DEUTSCHE
BUNDESBANK
EUROSYSTEM

Discussion Paper

Deutsche Bundesbank
No 35/2015

Identifying income and wealth-poor households in the euro area

Philip Müller
(University of Göttingen)

Tobias Schmidt
(Deutsche Bundesbank)

Deutsche Bundesbank, Wilhelm-Epstein-Straße 14, 60431 Frankfurt am Main,
Postfach 10 06 02, 60006 Frankfurt am Main

Tel +49 69 9566-0

Please address all orders in writing to: Deutsche Bundesbank,
Press and Public Relations Division, at the above address or via fax +49 69 9566-3077

Internet http://www.bundesbank.de

ISBN 978–3–95729–195–0 (Printversion)
ISBN 978–3–95729–196–7 (Internetversion)

Non-technical summary

Research Question

In this paper we look at different measures of asset and income poverty using micro-data for 15 euro area countries from the 2010 Household Finance and Consumption Survey (HFCS). We are particularly interested in the way in which specific definitions of income and asset poverty affect the documented number of poor households, their socio-demographic characteristics, portfolios and consumption expenditure.

Contribution

The comprehensive coverage of wealth and income in the HFCS dataset allows us to construct different indicators of poverty based on wealth and income and analyse the socio-demographic structure, portfolios and consumption expenditure of poor households depending on the given definition of poverty. Conducting the analysis for several countries permits us to investigate whether the observed patterns are common to all countries. Understanding the relationship between different definitions of poverty and the documented structure and financial situation of poor households can be of assistance in the discussion of what constitutes the appropriate poverty measure for a specific research question or policy issue.

Results

Our results show that adding wealth to the poverty definition – as opposed to using a pure income measure – mainly influences the percentage of poor households but has a limited effect on the socio-demographic composition, portfolio structure and food consumption of poor households.

Within each country we document some heterogeneity with regard to the share of poor households across different poverty measures. However, across countries the percentage of households in poverty for any given indicators is relatively homogeneous, with a few exceptions. Notably, the crisis countries (Cyprus, Greece, Italy, Portugal, Spain) do not stand out with respect to their percentage of poor households in 2010.

The socio-demographic characteristics of poor households show the expected patterns. Regardless of whether we use the income-only indicator or the combined income-wealth poverty indicator, the risk of being poor is, in almost all countries, higher for small households, single-parent households and households with a less educated head. Participation rates in real assets for poor households are lower than for the population at large. In terms of food consumption as a share of gross income, we observe significantly higher values for poor households than for other households, irrespective of the poverty indicator.

Nichttechnische Zusammenfassung

Fragestellung

In dieser Studie werden unterschiedliche Arten von Armutsindikatoren, basierend auf Einkommen und Vermögen, betrachtet. Insbesondere soll untersucht werden, inwieweit die Zahl armer Haushalte und deren sozio-demographische Struktur, sowie die Zusammensetzung ihres Vermögens und ihre Konsumausgaben von der Wahl eines bestimmten Armutskonzeptes abhängen.

Beitrag

Die Daten des „Household Finance and Consumption Surveys (HFCS)“ aus dem Jahr 2010 erlauben nicht nur eine Reihe von unterschiedlichen Armutsindikatoren zu bilden, sondern ermöglichen es auch diese auf 15 Länder anzuwenden. Insbesondere können Einkommens- und Vermögensarmut gleichzeitig betrachtet werden. Aufgrund der internationalen Ausrichtung des HFCS kann untersucht werden, ob die Anzahl armer Haushalte, deren sozio-demographische Struktur, sowie die Zusammensetzung ihres Vermögens und ihr Konsumverhalten für alle Länder ähnlich sind oder nicht.

Ergebnisse

Im Ergebnis zeigt sich, dass vor allem der Anteil der armen Haushalte an der Bevölkerung variiert, wenn man anstelle eines klassischen Einkommensarmutsindikators einen Armutsindikator verwendet, der Einkommen und Vermögen kombiniert. Die Struktur der armen Haushalte, die Zusammensetzung ihres Vermögens und ihr Konsumverhalten sind dagegen relativ unabhängig davon, welches Armutskonzept man wählt.

Innerhalb eines Landes zeigen sich Unterschiede hinsichtlich des Anteils der armen Haushalte an allen privaten Haushalten in Abhängigkeit vom gewählten Armutsindikator. Über die Länder hinweg ist der Anteil der als arm klassifizierten Haushalte für einen bestimmten Armutsindikator aber relativ homogen. Dies gilt auch für die Krisenländer Zypern, Griechenland, Italien, Portugal und Spanien.

Im Hinblick auf die sozio-demographischen Merkmale zeigt sich die erwartete Struktur. In fast allen Ländern finden sich vor allem kleine Haushalte, Haushalte von Alleinerziehenden und solche mit geringer Bildung in der Gruppe der armen Haushalte. Zudem gilt, dass arme Haushalte seltener Realvermögen (u.a. Immobilien, Fahrzeuge) besitzen und einen relativ großen Teil ihres Einkommens für den Konsum von Lebensmitteln aufwenden müssen. Dies gilt jeweils unabhängig davon ob der Armutsindikator nur das Einkommen oder auch das Vermögen mit einbezieht.

BUNDESBANK DISCUSSION PAPER NO 35/2015

Identifying Income and Wealth-Poor Households in the Euro Area

Philip Müller[1]
University of Göttingen

Tobias Schmidt[2]
Deutsche Bundesbank

Abstract

In this paper, we analyse different measures of asset and income poverty using micro-data for 15 euro area countries from the 2010 Household Finance and Consumption Survey (HFCS). We are particularly interested in the way in which specific definitions of income and wealth poverty affect the number and socio-demographic characteristics of poor households, as well as their portfolio composition and consumption expenditure. We find that adding wealth to the poverty definition mainly influences the percentage of poor households but has a limited effect on the documented socio-demographic composition, portfolio structure and food consumption of poor households compared to the patterns under a pure income poverty measure. Within each country, we document some heterogeneity with regard to the percentage of poor households across different poverty measures. However, across countries, the percentage of households in poverty for any given indicator is relatively homogenous. We find the typical socio-demographic patterns for poor households: the risk of being income and/or wealth-poor is, in almost all countries, higher for smaller households, households with a less educated head and single-parent households. We also show that the percentage of female, old and retired reference persons is higher for poor households than for the population at large. Additionally, the participation rates in real and financial assets for poor households are lower than for the population as a whole. Poor households spend more than 30% of their gross income on food.

Keywords: Asset-Poverty, Euro Area, Income and Wealth Distribution

JEL Classifications: D31, I32, P46, R20

Acknowledgements: We wish to thank Franziska Bremus, Renate Ohr, Eva Sierminska and Panagiota Tzamourani for their valuable comments and suggestions on earlier versions of this paper. We would also like to thank the participants of the HFCS Users' Workshop at the European Central Bank for their helpful comments and the Bundesbank's language service for checking the paper.

---

1 University of Göttingen, Department of Economics, Platz der Göttinger Sieben 3, 37073 Göttingen. E-Mail: philip.mueller@stud.uni-goettingen.de.

2 Deutsche Bundesbank, Research Centre, Wilhelm-Epstein-Str. 14, 60431 Frankfurt am Main, Germany. Phone: +49 69 9566 3730. E-Mail: tobias.schmidt@bundesbank.de.

1 Introduction

Poverty and inequality have become a prominent topic of public debate and political discussion in many countries. This matter has also been receiving increasing attention in the media, especially since the onset of the financial crisis in 2008. Most of the scientific literature on poverty and inequality analyses households' situation based on income measures rather than asset and wealth measures, even though consumption, which is a building block of well-being, can be financed by both. There are several reasons for the neglect of wealth in the poverty debate, one of which is the availability of data. While data on household income is readily available for many countries and from various sources, data describing the wealth holdings and asset portfolios of households has been scarce until recently. The new "Household Finance and Consumption Survey" (HFCS) has changed this situation for the euro area. The HFCS provides comprehensive coverage of households' wealth holdings in almost all euro-area countries and is representative of the composition of households within each country. Another reason why households' wealth may have received little attention in the analysis and political discussion of poverty is that, despite some progress in recent years, there is still no generally accepted method for defining poverty based on wealth alone or on a combination of wealth and income.

Our paper contributes to this ongoing debate on how to integrate wealth into a poverty definition. The comprehensive coverage of wealth and income in the HFCS dataset allows us to construct different indicators of poverty based jointly on wealth and income and to analyse the socio-demographic structure, portfolios and consumption expenditure of poor households depending on the specific definition of poverty. Going beyond the classic socio-demographic indicators, e.g. age or household size, allows us to analyse whether income and wealth-poor households face a financial situation and consumption pattern similar to households that are only income poor. This is particularly interesting if being wealth-poor is not highly correlated with being income-poor. Understanding the relationship between different definitions of poverty and the documented structure and financial situation of poor households can also be of assistance in the discussion of what constitutes the appropriate poverty measure for a specific research question or policy issue. Extending the analysis to 15 euro area countries, using a truly harmonised database, allows us to understand how dependent the results are on the specific institutional setting.

We document some heterogeneity in terms of the percentage of poor households across different measures of poverty for each country. However, for a given poverty indicator the percentage of households in poverty across countries is, with few exceptions, relatively homogeneous. The crisis countries (Cyprus, Greece, Italy, Portugal, Spain) do not stand out with respect to their share of poor households. Regardless of the indicator, the socio-demographic characteristics of poor households show the expected pattern. In almost all countries, the risk of being income and/or wealth-poor is higher for small households, single-

parent households and households with a less educated head. Unsurprisingly, participations rates in real assets for poor households are lower than for the population at large. This is particularly true for the ownership of the main residence. For some south European countries, we also see a large difference for the ownership of deposits. With respect to participation in non-collateralised loans, poor and other households seem to be rather similar. In terms of food consumption as a share of gross income, we observe a significant difference between poor households and other households, but again almost no difference with regards to the poverty indicator. Income and/or wealth-poor households spent about one-third of their gross income on food in most countries. In some south and east European countries the fraction is even higher.

