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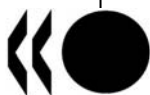
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**EXECUTIVE SUMMARY**

This report looks at the extent to which household net worth and disposable income are correlated across individuals. After having briefly discussed the importance of better information on household wealth for social policies, the paper describes the main features of the *Luxembourg Wealth Study* – a collaborative project to assemble existing micro-data on household wealth into a coherent database that aims to do for wealth what the *Luxembourg Income Study* has achieved for income– and some of the basic patterns highlighted by these data, while noting the important methodological features that affect comparability. The main bulk of the report focuses on the joint distribution of income and wealth. While the comprehensive definition of wealth used (i.e. including business equity) allows covering only five OECD countries, the analysis uncovers a number of patterns. In particular, household net worth and disposable income are highly, but not perfectly correlated across people within each country. Many of the people classified as income poor do have some assets, although both the prevalence of holding and the amounts are clearly lower than among the general population. While part of the positive association between disposable income and net worth reflects observable characteristics of households, such as age and education of the household head, a sizeable correlation remains even after controlling for these characteristics.

**RESUMÉ**

Ce rapport examine la corrélation entre le patrimoine des ménages et leur revenu disponible. Après avoir brièvement évoqué l'importance d'une meilleure information sur les patrimoines pour les politiques sociales, le document décrit les principales caractéristiques du *Luxembourg Wealth Study (LWS)* – un projet mené pour réunir les micro-données existantes sur le patrimoine des ménages dans une base de données cohérente, visant à accomplir pour les patrimoines ce que le *Luxembourg Income Study (LIS)* a réussi pour les revenus. Le rapport décrit quelques aspects fondamentaux mis en relief par ces données, tout en notant les caractéristiques méthodologiques qui ont un effet sur la comparabilité internationale. La partie centrale du rapport se concentre sur la distribution conjointe du patrimoine et du revenu. Alors que la définition du patrimoine utilisée (incluant les actifs professionnels) permet de couvrir seulement cinq pays de l'OCDE, l'analyse révèle un nombre d'éléments. La corrélation entre patrimoine et revenu disponible des individus dans chaque pays est élevée mais pas pour autant parfaite. Beaucoup de personnes ayant un revenu inférieur au seuil de pauvreté ont un patrimoine positif, bien que les personnes dans cette situation et les montants détenus soient clairement plus faibles que pour la population dans son ensemble. Si une partie de la corrélation positive entre revenu et patrimoine révèle des caractéristiques observables des ménages, telles que l'âge et l'éducation des chefs de famille, il n'en demeure pas moins qu'une corrélation non négligeable subsiste même après avoir contrôlé l'effet de ces caractéristiques.

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# THE JOINT DISTRIBUTION OF HOUSEHOLD INCOME AND WEALTH: EVIDENCE FROM THE LUXEMBOURG WEALTH STUDY[1]

## Introduction

1.	The study of the distribution and composition of household wealth is a flourishing research field. Empirical analysis must, however, cope with considerable weaknesses in the available data. Household surveys of assets and debts, for instance, typically suffer from large sampling errors due to the high skewness of the wealth distribution as well as from serious non-sampling errors. In comparative analysis, these problems are compounded by great differences in the methods and definitions used in various countries. Indeed, in introducing a collection of essays on household portfolios in five countries, Guiso, Haliassos and Jappelli (2002, pp. 6-7) mention "definitions" as the "initial problem" and warn the reader that "the special features and problems of each survey … should be kept in mind when trying to compare data across countries". Likewise, Davies and Shorrocks conclude their extensive survey on the distribution of wealth by remarking that: "Adoption of a common framework in different countries, along the lines that have been developed for income distributions, would improve the scope for comparative studies" (2000, p. 666). We repeat these considerations here.

2.	The contrast with income is an apt one. By now, also thanks to the endeavour of the Luxembourg Income Study (LIS), we have a good idea of the income inequality ranking of OECD countries (e.g., Brandolini and Smeeding, 2005; 2007). At the turn of the century, inequality was least in Nordic countries. The Benelux countries, France, Germany and other Central and Eastern European countries come next, preceding most Anglo-Saxon nations and Southern European countries. Among the countries currently covered in LIS, the United States, Estonia, Mexico and Russia exhibited the highest degree of inequality. While we can draw this picture with some confidence, our knowledge is far more uncertain on the country ordering in terms of wealth inequality and therefore the intersection of both types of resources presents similar issues.

3.	A recent compilation of wealth inequality data for nine nations around the beginning of this decade shows that Sweden, not the United States, leads the ranking (Brandolini, 2006, Figure 2, p. 48). This evidence not only runs counter to that based on income, but also to earlier evidence. According to the figures assembled by Davies and Shorrocks (2000, Table 1, p. 637) for 11 nations, in the mid 1980s wealth inequality was among the lowest in Sweden and greatest in the United States. Does this different ranking reflect true changes during the 1990s, or are we facing some statistical artifact? We might lean towards the latter explanation, should we turn to the results by Klevmarken, Lupton and Stafford (2003) showing the much higher inequality of the U.S. wealth distribution in the 1980s and 1990s.[2] This is a clear warning

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[2]	Klevmarken (2006, pp. 30-1) reports that, in 2003, the inequality of net worth was in Sweden somewhat below the average, and lower than in France, Germany and Italy, according to the evidence of the Survey of Health, Ageing and Retirement in Europe (SHARE) – an international project for the collection of data

that, before making cross-country comparisons and investigating the causes of different patterns, we must carefully understand the extent to which wealth data are comparable.

4.      These and similar questions have led researchers and institutions from a number of countries to join forces to launch the Luxembourg Wealth Study (LWS) – an international project to assemble existing micro-data on household wealth into a coherent database. As the LIS experience has clearly shown, the availability of such a database is likely to spur comparative research on household net worth, portfolio composition, and wealth distributions, and to stimulate a process of harmonization of definitions and methodologies.

5.      The main features of the LWS and preliminary results are shown in the first LWS working papers (e.g. Sierminska *et al.*, 2007, http://www.lisproject.org/publications/lwswpapers.htm). Other recent papers on the same website look at the characteristics of individuals (median net worth) by age, gender and education. Some of these papers provide a special focus on the economic conditions of the elderly in terms of both income and assets, looking at how the combination of resources in retirement varies with characteristics of the social protection system (Gornick *et al.*, 2006; 2007). Others look at cross-country differences in homeownership rates (Bicakova and Sierminska, 2007).

6.      The purpose of this report is to describe asset holdings and their distribution for the entire population (mean and median levels) and their composition – in terms of both diffusions and amounts. This paper presents measures of inequality based on a range of wealth definitions – with some discussion of people reporting negative net worth. It also focuses on the joint distribution of net worth and income for the entire population (median net worth by income quartile groups; distribution of top/bottom/median net worth quartile by income quartile group; measures of income and financial asset poverty) so as to provide measures of the population that are income-poor but asset-rich.

**Wealth and Policy Issues**

7.      The joint distribution of wealth and of income is of course affected by a very large number of public policies in a multitude of ways. Any attempt to summarize the policies which affect wealth holding at the household level is inevitably partial and idiosyncratic. After all, it does not take a great effort of the imagination, or even of the evidence, to make links between the human capital in a household, its income, and its holdings of other forms of capital, and between macroeconomic variables and the rate of return on financial assets. Through these two routes, virtually any aspect of government economic and social policy (broadly defined) can be said to influence asset-holding. We think three main areas of policy concern are worth mentioning as examples here, namely asset and means-tests in targeted programmes, tests in support for long-term care and the interaction of assets and public pension policies.

8.      An examination of the joint distribution of income and wealth has potential policy implications through asset and means tests in target programmes. Means-tests (including income and assets) are thought to be somewhat more stringent then are income-tests alone but most comparative studies of welfare programmes to date have only had access to income data. Consideration of the joint distribution of income and assets should allow us, in principle, to say something on whether income and assets tests are "biting" and how the two measures complement one another or not. But asset policy, in and of itself, is a controversial issue.

9.      Most stories of asset accumulation by households include an element of precautionary saving 'against a rainy day', as well as life-cycle redistribution. The welfare state provides an alternative means

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standardised from the outset on the living conditions and health status of the households with at least one member aged 50 and more.

for individuals to cope with both objectives, by providing insurance against unemployment and disability, and through public pension savings. But if we also limit welfare state benefits by the amount of liquid assets which the family holds, we encourage households to liquidate or hide these assets. Thus possible self-protection in the form of private assets is discouraged by policies which penalize or tax such assets before benefits can be received. Thus, limiting liquid assets to under $2 000, or the value of automobiles to under $4 500, as is the case with targeted benefits in the United States (such as SSI, Food Stamps), discourages both precautionary savings and maintaining a valuable vehicle for transporting oneself to work and back. Even in cases where the liquid asset limit is rather high (e.g., about $A60 000 for the Australian means-tested old-age flat pension), potential beneficiaries are encouraged to invest in untaxed assets (e.g. own homes) and not in "taxed" financial assets. Indeed, the height of policy irony takes place where "matched savings" polices are aimed at increasing assets for low-income persons, while at the same time means-testing punishes the income poor for holding such assets.

10.      The welfare state and the distribution of assets interact also in the financing of long-term care (LTC) for the frail elderly. Approximately 10-15% of those reaching retirement eventually need help with activities of daily living, especially older women. Much attention focuses on whether healthy life expectancy is increasing at the same rate as life expectancy itself. The jury is still out on that – the best that can currently be said is that 'it might' be (compare Cutler 2001 with Wolf, 2001). And many studies of disability at older ages do not measure trends in dementias of various types. But clearly, if provision is provided collectively through insurance (as it is in Germany and Japan, for example), the need to accumulate assets to pay for LTC is much less than in countries where the individual or family is expected to pay. In many countries, public support for LTC is a branch of the welfare system, often subject to means-tests. A great deal of institutional information is available on the structure of support for LTC, though it is hard to see what form the best explanatory indicator might take. There are few good studies of the effects of means-tested LTC benefits on asset transfer.

11.      One more area where there is relatively little information available is the accumulation of individual assets in employer-provided pensions. Generally, the best information available in all-purpose wealth surveys consists of the proportion of the current working population who are covered. A survey of occupational pension scheme providers and large employers is currently being carried out by the OECD, jointly with the EU, and may shed some more light on what sort of pension entitlements are being accumulated outside of social retirement systems.

12.      It is not possible to examine these issues in detail in this paper. Moreover, information on pension fund accumulations is not available in comparative form at this time. However, we think it is useful to bear in mind these potential policy links when looking at our descriptive results.

**Basic measures and methodology**

13.      In this section, we first describe the Luxembourg Wealth Study database (LWS) and then explain the selections we have made for the analyses in this paper. The surveys in LWS differ by purpose and sampling frame (see Sierminska, 2005, for details). Certain surveys have been designed for the specific purpose of collecting wealth data (i.e. Canada, Italy, and the SCF in the United States), whereas others cover different areas and have been supplemented with special wealth modules (i.e. Germany and the PSID in the United States). Some surveys over-sample the wealthy and provide a better coverage of the upper tail of the distribution (Canada, Germany and the SCF in the United States), but at the cost of higher non-response rates. And not all oversample evenly, as only the US SCF uses a list sample of tax authority records and a large sample of high-wealth persons. Others ask only a small number of broad wealth questions, but achieve good response rates (e.g., US-PSID). Germany, in the past, applied a special case of bottom-coding as financial assets, durables and collectibles, and non-housing debt are only recorded when

their respective values exceed 2 500 euros – and better comparability can be achieved by imposing the same bottom-coding to the records of other countries.

14.      Definitions are also not uniform across surveys:

- In general, the *unit of analysis* is the household, but it is the individual in Germany, and the nuclear family (i.e. a single adult or a couple plus dependent children) in Canada. A household is defined as including all persons living together in the same dwelling, but sharing expenses is an additional requirement in Italy, Sweden and the United States. This implies that demographic differences reflect both the definition of the unit of analysis and true differences in the population structure.

- The *household's head* is defined as the main income earner in most surveys, but as the person most knowledgeable and responsible for household finances in Germany and Italy. The United States is the only country where the head is taken to be the male in mixed-sex couples.

15.      The surveys included in the LWS archive differ in many other respects, and some aspects more closely related to wealth variables are discussed in the next Section. Full documentation of each survey's features is an important constituent of the LWS archive. The LWS documentation also reports which of these differences in the original surveys were corrected for in the harmonization process, and which were not. See http://www.lisproject.org/lwstechdoc.htm for more on these idiosyncrasies.

### LWS variables and income and wealth classifications

16.      The number and definition of recorded wealth variables vary considerably across surveys. The number of wealth categories ranges from 7 in the UK-BHPS (which is not used here) to 30 or more in the IT-SHIW and the US-SCF. These differences compound with the detail of the questions: in some surveys, there are few simple summary questions; in other surveys, the very high level of detail leads to a considerable multiplication of the number of separate recorded items. The US-SCF is by far the most detailed survey of those included in the LWS database: checking accounts, for instance, are first separated into primary and secondary accounts, and then distinguished according to the type of bank where they are held.

17.      The great variation in the amount of recorded information makes the construction of comparable wealth aggregates a daunting task. This problem has been approached by defining an ideal set of variables to be included in the LWS database. This starts with a general classification of wealth components, from which totals and subtotals are obtained by aggregation. This set is then integrated with demographic characteristics (including health status) and income and consumption aggregates, plus a group of variables particularly relevant in the study of household wealth: realized lump-sum incomes (e.g., capital gains, inheritances and *inter-vivo* transfers) and "behavioural" variables such as motives for savings, perceptions about future events (e.g. bequest motivation), attitude towards risk, and so forth.

18.      This ideal list has been pared down after a comparison with the information actually available in the LWS surveys. With regards to wealth, this process has led to identify the following categories:

- *Financial assets*: Transaction and savings accounts; Certificate of Deposits; Total bonds; Stocks; Mutual and investment funds; Life insurance; Pension assets; and other financial assets.

- *Non-financial assets*: Principal residence; Investment in real estate; Business equity; Vehicles; Durables and collectibles; and other non-financial assets.

