appendix Table 1 of this Research Note and varies widely cross-nationally.

Throughout the text we will refer to countries by their country abbreviations.<sup>2</sup>

## **Structure of debt**

Indebtedness of households may take various forms and consequently may have distinct implications. In this section we distinguish between two types of debt. The first is home secured debt—i.e. debt that is collateralised by the real estate that is owned including the main residence and investment real estate. The second type of debt is non-home secured debt—i.e. debt that is non-collateralised and is used for

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<sup>2</sup> AT-Austria, BE- Belgium, CY-Cyprus, DE-Germany, ES-Spain, FI-Finland, FR- France, GR-Greece, IT-Italy, LU-Luxembourg, MT- Malta, NL- the Netherlands, PT - Portugal, SI- Slovenia, SK - Slovakia



various other purposes. First, we look at the division of debt between the two main categories: housing and non-housing debt and subsequently at both of these in detail.

## Households and debt holding

The main components of debt are housing and non-housing debt. The prevalence of debt varies cross-nationally due to the institutional set-up of a country, cultural attitudes towards debt as well as country population characteristics. This can be seen in the table below. The first three columns show the share of households holding total debt, home secured debt and non-home secured debt, respectively. In the following columns, these three categories of debt are broken down by household type: singles (S), singles with kids (SK), couples (Cp), couples with kids (CpK) and all other (O) family types (described above in the Data Section).

**Table 1. Share of households with different types of debt (% , all households and by household type)**

	AT	BE	CY	DE	ES	FI	FR	GR	IT	LU	NL	PT	SI	SK
Total Debt	36	45	65	47	50	60	47	37	25	58	66	38	44	27
Home Secured Debt	18	31	44	21	33	33	24	18	11	39	44	27	14	10
Non-housing Debt	21	24	48	35	31	51	33	26	18	37	37	18	39	20
S	26	27	49	34	22	43	28	21	13	46	53	15	37	11
SK	48	60	92	52	76	70	55	40	32	63	73	46	29	37
Cp	30	34	51	47	40	61	43	24	16	49	68	25	30	18
CpK	63	79	85	71	77	89	79	55	46	78	86	66	62	50
O	43	56	74	60	51	71	55	42	28	65	66	39	50	29
Total Debt	36	45	65	47	50	60	47	37	25	58	66	38	44	27
S	7	16	31	9	12	19	11	5	5	29	30	11	9	4
SK	18	33	72	6	55	37	20	16	12	43	32	27	0	14
Cp	16	22	29	26	27	29	21	11	6	27	47	17	4	7
CpK	42	68	69	41	65	66	53	30	23	60	72	51	28	28
O	29	32	49	33	24	41	27	21	10	43	53	25	18	6
Home Secured Debt	18	31	44	21	33	33	24	18	11	39	44	27	14	10
S	20	15	36	29	13	35	20	17	9	29	33	7	36	8
SK	33	35	71	51	33	58	42	33	27	32	47	28	29	23
Cp	17	17	36	31	24	54	30	14	12	31	36	11	29	12
CpK	30	38	60	47	43	75	53	39	30	46	46	31	43	31
O	22	37	56	43	36	63	41	31	21	45	36	20	45	25
Non-housing Debt	21	24	48	35	31	51	33	26	18	37	37	18	39	20

Note: S-singles, SK-singles with kids, Cp-couples, CpK-couples with kids, O-other family types; weighted Source: HFCS w.1

In the first three columns of the table, the three countries with the highest share of households with debt are marked in red, the three with the lowest debt take up in green. The countries with the lowest debt take-up include AT, GR, IT, PT and SK. The highest take up is in CY, FI, LU and NL.

Next, debt take-up is compared by household type. Households with children consistently have the highest debt take-up –couples and then singles. The 'other' family category also has a high debt take-up. In most countries the lowest take-up is in single households.

It follows that home-secured debt (mortgages) is most common among couples with children and single-parents, but in some countries the multi-family type of households

has a higher take-up of mortgages than single-parents. These include AT, DE, FI, GR, NL, SI.

Non-housing debt is also very common among couples with children, but in this case in a few countries it is more prevalent in single-parent families (AT, CY, DE and NL).