In summary, adding wealth to the poverty definition mainly influences the percentage of poor households but has a limited effect on the documented socio-demographic composition, portfolio structure and food consumption of poor households compared to the patterns observed for a pure income poverty measure.

The paper is structured as follows: The second part reviews the literature on poverty measures combining households' wealth and income. Section three introduces the HFCS survey data and discusses our specific definition of different poverty measures. Section four presents the most important results and compares the socio-demographic characteristics, portfolio composition and consumption expenditure of poor households to that of the total population in each country. In the last part of the paper we present our conclusions and some ideas for future research.

2 Literature review

The debate on poverty and well-being of households has long focused on income concepts alone. In recent years a wider perspective has been adopted and more emphasis has been placed on measures that capture the well-being of households and individuals in a broader context, such as going beyond financial indicators (see, for example, Stiglitz et al., 2009; OECD, 2011a; OECD, 2013). We will also go beyond a pure income measure in this paper and explore the integration of household's wealth into the poverty definition. We thus limit the literature review to papers that address poverty measures based on household's wealth *and* income.

2.1 Measuring poverty using income and wealth – approaches and issues

While an accepted measure of income poverty has existed for quite some time (see Atkinson 2002), there is still no generally accepted measure of poverty based on wealth (combined with income). This is surprising given the importance of wealth for a households' financial situation, consumption opportunities, subjective well-being, vulnerability and ability to sustain periods of low income (see, for example, Heady and Wooden, 2004; Graham and Pettinato, 2002; Harper and Price, 2011; Azpitarte, 2012; Haveman and Wolff, 2004; Nolan

and Whelan, 2010; Sherraden, 1991).[3] A frequently mentioned argument for including wealth in poverty measures is put forward by Brandolini et al (2010). According to these authors, classic income poverty measures "… ignore the possibility that a consumer unit decreases accumulated savings to meet current needs." (Brandolini et al., 2010: 269). On the contrary, the asset (poverty) measure "…tries to capture whether a consumer unit could maintain a standard of living above the poverty line for a certain period if it had no income, nor any financial resources of borrowing ability other than accumulated wealth" (Brandolini et al., 2010: 280).

The fact that there is no standard measure of asset poverty[4] does not mean, however, that no research on the issue exists. There are some published papers combining wealth and income concepts in assessing the well-being or poverty of households (see Brandolini et al., 2010; Aziptarte, 2012; Haveman and Wolff, 2012; Gornick et al., 2009). The two main approaches proposed for using both income and wealth to assess poverty can be summarised as follows: The first strategy is to treat wealth as a form of income and integrate it completely and directly with income into one single poverty measure. The second approach is to apply a multidimensional concept, i.e. to assess poverty independently for each indicator (income and wealth) and then combine the results into an overall assessment of poverty.

The first approach has been proposed by Weisbrod and Hansen (1968).[5] They calculate the annuity value of net wealth and add it to household income. In order to calculate the annuity value several assumptions are necessary, e.g. which interest rate to use and how the remaining "maturity" (which equals the remaining life expectancy of a household/person) is determined.[6] The second approach has been described in detail by Bourguignon and Chakravaty (2003). The main challenge with the multidimensional approach is how to combine several different/independent dimensions of poverty into an overall assessment of poverty and well-being of a household.[7]

Both approaches have to address the classic problems of poverty measurement, i.e. where to set the poverty line(s) (Atkinson, 1987) and how to deal with households instead of persons. At least two different strategies have been proposed for defining poverty lines: Fixed poverty lines (see, for example, Lerman and Mikesell, 1988; Haveman and Wolff, 2004) versus relative poverty measures. In recent years, the latter havwe been the most prominent in the public and political discussion. The poverty line in policy papers is typically set at 50% or

[3] Gornick et al. (2009) argue that the inclusion of wealth may be particularly relevant for older households with less income but larger asset holdings than younger households.

[4] The terminology of how to "label" poor households according to a definition based on wealth is not consistent across different papers. Some authors use "wealth-poor" while others prefer "asset-poor". We will use both terms interchangeably throughout the paper.

[5] An extension that has rarely been applied has been put forward by Rendall and Speare (1993).

[6] The paper by Lermann and Mikesell (1988) presents a nice application of this approach for data from the 1983 edition of the Survey of Consumer Finances (SCF). The

[7] An application of the multidimensional approach to income and wealth measures can be found in Azpitarte (2012) and Gornick et al (2009).

60%[8] of equivalised net income (e.g. OECD, 2011b; Eurostat, 2013). An additional issue with defining a poverty line arises if a combined income and wealth measure is used. It is unclear whether, in this case, a threshold based on the combined measure should be used or not. Most studies we are aware of use the income thresholds for both the income-only measure and the combined poverty measure (e.g. Brandolini et al., 2010).

The unit of poverty analysis is typically the household and not the individual, which makes sense since households can pool resources and consumption (Eurostat, 2013). In order to take this aspect into account, household income is typically not taken at face value but "equivalised" using the (modified) OECD scale which assigns the first adult in the household a value of one and every subsequent adult a weight of 0.5, with children receiving a weight of 0.3 (OECD, 1982).[9]

All studies we have reviewed use a net wealth concept instead of one based on gross wealth. In terms of poverty, the most important feature of wealth is that it provides insurance against income risks and allows households to smooth consumption (see, for example, Azpitarte, 2012; Haveman and Wolff, 2004). Haveman and Wolff (2004) argues "We take this net wealth concept as our primary measure of wealth as it reflects wealth as a store of value that can be liquidated in a short period of time[10], and therefore a source of potential consumption" (p. 151). The net wealth of a household is also more relevant in terms of its vulnerability and riskiness compared with gross wealth (see the literature on stress testing households, e.g. Albacete and Lindner, 2013). Azpitarte (2012) raises another issue, i.e. what to include in net wealth. He shows that the percentage of poor households and other results of his study are particularly sensitive to the inclusion or exclusion of housing wealth in a wealth-based poverty definition.

Some papers have compared poverty measures based on income and wealth for several countries. Brandolini et al (2010) analyse data from Finland, Germany, Italy and the US and find that including wealth leads to a sizeable reduction in poverty rates. They also show substantial heterogeneity in poverty rates across countries, irrespective of the indicator. Lerman and Miksell (1988) document a sizeable reduction in poverty headcount ratios by using the income-wealth poverty indicator on US data. Both results have been confirmed by Azpitarte (2012) for the US and Spain. He summarises his findings by stating "Importantly, we find that the poverty profile based on income and wealth is quite different to that derived from income-poverty analysis" (p. 47). In a cross-country study on the situation of older women, Gornick et al. (2009) find that, while income poverty is more widespread in the US for this group than in other countries, asset poverty rates are comparable to those of other industrialised countries.

[8] The 60% cut-off is typically labeled the "At risk of poverty rate" as defined by Eurostat. We will nonetheless use the term "income poverty" or "income poor" throughout the paper, consistent with most of the other literature.

[9] Azpitarte (2012) acknowledges that there is no standard equivalence scale for wealth. He nonetheless uses the modified OECD scale to arrive at an equivalised net wealth measure.

[10] Since housing wealth is a rather illiquid asset, some authors have argued for including only liquid assets in the wealth concept for the poverty definition (Gornick et al, 2009).

2.2 Poor households' structure, portfolios and consumption expenditure

Identifying households in poverty is important in its own right, but understanding the relationship between different definitions of poverty and the documented structure and financial situation of poor households can be of further assistance in the discussion of what constitutes the appropriate poverty measure for a specific research question or policy issue. It can also help in gaining a better understanding of poor households' situation and in designing targeted policy measures.

The literature shows that households with a very young or old head, households with unemployed members, single-parent households of lone parents, renter households and households with low education or with health issues have a high risk of belonging to the group of poor households (Azpitarte, 2012; Lerman and Miksell, 1988; Haveman and Wolff, 2004; Eurostat, 2013).

With respect to asset portfolios of households in poverty, the literature has mainly focused on stock market participation and analysed wealthy households. Several studies in this area find that the probability of holding risky assets, particularly stocks increases with wealth (Wachter and Yogo, 2010; Cocco, 2004; Peress, 2004; Bertaut and Haliassos, 1997). Rosen and Wu (2004) show that US households with low wealth are less likely to hold financial assets.

One particularly important channel through which wealth and well-being are linked is consumption. Consumption can be financed by both income and wealth and should play a key role in determining the level of poverty and well-being of households (see Meyer and Sullivan., 2011a; Marlier and Atkinson, 2010; World Bank, 2001; Cutler and Katz, 1992). Meyer and Sullivan (2011b) argue that "… conceptual arguments generally favour consumption over income for measuring economic well-being." (p. 52). [11] In an earlier paper, Meyer and Sullivan (2009) show that poverty measures based on income and those based on consumption have indicated developments in varying directions for the past decade in the US, with income poverty gaps rising and consumption poverty gaps falling. Insofar as this relationship between consumption and well-being exists, there is also a case for defining poverty taking households' wealth into account. According to the life-cycle model of consumption and savings, people smooth their consumption over their life-cycle by saving part of their income when they are young and consuming their assets when their income drops (Deaton, 1991; Ando and Modigliani, 1963). Wealth can therefore help to sustain high levels of consumption for (currently) income-poor households. The OECD argues that "Households that are 'asset rich and income poor' can be expected to have higher material standards of living than would be indicated by their income alone." (OECD, 2013: 36). We will investigate the link between different poverty measures and consumption expenditure below. Our

[11] See also Meyer and Sulivan (2007).

hypothesis is that consumption levels should differ depending on whether the poverty measure includes wealth or not.