- *Liabilities*: Home-secured debt – i.e. the sum of principal residence mortgage, other property mortgage, and other home-secured debt (including lines of credit); Vehicle loans; Instalment debt (including credit card balance); Educational loans; other loans from financial institutions; and informal debt.

- *Net worth*: Financial plus non-financial assets less Liabilities.

19.       Crossing this classificatory grid with the information available in each LWS survey gives rise to the matrix shown in Table A.2. This matrix illustrates the difficulty of transforming the original sources into a harmonized database: coverage and aggregation of wealth items vary widely across surveys. An acceptable degree of comparability can be obtained for only four main categories of financial assets: i) deposit accounts; ii) bonds; iii) stocks; and iv) mutual funds – with the partial exception of Germany which does not record information on checking deposits. The remaining financial components are available only for some countries. For non-financial assets, the greatest comparability is obtained for: i) principal residence; and ii) investment real estate, while for business equity differences are irreducible. Liabilities are present in all surveys, though with a varying degree of detail. Applying the minimum common denominator criterion to this matrix, the following four LWS aggregates are defined: total financial assets, including deposit accounts, stocks, bonds, and mutual funds; non-financial assets, including principal residence and investment real estate; total debt; and net worth, i.e. the sum of financial and non-financial assets net of total debt.

20.       These LWS aggregates are broadly comparable, but this falls far short of perfect comparability, since underlying definitions and methods vary across surveys. Moreover, these aggregates fail to capture important wealth components, such as business equity and pension assets. As their importance differs across countries, cross-national comparisons are bound to reflect these omissions. Some indication on the size of these omissions is provided by comparing LWS definitions and the national accounts definitions of households' net worth. The LWS database includes the variables which are part of the national accounts concept but are excluded from the LWS definition. This allows users to reconcile the different definitions, as shown in Table A.3 for five countries. The first message of Table A.3 is reassuring: once the missing items are included back in net worth, the LWS figures closely approximate those released in the national accounts. On the other hand, and more worryingly, the weight of these omissions is significant and varies considerably across countries: it goes from about a half in the two North-American nations to less than a fourth in the three European nations of Table A.3. This evidence is a salutary warning of the currently high cost of cross-country comparability: until a greater standardization of wealth surveys is achieved ex-ante, we have to trade off higher comparability against a somewhat incomplete picture of national wealth. Later in the paper we will use a definition of net worth that includes business equity, but which will reduce the number of countries we can analyze. For now, we stick to the definition that is less inclusive but that is available for more countries.

*Further comparability issues*

21.       Other methodological differences, in addition to the definitional issues described above, affect comparability. Some relate to the way assets and liabilities are recorded (i.e. as point values, by brackets, or both) and to their accounting period. Wealth values generally refer to the time of the interview, but in four countries end-of-year values are registered (Table A.1). Moreover, in half of the surveys included in the LWS database the reference period for income differs from that for wealth.

22.       The criteria to value assets and liabilities may differ too (see Atkinson and Harrison, 1978, pp. 5-6). In most cases, wealth components are valued on a "realization" basis, or "the value obtained in a sale on the open market at the date in question" (Atkinson and Harrison, 1978, p. 5), as estimated by the respondent. But there are exceptions, the most relevant being the valuation of real property in Sweden and Norway on a "taxable" basis. In the case of Sweden, Statistics Sweden calculates the ratios of purchase

price to tax value for several types of real estate and geographical locations, and then uses them to inflate the tax values registered in the survey. No adjustment of tax values is applied in Norway, although Statistics Norway estimated that the taxable value of houses in the 1990s was less than a third of their market value (see Harding, Solheim and Benedictow, 2004, pp. 15-6, fn. 10). These diverse choices are likely to affect comparisons between the two Scandinavian countries, as well as between them and the other countries relying on valuation at market prices, as estimated by respondents.

23.      Lastly, there are different patterns of non-response and different imputation procedures. For instance, the overall response rate of the IT-SHIW is rather low, about 36% of units in the 2002 wave were not found at the available address, but item non-responses are few. Similarly, LWS net worth cannot be derived for 14% of the households in the UK-BHPS. Banks, Smith and Wakefield (2002) have applied a "conditional hot-deck" imputation method at the benefit unit level to alleviate the missing information problem, but it is still to be determined whether LWS will follow the same methodology. In the US-PSID, financial assets as well as housing equity are imputed. Discussions are under way whether this imputation method can be followed to obtain values for the principal residence and mortgages that would reduce the overall proportion of missing values. In the US-SCF, item non-response is tackled by using a sophisticated multiple imputation procedure (Kennickell, 2000). The GE-SOEP followed a similar procedure explained in Frick, Grabka and Marcus, 2007. An assessment of the impact of such post-survey data treatment on substantive research results such as wealth composition and inequality can be found in Frick, Grabka and Sierminska, 2007.

24.      A synthetic assessment of the information contained in the LWS database is provided by the comparison of LWS-based estimates with their aggregate counterparts in the national balance sheets of the household sector (which include non-profit institutions serving households and small unincorporated enterprises). This comparison is presented in Table A.5, where all variables are transformed into euro values at current prices by using the average market exchange rate in the relevant year, and are expressed in per capita terms to adjust for the different household size. Note that Table A.3 discussed above asks how well LWS covers the national accounts concept of net worth. Here, we focus on another question, namely how well the concept of net worth used in LWS corresponds to the similarly defined concept of net worth based on national balance sheets. Aggregate accounts provide a natural benchmark to assess the quality of the LWS database, but a proper comparison would require a painstaking work of reconciliation of the two sources, as discussed at length by Antoniewicz *et al.*, 2005. The aim of Table A.5 is more modestly to offer a summary view of how the picture drawn on the basis of the LWS data relates to the one that could be derived from the national balance sheets or the financial accounts. LWS estimates seem to represent non-financial assets and, to a lesser extent, liabilities better than financial assets. In all countries where the aggregate information is available, the LWS wealth data account for between 40 and 60% of the aggregate wealth. Note that not all of these discrepancies should be attributed to the deficiency of the LWS data, since they reflect not only the under-reporting in the original micro sources, but also the dropping of some items in the LWS definitions to enhance cross-country comparability, as well as the different definitions of micro and macro sources.

25.      To sum up, despite the considerable effort put into standardizing wealth variables, there remain important differences in definitions, valuation criteria and survey quality that cannot be adjusted for. Moreover, the degree to which LWS-based estimates match aggregate figures varies across surveys. These observations have to be borne in mind in reading the results discussed in the next section.

26.      The most reassuring thing about the LWS surveys is that the LWS income data are almost identically to the LIS income measures available from the LIS income surveys (Niskanen, 2007). This should come as no surprise because for Germany, Italy and Sweden, the data are from the same surveys. While LWS income data is more aggregated than the LIS income data, we are able to separate market and

disposable income by taxes and government transfer benefits uniformly across all LWS surveys. Thus, we are also looking at consistent income definitions in the LWS (see Table 2).

*Selections made in this report to OECD*

27.       In order to explore accurately the joint distribution of income and wealth, we have made some selections of datasets and editing procedures for this report. We concentrate on 5 nations and 6 datasets (two for the United States because of the SCF oversample, see Table 1). Our net worth definition is "net worth 2" which includes business wealth (Table 2). Selecting this definition of net worth means that the number of countries used in this report is smaller than if we excluded business assets (see Table A.2). In examining the joint distribution of income and wealth, we look at net worth and disposable income. We examine both the full datasets and "shaved" datasets, where we trimmed the top 1% and bottom 1% of each dataset for income and wealth to enhance comparability. Table 3 shows the number of observations "shaved", while Table 4 shows the percentile points for the pre-shaved distributions to convey how the distribution is shrunk by the shaving.

28.       More detail on all LWS surveys is in Table A.1. Although all countries rely on sample surveys among households or individuals, there are differences in collection methods across surveys. For example, in Sweden the data are supplemented with information from administrative records (mostly wealth tax registers). Some income information is also supplemented by tax registers in Canada. Sample sizes are widely different, ranging from 17,953 in Sweden to 4,442 units in the US SCF.

**Table 1.   LWS datasets analysed in this paper**

| Country | Survey | Year |
|---|---|---|
| Canada | Survey of Financial Security | 1999 |
| Germany | German Socio-Economic Panel | 2002 |
| Italy | Survey of Household Income and Wealth | 2002 |
| Sweden | Household Income Distribution Survey | 2002 |
| United States | Survey of Consumer Finances | 2001 |
| United States | Panel Study of Income Dynamics | 2001 |

Source: Luxembourg Wealth Study. See Table A.1 for details.

**Table 2.   Income and wealth variables**

| Variable | Symbol |
|---|---|
| Disposable income | dispincome = grossincome - taxes |
| Market income | marketincome |
| Non-market income | nonmarketincome |
| Taxes | taxes |
| Net worth | networth = wealth - debt |
| Financial assets | finass |
| Non-financial assets | nonfinass |
| Debt | debt |

Source: Luxembourg Wealth Study.

**Basic Patterns of Income and Asset Distributions**

29.       This Section presents some descriptive evidence, before we go into the joint distribution of household wealth and incomes for the five OECD countries included in the most recent version of the

LWS database. This section (and Appendix 2) provides some basic overviews on asset and debt participation, portfolio composition, and the distribution of net worth for the whole LWS dataset, as background for the report and before turning to the more compressed income and wealth issues in the next section. In this section, the definition of assets is "net worth 1", which excludes business assets; this allows covering 8 OECD countries based on 9 datasets.

*Demographic profiles of people covered by LWS*

30.      As wealth accumulation patterns vary over the life-cycle, it is useful to portray the demographic structure in each country before reviewing this evidence (Table A.6). The average household size ranges from 1.96 persons in Sweden to 2.65 in Italy. Italy stands out as the country with the most pronounced ageing process. On average, the age of household's heads is 55 years in Italy, against 53 in the United Kingdom, 52 in Germany and 51 in Sweden; in all other countries, the mean age of the household head is below 50, with a minimum 47 in Canada. Italy has both the lowest share of young (i.e. below 35 years) household's heads (10%) and the highest share (33%) of old heads (more than 64 years). At the other extreme, 18% of Canadian households are headed by an old person, and 27% of households in Norway are headed by a young one. In other countries, old household's heads account for around 21-22% of the total and young heads for about 23-24%.

*Asset and debt participation and portfolio composition*

31.      Table A.7 shows that, in almost all LWS countries, over 80% of households own some financial assets. In most countries this is a deposit account. Stocks are particularly spread in Finland and Sweden, while Sweden and Norway have the highest diffusion of mutual funds. In the United States, according to the SCF, holders of stocks, bonds and mutual funds each account for about a fifth of the population. Over 60% of households own their principal residence in all countries except in Germany and Sweden: the proportion falls just below 70% in Italy, the United Kingdom and the United States (SCF). Owning a second home is most popular in Finland and Norway. There is substantial variation in debt holdings: from 22% of households in Italy to 80% in Norway; from 10% in Italy to 46% in the United States if only home-secured debt is considered.

32.      As mentioned above, most of financial assets and non-housing debt are recorded in Germany only if they exceed 2 500 euros. The data in the bottom panel of Table A.7 are obtained by applying the same bottom coding used in Germany to the data for other countries, in order to put them on a comparable basis. The share of households owning financial assets in Canada and Finland is similar to the German one; it is 20 percentage points higher in Italy and Norway, with the two Anglo-Saxon countries in an intermediate position. The comparison between the top and bottom panels of the Table indicates that a large proportion of Canadian and Finnish households holds very little financial assets.

33.      The age profiles for the possession of financial assets, principal residence, debt and positive net worth are significantly different across countries (Figure A.1). Italy, again, stands out as an outlier. On the one hand, intergenerational differences appear to be dissimilar, since the hump-shape of debt-holding and home-ownership is much flatter than in the other countries. On the other hand, the low propensity to borrow and the parallel high proportion of positive net worth holders, already noted for the average, are common across all age classes. Norway and Finland show a significant diffusion of financial wealth in all cohorts, including the young. In Germany and Sweden, the share of home-owners tends to be lower than in other countries, and it is markedly so among the elderly.

34.        Table A.8 shows a considerable variance in portfolio composition.[3] The United States exhibits the highest preference for financial assets: around 35% of total assets, over two thirds of which are held in risky instruments such as stocks and mutual funds. Sweden and Canada follow, with proportions of 28% and 22%, respectively. Financial instruments account for only 15-16% of total assets in Finland and Italy. The principal residence represents 60% or more of the value of total assets in all countries except the United States, where it accounts for close to 50%. The ratio of debt to total assets ranges from a very low 4% in Italy to 35% in Sweden. Comparing the household portfolio composition measured in the LWS database with the composition emerging from aggregate data is an important topic for future research.

### *Inequality of net worth across LWS*

35.        The LWS database allows us to shed new light on international differences in wealth concentration. There are very few international comparisons of wealth distribution based on micro-data reclassified to account for differences in definitions. Kessler and Wolff (1991), Klevmarken, Lupton and Stafford (2003) and Faiella and Neri (2004) are among the few examples of bilateral comparisons but, to our knowledge, the LWS project is the first attempt to extend such comparisons to more than two countries. Table A.9 shows statistics on the distribution of net worth in seven countries. The caveats exposed above must be borne in mind: in particular, the bottom-coding implemented in the German survey is likely to overstate measured inequality. According to the LWS database based on the 'net worth 1' definition, which excludes business and pension assets, the highest Gini index is in Sweden. The United States, Germany and Canada follow in that order, with Gini values ranging from 84 (in the US-SCF sample) to 75 (Canada). Finland, the United Kingdom and Italy exhibit a more equal distribution of net worth. In accounting terms, part of the explanation of the very high asset inequality in Sweden rests on the very high proportion of Swedish households with nil or negative net worth (32% against 23%, at most, in other countries excluding Germany, whose figure is probably overstated by bottom-coding). When the share of net worth held by top population percentiles is considered, the United States regain the lead: the richest 1% of U.S. households controls 33% of total wealth, according to the SCF, or 25%, according to the PSID, and the next 4% cent controls another 25%.[4] These proportions are far higher than in all other countries, Sweden included. Understanding the extent to which these results are affected by the different measurement methods or the different comprehensiveness of the wealth definition is an important question for future LWS research. For instance, counting pension rights as an asset might matter more for Sweden, resulting in much greater equality than found in the figures of Table A.9.[5]

### Joint patterns of income and wealth inequality

36.        The definitions of income and wealth (Table 2) for the five countries analyzes here are discussed below. The income definition is the same one used in LIS — disposable personal income, adjusted by the square root of household size (e= 0.5) equivalence scale. The income definition in LWS is very much the same as in LIS, but of a more aggregated variety. And the results are highly comparable (see Niskanen, 2007). The poverty estimates (Income Poor) are the same as those from LIS — incomes less than half the median income, using the same equivalence scale.