### Home-secured debt and households types

In this section, the focus is on home-secured debt. This refers to debt, which is guaranteed by the value of the main residence (mortgage) as well as by other investment real estate (other mortgage debt). In table 2 below the countries with the highest mortgage debt are CY, LU and NL. The lowest prevalence of mortgage debt is in IT, SI and SK.

**Table 2. Share of households with home-secured debt (% , all households and by household type)**

	AT	BE	CY	DE	ES	FI	FR	GR	IT	LU	NL	PT	SI	SK
Home Secured Debt	18	31	44	21	33	33	24	18	11	39	44	27	14	10
Mortgage Debt	17	28	35	18	27	33	17	14	10	33	44	24	13	9
Other Mortgage Debt	2	3	15	6	7	0	10	4	2	8	3	3	2	1
S	7	16	31	9	12	19	11	5	5	29	30	11	9	4
SK	18	33	72	6	55	37	20	16	12	43	32	27	0	14
Cp	16	22	29	26	27	29	21	11	6	27	47	17	4	7
CpK	42	68	69	41	65	66	53	30	23	60	72	51	28	28
O	29	32	49	33	24	41	27	21	10	43	53	25	18	6
Home Secured Debt	18	31	44	21	33	33	24	18	11	39	44	27	14	10
S	7	14	28	6	10	19	7	4	5	23	29	9	9	4
SK	18	33	67	6	52	37	14	16	12	41	32	25	0	14
Cp	15	21	19	22	23	29	11	9	5	21	46	16	3	7
CpK	40	66	63	36	57	66	43	26	21	53	71	50	28	27
O	25	30	33	30	16	41	17	15	8	37	50	21	14	6
Mortgage Debt	17	28	35	18	27	33	17	14	10	33	44	24	13	9
S	1	2	5	4	2	0	5	1	0	6	2	2	0	0
SK	0	4	18	1	7	0	7	0	5	2	2	3	0	0
Cp	2	2	13	7	6	0	11	3	1	9	3	2	1	0
CpK	4	6	18	10	11	0	17	5	2	13	3	3	0	2
O	5	4	22	6	8	0	13	6	2	7	5	5	4	0
Other Mortgage Debt	2	3	15	6	7	0	10	4	2	8	3	3	2	1

Note: S-singles, SK-singles with kids, Cp-couples, CpK-couples with kids, O-other family types; weighted Source: HFCS w.1

### Non-secured household debt

The final section on the structure of debt examines non-collateralised debt. This is debt that can be used for various purposes and is not secured by real estate. In the HFCS, households are asked about the main purposes of having a non-collateralised loan. The possible choices include: home or other real estate purchase; home renovation; a car loan; financing a business or professional activity; debt consolidation; education; covering current living expenses; as well as other purposes. The most common reason to have a non-collateralised loan apart from a vehicle loan is renovating a home (AT, BE, ES, LU, MT, SI & SK), but in a majority of countries it is to cover current living expenses (Table 3). This indicates that in fact when households are strapped for cash (credit constrained) access to credit can be a way to help them smooth consumption.

**Table 3. Purpose of non-housing loans (% , all households)**

	Main home purchase	Other home purchase	Renovate home	Car loan	Finance a business/ professional activity	Consolidate debt	Education	Cover living expenses	Other
AT	8	3	28	20	7	8	3	20	27
BE	6	3	23	62	2	6	0	11	6
CY	7	5	14	44	12	6	12	19	12
DE	4	1	7	28	4	9	15	52	7
ES	3	4	21	51	6	5	1	3	22
FI	0	0	0	0	0	0	0	0	0
FR	13	6	16	62	0	0	0	20	0
GR	1	2	8	54	7	3	1	36	3
IT	8	2	5	37	19	0	0	24	0
LU	2	2	12	72	3	7	7	6	8
MT	9	11	14	59	3	1	6	6	8
NL	9	1	14	19	3	9	24	24	16
PT	6	14	15	44	5	7	4	23	16
SI	17	4	37	23	1	5	1	22	23
SK	7	3	45	14	3	9	3	17	17

Source: HFCS w.1

In terms of the frequency of non-collateralised loans, Table 4 shows that the highest prevalence is in CY, FI and SI and the lowest in AT, IT, PT and SK. In some countries, lines of credit or credit card debt is non-existent (ES, FI, IT, PT), but in others anywhere from 15-25% of households can have this type of debt (AT, CY, DE, NL and SI). In most countries, other types of loan (from banks or other institutions and private loans) are more common with over 20% of households holding these types of loan. The exceptions include AT, GR, IT, PT and SK.