3 The HFCS dataset and definitions of a poor household

In this section we describe the dataset that serves as the basis for our analysis and discuss how we define a poor household in terms of income and wealth.

3.1 The Household Finance and Consumption Survey - HFCS

The data we use for our analysis is the "Household Finance and Consumption Survey" (HFCS) of the Eurosystem.[12] This large-scale survey was launched in 2010 with the aim of collecting harmonised micro-data on households' assets and liabilities in all euro-area countries. The survey was conducted by each country's central bank or national statistical institute under common guidelines and is representative of each country as well as the euro area (excluding Ireland and Estonia) as a whole.[13] Most countries conducted the survey in 2010/11. France (2009/2010), Spain (2008/2009), and Greece (2009) started earlier. The reference period for the information on wealth is the time of the interview, which potentially causes some problems for comparability, e.g. with respect to asset prices. The prices for houses, which represent a large part of the households' balance sheets, have, for example, been comparatively volatile in some countries as a result of the crisis in the euro area.

The database contains information on 62,521 households from Austria (AT), Belgium (BE), Cyprus (CY), Germany (DE), Spain (ES), Finland (FI), France (FR), Greece (GR), Italy (IT), Luxembourg (LU), Malta (MT), the Netherlands (NL), Portugal (PT), Slovenia (SI) and Slovakia (SK). Estonia and Ireland participated in the second wave of the survey conducted in 2014.

The HFCS data is well suited for our analysis, as it contains detailed information on the assets, debts and income of households in the euro area.[14] It includes, among other things, information on households' main residences, other real estate, vehicles and valuables, business wealth, savings and sight accounts, mutual funds, shares, bonds, as well as mortgages and unsecured loans. In all cases, both the ownership as well as the values of asset or debt holdings are recorded. For the analysis, we mainly refer to net wealth, which is defined as the sum of all assets (both real and financial) minus outstanding liabilities. In addition to the assets and liabilities, the HFCS also contains data on income and other socio-demographic characteristics of households. The harmonisation of concepts and methodologies across countries allows us to calculate comparable indicators of income and wealth poverty for all countries participating in the survey. One of the few drawbacks of the data is that it

[12] See HFCN (2013 a,b) for details.
[13] Ireland and Estonia did not take part in the first wave of the survey.
[14] The HFCS data is multiply imputed. Since we do not present/estimate any standard errors, we use only the first implicate and the appropriate expansion weights.

does not contain information on net household income, but only gross household income. Furthermore, the information on consumption is limited to food consumption.

3.2 Definitions of poor households

We follow the literature reviewed above to identify poor households and define the following five poverty indicators for each country and the euro area as a whole[15]:

1) Income only: As a reference point we calculate the classic measure of income poverty.[16] A household is "poor" according to this definition if its gross equivalised annual household income is less than 60% of the median gross equivalised annual household income in a country.[17] The equivalisation is done based on the modified OECD scale described above. Income includes labour income, income from pensions, transfer income and other income.

2) Income and net wealth: The second indicator is based on a combined measure of income and net wealth following Weisbrod and Hansen (1968). For the specific construction, we apply the method proposed by Lerman and Mikesell (1988) and use the life expectancy of an individual if it is equal for both spouses or, if life-expectancy of spouses differs, we use 1/3 of the individual with the shorter life-expectancy and 2/3 of the individual with the longer life expectancy.[18] For the interest rate we assumed 4%. Even though it is unclear how to best equivalise wealth, we decided to use the same equivalence scale as for income, following Azpitarte (2012). If the equivalised income-wealth measure is below the 60% of the median gross equivalised annual household income in a country, a household is "poor" according to this definition.[19]

3) Income and net liquid assets: This indicator is calculated in the same way as indictor 2). The only difference is that net liquid assets are used instead of net wealth. Net liquid assets can be assumed to be more readily available to substitute for a loss in income compared with real assets like property ownership. The value of net liquid assets is calculated as the sum of the value of deposits, mutual funds, bonds, shares, managed accounts and the value of non-self-employed businesses minus the outstanding balance on unsecured debt.

[15] We define separate poverty thresholds for the euro area as a whole, i.e. the euro area results are not simply an aggregation of the results for individual countries.

[16] To be more precise, the value based on the 60% cut-off is typically labeled the "at risk of poverty rate" as defined by Eurostat. We will nonetheless use the term "income poverty" or "income poor" throughout the paper for this measure, consistent with most of the other literature.

[17] See Table A1 in the Appendix for the median gross equivalised income levels for each country.

[18] Life expectancies for males and females in 2010 were taken from Eurostat. See Table A1 for the median of the annuity factors.

[19] The median of the annuity factors, equivalised and annuitised net wealth and liquid assets can be found in table A1 in the appendix.

4) Multi-dimension Poverty Income *and* Wealth: Households are "poor" if they are poor according to the income indicator described above and belong to the bottom decile of the net wealth distribution in a given country.[20] Referring to the bottom decile of the net wealth distribution for the multi-dimensional indicators allows us to look at groups of wealth poor households of similar size across countries. Due to this specific definition of poverty, a maximum of 10% of households are allowed to be in poverty under this multi-dimensional income and wealth poverty definition. Note also that this multi-dimensional measure does not factor in the annuity value of net wealth and thus individuals' life expectancy or age.

5) Multi-dimension Poverty Income *or* Wealth: Households are "poor" if they are poor according to the income indicator described above or belong to the bottom decile of the net wealth distribution in a given country.

Table 1 shows that the measures based on income and wealth are highly correlated with the classic income measure, in particular the Weisbord-Hansen measure using liquid wealth (indicator 3).

Table 1 Correlation between income poverty measure and the other indicators, by country

	Poverty Indicators			
	(2)	(3)	(4)	(5)
Country	Income and net wealth	Income and net liquid assets	MD: Income and low wealth	MD: Income or low wealth
EA	0.732	0.955	0.398	0.864
AT	0.731	0.953	0.334	0.908
BE	0.728	0.953	0.407	0.884
CY	0.730	0.958	0.529	0.734
DE	0.729	0.954	0.252	0.928
ES	0.719	0.958	0.538	0.638
FI	0.726	0.951	0.174	0.951
FR	0.727	0.949	0.404	0.862
GR	0.713	0.959	0.459	0.701
IT	0.730	0.959	0.510	0.748

[20] Mean net wealth of households in the bottom decile of the wealth distribution is, on average, negative in all countries of the euro area except for Malta and Slovakia. Austria and, especially, the Netherlands are outliers. In the Netherlands debts outweigh assets by almost €50,000 for households at the bottom of the distribution; the comparable figure for Austria is €30,000. The euro-area (EA) average is –€10,000. See Table A2 in the Appendix for data on the net wealth distribution in each country.

LU	0.701	0.947	0.316	0.951
MT	0.712	0.955	0.608	0.481
NL	0.725	0.949	0.137	0.966
PT	0.757	0.967	0.479	0.563
SI	0.721	0.952	0.534	0.554
SK	0.756	0.958	0.692	0.299

Source: Authors Calculations based on HFCS 2010 - UDB 1.0

While the correlation coefficients are comparable across countries for the two combined income and wealth measures, the picture with regard to the multidimensional measures is less clear. There, marked differences between countries exist, especially for the measure which combines income-poverty with low net wealth (indicator 4). A low value for this indicator signals that households in the bottom decile of the net wealth distribution are not necessarily income poor as well. The correlation is particularly low for the Netherlands, which can be explained by the fact that income-rich households in the Netherlands typically own their main residence and are highly leveraged on this property (sometime above 100%), reducing their measured net wealth.

4 Results

In this section we present the main results of our analysis. We start with statistics on the percentage and number of households defined as poor under the different poverty concepts outlined above in section 3.2. In the second part we will take a more in-depth look at the socio-demographic characteristics, asset portfolios and consumption expenditure of those households.

4.1 Incidence of Poverty

Table 2 shows the percentage of households in each country characterised as poor according to our five definitions of poverty.[21] The pattern we observe, comparing the indicators within each country, is very similar. The multi-dimensional measures of poverty – indicators 4 and 5 – set the lower and upper bounds for the percentage of poor households, with the other three indicators in between. Adding wealth to the income poverty measure using the Weisbrod and Hansen (1968) method leads to a sizeable reduction of the poverty rate for all countries, as expected. However, the extent of the reduction differs across countries. In Germany and Austria – both countries with a highly skewed net wealth distribution and low median net wealth – the reduction is less pronounced than for countries with a more equal distribution and higher median net wealth, such as Spain, Italy and Greece. If we exclude properties and

[21] See Table A3 in the Appendix for the absolute number of poor households in each country.

other real assets from net wealth and focus solely on liquid assets (indicator 3) [22] the poverty rates go back up to levels observed for the income-based poverty. We confirm the finding of Azpitarte (2012) that excluding or including properties in the calculation of poverty indicators plays an important role. In a large number of countries, liquid assets (if annuitised) do not seem to be able to serve as a sustainable buffer against income shocks for low income households. They may, however, provide a safety net in the short term.

Defining poor households according to our multi-dimensional measure "income poor or in the bottom decile of the net wealth distribution" does increase the poverty rates. The increase seems to be small at first glance but it has to be borne in mind that the maximum increase is limited to 10 percentage points. In most countries, it is about half that, which can also be inferred from the forth indicator. This signals that the percentage of income-poor households in the bottom decile of the net wealth distribution is sizeable, except for three countries: Finland, Slovakia and the Netherlands.