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[3].        Figures are not reported for Norway because of the inconsistency stemming from valuing real estate on a taxable basis and debt at market prices; also, the German data are biased by the fact that small holdings of some financial assets and debt are not recorded.

[4].        The over-sampling of the wealthy in the US-SCF but not in the US-PSID is a plausible reason for the difference in the estimated shares of the richest households.

[5].        On measuring pension wealth, see Brugiavini, Maser and Sundén (2005).

37.    The wealth definition is 'nw2' from Table A.2, and includes business wealth with other non-financial assets, which limits the analysis to 5 countries and 6 datasets. The same equivalence scale (e=0.5) is used for both income and wealth. In practice, the choice of the equivalence scale makes little difference to the outcome (Sierminska and Smeeding, 2006). We have converted all currencies to international dollars using the PPPs for personal consumption in 2002 as published by the OECD, having first used national price deflators for personal consumption to express national currencies in year 2002 prices.

38.    Table 3 shows the sample size, including the samples used here after trimming the top and bottom 1% of the samples to reduce outliers. In countries with special high wealth samples (e.g. USA-SCF and Canada), the trimming is proportionately larger than in other nations.[6]

**Table 3.    Sample size in full and shaved data**

| | Canada | Germany | Italy | Sweden | United States | |
| | | | | | PSID | SCF |
|---|---|---|---|---|---|---|
| Pre-shaving | 15 930 | 12 692 | 7 975 | 17 953 | 7 071 | 4 442 |
| Post-shaving | 14 810 | 12 108 | 7 709 | 16 846 | 6 751 | 3 577 |
| Difference | 1 120 | 584 | 266 | 1 107 | 320 | 865 |

Note: Tabulations based on a wealth definition ('nw2 in the classification of Table 2) that includes business equity.

Source: Luxembourg Wealth Study.

39.    Table 4 shows the untrimmed percentiles (in 2002 US PPP-adjusted dollars). Here we find negative net worth up to the 10th percentile in 4 nations. Note the comparison between the two US samples — the SCF shows much higher assets at the 99th percentile, where the PSID value is only 51% as high as the value in the SCF due to its special sample. In contrast, the 99th percentile of incomes is much closer, with PSID 90% of the SCF value. Thus, one must be very careful in comparing estimates for the tops of the distributions with all LWS data. It is clear that both the special sampling (in the SCF and Canadian data) and the response rates and imputations for item non-response (in all surveys) will affect the comparisons made here. On the other hand, the estimates for the bottom and median income and wealth holders should not be too much affected in any case.

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[6].    The idea to trim both the SCF and the PSID ought to be tested as these are not trimming the same top 1% in both samples. The untrimmed top 1% in the US-SCF sample corresponds to 865 records, or 19.5% of the full sample, and includes a full 33% of total net worth (Kennickel,2007); but the top 1% in the PSID includes only 320 households and 4.5% of all observations.

**Table 4.   Values of income and net wealth for people belonging to different "pre-shaved" percentiles**

| | Percentiles | | | | |
|---|---|---|---|---|---|
| | 1 | 10 | 50 | 90 | 99 |
| | | | Income | | |
| Canada | 1826 | 9351 | 21307 | 41104 | 74271 |
| Germany | 2355 | 8915 | 18792 | 35664 | 68845 |
| Italy | 256 | 7143 | 16065 | 32476 | 65528 |
| Sweden | 3642 | 10540 | 18935 | 31455 | 52634 |
| US (PSID) | 2281 | 10334 | 27134 | 60497 | 181091 |
| US (SCF) | 345 | 7310 | 22029 | 53674 | 203430 |
| | | | Wealth | | |
| Canada | −19446 | −2921 | 27486 | 174641 | 832144 |
| Germany | −31332 | 0 | 25187 | 235754 | 768699 |
| Italy | −4611 | 543 | 84478 | 318035 | 1123966 |
| Sweden | −51148 | −11152 | 18447 | 145189 | 439580 |
| US (PSID) | −29789 | −2085 | 26572 | 265090 | 1416712 |
| US (SCF) | −27435 | −3351 | 29267 | 325396 | 2777112 |

Note: Tabulations based on a wealth definition ('nw2' in the classification of Table 2) that includes business equity. All amounts refer to 2002 international dollars (using PPPs and price deflators for personal consumption, see text).

Source: Luxembourg Wealth Study.

### *Joint distribution of income and wealth: all households vs. poor households*

40.     We now move to discussing the results of our more detailed analysis of the joint distribution of income and wealth. This joint distribution is of interest for a number of reasons. Both income and wealth produce utility to persons and households and both can be used to sustain consumption. In many policy circumstances, for instance support for poor pensioners, there is concern about low incomes but also accumulated wealth which might be drawn upon to alleviate low consumption in spite of low income. Thus, some concern with means-testing might also be appropriate in such circumstances. More generally, the higher the correlation between income and wealth, the higher is the degree of 'permanent' inequality in potential consumption from either income or wealth in any society.

41.     Table 5 shows the share of people reporting positive wealth amounts (panel A) and the values for 'net worth2' (net worth, financial assets, non-financial assets and debts, panel B) for all persons and the for the income poor.[7] This shows that the majority of families, including poor families, have some positive net worth. The income poor have rather low financial assets averaging under $8812 except for the US SCF where the value of financial assets is $ 26,678 (owing to an small number of outliers, see below). Between 30 and 60% of the income poor hold nonfinancial assets (homes or businesses), but the values are on average $25-50 000. The average debts of the poor exceed their financial asset in three countries (Canada, Germany and Sweden) and are under $2 000 in Italy. Debts are also substantial for the poor in both of the United States datasets.

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7.      Because of the omission of values for the units with financial assets below 2 500 euros, the German data are biased downwards. Income poverty is defined in terms of equivalent disposable income being less than one half of the national median.

**Table 5.  Proportion with positive and mean wealth and debt holdings, all and income poor**

| | Net worth | Financial assets | Non-financial assets | Debt | | Net worth | Financial assets | Non-financial assets | Debt |
|---|---|---|---|---|---|---|---|---|---|
| | *A. Proportion with positive amounts* | | | | | *B. Average amount* | | | |
| Canada | | | | | Canada | | | | |
| All persons | 80.1 | 89.9 | 75.1 | 75.1 | All persons | 59 557 | 13 574 | 63 716 | 17 733 |
| Income poor | 58.8 | 76.2 | 40.1 | 61.1 | Income poor | 23 737 | 4 610 | 26 585 | 7 458 |
| Germany | | | | | Germany | | | | |
| All persons | 67.2 | 49.7 | 52.7 | 41.1 | All persons | 83 063 | 10 870 | 92 206 | 20 013 |
| Income poor | 38.5 | 19.3 | 29.5 | 19.4 | Income poor | 31 174 | 2 229 | 35 203 | 6 257 |
| Italy | | | | | Italy | | | | |
| All persons | 90.7 | 82.4 | 77.0 | 23.0 | All persons | 112 506 | 14 666 | 100 719 | 2 879 |
| Income poor | 70.3 | 45.0 | 62.0 | 17.6 | Income poor | 51 947 | 1 972 | 51 634 | 1 659 |
| Sweden | | | | | Sweden | | | | |
| All persons | 70.5 | 83.1 | 66.6 | 79.4 | All persons | 43 000 | 15 808 | 48 761 | 21 569 |
| Income poor | 48.6 | 62.4 | 33.1 | 66.9 | Income poor | 20 863 | 8 801 | 25 383 | 13 321 |
| US (PSID) | | | | | US (PSID) | | | | |
| All persons | 78.0 | 83.1 | 71.5 | 73.0 | All persons | 104 075 | 36 249 | 94 027 | 26 200 |
| Income poor | 52.4 | 52.2 | 41.8 | 48.8 | Income poor | 21 784 | 8 238 | 20 956 | 7 410 |
| US (SCF) | | | | | US (SCF) | | | | |
| All persons | 77.0 | 91.3 | 73.3 | 81.5 | All persons | 120 553 | 42 058 | 109 180 | 30 685 |
| Income poor | 54.9 | 70.0 | 43.2 | 63.4 | Income poor | 75 452 | 26 678 | 59 359 | 10 585 |

Note: : Tabulations based on a wealth definition ('nw2' in the classification of Table 2) that includes business equity. All amounts in Panel B refer to 2002 international dollars (using PPPs and price deflators for personal consumption, see text).

Source: Luxembourg Wealth Study.

42.      Table 6 indicates the dispersion within both the entire population and the poor population — both the top end of the distribution (90th percentile) and at the median. Skewness is apparent within the distribution in all cases. In panel A, 89% of the income poor (those below the 90th percentile) have financial assets below $8 440 in all countries except Sweden (where the 90th percentile is at $27 000). Median financial wealth amongst the poor is less than $500 in all nations. While net worth amongst the poor is rather high at the 90th percentile in most nations ($47 000 -$125 000), this is largely in the form of nonfinancial assets (owned homes and businesses). In contrast, median net worth for the poor is low, under $121 except in Italy (where the value is all in housing). For the median poor, the reported values of debt are zero in Germany, Italy and in the US-PSID sample; in all other countries, the value of debts exceeds that of financial assets and net worth (panel B).

**Table 6.  Quantiles of wealth and debt, all persons and income poor**

| | Net worth | Financial assets | Non-financial assets | Debt | | Net worth | Financial assets | Non-financial assets | Debt |
|---|---|---|---|---|---|---|---|---|---|
| | *A. 90th percentile* | | | | | *B. Median* | | | |
| Canada | | | | | Canada | | | | |
| All persons | 139 613 | 24 620 | 130 209 | 48 711 | All persons | 20 866 | 1 214 | 40 230 | 6 940 |
| Income poor | 75 521 | 6 132 | 78 850 | 22 662 | Income poor | 121 | 93 | - | 546 |
| Germany | | | | | Germany | | | | |
| All persons | 196 282 | 26 285 | 209 067 | 58 943 | All persons | 20 610 | - | 24 136 | - |
| Income poor | 93 722 | 6 076 | 109 011 | 17 984 | Income poor | - | - | - | - |
| Italy | | | | | Italy | | | | |
| All persons | 252 736 | 29 631 | 227 927 | 7 203 | All persons | 64 934 | 3 924 | 61 031 | - |
| Income poor | 125 360 | 4 562 | 127 776 | 2 113 | Income poor | 19 718 | - | 19 701 | - |
| Sweden | | | | | Sweden | | | | |
| All persons | 121 202 | 37 979 | 118 261 | 51 411 | All persons | 15 325 | 3 493 | 27 384 | 11 374 |
| Income poor | 79 928 | 27 093 | 78 570 | 31 625 | Income poor | - | 463 | - | 2 451 |
| US (PSID) | | | | | US (PSID) | | | | |
| All persons | 218 016 | 60 940 | 187 899 | 71 097 | All persons | 20 657 | 1 877 | 43 790 | 10 871 |
| Income poor | 47 800 | 3 886 | 59 030 | 22 310 | Income poor | 65 | 7 | - | - |
| US (SCF) | | | | | US (SCF) | | | | |
| All persons | 249 347 | 72 730 | 211 260 | 73 698 | All persons | 21 735 | 2 609 | 44 086 | 13 602 |
| Income poor | 76 175 | 8 440 | 81 529 | 26 455 | Income poor | 110 | 91 | - | 453 |

Note: Tabulations based on a wealth definition ('nw2' in the classification of Table 2) that includes business equity. All amounts refer to 2002 international dollars (using PPPs and price deflators for personal consumption, see text).
Source: Luxembourg Wealth Study.

43.     Table 7 shows some basic measures of wealth inequality for the entire population and for the income poor. Gini coefficients for wealth distributions are always high, but here we find more inequality in wealth amongst the poor than amongst the entire population, and in all nations by an order of magnitude. The Gini coefficients for net worth and financial asset in the United States are higher than in any other nation, both for the poor and for the entire population. The estimates for nonfinancial assets and debts are more similar across nations.

**Table 7.   Gini coefficient of household net worth, all and income poor**

|  | Net worth | Financial assets | Non-financial assets | Debt |
|---|---|---|---|---|
| Canada |  |  |  |  |
| All persons | 67.2 | 86.9 | 62.5 | 66.2 |
| Income poor | 78.2 | 92.4 | 82.4 | 80.9 |
| Germany |  |  |  |  |
| All persons | 73.1 | 81.6 | 74.7 | 83.6 |
| Income poor | 84.1 | 91.7 | 84.3 | 92.1 |
| Italy |  |  |  |  |
| All persons | 60.2 | 76.9 | 61.4 | 91.1 |
| Income poor | 69.9 | 84.3 | 72.1 | 94.7 |
| Sweden |  |  |  |  |
| All persons | 61.7 | 77.6 | 65.6 | 64.5 |
| Income poor | 68.8 | 81.9 | 85.7 | 78.3 |
| US (PSID) |  |  |  |  |
| All persons | 77.0 | 89.2 | 70.4 | 66.7 |
| Income poor | 86.0 | 97.0 | 82.2 | 83.4 |
| US (SCF) |  |  |  |  |
| All persons | 77.2 | 88.7 | 72.5 | 66.4 |
| Income poor | 91.6 | 98.0 | 90.3 | 85.6 |

Note: Tabulations based on a wealth definition ('nw2' in the classification of Table 2) that includes business equity
Source: Luxembourg Wealth Study.