**Table 4. Share of households with non-housing debt (% , all households)**

	Non-housing debt	Line of credit	Credit card debt	Other loans
AT	21	14	1	11
BE	24	6	6	18
CY	48	24	19	29
DE	35	20	3	22
ES	31	1	7	27
FI	51	0	0	51
FR	33	7	0	29
GR	26	6	14	13
IT	18	4	1	15
LU	37	7	6	31
NL	37	21	5	25
PT	18	3	6	13
SI	39	24	3	27
SK	20	8	5	13

Source: HFCS w.1

A breakdown by household type in Table 5 reveals that lines of credit and credit cards are used by all type of households and there is no tendency for any particular household type to rely on these types of credit. Other types of loan are used predominantly by single-parents and couples with children.

**Table 5. Share of households with non-housing debt (% , by household type)**

	AT	BE	CY	DE	ES	FI	FR	GR	IT	LU	NL	PT	SI	SK
S	20	15	36	29	13	35	20	17	9	29	33	7	36	8
SK	33	35	71	51	33	58	42	33	27	32	47	28	29	23
Cp	17	17	36	31	24	54	30	14	12	31	36	11	29	12
CpK	30	38	60	47	43	75	53	39	30	46	46	31	43	31
O	22	37	56	43	36	63	41	31	21	45	36	20	45	25
Non-housing debt	21	24	48	35	31	51	33	26	18	37	37	18	39	20
S	13	5	21	15	0	0	6	3	2	5	19	1	16	3
SK	29	5	31	27	0	0	16	8	3	21	17	9	29	14
Cp	11	2	16	18	1	0	4	3	2	5	17	2	17	4
CpK	18	9	35	29	1	0	9	9	7	9	33	4	34	12
O	15	11	26	26	1	0	9	7	4	9	20	4	29	10
Line of credit	14	6	24	20	1	0	7	6	4	7	21	3	24	8
S	1	5	19	2	3	0	0	10	1	4	6	2	4	1
SK	5	3	42	0	9	0	0	30	1	11	5	12	0	7
Cp	2	6	11	4	8	0	0	6	2	6	5	4	1	2
CpK	1	9	24	5	11	0	0	20	2	8	3	10	3	10
O	2	8	20	6	6	0	0	15	1	7	2	6	3	7
Credit card debt	1	6	19	3	7	0	0	14	1	6	5	6	3	5
S	11	8	18	19	10	35	15	7	7	23	20	5	28	5
SK	15	32	49	32	30	58	32	11	24	27	35	16	22	8
Cp	8	12	21	18	20	54	28	7	10	26	23	8	18	8
CpK	19	31	39	30	38	75	49	20	26	40	30	23	34	18
O	11	29	37	27	33	63	36	15	18	38	26	15	28	17
Other loans	11	18	29	22	27	51	29	13	15	31	25	13	27	13

Note: S-singles, SK-singles with kids, Cp-couples, CpK-couples with kids, O-other family types; weighted  
Source: HFCS w.1

## Summary

In summary, there are countries where debt uptake is prevalent and countries where it is not. Countries in the former group include CY, FI, LU and NL, those in the latter group—low debt countries are AT, GR, IT, PT and SK. Households with children are those where debt is most prevalent, in the case of both collateralised and non-collateralised debt, though the latter is most prevalent among single-parent families. The highest mortgage take up is in CY, LU and NL and the lowest in IT, SI and SK. Non-collateralised debt is most common in CY, FI and SI and non-collateralised debt in AT, IT, PT and SK. Credit card debt is virtually non-existent in ES, FI, IT and PT and the highest take-up is in AT, CY, DE, NL and SI.

## Conceptual issues of household indebtedness

A common concern among policy makers is whether households have too much debt. There have been a few studies that have examined this issue by constructing various indicators and providing guidelines on how to identify a household that has too much debt. This section considers the measurement issues which arise in attempting to identify households with excessive amounts of debt and what indicators could be used to target households that are exposed to debt or potentially over-indebted.