Comparing the countries for each of the indicators shows a relative homogeneous pattern. For the income-only indicators, almost all countries have shares of 20% to 25%; the rate goes down for the combined indicator to between 10% and 15% and back up to approximately 20% if liquid assets are considered. For the multi-dimensional measures, we find shares of about 5% and 25% to 30%, respectively, for almost all countries. It is noteworthy that the countries hit by the crisis do not stand out but, for most indicators, exhibit percentages comparable to north European countries. This result is in line with the "at risk poverty rates" published by Eurostat based on EU-SILC, taking net instead of gross income into account.[23]

[22] We assume that properties are, by and large, illiquid assets in *all* countries of the euro area. Mortgage equity withdrawal is, for example, very uncommon in all euro area countries compared with the situation in the US (see, for example, ECB, 2009).

[23] The figures we report are, on average, about 4 to 5 percentage points higher than the risk of poverty rates reported by the EU-SILC study, which uses net income to determine households at risk of poverty (Eurostat Website, accessed March 12, 2015: http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=ilc_li02). The effect of redistribution through taxes and transfers seems to be sizeable in most countries.

Table 2 Percentage of poor households according to the different poverty indicators, by country

	Poverty Indicators				
	(1)	(2)	(3)	(4)	(5)
Country	Income only	Income and net wealth	Income and net liquid assets	MD: Income and low wealth	MD: Income or low wealth
EA	23%	14%	21%	4%	28%
AT	18%	12%	17%	4%	24%
BE	26%	14%	22%	7%	29%
CY	24%	10%	22%	6%	28%
DE	22%	17%	21%	5%	28%
ES	22%	7%	20%	3%	29%
FI	20%	12%	18%	2%	28%
FR	16%	11%	15%	4%	22%
GR	21%	10%	20%	4%	26%
IT	23%	12%	21%	6%	27%
LU	20%	13%	20%	5%	25%
MT	19%	5%	14%	4%	25%
NL	19%	12%	17%	1%	28%
PT	22%	10%	20%	4%	28%
SI	29%	16%	28%	6%	33%
SK	12%	4%	11%	2%	20%

Source: Authors Calculations based on HFCS 2010 - UDB 1.0

In the following two sections we will limit the analysis to the first two poverty indicators. Describing the structure of household characteristics and portfolios for each of the five indicators, for 15 countries and along several dimensions would just not have been feasible. Tables comparable to those presented below are available upon request. We choose the first two indicators because the income measure is the classic poverty measure and is the one most widely used. The income-net wealth measure is constructed in a similar way and integrates both income and wealth more directly than the multi-dimensional concepts.

4.2 Socio-demographic characteristics of poor households

In this section, we will take a closer look at the socio-demographic characteristics of poor households in different countries and how they vary depending on the specific poverty definition. We will first look at some descriptive statistics (Tables 3a to 3d on the next pages).

A first socio-demographic indicator is the age of the household's head.[24] The reference person in income-poor households tends to be older than the average for all households. The difference is particularly pronounced for the south European countries. Moving to the income-net wealth definition of poverty, we see that the average age of households' heads is lower than for the income-only concept. This can be explained by the life-cycle hypothesis: Older households have accumulated substantial assets, which allow them to "escape" poverty. What is more, the annuity factor for older households is higher due to their reduced remaining life span, which is favourable under the income-net wealth concept. This mechanism can also explain the difference in the percentage of retired households between the two poverty concepts (see tables 3b and 3d).

With respect to gender, we find that the percentage of female reference persons is higher for poor households than for the population at large. This has been documented for other countries as well. The structure across countries is similar for both our poverty measures. The same is true of education levels: for some counties the education levels for households' heads are even the same for those affected by income poverty and those characterised as poor under the income-net wealth criterion. Overall, the results show that highly educated households face a lower risk of being poor.

We have already mentioned that the percentage of retired households declines if we switch from an income-based measure of poverty one based on income and wealth. Consistent with the finding that poor households are older than other households, we also find that the percentage of retired household heads is higher among the poor. Consequently, the percentage of employed is substantially lower for all countries.

[24] In order to identify the household head or reference person, we use the definition developed for income statistics by the Canberra group. This definition usually leads to results which are very similar to the main-income earner definition of the household reference person.

Table 3a – Selected Socio-demographic indicators for poor households under the income only poverty measure

	EA	AT	BE	CY	DE	ES	FI	FR	GR	IT	LU	MT	NL	PT	SI	SK
Age of Reference Person (years)	53	52	51	60	49	59	52	47	54	57	49	-	52	58	58	48
	(0)	(1)	(-1)	(9)	(-3)	(7)	(2)	(-5)	(4)	(1)	(-1)	-	(0)	(3)	(7)	(0)
Gender [1)]	1.54	1.65	1.51	1.55	1.61	1.62	1.57	1.49	1.63	1.51	1.55	1.57	1.44	1.39	1.58	1.62
	(0.08)	(0.09)	(0.05)	(0.14)	(0.12)	(0.13)	(0.04)	(0.1)	(0.04)	(0.07)	(0.15)	(0.09)	(0.08)	(0.09)	(0)	(0.07)
Education of Reference Person																
Low (ISCED 0,1)	37%	1%	18%	47%	3%	63%	0%	46%	55%	45%	43%	38%	3%	83%	6%	1%
	(18)	(1)	(8)	(28)	(1)	(28)	(0)	(14)	(23)	(19)	(19)	(15)	(-1)	(19)	(2)	(1)
Medium (ISCED 2)	21%	37%	21%	9%	24%	20%	48%	6%	11%	30%	12%	51%	38%	10%	31%	12%
	(5)	(20)	(6)	(1)	(12)	(-1)	(19)	(1)	(0)	(2)	(1)	(11)	(13)	(-4)	(10)	(5)
High (ISCED 3,4)	33%	54%	37%	31%	58%	10%	44%	37%	25%	23%	38%	9%	40%	5%	52%	79%
	(-9)	(-15)	(0)	(-2)	(1)	(-9)	(2)	(-2)	(-11)	(-12)	(-1)	(-12)	(2)	(-8)	(-1)	(2)
Highest (ISCED 5)	9%	8%	24%	13%	15%	7%	8%	11%	9%	3%	7%	2%	19%	2%	11%	8%
	(-14)	(-6)	(-14)	(-27)	(-14)	(-19)	(-21)	(-13)	(-12)	(-9)	(-19)	(-14)	(-14)	(-7)	(-11)	(-9)

Source: Authors Calculations based on HFCS 2010 - UDB 1.0

Notes: In parentheses: Difference in years (age) or percentage points between poor households and the total population

1) Male=1 , Female =2

Table 3b – Selected Socio-demographic indicators for poor households under the income only poverty measure

	EA	AT	BE	CY	DE	ES	FI	FR	GR	IT	LU	MT	NL	PT	SI	SK
Main Labour Status of Reference Person																
Employed	29%	24%	23%	19%	33%	18%	8%	28%	12%	26%	46%	11%	39%	25%	19%	31%
	(-16)	(-20)	(-21)	(-35)	(-16)	(-23)	(-34)	(-19)	(-21)	(-12)	(-10)	(-26)	(-15)	(-16)	(-21)	(-25)
Self-employed	6%	7%	3%	8%	3%	5%	5%	9%	11%	6%	3%	4%	8%	7%	1%	1%
	(-2)	(-2)	(-1)	(-2)	(-4)	(-4)	(-1)	(1)	(-4)	(-5)	(-3)	(-3)	(4)	(-3)	(-2)	(-7)
Unemployed	12%	12%	23%	9%	14%	13%	16%	16%	8%	9%	7%	7%	4%	13%	10%	25%
	(7)	(7)	(13)	(4)	(9)	(3)	(9)	(12)	(4)	(6)	(4)	(5)	(2)	(6)	(1)	(20)
Retired	32%	43%	32%	47%	30%	26%	39%	24%	38%	43%	17%	32%	28%	46%	63%	32%
	(0)	(7)	(-1)	(23)	(0)	(5)	(12)	(-10)	(10)	(4)	(-7)	(4)	(3)	(10)	(22)	(6)
Other	21%	14%	19%	17%	20%	39%	32%	23%	31%	16%	27%	47%	21%	8%	7%	11%
	(11)	(7)	(11)	(9)	(11)	(18)	(15)	(17)	(11)	(7)	(16)	(20)	(6)	(4)	(1)	(6)
Number of Household Members	2.39	1.96	2.23	2.4	1.84	2.33	1.56	2.23	2.21	2.74	2.63	2.7	2.78	2.63	1.8	3.11
	(0.07)	(-0.17)	(-0.08)	(-0.36)	(-0.21)	(-0.35)	(-0.52)	(-0.01)	(-0.43)	(0.21)	(0.15)	(-0.15)	(0.56)	(-0.07)	(-0.77)	(0.27)
Number of Dependent Children	0.66	0.47	0.66	0.59	0.4	0.58	0.28	0.8	0.5	0.88	0.98	0.94	1.14	0.74	0.25	1.18
	(0.12)	(0.09)	(0.06)	(-0.17)	(0)	(-0.02)	(-0.18)	(0.19)	(-0.07)	(0.28)	(0.31)	(0.21)	(0.55)	(0.11)	(-0.33)	(0.5)

Source: Authors Calculations based on HFCS 2010- UDB 1.0

Notes: In parentheses: Difference in percentage points or number of persons (last two variables) between poor households and the total population

Table 3c – Selected Socio-demographic indicators for poor households under the income-net wealth poverty measure