*Joint distribution of net worth and disposable income: descriptive*

44.     When moving beyond poverty issues and considering the entire distribution of income and wealth, the issue of comparability at the top end of the distribution becomes crucial. As we have seen, the US-SCF is the dataset which captures more assets in the United States and is reputed to be the best wealth survey in the world. In order to adjust for "too good" a survey, we trimmed the top 1% from the SCF and nothing from other datasets in panel A of Table 8. In panel B of the same table, we trimmed another 1% from all datasets, including the SCF. Just focusing on the two US datasets suggest that the SCF still shows a lower proportion of respondents reporting zero values in any row; otherwise, the two US datasets give roughly the same results at this stage.

**Table 8.   Proportion of respondents reporting negative, zero and positive values of different asset categories**

| | Canada | Germany | Italy | Sweden | US (PSID) | US (SCF) | | Canada | Germany | Italy | Sweden | US (PSID) | US (SCF) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Net worth | | | | | | | Net worth | | | | | | |
| Negative | 17.8 | 9.0 | 3.2 | 26.4 | 14.6 | 19.3 | Negative | 17.2 | 8.3 | 2.3 | 25.9 | 14.0 | 18.6 |
| Zero | 2.0 | 23.8 | 6.1 | 3.1 | 7.4 | 3.7 | Zero | 2.0 | 24.4 | 5.9 | 3.2 | 7.3 | 3.5 |
| Positive | 80.2 | 67.2 | 90.7 | 70.5 | 78.0 | 77.0 | Positive | 80.7 | 67.3 | 91.8 | 71.0 | 78.7 | 77.9 |
| | | | | | | | | | | | | | |
| Financial assets | | | | | | | Financial assets | | | | | | |
| Zero | 10.2 | 50.3 | 17.6 | 16.9 | 16.9 | 8.7 | Zero | 10.2 | 50.5 | 17.0 | 16.8 | 16.7 | 8.4 |
| Positive | 89.8 | 49.7 | 82.4 | 83.1 | 83.1 | 91.3 | Positive | 89.8 | 49.5 | 83.0 | 83.2 | 83.3 | 91.6 |
| | | | | | | | | | | | | | |
| Non-financial assets | | | | | | | Non-financial assets | | | | | | |
| Zero | 24.8 | 47.3 | 22.7 | 33.4 | 28.5 | 26.7 | Zero | 24.4 | 48.0 | 22.2 | 33.4 | 28.3 | 26.3 |
| Positive | 75.2 | 52.7 | 77.0 | 66.6 | 71.5 | 73.3 | Positive | 75.6 | 52.0 | 77.6 | 66.6 | 71.7 | 73.7 |
| | | | | | | | | | | | | | |
| Debt | | | | | | | Debt | | | | | | |
| Zero | 24.9 | 58.9 | 77.0 | 20.6 | 27.0 | 18.5 | Zero | 24.7 | 59.7 | 77.5 | 20.9 | 26.8 | 18.4 |
| Positive | 75.1 | 41.1 | 23.0 | 79.4 | 73.0 | 81.5 | Positive | 75.3 | 40.3 | 22.5 | 79.1 | 73.2 | 81.6 |

Note: Tabulations based on a wealth definition ('nw2' in the classification of Table 2) that includes business equity. See Table A.2 for the composition of the components.
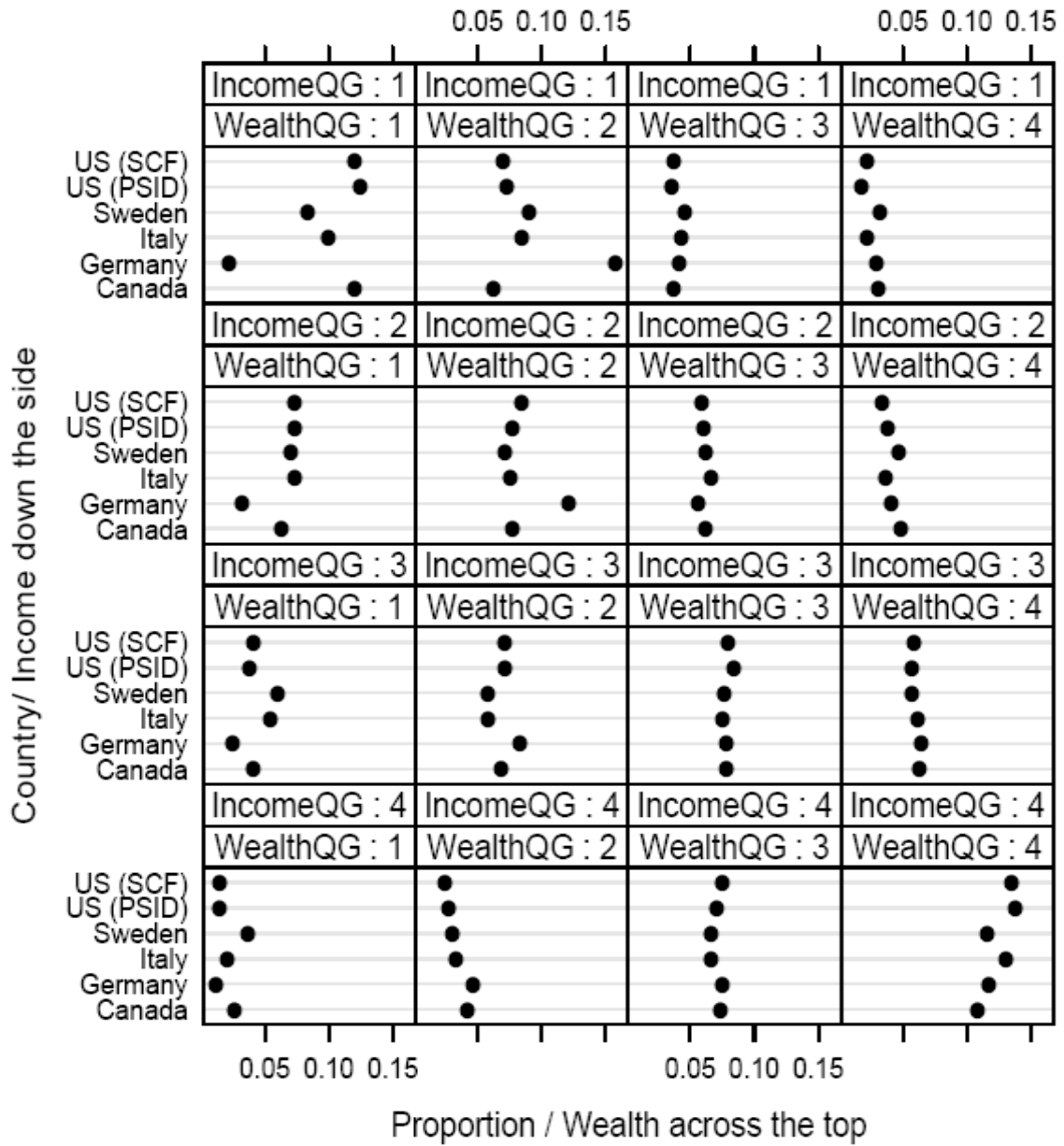
Source: Luxembourg Wealth Study.

45.       In Tables 8, once again, the German dataset is difficult to compare in terms of financial or all assets because of the omission of financial assets under 2 500 euros. Excluding Germany, 70-80% of respondents is the other countries have positive net worth, while 3-26% have negative net worth in the untrimmed data (with no substantive differences in the trimmed sample). The high 26% of net debt (negative net worth) in Sweden is thought to be attributable to their tax laws which encourage debt holding, while the low 3% estimate in Italy is attributable to their concentration on housing assets and relatively small financial asset holdings. Indeed, any positive debt holding (including mortgages) is by far the lowest in Italy, at 23%, with the next nearest country being Germany at 40%. Amongst all others, 73% or more of households hold some type of debt (bottom lines of both panels). The ownership of non-financial assets is dominated by patterns of home ownership — which is highest in Italy and lowest in Germany (Appendix Table A.4). Otherwise the trimming exercises do not seem to produce many changes in the basic statistics in Tables 8.

46.       The basic patterns of income and wealth (net worth) holdings are shown in Figures 1 and 2. We restrict ourselves to quartile groupings (QG) of both income and wealth, matching them into a 4 by 4 picture (Figure 1) or alternatively as a bar chart (Figure 2). The dots or bars show the relevant fraction of people in a given income– and wealth-QG cell. Take, for instance, the lowest quartile group of both income and wealth, in the top left hand corner of Figure 1 and the left-most bar in Figure 2, and contrast this with the top quartile group in both distributions (lowest right hand corner in Figure 1 and right-most bar in Figure 2). We see that the concentration of income and wealth appears in light of these two cells to be highest in the US, in that the US has the highest fraction in the lowest (highest) quartile group on both dimensions.

47.       The concentration in the high income and wealth cells is highest in the United States (nearly 15% in both datasets) and lowest in Canada (about 11%). The third wealth quartiles (QG3) and (ignoring Germany) the second wealth quartiles (QG2) are remarkably similar in all nations. Wealth quartile positions slowly but uniformly increase as we move up the income scale in Wealth QG3 and Wealth QG4 – from Income QG 1 to 3 in Wealth QG 3, and from Income QG 1 to 4 in Wealth QG4 .This suggests that income and wealth positions are positively correlated.

48.       Low-income people (Income QG1) are rarely high-wealth people (WealthQG4), with Sweden being the largest grouping and still well under 5%. At the other end of the spectrum, high-income people (Income QG4) are rarely low-wealth people (Wealth QG1), again with Sweden being the highest. The simple conclusion is that, in most nations, income and wealth are correlated but not perfectly. The highest correlations appear to be in income and wealth QG4, but even here they do not approach 20%.

**Figure 1.  Income-wealth quartile groups**



Source: Luxembourg Wealth Study.

**Figure 2.  Income-wealth quartile groups**
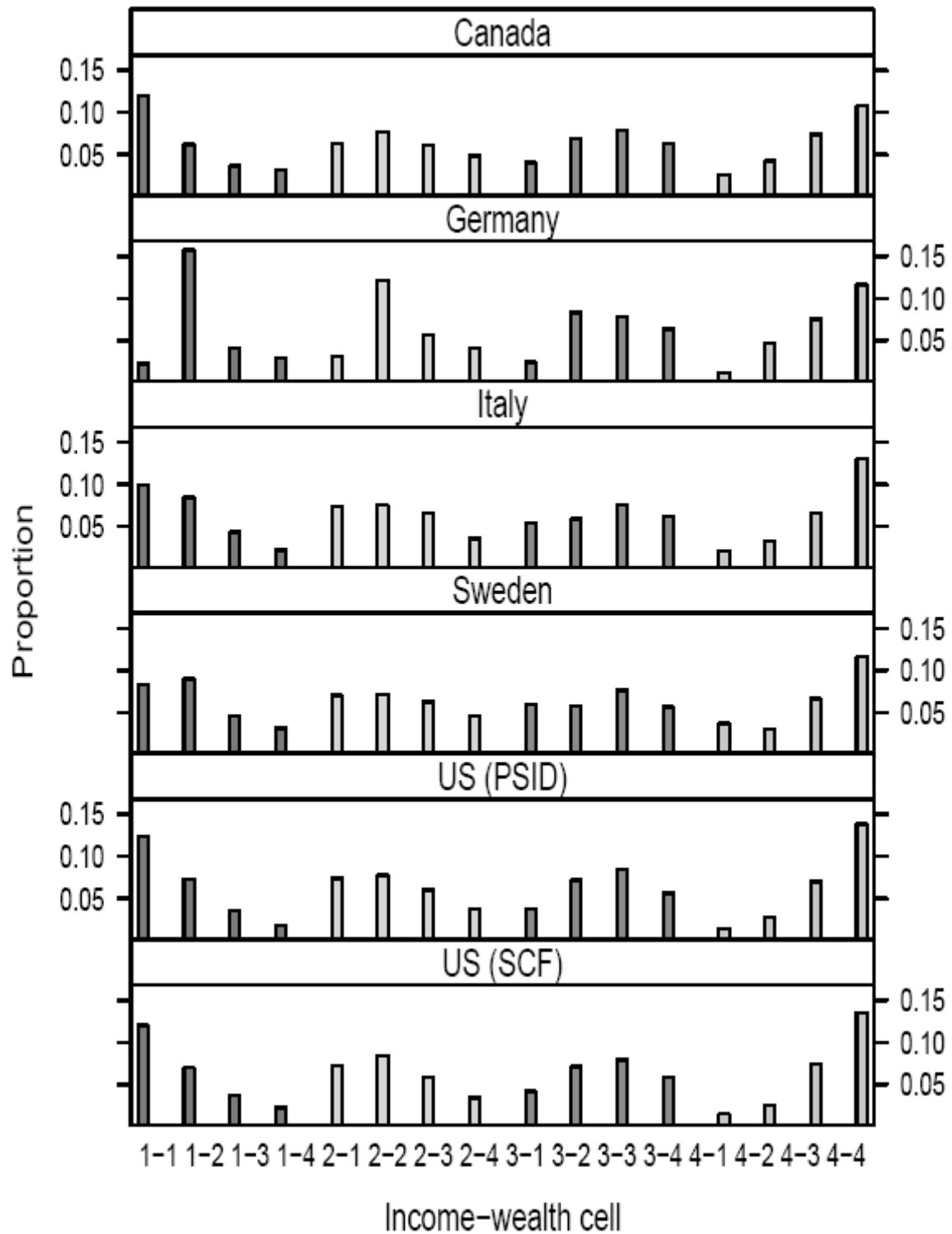
*Determinants and residual correlation for disposable income and net worth*

49.    While an examination of the joint distribution of income and wealth using the proportions of persons in different parts of the marginal distributions is informative, the observed association is in part accounted for by the fact that the characteristics associated with having high income – having a high education, for instance – are also associated within having high wealth. Differences in the degree of association between countries are likely driven by both differences in the characteristics of those who hold wealth and differences in the wealth and income differences associated with those characteristics.

50.    We look further into this by estimating simple bivariate regressions of disposable income and net worth, using as covariates *age* of household  head (4 groups; age less than 30 omitted), *education level* of head (three levels; lowest level omitted) and *household type* (5 types; childless couple omitted). This allows us both to look at how average wealth is related to household characteristics and, importantly, how the joint distribution – conditionally on age, education and household type – compares across countries. Our results are <u>not</u> an attempt to provide a causal model for disposable income and net worth – indeed, a causal model for these would at the very least require longitudinal data.