In the literature, there is no consensus as regards how over-indebtedness should be defined and consequently how to measure it. Different countries define indebted households differently (D'Alessio & Iezzi, 2013). According to the European

Commission Report, 2010 on this issue, for example, a household is over-indebted when existing and expected resources are insufficient to meet its financial commitments without lowering its standard of living (this may mean reducing it below what is regarded as the minimum acceptable in that country). The EU has identified a set of criteria that enable the extent to which people are in debt to be examined. In sum, first, the unit of analysis needs to be the household to allow for income pooling. The indicators need to cover all aspects of households' financial commitments, which means they need to take into account borrowing for housing purposes, consumer credit, utility bills and whether the household can meet rent and mortgage payments. The basic idea that needs to be captured by the indicators is that the problem of being excessively in debt cannot be solved by borrowing more. To meet its commitments, a household usually needs to reduce its expenses or find ways to increase income. Over-indebtedness then implies an inability to meet recurrent expenses and is therefore a permanent rather than a temporary state. The concern here is to learn more about the indebtedness of households more generally, which allows households' exposure to debt to be identified. For this, a number of indicators suggested by the over-indebtedness literature are used, but no value judgment is made as to when a household has an excessive level of debt.

In the literature, there are four common indicators that are used, which are presented in the table below.

**Table 6. Common indicators of over-indebtedness**

Category	Indicator
Cost of servicing debt	Households spending more than 30% (or 50%) of their gross monthly income on total borrowing repayments (secured and unsecured)
	Households spending more than 25% of their gross monthly income on unsecured repayments
	Households whose spending on total borrowing repayments takes them below the poverty line
Arrears	Households more than 2 months in arrears on a credit commitment or household bill
Number of loans	Households with 4 or more credit commitments
Subjective perception of burden	Households declaring that their borrowing repayments are a "heavy burden"

Source: D'Alessio & Iezzi, 2013

The first two indicators capture the burden imposed by debt repayments and put arbitrary limits on repayments relative to gross income. These limits can be changed. Beyond these limits the cost of debt to income is considered to be a major burden for households. For secured loans the limit is higher because collateralised debt is basically covered by real assets. Thus the limit drops for unsecured debt. For the last indicator—it refers to the situation in which the income available, after paying the debt servicing costs, is not sufficient to meet basic needs. One of the issues with these types of measure is that the significance and accuracy may vary across the income distribution. For example, an increase in the debt servicing ratio may be driven by households that can afford this. This means that if the increase is predominantly at high levels of income a higher ratio does not necessarily need to make debt management a problem.

In addition, the debt to income ratio ignores household assets: in practice, households may accept higher debt to income ratios if they are able to rely on their assets, for example, by selling them if needed. Households with more assets may also be able to access additional credit compared to those with little or no assets at hand.

The next indicator in the table is not considered here (but has been tackled in RN4). The arrears indicator captures all forms of debt and household bills for which a household is more than two months overdue.

An increasing number of loans have also been shown to increase a household's vulnerability and the probability of being in arrears—thus the presence of this indicator. At the same time, it is a measure of risk. The ability of being able to use multiple creditors' limits each creditor's ability to accurately measure a household's exposure to debt, and so risk of insolvency, correctly. The drawback of this measure is that the amounts are not collected—thus loans of relatively small amounts may not pose the same risk as those of higher amounts.

Most of these indicators give an indication of how indebted a household is, but do not say anything about the consequences of being over-indebted. Each one of these provides valuable information, but none of them can be used as an aggregate measure.

Disney et al (2008) argue that these indicators capture debt problems in different household types and at different points of the life cycle. The challenge is to find an appropriate set of indicators that can determine the likely proportion of the population facing debt repayment difficulties.

In a 2013 note, D'Alessio & Iezzi compare measures of over-indebtedness and poverty in order to disentangle the relationship between the two phenomena. They find that the above mentioned indicators allow the different aspects of over-indebtedness to be measured, but there is limited overlap of the indicators. In fact, they identify four aspects of indebtedness: high repayments relative to income, being in arrears, making use of heavy credit and finding debt to be a burden.

The European Central Bank (ECB) in its Report from 2013 also propose a set of indicators that to some extent can describe the distribution of financial pressure and can identify which groups of households are vulnerable to economic and financial risk. Some of these indicators overlap with the ones in Table 6. Other additional ones add to the picture by putting outstanding balances into perspective by comparing them to income or asset holdings of the household. This provides an additional insight into whether a given level of indebtedness might generate sustainability concerns.