	EA	AT	BE	CY	DE	ES	FI	FR	GR	IT	LU	MT	NL	PT	SI	SK
Age of Reference Person (years)	46	47	42	57	45	49	42	41	46	51	44	-	49	51	53	39
	(-6)	(-4)	(-10)	(6)	(-7)	(-3)	(-7)	(-12)	(-4)	(-5)	(-6)	-	(-3)	(-4)	(1)	(-9)
Gender	1.54	1.66	1.54	1.62	1.61	1.58	1.52	1.5	1.63	1.52	1.51	1.63	1.56	1.38	1.5	1.6
	(0.08)	(0.1)	(0.07)	(0.2)	(0.13)	(0.09)	(-0.01)	(0.1)	(0.03)	(0.08)	(0.11)	(0.15)	(0.2)	(0.08)	(-0.08)	(0.04)
Education of Reference Person																
Low (ISCED 0,1)	31%	2%	17%	47%	3%	57%	0%	40%	40%	36%	39%	46%	2%	79%	6%	1%
	(12)	(1)	(7)	(28)	(1)	(22)	(0)	(8)	(8)	(10)	(15)	(22)	(-1)	(15)	(2)	(0)
Medium (ISCE 2)	21%	36%	13%	8%	22%	23%	38%	7%	12%	37%	17%	52%	39%	12%	39%	9%
	(5)	(18)	(-2)	(0)	(10)	(3)	(9)	(1)	(1)	(9)	(5)	(12)	(14)	(-2)	(19)	(3)
High (ISCED 3,4)	39%	55%	43%	28%	62%	12%	52%	42%	38%	24%	39%	2%	42%	8%	39%	84%
	(-3)	(-14)	(6)	(-5)	(5)	(-6)	(10)	(3)	(1)	(-11)	(1)	(-20)	(4)	(-5)	(-13)	(8)
Highest (ISCED 5)	9%	8%	27%	17%	13%	7%	10%	11%	11%	3%	5%	0%	17%	1%	15%	6%
	(-14)	(-6)	(-11)	(-22)	(-17)	(-18)	(-19)	(-13)	(-10)	(-8)	(-21)	(-15)	(-17)	(-8)	(-7)	(-11)

Source: Authors Calculations based on HFCS 2010 - UDB 1.0

Notes: In parentheses: Difference in years (age) or percentage points between poor households and the total population

1) Male=1 , Female =2

Table 3d – Selected Socio-demographic indicators for poor households under the income-net wealth poverty measure

	EA	AT	BE	CY	DE	ES	FI	FR	GR	IT	LU	MT	NL	PT	SI	SK
Main Labour Status of Reference Person																
Employed	35%	28%	26%	18%	37%	30%	10%	31%	18%	34%	55%	3%	43%	32%	30%	32%
	(-10)	(-15)	(-18)	(-36)	(-12)	(-11)	(-32)	(-16)	(-15)	(-4)	(-1)	(-34)	(-11)	(-9)	(-9)	(-24)
Self-employed	5%	4%	3%	5%	2%	7%	4%	6%	10%	5%	2%	0%	6%	7%	0%	1%
	(-3)	(-6)	(-2)	(-5)	(-5)	(-2)	(-2)	(-2)	(-6)	(-6)	(-3)	(-8)	(1)	(-3)	(-4)	(-6)
Unemployed	17%	15%	32%	16%	16%	22%	23%	23%	13%	14%	9%	11%	5%	20%	18%	52%
	(11)	(10)	(23)	(11)	(11)	(12)	(15)	(18)	(8)	(11)	(6)	(9)	(3)	(12)	(8)	(47)
Retired	21%	36%	14%	41%	21%	14%	18%	12%	23%	28%	11%	38%	19%	32%	41%	7%
	(-10)	(0)	(-19)	(17)	(-8)	(-7)	(-9)	(-22)	(-5)	(-11)	(-13)	(11)	(-5)	(-4)	(1)	(-19)
Other	22%	17%	25%	20%	23%	28%	45%	28%	37%	19%	23%	49%	26%	9%	11%	8%
	(12)	(10)	(17)	(13)	(14)	(7)	(28)	(23)	(17)	(10)	(12)	(22)	(11)	(5)	(4)	(3)
Number of Household Members	2.48	1.92	2.27	2.28	1.84	2.88	1.64	2.32	2.29	3.01	2.86	2.67	2.81	2.92	2.02	4.01
	(0.16)	(-0.21)	(-0.04)	(-0.48)	(-0.2)	(0.2)	(-0.44)	(0.07)	(-0.35)	(0.48)	(0.38)	(-0.18)	(0.6)	(0.22)	(-0.55)	(1.18)
Number of Dependent Children	0.79	0.55	0.82	0.6	0.44	1	0.37	0.94	0.64	1.11	1.19	1.09	1.29	1.04	0.34	2.02
	(0.25)	(0.16)	(0.22)	(-0.16)	(0.05)	(0.39)	(-0.09)	(0.34)	(0.07)	(0.51)	(0.52)	(0.37)	(0.7)	(0.41)	(-0.24)	(1.34)

Source: Authors Calculations based on HFCS 2010 - UDB 1.0

Notes: In parentheses: Difference in percentage points or number of persons (last two variables) between poor households and the total population

The socio-demographic variables presented above all focus on the household head. In Tables 3b and 3d, we add two variables that are related to the structure of the household: the number of household members and the number of dependent children. No clear picture emerges from these indicators. For some the countries, income-poor and income-net wealth poor households are larger than other households and for some they are lower. The same is true for the number of dependent children. These two indicators are also the only ones for which the two poverty indicators do not yield the same tendency. For the other indicators, we saw a more moderate or pronounced decline for one of the two poverty indicators, but the direction of the difference was always the same. For household size and number of dependent children, we can identify a few countries for which poor households are larger than the average household or have more dependent children if we define poverty based on income alone and smaller if we take net wealth into account.

The descriptive analysis above does not fully take into account that some of the measures presented are linked, e.g. age and education. We thus also run simple probit regressions to generate correlations between key socio-demographic characteristics and the poverty indicators, while controlling for others. We will only present the analysis for the euro area as a whole.[25] The marginal effects of these regressions are shown in Tables 4A and 4B on the next pages.

Controlling for country fixed effects, we find the typical correlations also documented for other countries and periods (see, for example, Eurostat, 2013; Azpitarte, 2012; Lerman and Miksell, 1988). The age of the reference person has a u-shaped impact on the probability of being in poverty for all indicators but the multi-dimensional, i.e. young and old, households are affected by poverty. The probability of being characterised as poor also increases for households with a female head and single-parent households. Since all our poverty indicators contain income poverty, it is not surprising that highly educated households and households with a high percentage of employed persons are less likely to be poor than other households. That renter households are typically poorer than owner households is confirmed by our regression analysis.

Results for individual countries differ with respect to the size of specific effects and the shape of the age effect (linear for some countries), but are, by and large, in line with the findings for the euro area. Larger differences are observed only for the Malta, Slovakia and Slovenia.

[25] Tables for individual countries are available upon request.

Table 4A– Marginal effects of weighted probit regressions for the euro area of poverty indicator on socio-demographic variables and country fixed effects

	Poverty indicator				
	(1)	(2)	(3)	(4)	(5)
	Income only	Income and net wealth	Income and net liquid assets	MD: Income and Wealth	MD: Income or Wealth
age of head	-0.015***	-0.006***	-0.013***	0.000	-0.018***
	[0.002]	[0.001]	[0.001]	[0.000]	[0.002]
age of head^2	0.000***	0.000***	0.000***	0.000	0.000***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Female	0.048***	0.026***	0.046***	0.002***	0.044***
	[0.008]	[0.005]	[0.008]	[0.001]	[0.010]
One person hh >=65	-0.116***	-0.050***	-0.103***	-0.003***	-0.166***
	[0.012]	[0.006]	[0.011]	[0.001]	[0.014]
Two person hh, <65	-0.082***	-0.033***	-0.069***	-0.002***	-0.112***
	[0.010]	[0.006]	[0.010]	[0.001]	[0.013]
Two person hh, at least one >=65	-0.119***	-0.053***	-0.106***	-0.004***	-0.173***
	[0.010]	[0.005]	[0.009]	[0.001]	[0.012]
Couple with children	-0.01	0.006	-0.005	-0.002***	-0.055***
	[0.012]	[0.007]	[0.011]	[0.001]	[0.013]
Single parent with children	0.093***	0.048***	0.098***	0.001	0.127***
	[0.025]	[0.015]	[0.024]	[0.001]	[0.027]
Three or more person hh	-0.073***	-0.009	-0.061***	-0.002***	-0.123***
	[0.010]	[0.007]	[0.010]	[0.001]	[0.012]
ISCED 2	-0.074***	-0.030***	-0.075***	-0.002***	-0.120***
	[0.008]	[0.004]	[0.007]	[0.001]	[0.009]
ISCED 3+4	-0.168***	-0.077***	-0.159***	-0.005***	-0.225***
	[0.009]	[0.006]	[0.008]	[0.001]	[0.010]
ISCED 5	-0.205***	-0.087***	-0.192***	-0.006***	-0.271***
	[0.007]	[0.005]	[0.006]	[0.001]	[0.008]
Share of empl hh members 16+ in employment	-0.315***	-0.157***	-0.293***	-0.009***	-0.336***
	[0.012]	[0.007]	[0.011]	[0.001]	[0.014]
Owner of HMR	-0.082***	-0.150***	-0.080***	-0.061***	-0.187***
	[0.008]	[0.007]	[0.008]	[0.004]	[0.010]
Country fixed effects			See table 4B		
Number of Observations	61232	61232	61232	61232	61232
Log Likelihood	-23534	-16281	-22474	-7215	-27308

Source: Authors Calculations based on HFCS 2010 - UDB 1.0;

Robust standard errors in brackets: *** p<0.01, ** p<0.05, * p<0.1

Table 4B– Marginal effects of weighted probit regressions for the euro area of poverty indicator on socio-demographic variables and country fixed effects – continued from Table 4A