51.    We report the regression results for income and wealth patterns in Figures 3 to 5 and in Table 9. The models are estimated in levels, measured in PPP US dollars, so the coefficients can be interpreted in absolute terms. To convey some notion of how much of the distributions of income and wealth are captured by the covariates, we plot the share of variance of disposable income and net worth that is captured by the covariates in Figure 3. The share of variance accounted for by the age, education and family groupings in Table 9 is not very large for either income or wealth (Figure 3). Close to 40% of the variance of disposable income is captured in Sweden, which also has the most equal distribution of these nations (Atkinson, Rainwater and Smeeding, 1995; Brandolini and Smeeding, 2007). Otherwise, between 20 and 25% of the variance in incomes is explained by these three general determinants. In the wealth regressions, education, age and family structure explain between 10 and 20% of the variance (Figure 3).

52.    In the income regressions (left panel Figure 4 and Table 9), the intercept is always significant at the 90% level. Single parents do less well and education positively adds to incomes, especially in the United States and in the SCF sample. Incomes peak in the 50-70 age range for the head, being lower in ages 70 plus and ages 30-50. There is a tendency for the coefficient estimates to be larger in the US than elsewhere, suggesting that a given characteristic is associated with a larger difference in income in the US than elsewhere. For instance, having a high education is associated with a $30433 disposable income advantage in the United States but at most about $13 000 in the other countries (Table 9).

53.    The net worth regressions (Figure 5) show few demographic effects but strong age (older is higher) and education effects (higher education and net worth are positively correlated), with the strongest effects being again in the United States. Note that in all countries except Italy, the comparison group – couple with no kids, head younger than thirty and having a low level of education – has on average negative net worth, as measured by the negative intercept, although this is not significantly different from zero in Germany and Sweden.

54.    One might interpret the residual deviations in both income and wealth as "country fixed effects". If so, these results are strongest in the US SCF for both income and wealth (Figure 5, left- and middle-panels). Indeed, the highest residual correlation (a measure of the conditional concentration of wealth and income) is found in the US SCF, well above 0.5. Ignoring Germany, all other residuals are below 0.35 (Figure 5, right-hand panel). These findings suggest that institutional factors (inheritance, entrepreneurship, taxation) differ across countries, especially when the US SCF is employed. Indeed, the US PSID shows results that are roughly in line with the average.
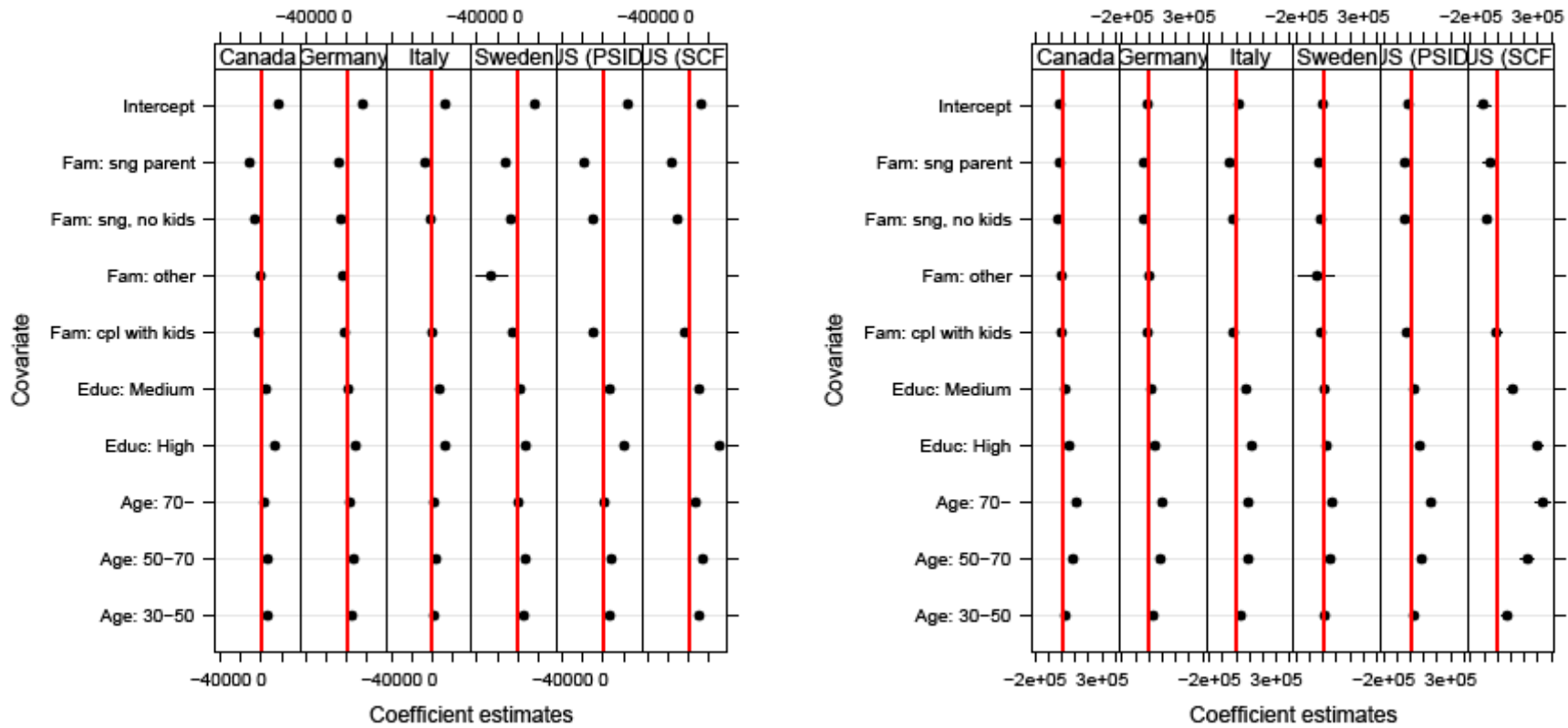
**Figure 3.  Regression results, share of variance explained**
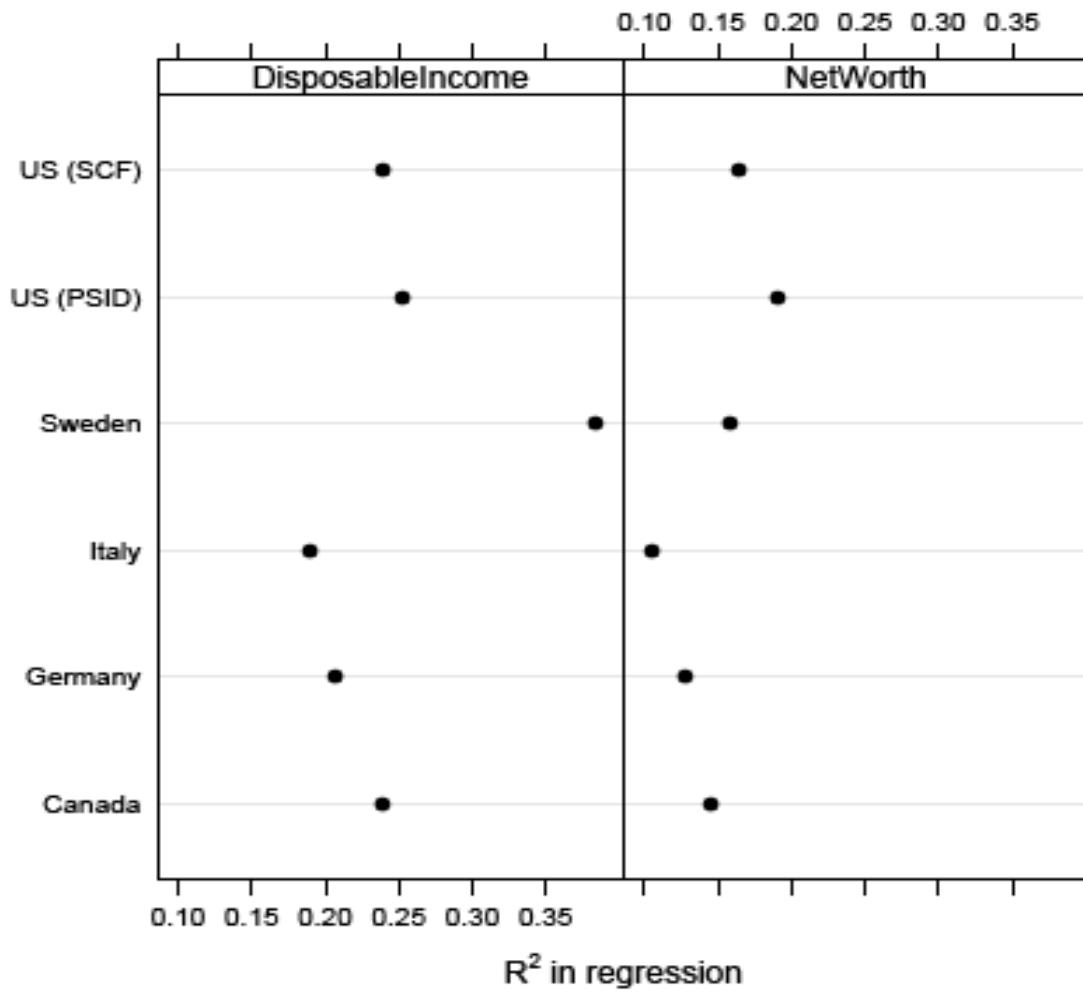


Source: Luxembourg Wealth Study

**Figure 4.  Regression results, coefficient estimates and confidence intervals**

*Household disposable income*                    *Household net worth*
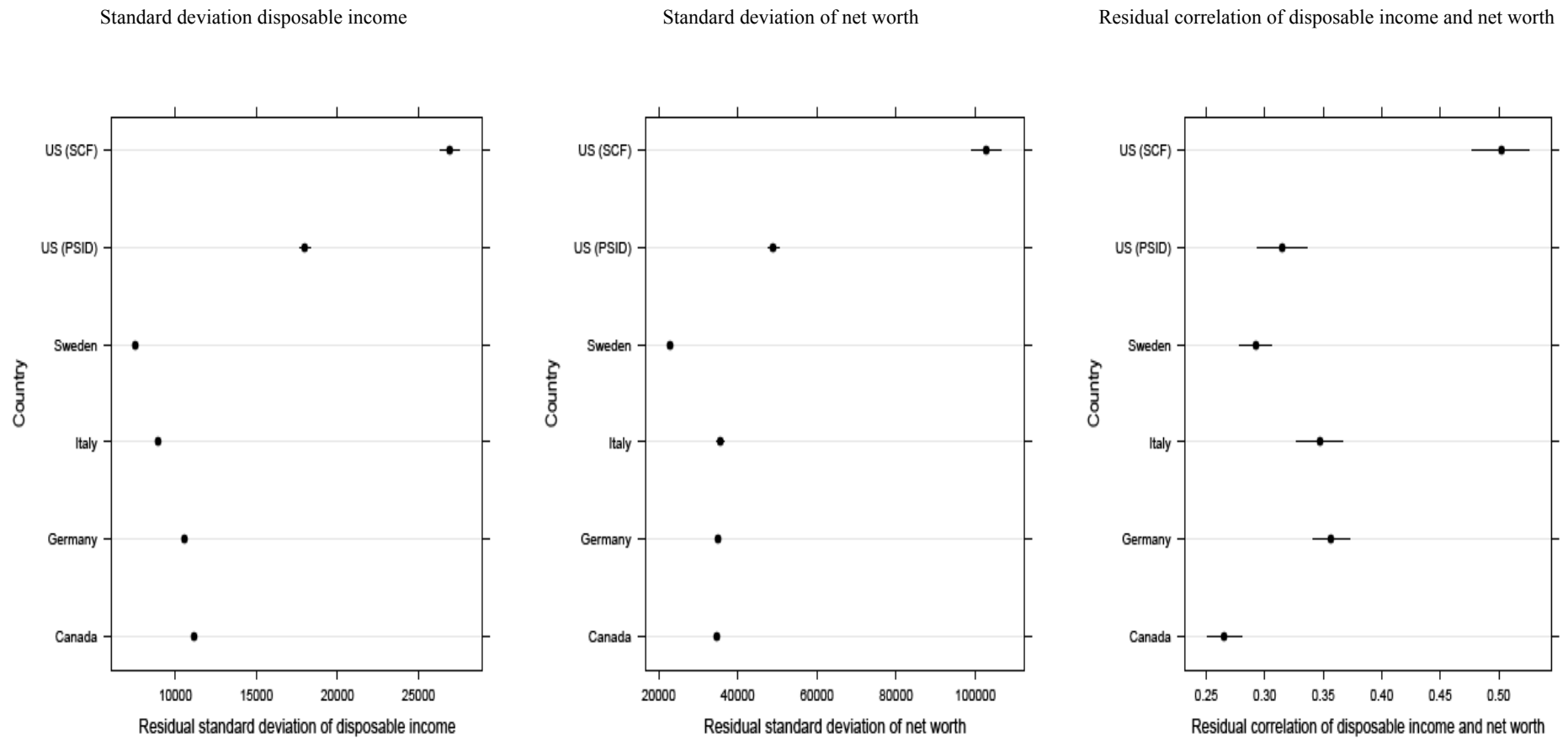


Source: Luxembourg Wealth Study.