Some measures proposed by the HFCS include<sup>3</sup>: debt-asset ratio, debt-income ratio,<sup>4</sup> debt-service-income ratio, mortgage debt service-income ratio, loan-value ratio of mortgage on main residence, and net liquid assets to income. In the following sections, some of these measures are used supplemented by additional information in order to have a more complete picture of the indebtedness of households.

Given the difficulties of measuring "over-indebtedness" some have argued that the best way to see if households are struggling with debt payments is to ask them directly whether they are facing debt repayment difficulties. It seems most people do not hide their difficulties from official surveys even though this method is subjective. The drawback of the measure is that people within and across countries may interpret "heavy burden" or "repayment difficulties" differently. Yet, D'Alessio and Iezzi, 2013

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<sup>3</sup> Definitions of measures proposed by the Household Finance and Consumption Network (HFCN): *Debt-asset ratio*- ratio of total liabilities to total gross assets. Defined for indebted households; *Debt-income ratio* - ratio of total liabilities and total gross household income. Defined for indebted households; *Debt-service-income ratio*- ratio of total monthly debt payments to household gross monthly income. Defined for indebted households (but excludes those that only hold credit card debt or lines of credit, because no debt service information is collected for these.); *Mortgage debt service-income ratio*—ratio of total monthly mortgage payments to household gross monthly income. Defined for households with mortgage debt; *Loan-value ratio of main residence*- ratio of the outstanding mortgage amount of the main residence to the current house value. Defined for households with mortgage debt on main residence; *Net liquid assets to income ratio*- ratio of net liquid assets to household gross annual income. Net liquid assets are defined as the sum of deposits, mutual funds, bonds, non-self-employment business wealth, shares and manage accounts, net of non-housing debt. Defined for all households.

<sup>4</sup> See RN4/2010 for long term trends, but not comparable to our results since only gross income is available in the HFCS.

examined the relationship between the condition of over-indebtedness according to a variation of indicators listed in Table 6 with the subjective measure of economic distress and found that the extent of agreement varies between 50% and 80%.<sup>5</sup> The authors propose indicators, such as debt burden indicators, which take account of the financial and real assets that are held by households.

The concept of financial distress has also been used to identify people that need to draw on savings or run into debt in order to be able to cover current expenditures. This measure can also be considered as being subjective, as in some sense a household decides what are its current expenses and these may vary from month to month.<sup>6</sup> The focus here is on the objective measures of financial indebtedness.

## Cost of servicing debt

The following section examines the costs of servicing debt and assesses how far this imposes a burden on households with differing levels of income. As described above, various measures are used to describe the distribution of financial pressure and to indicate which groups are vulnerable or exposed to economic and financial risk.

The first two indicators (debt-asset and debt-income ratios) are calculated for indebted households only (conditional on having debt). This results in wide cross-country variation in population coverage, ranging from less than 40% of households in AT, GR, IT, PT and SK to around 60% or more in CY, FI, LU and NL (see Table 1).

## Debt-asset and debt-income ratios

The *debt-asset ratio* relates all household debt to their asset holdings. The indicator, therefore, essentially rescales the level of debt holdings to an indicator of the resources that a household has available to manage its debt without taking account of its flow of income. The indicator should not necessarily create a sense of urgency as it is only a picture of the liabilities at hand and does not refer to current obligations. It is also susceptible to fluctuations due to the changing value of assets (real estate prices, as well as stock market values). The indicator varies substantially across the life-cycle being slightly lower for younger households, increasing for middle aged homeowners and declining further towards retirement.

The debt-asset ratios are presented in Table 7, which presents a snapshot of the situation in 2009-2010. The ratios range from 6% in SK to 41% in NL. The highest debt-asset ratios are in DE, FI, NL and PT (over 25%) and the lowest (less than 15%) in GR, IT and SK.

In most countries, single-parents have the highest debt burden. The lowest is in multi-family households where the debt and income can be shared (though they not necessarily are). In a few countries the burden is highest for couples with children at over 25% (AT, ES, LU, PT, and SK).