	Poverty indicator				
	(1)	(2)	(3)	(4)	(5)
	Income only	Income and net wealth	Income and net liquid assets	MD: Income and Wealth	MD: Income or Wealth
Other independent variables	See Table 4A				
AT	0.167***	0.147***	0.170***	0.025	0.165***
	[0.041]	[0.048]	[0.043]	[0.016]	[0.034]
BE	0.270***	0.245***	0.255***	0.044*	0.189***
	[0.045]	[0.059]	[0.048]	[0.024]	[0.037]
CY	0.460***	0.378***	0.450***	0.119**	0.366***
	[0.046]	[0.069]	[0.050]	[0.053]	[0.038]
DE	0.201***	0.181***	0.194***	0.027**	0.208***
	[0.036]	[0.039]	[0.037]	[0.012]	[0.032]
ES	0.490***	0.344***	0.484***	0.065**	0.440***
	[0.039]	[0.057]	[0.043]	[0.028]	[0.031]
FI	0.018	0.05	0.022	0.013	0.203***
	[0.029]	[0.031]	[0.030]	[0.009]	[0.033]
FR	0.105***	0.102***	0.114***	0.006	0.066**
	[0.032]	[0.033]	[0.033]	[0.005]	[0.027]
GR	0.541***	0.483***	0.549***	0.087**	0.469***
	[0.038]	[0.063]	[0.041]	[0.038]	[0.030]
IT	0.325***	0.285***	0.332***	0.027**	0.256***
	[0.039]	[0.050]	[0.042]	[0.014]	[0.031]
NL	0.099**	0.096**	0.096**	0.003	0.203***
	[0.042]	[0.045]	[0.043]	[0.005]	[0.041]
PT	0.709***	0.723***	0.709***	0.115**	0.622***
	[0.024]	[0.048]	[0.028]	[0.046]	[0.021]
SI	0.709***	0.732***	0.733***	0.211**	0.630***
	[0.031]	[0.057]	[0.031]	[0.089]	[0.028]
SK	0.847***	0.930***	0.863***	0.258***	0.776***
	[0.004]	[0.007]	[0.004]	[0.080]	[0.004]
Number of Observations	61232	61232	61232	61232	61232
Log Likelihood	-23534	-16281	-22474	-7215	-27308

Source: Authors Calculations based on HFCS 2010 - UDB 1.0
Robust standard errors in brackets: * p<0.01, ** p<0.05, * p<0.1

4.3 The portfolios of poor households

The detailed information on assets and liabilities allows us to look at the asset structure of poor households. Table 5 on the next page presents the results for poor households according to the income poverty definition and table 6 below shows the portfolio structure of the combined income and wealth measure.

The participation rates for all assets and types of debt included in Tables 5 and 6 are lower for poor households than for the population as a whole. Poor households are particularly under-represented in real assets. This is not surprising, since the purchase of real assets usually requires adequate savings or income to pay for mortgages or other forms of debt. Across countries, we see differences especially with respect to the ownership of the household main residence. In high-ownership countries like Spain, Greece and Slovakia, income-poor households are typically owners, while in low-ownership countries the difference in ownership shares between poor and less poor households is more pronounced. When poor households are defined based on the combined income and net wealth measure (Table 6), the ownership share for all countries goes down by a large margin. This underscores the role of property ownership in households' wealth.

Participation in financial assets is less affected by poverty than real assets are. With the exception of a few south European countries, the difference in participation rates for poor households and the total population is less than 10 percentage points. In Cyprus, Greece, Italy, Malta and Portugal the gap rises to about 25 percentage points for income-poor and wealth-poor households. Only a small number of poor households participate in securities markets, confirming the existing literature on stock market participation. For the income- and net wealth-poor households, the participations rates are below 2% for almost all countries.

Participation in non-collateralised debt and the difference between poor households and the population is more heterogeneous across countries than the measures for real and financial assets. For income-poor households we observe no country for which the percentage of households with unsecured liabilities is higher than for the population as a whole. This could be an indication of credit constraints on the part of poor households. If we take net wealth and income into account, the picture is less clear. For Austria, Belgium, Italy and Germany, debt participation is higher for poor households than for other households. For most other countries the size of the gap is less than under the pure income measure. We focus on non-collateralised loans and can thus rule out that this is an effect of using assets as collateral to alleviate credit constraints. This finding could rather be related to the construction of the combined income and net wealth indicator, which allows low income households with sufficient (annuitised) net wealth to "escape" poverty. Households with low (annuitised) net wealth, which is low not least because they hold (unsecured) debt, remain among the poor households even under this definition.

Table 5 Selected asset and debt indicators for income poor households (indicator 1), by country

	EA	AT	BE	CY	DE	ES	FI	FR	GR	IT	LU	MT	NL	PT	SI	SK
Real Assets [1)]	84 %	67 %	75 %	86 %	55 %	90 %	65 %	100 %	81 %	95 %	83 %	83 %	88 %	83 %	93 %	90 %
	(-8)	(-18)	(-15)	(-10)	(-25)	(-5)	(-20)	(0)	(-11)	(-3)	(-10)	(-11)	(-2)	(-7)	(-3)	(-6)
Household Main Residence	53 %	36 %	50 %	62 %	22 %	78 %	42 %	29 %	66 %	55 %	48 %	68 %	51 %	65 %	72 %	84 %
	(-7)	(-12)	(-20)	(-15)	(-22)	(-4)	(-26)	(-26)	(-6)	(-14)	(-19)	(-10)	(-7)	(-6)	(-9)	(-6)
Vehicles	50 %	51 %	57 %	69 %	46 %	51 %	41 %	0 %	47 %	67 %	71 %	70 %	79 %	54 %	75 %	40 %
	(-10)	(-24)	(-20)	(-19)	(-25)	(-27)	(-26)	(0)	(-25)	(-16)	(-16)	(-15)	(-3)	(-19)	(-5)	(-21)
Financial Assets[2)]	91 %	98 %	95 %	75 %	98 %	97 %	100 %	99 %	55 %	75 %	96 %	90 %	99 %	87 %	85 %	83 %
	(-6)	(-2)	(-3)	(-13)	(-1)	(-1)	(0)	(-1)	(-19)	(-17)	(-2)	(-7)	(1)	(-7)	(-9)	(-8)
Deposits	90 %	98 %	94 %	70 %	97 %	97 %	100 %	99 %	54 %	74 %	95 %	89 %	95 %	87 %	85 %	83 %
	(-6)	(-2)	(-4)	(-11)	(-2)	(-1)	(0)	(-1)	(-19)	(-18)	(-3)	(-8)	(0)	(-8)	(-9)	(-8)
Shares	2 %	2 %	5 %	20 %	2 %	3 %	7 %	4 %	0 %	0 %	1 %	7 %	6 %	1 %	7 %	1 %
	(-8)	(-4)	(-9)	(-15)	(-8)	(-7)	(-15)	(-11)	(-2)	(-4)	(-9)	(-6)	(-5)	(-4)	(-3)	(0)
Debt [3)]	29 %	28 %	34 %	41 %	36 %	26 %	33 %	29 %	19 %	19 %	49 %	22 %	61 %	20 %	26 %	24 %
	(-14)	(-8)	(-11)	(-24)	(-12)	(-24)	(-26)	(-18)	(-17)	(-6)	(-10)	(-12)	(-4)	(-18)	(-18)	(-3)
Non-collateralised Loans	17 %	11 %	18 %	21 %	22 %	16 %	30 %	17 %	8 %	15 %	25 %	14 %	20 %	9 %	14 %	8 %
	(-5)	(0)	(0)	(-8)	(0)	(-11)	(-21)	(-11)	(-5)	(0)	(-6)	(0)	(-5)	(-4)	(-13)	(-5)

Source: Authors' Calculations based on HFCS 2010 - UDB 1.0

Notes: In parentheses: Differences between total population and income poor households in percentage points

1 Real estate (owner-occupied and other properties), business wealth, vehicles and valuables

2 Deposits, bonds, shares, mutual funds, managed accounts, private lending, voluntary pensions and whole life insurance contracts, as well as other financial assets. excl. public and occupational pension plans

3 Mortgage debt as well as unsecured loans (e.g. credit card debts, overdrafts, consumer loans)

Table 6 Selected asset and debt indicators for poor households under the income-net wealth poverty criterion (indicator 2), by country

	EA	AT	BE	CY	DE	ES	FI	FR	GR	IT	LU	MT	NL	PT	SI	SK
Real Assets [1)]	74 %	51 %	56 %	70 %	46 %	70 %	44 %	100 %	62 %	90 %	75 %	60 %	81 %	66 %	88 %	75 %
	(-17)	(-33)	(-34)	(-26)	(-35)	(-26)	(-40)	(0)	(-31)	(-8)	(-18)	(-35)	(-9)	(-24)	(-8)	(-21)
Household Main Residence	30 %	12 %	17 %	26 %	9 %	40 %	12 %	6 %	36 %	23 %	21 %	15 %	33 %	35 %	53 %	57 %
	(-30)	(-36)	(-53)	(-50)	(-36)	(-43)	(-56)	(-50)	(-36)	(-45)	(-46)	(-62)	(-24)	(-37)	(-29)	(-33)
Vehicles	47 %	41 %	46 %	66 %	42 %	54 %	36 %	0 %	47 %	70 %	68 %	57 %	74 %	52 %	81 %	54 %
	(-14)	(-34)	(-31)	(-23)	(-29)	(-23)	(-32)	(0)	(-26)	(-13)	(-18)	(-28)	(-8)	(-20)	(1)	(-7)
Financial Assets[2)]	89 %	98 %	93 %	57 %	97 %	94 %	100 %	98 %	49 %	67 %	96 %	73 %	98 %	84 %	82 %	88 %
	(-8)	(-1)	(-6)	(-31)	(-2)	(-4)	(0)	(-2)	(-26)	(-25)	(-3)	(-24)	(0)	(-10)	(-12)	(-4)
Deposits	88 %	98 %	91 %	53 %	97 %	94 %	100 %	98 %	48 %	67 %	96 %	67 %	93 %	84 %	82 %	88 %
	(-8)	(-1)	(-7)	(-28)	(-2)	(-4)	(0)	(-2)	(-25)	(-25)	(-2)	(-29)	(-1)	(-10)	(-12)	(-3)
Shares	1 %	0 %	1 %	10 %	0 %	1 %	4 %	1 %	0 %	0 %	0 %	2 %	1 %	0 %	6 %	0 %
	(-9)	(-5)	(-14)	(-24)	(-10)	(-9)	(-18)	(-13)	(-2)	(-5)	(-10)	(-11)	(-10)	(-4)	(-4)	(-1)
Debt [3)]	33 %	31 %	35 %	40 %	39 %	37 %	39 %	29 %	22 %	24 %	50 %	17 %	62 %	25 %	27 %	35 %
	(-11)	(-5)	(-10)	(-25)	(-8)	(-13)	(-21)	(-18)	(-14)	(-1)	(-8)	(-17)	(-4)	(-13)	(-17)	(8)
Non-collateralised Loans	21 %	15 %	21 %	26 %	26 %	26 %	37 %	17 %	8 %	21 %	31 %	12 %	26 %	13 %	10 %	13 %
	(-2)	(4)	(3)	(-4)	(4)	(-2)	(-14)	(-11)	(-4)	(6)	(0)	(-2)	(1)	(0)	(-17)	(0)