**Table 9.   Regression results: net worth and disposable income**

GLS estimates

|  |  | Canada | Germany | Italy | Sweden | US (PSID) | US (SCF) |
|---|---|---|---|---|---|---|---|
|  |  | *Income* | | | | | |
| Intercept |  | 16359.3 | 15513.1 | 13055.9 | 16768.6 | 24319.9 | 12959.9 |
|  |  | (355.9) | (428.6) | (642.4) | (240.2) | (782.7) | (1901.5) |
| Age | 30-50 | 5676.1 | 5733.0 | 1611.4 | 6180.5 | 6688.8 | 9644.1 |
|  |  | (301.1) | (374.8) | (633.1) | (210.5) | (610.9) | (1459.6) |
|  | 50-70 | 5913.7 | 6914.5 | 4086.4 | 6968.9 | 7575.7 | 13747.0 |
|  |  | (317.5) | (373.2) | (625.6) | (209.8) | (717.0) | (1562.4) |
|  | 70- | 3224.5 | 2782.5 | 1611.2 | 981.1 | 1783.9 | 7596.4 |
|  |  | (366.0) | (420.8) | (642.8) | (246.0) | (909.4) | (1814.8) |
| Education | High | 13096.4 | 9312.2 | 12697.2 | 7895.2 | 20412.9 | 30433.6 |
|  |  | (271.6) | (294.0) | (395.8) | (173.8) | (653.0) | (1418.0) |
|  | Medium | 4950.2 | 2129.1 | 6636.5 | 2736.5 | 6802.2 | 9655.3 |
|  |  | (221.6) | (271.6) | (244.7) | (160.7) | (528.2) | (1366.8) |
| Family type | couple with children | -3331.2 | -2018.7 | -255.2 | -5566.6 | -9044.9 | -3700.2 |
|  |  | (275.3) | (260.0) | (279.5) | (181.8) | (638.2) | (1277.3) |
|  | other | -83.0 | -3626.2 | NA | -25829.9 | NA | NA |
|  |  | (353.7) | (655.3) | NA | (7512.1) | NA | NA |
|  | single, no children | -6632.9 | -5122.6 | -1487.9 | -6951.8 | -10652.6 | -10322.8 |
|  |  | (253.8) | (264.6) | (279.2) | (142.5) | (616.0) | (1174.7) |
|  | single parent | -11447.8 | -8022.9 | -6482.7 | -11813.1 | -18457.3 | -17313.7 |
|  |  | (400.7) | (444.9) | (916.6) | (300.4) | (773.0) | (1791.1) |
|  |  | *Net worth* | | | | | |
| Intercept |  | -15832.4 | -6998.5 | 21718.8 | -3852.6 | -14661.0 | -101771.5 |
|  |  | (3384.1) | (4578.7) | (9974.5) | (2176.1) | (5579.5) | (26763.8) |
| Age | 30-50 | 24497.3 | 31184.3 | 40514.0 | 15914.3 | 26592.9 | 67122.2 |
|  |  | (2863.0) | (4003.7) | (9829.5) | (1907.5) | (4354.5) | (20545.1) |
|  | 50-70 | 82624.2 | 84663.1 | 95492.0 | 53245.8 | 83902.2 | 219894.1 |
|  |  | (3019.1) | (3986.9) | (9712.3) | (1900.5) | (5111.4) | (21992.1) |
|  | 70- | 109285.7 | 93532.2 | 90131.0 | 66962.8 | 155876.1 | 337357.8 |
|  |  | (3480.9) | (4494.9) | (9979.8) | (2229.2) | (6482.5) | (25544.0) |
| Education | High | 60889.8 | 49251.2 | 115937.9 | 24394.7 | 74357.4 | 302025.3 |
|  |  | (2583.0) | (3140.3) | (6145.0) | (1574.3) | (4655.1) | (19959.1) |
|  | Medium | 21023.9 | 17971.5 | 75140.0 | 9078.8 | 30121.7 | 110003.8 |
|  |  | (2107.7) | (2901.6) | (3799.8) | (1456.2) | (3765.1) | (19238.4) |
| Family type | couple with children | -4101.1 | -5021.8 | -18099.3 | -13534.2 | -26780.2 | -5238.9 |
|  |  | (2617.9) | (2778.0) | (4338.9) | (1647.4) | (4549.3) | (17978.2) |
|  | other | -2791.9 | 1202.5 | NA | -49257.2 | NA | NA |
|  |  | (3363.1) | (7000.1) | NA | (68063.9) | NA | NA |
|  | single, no children | -22363.3 | -34536.5 | -23118.1 | -21956.6 | -35240.2 | -79406.1 |
|  |  | (2413.8) | (2826.6) | (4335.0) | (1291.3) | (4391.2) | (16534.2) |
|  | single parent | -21138.7 | -36312.1 | -45294.2 | -25614.4 | -39603.4 | -55693.6 |
|  |  | (3810.8) | (4752.6) | (14231.0) | (2722.1) | (5510.7) | (25210.3) |
| n |  | 29620 | 24216 | 15418 | 33692 | 13496 | 7154 |
| sigma |  | 11100 | 10600 | 8920 | 7510 | 18000 | 26900 |
| logLik |  | -351000 | -287000 | -183000 | -385000 | -164000 | -92000 |
| AIC |  | 702000 | 574000 | 366000 | 770000 | 329000 | 184000 |

Note: Income and wealth are measured in 2002 international dollars (using PPPs and price deflators for personal consumption).

Source: Luxembourg Wealth Study.

**Figure 5. Distribution of regression residuals: standard deviations and correlations**

Standard deviation disposable income          Standard deviation of net worth          Residual correlation of disposable income and net worth



Note: Income and wealth are measured in 2002 international dollars (using PPPs and price deflators for personal consumption, see text).
Source: Luxembourg Wealth Study.

**Conclusions**

55.      The Luxembourg Wealth Study allows for comparisons of net worth and its components across countries. However, the comparability is not as great as might be hoped for. Increased comparability needs to come through the development of internationally comparable definitions of net worth that are applied at the national level.

- There are both similarities and differences in patterns of wealth holding across countries. For instance, housing accounts for a substantial part of net worth in all countries. The share of wealth held in financial assets is perhaps surprisingly large, although there is considerable variation across countries. Italy stands out for having very low levels of debt and few households with negative net worth.

- Net worth and disposable income are highly, but not perfectly, correlated in the countries we look at. Many of those who are classified as income poor do have some assets, although the prevalence of holding and the amounts are clearly lower than among the general population. Part of the positive association of disposable income and net worth is associated to observable characteristics of the household, such as age and education. Once this part is taken into account, a sizeable correlation remains. This correlation appears to be particularly high in the United States in the SCF, where it exceeds 0.50, but varies between 0.27-0.36 in the other datasets, including the United States in the PSID sample.

- There are some differences in our US results depending on whether we look at the SCF or PSID. This suggests that survey design matters a lot. We cannot at this point say to what extent our observed country differences are due to such technical differences.

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## APPENDIX 1. LUXEMBOURG WEALTH STUDY: GENESIS, GOALS AND PARTICIPANTS

56.      The idea of the Luxembourg Wealth Study originated at the 27th General Conference of the International Association for Research in Income and Wealth, held in Djurhamn, Sweden, in August 2002. Following the discussion in a session on the distribution of wealth, it was apparent that data on household net worth were far behind those on income in terms of international comparability. It was then recognized that the time was ripe for the creation of a cross-country comparable wealth database. The LIS successful experience, begun almost two decades earlier (Smeeding, 2004), suggested the way forward: a cooperative project gathering producers of wealth micro-data in countries where these data were available. After two meetings of wealth and data collection experts in 2003, one at LIS offices in Luxembourg in July and one at the Levy Economics Institute in New York in October, the LWS was officially launched in March 2004 as a joint project of LIS and institutions from nine countries: Canada, Cyprus, Finland, Germany, Italy, Norway, Sweden, the United Kingdom, and the United States. Austria joined in spring 2006.

57.      The primary goal of the project is to assemble and organize existing micro-data on household wealth into a coherent database, in order to provide a sounder basis for comparative research on household net worth, portfolio composition, and wealth distributions. The ex-post harmonization of existing data is seen as the first stage of the project. The establishment of a network of producers and experts on data on household net worth aims at promoting a process of ex-ante standardization of definitions and methodologies. The elaboration of guidelines for the collection of household wealth statistics, as done for income by the Expert Group on Household Income Statistics (The Canberra Group, 2001), is an important task for the foreseeable future. In light of these goals, a first workshop on the "Construction and Usage of Comparable Microdata on Wealth: the Luxembourg Wealth Study" was organized by Banca d'Italia in Perugia, Italy, in January 2005. This conference led to a series of technical papers, available on the LWS website, which provide the basis for future discussions in constructing comparable wealth survey data.

58.      Participants in the LWS project are a varied group. Sponsoring institutions include statistical offices (Statistics Canada, Statistics Norway), central banks (Central Bank of Cyprus, Banca d'Italia, Österreichische Nationalbank), research institutes (Deutsches Institut für Wirtschaftsforschung – DIW; U.K. Institute for Social and Economic Research – ISER –, through a grant awarded by the Nuffield Foundation), universities (Åbo Akademi University), and research foundations (Finnish Yrjö Jahnsson Foundation, Palkansaajasäätiö –Finnish Labour Foundation, Swedish Council for Working Life and Social Research–FAS, U.S. National Science Foundation). Representatives from other public institutions (Statistics Sweden, Banco de España, De Nederlandsche Bank, U.S. Federal Reserve Board, U.S. Internal Revenue Service, U.K. Department for Work and Pensions, Organisation for Economic Co-operation and Development, the World Bank) as well as researchers from many universities have taken part in different stages of the project.

59.     The partnership with the LIS is a strong asset, as it allows the LWS project to take advantage of the 20-years of LIS experience in harmonizing household survey data and making them accessible to researchers world-wide through an innovative remote access system (see http://www.lisproject.org for further details). The same access rules is followed by the LWS. The β-version (test version) of the database was tested by researchers participating in the project. The comparison of the β-version of the database with the original national sources was the object of a technical workshop held in December 2006. The test phase led to the preparation of the final α-version of the database, which was made public in December 2007. The release of the α-version to the research community marked the end of the first stage of the LWS project. Today, maintenance and updating of the dataset is part of the regular LIS activities. As for LIS, participation in the LWS work is open to any country that has the relevant information and wants to join the project.[8]

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[8].     Participation in the LWS project has already been discussed with the Netherlands, New Zealand and Spain.

## APPENDIX 2. THE BASIC DISTRIBUTION OF NET WORTH ACROSS LWS NATIONS:
## MEANS, MEDIANS AND INEQUALITY

60.     This Appendix presents background information on some of the main features of the statistical sources used by LWS, as well details on the definitions used. It also presents summary statistics on the distribution of household wealth in participating countries (except Cyprus). While most of these tables and figures have been referred to in the main body of the paper, others have not and are commented here:

- Figure A.2 is based on the most comprehensive version of LWS wealth. These estimates indicate that the country ranking differs between net worth and household disposable income, and also that it matters which central value of the wealth distribution (i.e. mean and median) is chosen. All values are expressed in international 2002 US dollars based on purchasing power parities and consumer price indices estimated by the OECD. Both with the mean and the median income, the United States is the richest country followed by Canada and the United Kingdom, then Germany and Sweden, and lastly Finland and Italy. This is not the case for net worth. The United States and Italy are the richest nations in terms of mean net worth, and Sweden and Finland are at the poorest ones. Once we switch to the median, the United States fall toward the middle and are surpassed by Finland and the United Kingdom. Italy and the United Kingdom show by far the highest median net worth, almost twice the corresponding values for the other countries.

- Median wealth holdings by age of the household's head in Figure A.3 exhibit a hump-shaped pattern, although at different levels of net worth, in most countries. The young have less, the middle aged have the most, and the older have less than the middle-aged but more than the young. The richest young are found in Italy, but their share in population is small, suggesting that only those with enough wealth leave their parents' house. In the United States, Canada, the United Kingdom and Italy the older headed households are also quite well-off. The patterns for financial assets are quite varied for those aged 50 and over. In all countries, the young have little debt, while those aged 35-44 are the most indebted. Unsurprisingly, indebtedness is low among the older age classes: indeed, over half of the elderly have no debt in all countries. In Germany and Italy, over half of the households have no debt at all ages.

**Table A- 1. LWS household wealth surveys**

| Country | Name | Agency | Wealth year (1) | Income year | Type of source | Over-sampling of the wealthy | Sample size | No. of non-missing net worth | No. of wealth items |
|---|---|---|---|---|---|---|---|---|---|
| Austria | Survey of Household Financial Wealth (SHFW) | Österreichische Nationalbank | 2004 | 2004 | Sample survey | No | | | 10 |
| Canada | Survey of Financial Security (SFS) | Statistics Canada | 1999 | 1998 | Sample survey | Yes | 15,933 | 15,933 | 17 |
| Finland | Household Wealth Survey (HWS) | Statistics Finland | End of 1998 | 1998 | Sample survey | No | 3,893 | 3,893 | 23 |
| Germany | Socio-Economic Panel (SOEP) | Deutsches Institut Für Wirtschaftsforschung (DIW) Berlin | 2002 | 2001 | Sample panel survey | Yes | 12,692 | 12,129 | 9 |
| Italy | Survey of Household Income and Wealth (SHIW) | Bank of Italy | End of 2002 | 2002 | Sample survey (panel section) | No | 8,011 | 8,010 | 34 |
| Norway | Income Distribution Survey (IDS) | Statistics Norway | End of 2002 | 2002 | Sample survey plus administrative records | No | 22,870 | 22,870 | 35 |
| Sweden | Wealth Survey (HINK) | Statistics Sweden | End of 2002 | 2002 | Sample survey plus administrative records | No | 17,954 | 17,954 | 26 |
| United Kingdom | British Household Panel Survey (BHPS) | ESRC | 2000 | 2000 | Sample panel survey | No | 4,867 (2) | 4,185 | 7 |
| United States | Panel Study of Income Dynamics (PSID) | Survey Research Center of the University of Michigan | 2001 | 2000 | Sample panel survey | No | 7,406 | 7,071 | 14 |
| | Survey of Consumer Finances (SCF) | Federal Reserve Board and U.S. Department of Treasury | 2001 | 2000 | Sample survey | Yes | 4,442 (3) | 4,442 (3) | 30 |

Notes: (1) Values refer to the time of the interview unless otherwise indicated. (2) Original survey sample. Sample size can rise to 8,761 when weights are not used. (3) Data are stored as five successive replicates of each record that should not be used separately; thus, actual sample size for users is 22,210. The special sample of the wealthy includes 1,532 households.

Source: LWS database.