The *debt-income ratio* relates all household debt to their annual income holdings, so it compares the level of debt with income rather than assets. Thus the indicator essentially rescales the level of debt holdings to an indicator of the resources that a household has available in the medium run to deal with their liabilities. Given that the correlation between income and assets is far from perfect the results are quite different compared to those shown by the debt-asset ratio indicator. In countries where the indicator is over 100, outstanding debt exceeds annual income. This is the case in CY, ES, NL and PT. The lowest ratios (under 40%) are in AT, DE and SK. Once again the former is not necessarily a problem as the indicator does not refer to current obligations (this is considered in the following section), but does show the households exposure to debt.

<sup>5</sup> The HFCS data does not include such a subjective question.

<sup>6</sup> For up to date results on financial distress the reader can consult the EU Employment and Social Situation Quarterly Review.

**Table 7. Debt asset and debt income ratios by households types (%\*100)**

	Debt-asset ratio						Debt-income ratio					
	S	SK	Cp	CpK	O		S	SK	Cp	CpK	O	
AT	16	20	23	9	26	11	34	18	53	29	73	34
BE	18	18	35	14	25	9	78	81	70	63	133	39
CY	17	28	30	10	20	13	153	190	248	85	205	120
DE	27	45	78	17	31	17	37	28	15	39	66	33
ES	18	19	22	19	26	12	113	100	213	110	175	60
FI	35	44	55	22	42	19	64	55	72	42	125	58
FR	19	18	33	12	26	12	50	35	39	38	110	37
GR	15	11	43	14	19	11	47	25	56	54	82	39
IT	11	18	17	12	16	6	50	72	64	38	91	29
LU	18	29	25	10	33	6	87	94	171	54	154	51
NL	41	42	62	31	50	37	194	154	199	171	277	194
PT	26	31	34	24	34	16	133	189	215	102	204	72
SK	6	13	9	15	21	3	23	30	25	28	84	14

Note: S-singles, SK-singles with kids, Cp-couples, CpK-couples with kids, O-other family types; weighted Source: HFCS w.1

In most countries, the highest debt-income ratio is for couples with children, most likely reflecting mortgages on larger main residences. The countries in which single-parents have the highest ratio (close to 200% and above) are CY, ES, LU and PT. In a few countries (BE, FR and FI), single parents seem less exposed to debt (ratio for single parents is less than 100) than couples with children.

### Debt and mortgage debt servicing via income

This section considers households' obligations vis-à-vis their outstanding debt. These indicators show what share of monthly income needs to be devoted to servicing debt and so reflects the significance of short-term commitments. The *debt-service-income ratio* is defined for indebted households (but excludes those that only hold credit card debt or lines of credit, because no debt service information is collected for these in the HFCS) and the mortgage debt service-income ratio is defined only for households with mortgage debt.

Table 8 shows that the highest indicators of burden are in CY and ES—where over 20% of monthly income is devoted to servicing your debt on average. The figures are, however, higher for particular types of household. In many countries the indicator is above 20% for single and single-parent households.

The mortgage debt service income ratio calculated only for those with a mortgage is even higher—usually 20% and over for single and single-parent households (more often 30%). Thus those with lower income levels, with most likely only one source of income, tend to have higher monthly debt obligations.



**Table 8. Indicators of debt burden: debt service-income ratio and mortgage debt service-income ratio (%\*100)**

	Debt-service income ratio						Mortgage debt service-income ratio					
	S	SK	Cp	CpK	O	S	SK	Cp	CpK	O		
AT	6	9	10	4	5	4	5	16	3	6	3	
BE	15	20	16	13	17	11	15	21	13	15	11	
CY	25	30	26	21	25	25	25	23	25	23	27	
DE	11	11	5	11	11	11	13	21	12	13	11	
ES	20	23	34	19	22	16	20	39	21	20	18	
FR	15	14	13	13	18	11	17	23	16	18	14	
GR	15	17	36	16	18	11	16	36	17	19	12	
IT	13	19	29	13	14	11	16	29	15	15	13	
LU	17	19	19	15	19	13	16	21	16	16	13	
NL	14	14	19	11	17	12	14	20	11	16	12	
PT	17	24	20	16	19	15	17	20	17	18	14	
SK	13	18	27	11	17	9	20	28	19	22	17	

Note: S-singles, SK-singles with kids, Cp-couples, CpK-couples with kids, O-other family types; weighted  
Source: HFCS w.1

### Debt servicing across the income distribution

The concern here is with the burden of debt across the income distribution. The figures below represent box-plots that show the distribution of debt burden across income deciles.