Source: Authors' Calculations based on HFCS 2010 UDB 1.0

Notes: In parentheses: Differences between total population and income poor households in percentage points

1 Real estate (owner-occupied and other properties), business wealth, vehicles and valuables

2 Deposits, bonds, shares, mutual funds, managed accounts, private lending, voluntary pensions and whole life insurance contracts, as well as other financial assets. excl. public and occupational pension plans

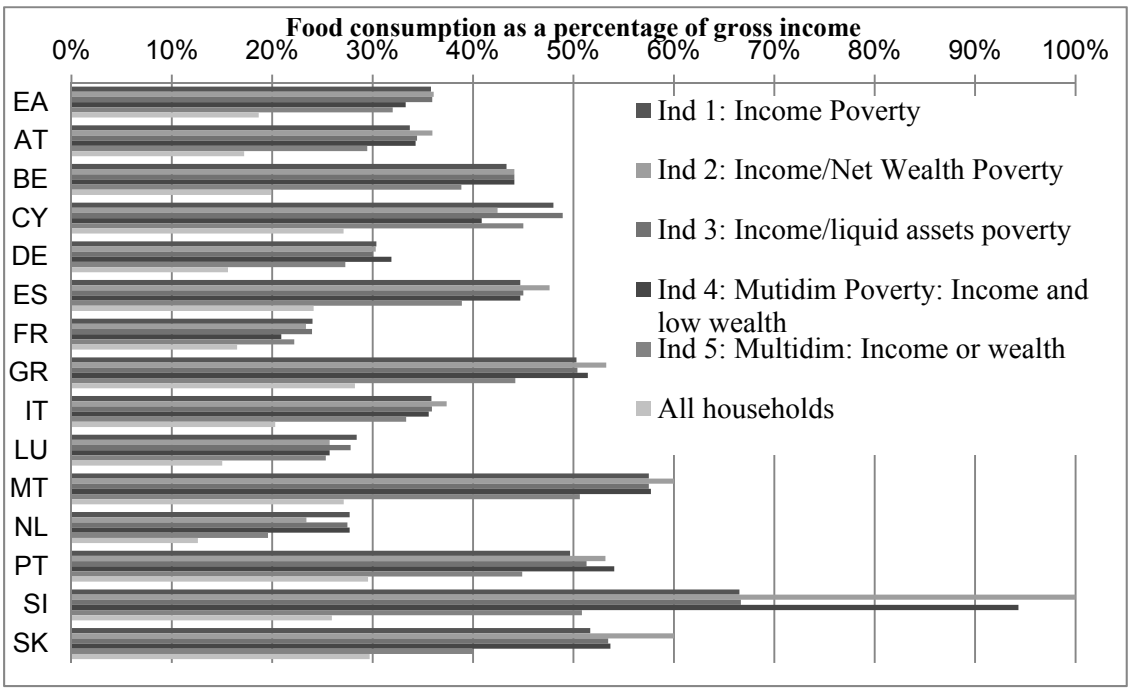
3 Mortgage debt as well as unsecured loans (e.g. credit card debts, overdrafts, consumer loans)

4.4 Poverty and food consumption

In this section of the paper we investigate the consumption behaviour of poor households. As we discussed above in the literature section, consumption is closely linked to well-being. The consumption information provided by the HFCS is very limited. To be more precise, only food consumption is currently available. While food consumption can serve as a proxy for non-durable consumption in some contexts, it is not the best measure for analysing the consumption behaviour of poor households. If households are hit by income shocks, they can be expected to reduce other non-durable consumption first, before they cut-back on food expenditures. For lack of a better measure, we nonetheless investigate whether food consumption differs for poor household along the different definitions of poverty.

Figure 1 below shows the median of households' share of food consumption in household gross income. With the exception of Greece, Malta, Portugal, Slovenia and Slovakia, poor households spend less than 50% of their gross income on food. In the larger euro-area countries, the share of food expenditure as a percentage of gross income is at about one-third.[26] Given that we look at gross income and not disposable income, this percentage can be considered as very high, even for the latter countries. This finding clearly supports the notion that consumption and poverty are linked.

Figure 1 Median of food consumption as a percentage of gross household income for poor households



Source: Authors' calculation, HFCS 2010 - UDB 1.0

Notes: Includes food consumed at home and outside HMR.

[26] The euro-area average for all households is at 19%.

Surprisingly, the definition of poverty does not seem to matter much. Regardless of whether and how wealth is integrated into the definition of poverty, food consumption as a share of income remains the same or, at least, very similar for all countries, except for Slovenia.[27] Noticeable differences between the poverty measures are observed only for the multi-dimensional measure where households belonging to the bottom decile of the wealth distribution, but have income above the poverty line, are added to the group of income-poor households (indicator 5).

5 Conclusions and future research

In this paper we look at several different measures of poverty that combine the households' situation with respect to income and wealth. Using micro-data from the Household Finance and Consumption Survey (HFCS), we show heterogeneity in the percentage of poor households across different poverty measures for each country. Especially multi-dimensional measures of poverty seem to lead to different percentages of poor households compared with measures that directly integrate income and wealth into a single measure. It has to be kept in mind, however, that the concept of wealth poverty used in the construction of the multi-dimensional measures differs from that for the integrated indicators. In general, the correlation between the different measures is rather high. We also found that the specific definition of wealth used for an asset poverty measure is important. If only liquid assets are included, the reduction in poverty rates is negligible. We did not look at poverty measures that only consider wealth in order to identify poor households. The situation may be rather different for a pure wealth poverty indicator. This would be an interesting topic for future research.

The percentage of households in poverty for each of the indicators across countries is relatively homogenous. Interestingly, the crisis countries do not stand out with respect to their share of poor households in the 2010 HFCS data sets. This may be an effect of the reference period, which is early on in the crisis. Data from the EU-SILC shows that, in more recent years, the percentage of income poor households has been increasing in Italy and Greece. Furthermore, the impact of adding wealth to the poverty definition has similar effects on the number and resulting structure of poor households in all the countries we look at.

The socio-demographics of poor households show the expected patterns, irrespective of the poverty indicator. In almost all countries, the risk of being income and/or wealth-poor poor is higher for small households, single-parent households and households with a less educated head. Participation rates in real and financial assets for poor households are lower than for the population at large. With respect to participation in non-collateralised loans, poor and other households seem to be rather similar. In terms of food consumption as a share of gross income, we observe a significant difference between poor and other households. Again, the

[27] Due to the very low sample size for Slovenia, the results for this country have to be interpreted with caution throughout the paper.

shares do not differ noticeably for different definitions of poverty. The "faces of poverty" and the situation of poor households are similarly independent of the poverty definition. This is a surprising result given that the poverty rates differ substantially across the various indicators and warrants further analysis. It looks like the households "escaping" poverty through accumulated wealth are very similar to those that face both income and asset poverty. Put differently, the socio-demographic composition, portfolios and food consumption expenditure of poor households seems to be mainly driven by their current income stream, rather than their accumulated income, i.e. wealth.

We were faced with some data limitations that should be addressed using other datasets. In particular, the lack of a net or disposable income measure is a drawback for our study. Given that the effect of redistribution through taxes and transfers can be sizeable and differ across countries, the poverty percentages and number of households in poverty have to be interpreted with caution. Our findings on households' consumption also warrant further analysis and should be extended to non-durable or total consumption.

We think our results can provide valuable insights for European and national policymakers in trying to identify poor households in terms of more general concepts that go beyond income. We have touched upon some of the issues that may be brought about by an increasing move to multi-dimensional or integrated poverty measures. More research on the integration of different concepts into a single poverty indicator is certainly necessary, especially if financial and non-financial measures are to be integrated.

References

Albacete, N., and P. Lindner (2013), *Household vulnerability in Austria – a microeconomic analysis based on the household finance and consumption survey*, Financial Stability Report 25, OeNB, Vienna, 57-73.

Ando, A., and F. Modigliani (1963), The" life cycle" hypothesis of saving: Aggregate implications and tests, *The American Economic Review*, 53(1), 55-84.

Atkinson, A. B. (ed.) (2002), Social indicators: The EU and social inclusion, Oxford University Press.

Atkinson, A.B. (1987), On the Measurement of Poverty, *Econometrica*, 55(4), 749-764.