**Table A.2.      Wealth classification matrix in LWS**

| Asset or liability | LWS acronym | Canada | Finland | Germany | Italy | Norway | Sweden | United Kingdom | United States | United States |
|---|---|---|---|---|---|---|---|---|---|---|
| | | SFS 1999 | HWS 1998 | SOEP 2002 | SHIW 2002 | IDS 2002 | HINK 2002 | BHPS 2000 | PSID 2001 | SCF 2001 |
| FINANCIAL ASSETS | | | | | | | | | | |
| Total | TFA | Σ | Σ | Σ | Σ | Σ | Σ | Σ | Σ | Σ |
| Deposit accounts: transaction, savings and CDs | DA | Y | Y | Y (1) | Y | Y | Y | Y (2) | Y | Y |
| Total bonds: savings and other bonds | TB | Y | Y | | Y | Y | Y | Y | | Y |
| Stocks | ST | Y | Y | | Y | | Y | | Y | Y |
| Mutual funds and other investment funds | TM | Y | Y | | Y | Y | Y | | | Y |
| Life insurance | LI | – | Y | Y (3) | – | Y | – | Y (2) | Y (4) | Y |
| Other financial assets (exc. pension) | OFA | Y | Y | | Y | Y | Y (5) | – | | Y |
| Pension assets | PA | Y | Y | | – | Y | – | – | Y | Y |
| NON-FINANCIAL ASSETS | | | | | | | | | | |
| Total | TNF | Σ | Σ | Σ | Σ | Σ | Σ | Σ | Σ | Σ |
| Principal residence | PR | Y | Y | Y | Y | Y | Y | Y | Y | Y |
| Investment real estate | IR | Y | Y | Y | Y | Y | Y | Y (6) | Y (7) | Y |
| Business equity | BE | Y | – | Y (6) | Y | Y (6) | Y (6) | | Y | Y |
| Vehicles | VH | Y | Y | Y (8) | Y | Y | – | Y (9) | Y (9) | Y |
| Durables and collectibles | DRCL | Y | Y | Y | Y | Y | – | – | – | Y |
| Other non-financial assets | ONF | | – | – | – | – | Y (5) | – | – | Y |
| LIABILITIES | | | | | | | | | | |
| Total | TD | Σ | Σ | Σ | Σ | Y | Y | Σ | Σ | Σ |
| Home secured debt | HSD | Σ | Y | Σ | Y | – | Y (10) | Y | Σ | Σ |
|   Principal residence mortgage | MG | Y | | Y | | Y (11) | – | | Y | Y |
|   Other property mortgage | OMG | Y | | Y | | | – | | Y (7) | Y |
|   Other home secured debt (incl. line of credit) | OHSD | Y | | – | | Y | – | | – | Y |
| Vehicle loans | VL | Y | Y | Y | Y | Y (11) | Y (10) | Y (9) | Y (9) | Y |
| Installment debt (incl. credit card balance) | IL | Y | | | Y | | | Y | Y | Y |
| Educational loans | EL | Y | Y | | – | Y | Y | | | Y |
| Other loans from financial institutions | OL | Y | Y | | – | Y | Y | | | Y |
| Informal debt | ID | | – | | Y | – | Y | | | Y |

Notes:  "Y" denotes a recorded item; "–" denotes a not recorded item; "Σ" indicates that the variable is obtained by aggregation of its components. (1) Excludes checking deposits. (2) DA and LI recorded together. (3) Includes only some pension assets. (4) Includes collectibles and some mutual funds not included in TB. (5) OFA and ONF recorded together. (6) Business assets only. (7) IR recorded net of OMG. (8) As recorded in the 2003 wave. (9) VH recorded net of VL. (10) HSD, VL and IL recorded together. (11) MG, OMG, VL and IL recorded together. (12) Includes also VL, which may imply double-counting.
Source: LWS database.

**Table A.3.     Reconciling the LWS and national net worth concept**

Averages in thousands of national currencies

| Variable | Canada | Finland | Italy | Sweden | United States S |
|---|---|---|---|---|---|
| | 1999 | 1998 | 2002 | 2002 | 2001 |
| LWS net worth | 102.5 | 69.3 | 154.2 | 537.8 | 213.1 |
| + pension assets | 83.0 | 0.6 | - | - | 74.4 |
| + other financial assets | 2.5 | 1.6 | 0.3 | 24.5 | 3 |
| + business equity | 26.9 | - | 23.5 | 80.0 (2) | 74.7 |
| + other non-financial assets | 28.5 | 6.5 | 24.4 | 17.8 | 20.6 |
| LWS adjusted net worth | 243.5 | 79.8 (1) | 201.3 | 660 | 395.8 |
| | | | | | |
| National source net worth | 249.3 | 79.8 | 204.4 | 660 | 395.5 |

Notes: Household weights are used.
1. Business assets only.
2. It does not include other debts.
3. Percentage ratio of LWS net worth to LWS adjusted net worth.
Source: LWS database and country sources (Statistics Canada, 2006a; Finnish data provided by Markku Säylä; Brandolini et al., 2004; Statistics Sweden, 2004; Aizcorbe, Kennickell and Moore, 2003).

**Table A.4.    Share of missing values in major components of LWS net worth**

Percentages

| Wealth variable | Canada | Finland | Germany | Italy | Norway | Sweden | United Kingdom | United States | United States |
|---|---|---|---|---|---|---|---|---|---|
| | SFS 1999 | HWS 1998 | SOEP 2002 | SHIW 2002 | IDS 2002 | HINK 2002 | BHPS 2000 | PSID 2001 | SCF 2001 |
| Non-financial assets | – | – | 3 | 0.0001 | – | – | 2 | 2 | – |
| Financial assets | – | – | 4 | – | – | – | 9 | - | – |
| Debt | – | – | 3 | – | – | – | 7 | 3 | – |
| Net worth | – | – | 4 | 0.0001 | – | – | 14 | 5 | – |
| Sample size | 15,933 | 3,893 | 12,692 | 8,011 | 22,870 | 17,954 | 4,867 | 7,406 | 4,442 |

Source: LWS database.

**Table A.5.    Per capita household wealth in LWS database and national balance sheets**

Values in euros and percentages

| Wealth variable | Canada | Finland | Germany | Italy | Norway | Sweden | United Kingdom | United States | United States |
|---|---|---|---|---|---|---|---|---|---|
| | SFS 1999 | HWS 1998 | SOEP 2002 | SHIW 2002 | IDS 2002 | HINK 2002 | BHPS 2000 | PSID 2001 | SCF 2001 |
| *LWS database* | | | | | | | | | |
| Non-financial assets | 28,237 | 31,920 | 55,773 | 50,965 | 14,605 | 33,132 | 61,436 | 63,170 | 77,686 |
| Financial assets | 8,018 | 6,181 | 8,162 | 8,913 | 22,066 | 12,943 | 11,036 | 31,332 | 47,059 |
| Debt | 9,577 | 6,032 | 14,442 | 2,590 | 29,561 | 16,159 | 13,572 | 20,857 | 26,707 |
| Net worth | 26,678 | 32,069 | 49,493 | 57,288 | 7,110 | 29,916 | 58,901 | 73,646 | 98,037 |
| *National balance sheet* | | | | | | | | | |
| Non-financial assets | 32,492 | – | 69,234 | 78,417 | – | – | 67,728 | 66,679 | |
| Financial assets | 51,157 | 20,317 | 44,731 | 48,780 | 42,268 | 40,927 | 87,199 | 123,768 | |
| Debt | 13,813 | 7,147 | 18,750 | 7,089 | 33,629 | 16,577 | 20,471 | 31,003 | |
| Net worth | 69,836 | – | 95,215 | 120,108 | – | – | 134,457 | 159,444 | |
| *Ratio of LWS to NBS* | | | | | | | | | |
| Non-financial assets | 87 | – | 81 | 65 | – | – | 91 | 95 | 117 |
| Financial assets | 16 | 30 | 18 | 18 | 52 | 32 | 13 | 25 | 38 |
| Debt | 69 | 84 | 77 | 37 | 88 | 97 | 66 | 67 | 86 |
| Net worth | 38 | – | 52 | 48 | – | – | 44 | 46 | 61 |

Notes: LWS figures are given by the ratios between wealth totals and number of persons in each survey; household weights are used. National balance sheets (NBS) figures are obtained by dividing total values for the sector "Households and non-profit institutions serving households" by total population. All values are expressed in euros at current prices by using the average market exchange rate in the relevant year.

Source: LWS database and country sources (Eurostat, 2006 for financial assets and debt of European countries; personal communication by Ulf von Kalckreuth, Brandolini et al., 2004 and Office for National Statistics, 2006 for non-financial wealth in Germany, Italy and the United Kingdom, respectively; Statistics Canada, 2006b; Board of Governors of the Federal Reserve System, 2006).

**Table A.6.** **Demographic structure based on LWS data**

| Household characteristic | Canada | Finland | Germany | Italy | Norway | Sweden | United Kingdom | United States | United States |
|---|---|---|---|---|---|---|---|---|---|
| | SFS 1999 | HWS 1998 | SOEP 2002 | SHIW 2002 | IDS 2002 | HINK 2002 | BHPS 2000 | PSID 2001 | SCF 2001 |
| Mean household size | 2.43 | 2.16 | 2.14 | 2.65 | 2.14 | 1.96 | 2.35 | 2.38 | 2.43 |
| Mean age of the household's head | 47 | 49 | 52 | 55 | 49 | 51 | 53 | 48 | 49 |
| Age composition of household's head (%) | | | | | | | | | |
| 24 or less | 5.9 | 7.3 | 3.7 | 0.7 | 7.2 | 6.6 | 3.8 | 5.3 | 5.6 |
| 25-34 | 19.6 | 16.7 | 15.2 | 9.4 | 19.3 | 16.9 | 14.3 | 18.6 | 17.1 |
| 35-44 | 24.7 | 20.0 | 20.6 | 21.5 | 19.4 | 17.7 | 19.3 | 22.2 | 22.3 |
| 45-54 | 19.6 | 21.0 | 17.5 | 18.8 | 18.0 | 17.5 | 17.4 | 22.4 | 20.6 |
| 55-64 | 11.9 | 13.8 | 16.5 | 16.9 | 14.1 | 16.6 | 14.9 | 12.5 | 13.3 |
| 65-74 | 10.4 | 11.7 | 14.9 | 18.2 | 9.8 | 10.9 | 14.0 | 10.9 | 10.7 |
| 75 and over | 7.9 | 9.5 | 11.6 | 14.5 | 12.2 | 13.8 | 16.3 | 8.1 | 10.4 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

Source: LWS database. Household weights are used.

**Table A.7.    Household asset participation**

Percentages

| Wealth variable | Canada | Finland | Germany (1) | Italy | Norway | Sweden | United Kingdom | United States | United States |
|---|---|---|---|---|---|---|---|---|---|
| | SFS 1999 | HWS 1998 | SOEP 2002 | SHIW 2002 | IDS 2002 | HINK 2002 | BHPS 2000 | PSID 2001 | SCF 2001 |
| *All assets as recorded* | | | | | | | | | |
| Non-financial assets | 64 | 68 | 43 | 72 | 72 | 57 | 70 | 65 | 70 |
| Principal residence | 60 | 64 | 40 | 69 | 64 | 53 | 69 | 64 | 68 |
| Investment real estate | 16 | 27 | 12 | 22 | 30 | 14 | 8 | – | 17 |
| Financial assets | 90 | 92 | 49 | 81 | 99 | 79 | 80 | 83 | 91 |
| Deposit accounts | 88 | 91 | – | 81 | 99 | 59 | 76 | 82 | 91 |
| Bonds | 14 | 3 | – | 14 | – | 16 | – | – | 19 |
| Stocks | 11 | 33 | – | 10 | 22 | 36 | – | 30 | 21 |
| Mutual funds | 14 | 3 | – | 13 | 38 | 58 | – | – | 18 |
| Debt | 68 | 52 | 32 | 22 | 80 | 70 | 59 | 68 | 75 |
| Home-secured debt | 41 | 28 | – | 10 | – | – | 39 | – | 46 |
| *Assets above 2500 euros* | | | | | | | | | |
| Non-financial assets | 64 | 68 | 43 | 72 | 72 | – | 70 | 65 | 70 |
| Financial assets | 48 | 53 | 49 | 70 | 70 | – | 58 | 56 | 60 |
| Total debt | 58 | 45 | 32 | 17 | 74 | – | 49 | 59 | 65 |

Household weights are used. (1) Most of financial assets and non-housing debt are recorded only for values exceeding 2,500 euros.

Source: LWS database.

**Table A- 8.    Household portfolio composition**

Percentage share of total assets

| Wealth variable | Canada | Finland | Germany(1) | Italy | Norway(2) | Sweden | United Kingdom | United States | United States |
|---|---|---|---|---|---|---|---|---|---|
| | SFS 1999 | HWS 1998 | SOEP 2002 | SHIW 2002 | IDS 2002 | HINK 2002 | BHPS 2000 | PSID 2001 | SCF 2001 |
| Non-financial assets | 78 | 84 | 87 | 85 | – | 72 | 83 | 67 | 62 |
| Principal residence | 64 | 64 | 64 | 68 | – | 61 | 74 | 52 | 45 |
| Real estates | 13 | 20 | 22 | 17 | – | 11 | 9 | 14 | 17 |
| Financial assets | 22 | 16 | 13 | 15 | – | 28 | 17 | 33 | 38 |
| Deposit accounts | 9 | 10 | – | 8 | – | 11 | 9 | 10 | 10 |
| Bonds | 1 | 0 | – | 3 | – | 2 | – | – | 4 |
| Stocks | 7 | 6 | – | 1 | – | 6 | – | 23 | 15 |
| Mutual funds | 5 | 1 | – | 3 | – | 9 | – | – | 9 |
| Total assets | 100 | 100 | 100 | 100 | – | 100 | 100 | 100 | 100 |
| Debt | 26 | 16 | 23 | 4 | – | 35 | 21 | 22 | 21 |
| *of which*: home-secured | 22 | 11 | – | 2 | – | – | 18 | – | 18 |
| Net worth | 74 | 84 | 77 | 96 | – | 65 | 79 | 78 | 79 |

Notes: Data based on household weights. Shares are computed as ratios of means. Data may not add up because of rounding.
1. Most of financial assets and non-housing debt are recorded only for values exceeding 2,500 euros.
2. Figures not reported because valuing real estate on a taxable basis and debt at market prices causes a major inconsistency (indeed, the majority of households have non-positive net worth).

Source: LWS database.