For each decile the box outlines the 25<sup>th</sup> and 75<sup>th</sup> percentile and the small line is the median. The outer whiskers are the upper and lower adjacent values described in the notes.

First, it is important to emphasise that there is no evident correlation between income and the burden of debt. This can be seen in Table 9. The correlation coefficient for the Euro zone countries in the sample is only -0.01. For the individual countries the coefficient varies from -0.01 to -0.33. The weakest relationship can be found in Belgium, Spain and France (-0.01; -0.03;-0.03, respectively) and the strongest in Malta, Portugal and Slovakia (-0.23; -0.24; -0.33, respectively).

**Table 9. Correlation between monthly debt service-income ratio and income**

	AT	BE	CY	DE	ES	FR	GR	IT	LU	MT	NL	PT	SI	SK	All
Corr.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Coef	0.04	0.01	0.09	0.10	0.03	0.03	0.07	0.07	0.14	0.23	0.18	0.33	0.07	0.24	0.01

Source: HFCS w.1

When we look at the individual country debt burden distribution by income deciles in Figure 1, we usually observe a decrease in the dispersion of debt burden as we move up the income distribution. The debt service-income ratio itself does not necessarily decrease with income (this was mentioned before in the previous section), as it may just mean that households are able to afford this new level of debt. The results are quite interesting. In some countries the lowest decile median debt burden is substantially larger (e.g. CY, ES, GR, LU, NL, SK) than for the higher deciles, in others it is not –this does not correspond to the rankings of the correlation coefficient. It does indicate that perhaps in these countries those at the bottom of the distribution could be more vulnerable to debt repayment in case of an income shock.

**Figure 1 Indicators of debt burden by income deciles (debt service-income ratio in %)**



Note: Box-plots show the 25th, 50th (line) and 75th percentile. The outer whiskers are the adjacent values that are defined as the lowest and highest observations that are still inside the region defined by the following limits: Lower Limit:  $P25 - 1.5 \times (P75 - P25)$ . Upper Limit:  $P75 + 1.5 \times (P75 - P25)$ . Source: HFCS w.1

D'Allesio and Iezzi (2013) propose to use a debt indicator that takes into account the available financial or real assets assuming that households with assets can sell them to pay their debts if there is an unexpected event—thus they define a debt burden indicator that takes into account an amount of total borrowing repayments reduced by an amount proportional to the ratio between the outstanding debt and the value of the financial assets. This assumes that households use their assets to repay some/all debts this reducing their debt servicing costs proportionally. These indicators make various assumptions regarding the reduction in debt and the “usability” of assets. As an alternative—we can regard assets held as a cushion against debt. By definition your own home and other real estate is a cushion against home-secured debt and financial assets could serve as a cushion against non-collateral debt, thus a household with debt can maintain its liquidity as long as it has assets it can rely on. Thus below in Figure 2, we see to what extent households have debt to assets ratio that could serve as a counterbalance to the debt servicing shown in the previous two tables.

We find that in some countries the median debt to asset ratio for the lowest decile is quite high compared to higher income deciles. These countries include AT, DE, FI, IT and PT in which high debt-asset ratios are present in the bottom two deciles. In some countries the debt to asset ratio does not vary substantially throughout the income distribution (BE, CY, MT; in SK the pattern varies). An inverse U-shaped pattern, whereas lower debt-asset ratios are observed in the bottom and top deciles can be found in ES, FR, GR and LU. When we combine this with the information on high debt burden for those at the bottom of the distribution found for some countries in the previous two figures –it seems that in some countries (such as ES, GR, LU, NL) the high debt burden in the bottom decile is combined with relatively lower levels of debt to assets, which is a good indication. Countries with high debt-asset ratios at the bottom of the distribution seem to have low debt service ratios at the bottom of the distribution (20%). The one exception is Portugal where a high debt asset ratio is combined with a high debt servicing ratio.