Azpitarte, F. (2012), Measuring Poverty Using Both Income And Wealth: A Cross-Country Comparison Between The US And Spain, *Review of Income and Wealth*, 58(1), 24-50.

Bertaut, C.C., and M. Haliassos (1997), Precautionary portfolio behavior from a life-cycle perspective, *Journal of Economics Dynamics and Control*, 21 (1997), 1511-1542.

Bourguignon, F., and S.R. Chakaravarty (2003), The measurement of multidimensional poverty, *Journal of Economic Inequality*, 1, 25-49.

Brandolini, A., Magri, S., and Smeeding, T. M. (2010), Asset-based measurement of poverty, *Journal of Policy Analysis and Management*, 29(2), 267-284.

Cocco, J.F. (2004), Portfolio choice in the presence of housing, *The Review of Financial Studies*, 18(2), 335-367.

Cutler D. and L. Katz (1992), Rising Inequality? Changes in the distribution of income and consumption in the 1980s, *American Economic Review: Papers and Proceedings*, 82, 546-551.

Deaton, A. (1991), Saving and liquidity constraints, *Econometrica*, 59(5), 1221-1248.

European Central Bank (2009), *Housing Finance in the Euro Area*, ECB Occasional Paper No 101, Frankfurt am Main.

Eurostat (2013), *Household composition, poverty and hardship across Europe*, Eurostat Statistical Working Papers, Luxembourg.

Gornick, J., E.Sierminska and T. Smeeding (2009), The Income and Wealth Packages of Older Women in Cross-National Perspective, *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences,* 64B(3), 402-414.

Graham C. and S. Pettinato (2002), Frustrated Achievers: Winners, Losers, and subjective well-being in emerging market economies, *Journal of Development Studies*, 38(4), 100-140.

Harper and Price (2011), *A framework for understanding the social impacts of policy and their effects on well-being – A paper by the Social Impact Taskforce*, Defra Evidence and Analysis Series. No. 3. London.

Haveman, R., and E.N. Wolff (2004), The concept and measurement of asset poverty: Levels, trends and composition for the US, 1983–2001, *The Journal of Economic Inequality*, 2(2), 145-169.

Heady, B. and M. Wooden (2004), The effects of wealth and income on subjective well-being and ill-being", *The Economic Record*, 80(S1), 24-33

HFCN (2013a). "The Eurosystem Household Finance and Consumption Survey: Methodological report for the first wave", ECB Statistical Paper Series, No. 1.

HFCN (2013b). "The Eurosystem Household Finance and Consumption Survey: Results from the first wave", ECB Statistical Paper Series, No.2.

Marlier, E., and A.B. Atkinson (2010), Indicators of poverty and social exclusion in a global context, *Journal of Policy Analysis and Management*, 29(2), 285-304.

Meyer, B. D. and J. X. Sullivan (2011a), *Consumption and Income Poverty Over the Business Cycle*, NBER Working Paper, No. w16751, Cambridge, Mass.

Meyer, B. D. and J. X. Sullivan (2011b), Viewpoint: Further results on measuring the well-being of the poor using income and consumption, *Canadian Journal of Economics*, 44(1), 52-87.

Meyer, B. D. and J.X. Sullivan (2009), *Five decades of consumption and income poverty*, NBER Working Paper, No. w14827, Cambridge, Mass.

Meyer, B. D., and Sullivan, J. X. (2007). Measuring the Well-Being of the Poor Using Income and Consumption, *Journal of Human Resources*, 38, 1180-1220.

Nolan, B., and C.T. Whelan (2007), On the multidimensionality of poverty and social exclusion, in S.P. Jenkins and J. Micklewright (eds.), Inequality and Poverty Reexamined, 146-165, Oxford University Press, Oxford.

OECD (1982), The OECD List if Social indicators, OECD Publishing, Paris.

OECD (2011a), How's life? Measuring Well-Being, OECD Publishing, Paris.

OECD (2011b), Poverty in Society at a Glance 2011: OECD Social Indicators, OECD Publishing, Paris.

OECD (2013), OECD Framework for Statistics on the Distribution of Household Income, Consumption and Wealth, OECD Publishing. http://dx.doi.org/10.1787/9789264194830-en

Peress, J. (2004), Wealth, information acquisition, and portfolio choice, *The Review of Financial Studies*, 17(3), 879-914.

Rendall, M.S., and A. Speare (1993), Comparing Economic Well-being Among Elderly Americans, Review of Income and Wealth, Vol 39, 1-12.

Rosen, H.S., and S. Wu (2004), Portfolio choice and health status, *Journal of Financial Economics*, 72 (2004), 457-484.

Michael, S. (1991). Assets and the Poor: A New American Welfare Policy. Armonk, ME Sharpe Inc., New York.

Stiglitz J., A. Sen and J.P. Fitoussi (2009), *Report by the Commission on the Measurement of Economic Performance and Social Progress*, http://www.stigiliz-sen-fitoussi.fr/docuemnts/rapport_anglais.pdf.

Wachter, J.A., and M. Yogo (2010), Why do household portfolio shares rise in wealth?, *The Review of Financial Studies*, 23, 3929-3965

Weisbrod, B.A., and W.L. Hansen (1968), An income-net worth approach to measuring economic welfare. American Economic Review, Vol 58, 1315-1329.

World Bank (2001), World Development Report 2000/2001 – Attacking Poverty., Washington D.C.: The World Bank.

Appendix

Table A1 – Median gross equivalised income, annuitised and equivalised net wealth or liquid assets per household and annuity factors

	60% of median gross equivalised income	**Median gross equivalised income**	**Median of annuity factors**	**Median of annuitised and equivalised net wealth**	**Median of annuitised and equivalised liquid assets**
	in € 1,000	**in € 1,000**	**-**	**in € 1,000**	**in €**
	weighted	**weighted**	**unweighted**	**weighted**	**weighted**
EA	11.3	18.8	0.058	4.2	263
AT	13.1	21.8	0.056	3.0	463
BE	13.8	23.0	0.059	8.0	473
CY	10.8	18.0	0.054	8.9	109
DE	13.8	23.0	0.059	2.2	370
ES	8.3	13.8	0.062	6.3	136
FI	15.3	25.5	0.055	3.6	266
FR	11.7	19.5	0.058	4.3	290
GR	7.7	12.8	0.052	3.6	45
IT	10.2	17.1	0.061	6.5	259
LU	23.4	39.0	0.054	13.3	650
MT	7.2	11.9	0.060	6.7	639
NL	17.1	28.4	0.062	3.5	380
PT	4.9	8.2	0.061	2.7	95
SI	6.2	10.3	0.058	3.8	24
SK	3.8	6.3	0.053	2.1	54

Source: Authors Calculations based on HFCS 2010 - UDB 1.0

Table A2 – Distribution of net wealth per household, in € thousands

Country	Bottom decile (p10)	Median	Top decile (p90)
EA	1.2	109.2	506.2
AT	1.0	76.4	542.2
BE	2.8	206.2	705.1
CY	7.3	266.9	1469.9
DE	0.1	51.4	442.3
ES	5.7	182.7	607.7
FI	-0.6	85.8	397.3
FR	1.6	115.8	511.6
GR	2.0	101.9	331.8
IT	5.0	173.5	577.1
LU	5.0	397.8	1375.4
MT	16.1	215.9	693.1
NL	-3.8	103.6	427.6
PT	1.0	75.2	297.2
SI	4.2	100.7	317.2
SK	12.9	61.2	151.9

Source: Eurosystem Household Finance and Consumption Survey (2013) – Statistical Tables – Table J3.

Table A3 –Number and share of poor households for different poverty indicators, by country

Country		Poverty Indicators Indicator 1 Income only	Indicator 2 Income and net wealth	Indicator 3 Income and net liquid assets	Indicator 4 MD: Income and Wealth	Indicator 5 MD: Inc. or Wealth
EA	Number	31,385,791	19,060,389	29,241,983	6,159,817	39,038,070
	Share	23%	14%	21%	4%	28%
AT	Number	693,644	458,942	630,259	165,857	904,674
	Share	18%	12%	17%	4%	24%
BE	Number	1,211,614	661,776	1,043,310	318,049	1,359,092
	Share	26%	14%	22%	7%	29%
CY	Number	74,275	31,221	66,869	18,481	86,105
	Share	24%	10%	22%	6%	28%
DE	Number	8,908,539	6,886,286	8,311,968	1,861,230	11,010,380
	Share	22%	17%	21%	5%	28%
ES	Number	3,746,200	1,228,925	3,429,308	585,477	4,859,001
	Share	22%	7%	20%	3%	29%
FI	Number	504,821	308,801	449,695	57,378	700,274
	Share	20%	12%	18%	2%	28%
FR	Number	4,562,879	2,995,274	4,279,445	1,088,114	6,255,675
	Share	16%	11%	15%	4%	22%
GR	Number	848,095	416,142	825,305	177,610	1,068,605
	Share	21%	10%	20%	4%	26%
IT	Number	5,367,788	2,969,370	5,048,816	1,355,503	6,390,309
	Share	23%	12%	21%	6%	27%
LU	Number	37,757	23,835	36,864	9,538	46,794
	Share	20%	13%	20%	5%	25%
MT	Number	27,362	7,577	20,601	6,020	35,802
	Share	19%	5%	14%	4%	25%
NL	Number	1,405,047	906,900	1,287,744	92,787	2,061,440
	Share	19%	12%	17%	1%	28%
PT	Number	848,184	402,435	776,436	158,152	1,082,436
	Share	22%	10%	20%	4%	28%
SI	Number	224,018	122,974	216,123	44,397	257,038
	Share	29%	16%	28%	6%	33%
SK	Number	235,385	83,515	218,531	41,704	384,503
	Share	12%	4%	11%	2%	20%

Source: Authors Calculations based on HFCS 2010 - UDB 1.0