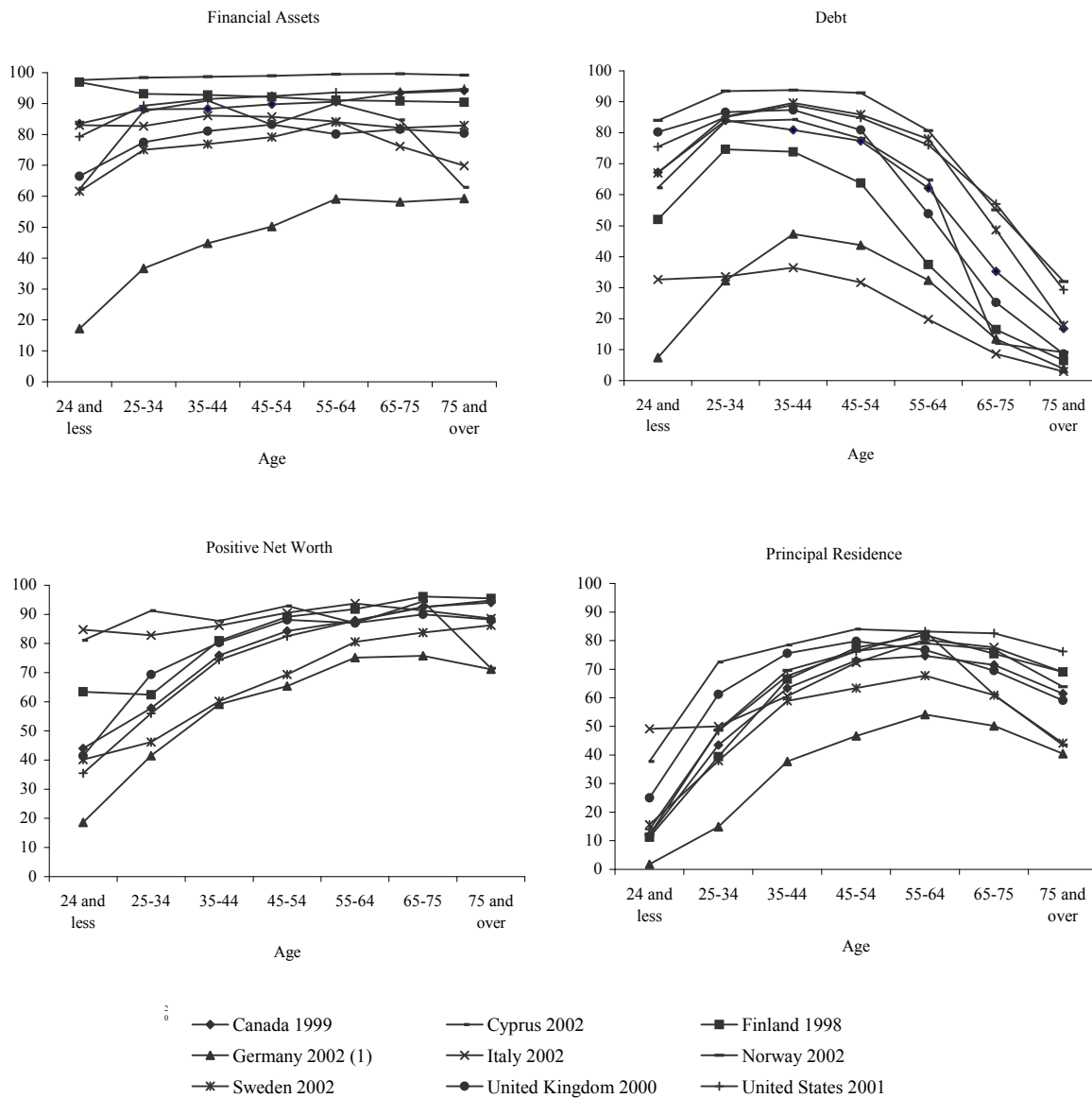**Table A.9.    Distribution of household net worth**

Percentages

| Statistics | Canada | Finland | Germany (2) | Italy | Norway (3) | Sweden | United Kingdom | United States | United States |
|---|---|---|---|---|---|---|---|---|---|
| | SFS 1999 | HWS 1998 | SOEP 2002 | SHIW 2002 | IDS 2002 | HINK 2002 | BHPS 2000 | PSID 2001 | SCF 2001 |
| Positive net worth | 77 | 83 | 63 | 89 | – | 68 | 82 | 77 | 77 |
| Nil net worth | 3 | 2 | 29 | 7 | – | 5 | 6 | 8 | 4 |
| Negative net worth | 20 | 15 | 9 | 3 | – | 27 | 11 | 16 | 19 |
| Quantile/median ratios | | | | | | | | | |
| 10th percentile | -17 | -6 | 0 | 0 | – | -84 | 0 | -11 | -15 |
| 25th percentile | 0 | 1 | 0 | 8 | – | -1 | 2 | 0 | 0 |
| 75th percentile | 350 | 218 | 886 | 209 | – | 447 | 238 | 378 | 368 |
| 90th percentile | 708 | 390 | 1,818 | 359 | – | 972 | 482 | 925 | 980 |
| Wealth shares | | | | | | | | | |
| Top 10% | 53 | 45 | 55 | 42 | – | 58 | 45 | 64 | 71 |
| Top 5% | 37 | 31 | 38 | 29 | – | 41 | 30 | 49 | 58 |
| Top 1% | 15 | 13 | 16 | 11 | – | 18 | 10 | 25 | 33 |
| Gini index | 75 | 68 | 80 | 61 | – | 89 | 66 | 81 | 84 |

Notes: Household weights are used. (1) Figures not reported because over 60 per cent of values for net worth are missing. (2) Most of financial assets and non-housing debt are recorded only for values exceeding 2,500 euros. (3) Figures not reported because valuing real estate on a taxable basis and debt at market prices causes a major inconsistency (indeed, the majority of households have negative net worth).

Source: LWS database.

**Figure A.1.    Share of holders, by age of the household's heads**

Percentages of all people in each group

Financial Assets

Debt

Positive Net Worth

Principal Residence

◆ Canada 1999          Cyprus 2002          ■ Finland 1998
▲ Germany 2002 (1)     ✕ Italy 2002         Norway 2002
✳ Sweden 2002          ● United Kingdom 2000 + United States 2001

Note: Based on household weights.
1) Most of financial assets and non-housing debt are recorded only for values exceeding 2,500 euros.

Source: LWS database.

**Figure A.2.    LWS country rankings by mean and median of net worth and income**
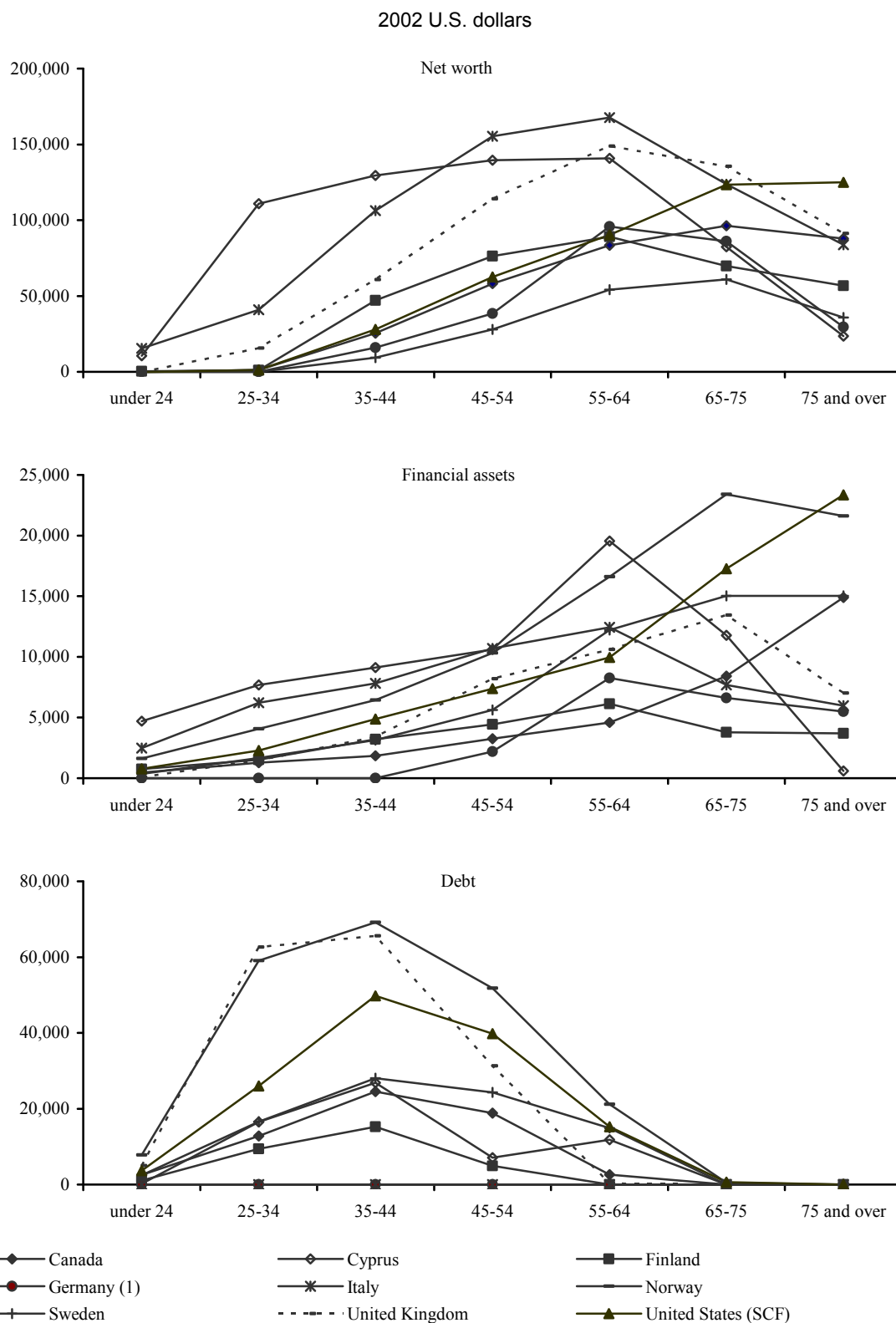
2002 U.S. dollars
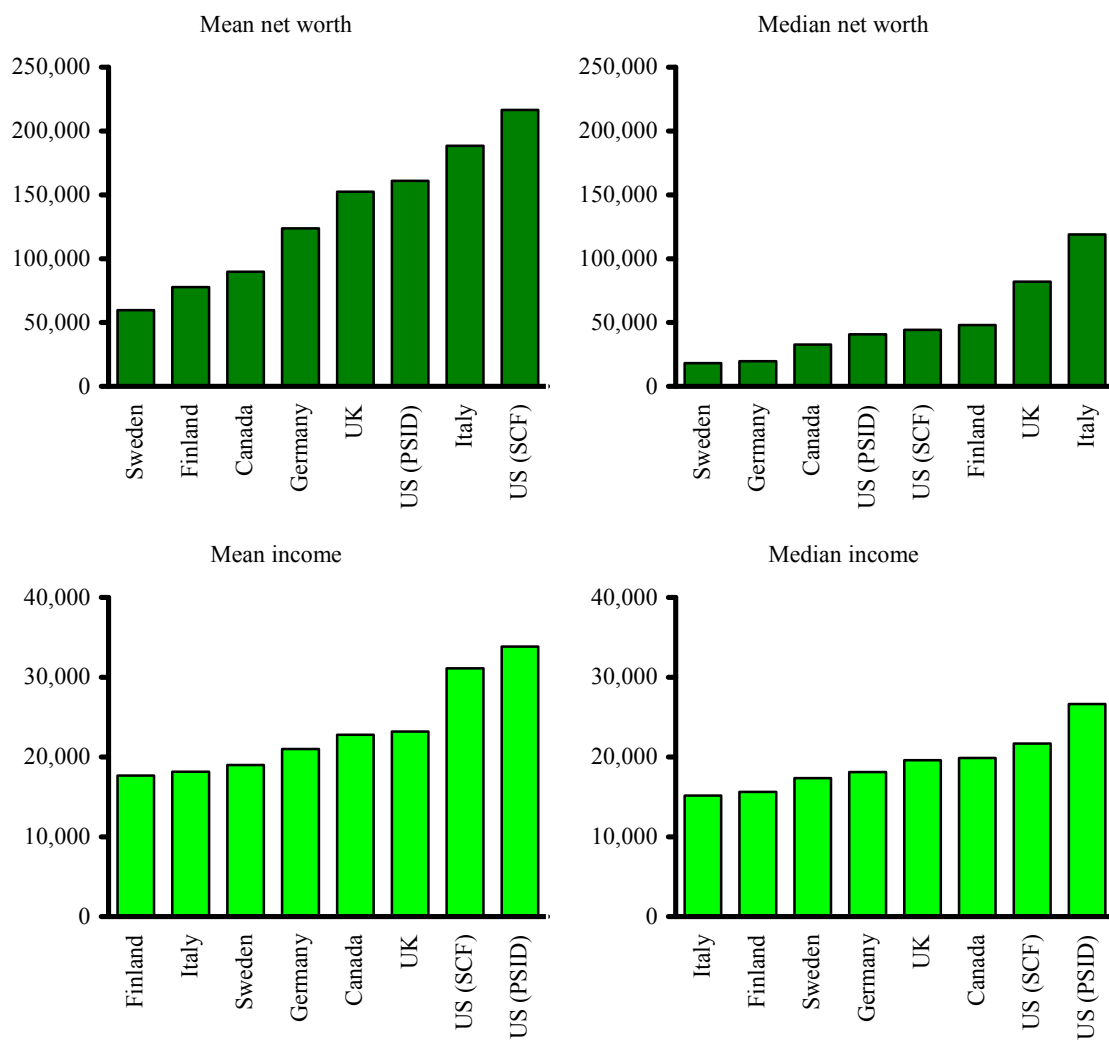


Note: Data based on household weights.

Source: LWS database.

**Figure A.3.    Median wealth holdings by age of the household's head**

2002 U.S. dollars



Note: Data based on household weights.

Source: LWS database.

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