**Figure 2 Debt- asset ratios by income deciles (debt asset ratio in %)**



Note: Box-plots show the 25th, 50th (line) and 75th percentile. The outer whiskers are the adjacent values that are defined as the lowest and highest observations that are still inside the region defined by the following limits: Lower Limit:  $P25 - 1.5 \times (P75-P25)$ . Upper Limit:  $P75 + 1.5 \times (P75-P25)$ . Source: HFCS w.1

## Loan to value ratio and net liquid asset ratio

The final section focuses on the loan to value and the net liquid asset ratios. The loan-to-value (LTV) ratio of the main residence is defined for all households that own their main residence and have an outstanding mortgage. The lowest LTV ratios are in AT, BE and LU (which could reflect housing value appreciation) and the highest (over 40%) in DE, FI, NL and PT. As with the debt servicing ratio, single and single-parent households have highest LTV.

In terms of net liquid assets to income, which is liquid assets net of non-housing debt, the highest values (which in this case is a good thing) are in AT and BE at 32% and the lowest in FI and FR (9% and 5% respectively). The lowest ratio across household types is for single parents, most often couples with children, the highest for couple households without additional dependents and single households.

**Table 10 Indicators of debt burden: loan to value ratio and net liquid asset ratio (%\*100)**

	AT	BE	CY	DE	ES	FI	FR	GR	IT	LU	NL	PT	SK
Loan to	17	29	32	42	31	47	32	32	30	27	53	42	38
S	15	29	44	53	37	52	28	30	28	38	53	45	48
SK	24	42	35	22	25	55	42	60	41	30	51	46	30
Cp	19	28	29	34	37	46	29	28	26	30	43	45	33
CpK	30	33	29	47	32	53	36	40	37	32	69	48	41
O	11	15	30	33	23	29	20	22	21	14	43	29	21
Net liquid	32	32	5	22	12	9	18	5	22	20	17	16	12
S	26	39	3	23	19	12	27	5	28	22	25	18	17
SK	23	10	-14	0	4	2	4	3	18	4	1	5	6
Cp	43	60	13	33	18	16	28	9	35	35	29	34	19
CpK	36	15	5	15	7	2	10	3	14	16	8	12	8
O	31	22	1	16	10	6	10	4	17	14	12	10	11

Note: S-singles, SK-singles with kids, Cp-couples, CpK-couples with kids, O-other family types; weighted Source: HFCS w.1

## Summary of main points

There are two sides to having debt—on the one hand the ability to have and manage debt largely depends on the availability and access to it which households have. Thus, an expansion of credit ought to make it easier for household to manage their debt and cope with temporary reductions in income. On the other hand, any additional take-up of credit on the part of households itself adds to the debt which they need to service.

This note has set out various indicators describing the extent to which households are indebted taking into account assets and income. They show that exposure to indebtedness varies across countries though also throughout the life-cycle and across family types and income groups.

They also show the countries where debt uptake is most prevalent (CY, FI, LU and NL) and countries where it is low (AT, GR, IT, PT and SK). Households with children tend to have most debt, both collateralised and non-collateralised.

Households at the bottom of the income distribution tend to have the largest debt burden. In some countries, a large debt burden is combined with a high debt-asset ratio (AT, DE, FI, IT and PT) indicating particular vulnerabilities for those in the lowest income decile. At the same time the lowest income decile exhibits a wide dispersion in the indicators. Additional indicators therefore need to be used to best target the most financial risky households if policy intervention is to be put in place.

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**Annex table****Table A.1 Distribution of household types and sizes in euro-zone countries**

	1 Single	2 Single with minors	3 Childless couple	4 Couple with children	5 Single with relatives	6 Couple with relatives	Total
AT	38.7	3.2	28.6	13.0	6.6	10.0	100
BE	33.8	3.4	26.7	18.1	6.6	11.6	100
CY	20.8	1.9	26.8	20.7	7.8	22.1	100
DE	39.6	3.4	30.1	15.4	4.5	6.9	100
ES	18.4	2.3	21.3	23.6	12.7	21.9	100
FI	39.6	2.9	30.5	17.5	6.0	3.4	100
FR	35.3	5.2	26.9	19.2	4.5	9.0	100
GR	20.1	1.5	21.6	21.9	14.7	20.2	100
IT	24.9	2.2	23.3	20.5	9.4	19.7	100
LU	30.0	3.2	22.5	20.9	7.9	15.5	100
NL	35.8	7.7	27.3	16.1	5.2	7.9	100
PT	17.7	2.1	23.4	22.9	10.4	23.5	100
SI	27.0	2.5	18.3	16.5	13.0	22.8	100
SK	23.1	1.4	17.1	17.1	16.8	24.4	100

Source: HFCS w.1

