Research note no. 7/2009

Measuring wealth and the implications for measures of distribution and the risk of poverty

By Eva Sierminska

ABSTRACT

The risk of poverty, as conventionally measured, and indicators of inequality tend to be based solely on estimates of annual household income and take no account of accumulated wealth and the effect of this on purchasing power and living standards. This is a potentially serious source of distortion which is liable to lead to misleading conclusions being drawn as regards the extent of inequalities and the relative number of people at risk of social exclusion, with obvious implications for policy.

The purpose of this research note will be first, to review the results of recent studies which have been undertaken in an attempt to estimate the scale of wealth in different EU countries and its distribution between households; secondly, to consider the implications of taking explicit account of wealth on conventional measures of inequality and the risk of poverty.

In what follows we will first provide some introductory information on the analysis of wealth, then we discuss the concept of wealth and provide an overview of recent research on wealth levels and distribution. In the second part of the paper we will consider the implications of taking explicit account of wealth on conventional measures of inequality and the risk of poverty.

This Research Note has been produced for the European Commission by the Network on Income Distribution and Living Conditions of the European Observatory on the Social Situation and Demography. The views expressed are those of the authors and do not necessarily represent those of the European Commission.

European Commission
Directorate-General "Employment, Social Affairs and Equal Opportunities"
Unit E1 - Social and Demographic Analysis

Manuscript completed in September 2009

European Commission

Measuring wealth and the implications for measures of distribution and the risk of poverty

Eva Sierminska[1]

I. Introduction

A common way of assessing and comparing living standards of individuals has been to compare income levels across and within countries. Since large disparities in income are thought to reduce the level of well-being associated with a given income level, comparisons of income levels across countries have been augmented by comparisons of income distribution across countries (Atkinson et al. (1995)).

The understanding of differences in economic well-being can be enhanced by including an additional dimension-wealth. The stock of wealth is important in explaining the level of consumption of goods and services and for generating income. It can also serve as a source of reserve funds that allows for consumption smoothing during times of income fluctuation. Thus, an analysis of cross-country levels and distribution of wealth is an important complement to the analyses of income levels and distribution.

Estimating the scale of wealth in different EU countries and its distribution between individuals and households has recently increased in importance following several developments. First, a strong rise in stock and house prices followed by a dramatic collapse in many countries, as well as a shrinking welfare state, which shifts the risk from governments to individuals. Other trends include changes in health insurance as well as changes in retirement programs. One of the difficulties that wealth analysis has had to deal with is data availability, which is sparse and difficult to collect. Nevertheless, in the recent past, efforts have been made to provide researchers to the extent possible with a comparable view of the importance of wealth in measuring the economic well-being of households and individuals.

One such study is (Jäntti and Sierminska, 2008), which gathers survey estimates of wealth holdings in OECD countries. The authors admit they have come across difficulties comparing cross-country findings. One of these refers to the different definitions that have been used for wealth. These are mostly driven by the data collection e orts and as a result vary with survey details. In countries with very detailed survey questions the wealth concept is exhaustive and comprehensive in others it encompasses only the main wealth components. These type of differences need to be considered when making more general statements about the levels of wealth across countries. It should be noted that more recently major projects have been undertaken to provide comparable wealth survey data for researchers, such as the Luxembourg Wealth Study[2] or the Household Finance and Consumption Survey (ECB, 2009).

[1] CEPS-INSTEAD

[2] http://www.lisproject.org

II. Wealth Definitions across Countries

There are many ways of defining wealth. Here we are mostly interested in distributional issues and our main concern lies in the overall distribution of wellbeing, as a result wealth defined as human and non-human capital would be of central interest. In this note, the term wealth refers to the more commonly used concept of net worth, which measures the value of all of non-human assets less liabilities (debt). The problem is not so much in defining the general concept of wealth or net worth, but more so in actually measuring it or defining it based on data already available.[3] For this reason, researchers have analyzed wealth using instruments ranging from proxy variables that indicate the socioeconomic status of individuals to very broad net worth concepts.[4]

Three commonly used notions of wealth distinguished by Wolff (1990) include household disposable wealth (HDW), augmented wealth and capital wealth. The first is an accounting notion of wealth and refers to the market value of assets less liabilities that are directly tradable. Augmented wealth refers to the neoclassical notion of the present value of the discounted future stream of net income (including human capital or other comparable measure of future earnings possibilities). In practice, it includes among other wealth components some type of valuation of pension rights from public and private sources even if these do not meet the more stringent criteria for being wealth. In this respect, it is to be a better indicator of potential future consumption, but quite problematic to estimate.[5] The third concept is a narrower concept than HDW and refers to the ownership of income producing assets as a store of value and measure of power. In more recent studies, Wolff (1996, 1998, 2004) uses the concept of marketable wealth (a) and augmented wealth (b) using data created from estate tax registers along with survey data. These concepts appear to be the most widely used in the literature (Davies and Shorrocks (2000)).

In order to be able to compare wealth levels across countries, not only do we need to know about the differences in the definitions of wealth used in the different countries, but we also need to have information about surveys. Differences in sampling and data collection, while highly technical in nature, can be very important for cross-country comparisons of wealth. For instance, whether or not a particular survey oversamples the wealthy can have a very large impact on the estimated level of wealth, as well as its distribution. We must also choose a common metric in which to compare wealth. In what follows we have chosen to convert the national currencies to 2007 euros.[6]

The exact definition of net worth varies depending both on what is available in the data and the purpose of each study. To provide an example of the variation of wealth concept in the literature we review some of the literature from which we have collected results in the tables included in this note.

In Italy, Brandolini et al. (2004) de ne household wealth in Italy as the total market value of dwellings, consumer durables and financial assets, net of debts. The value of small unincorporated businesses is excluded, as well as the value of life insurance and private pension funds.

---

[3] Many current net worth definitions seem to be data driven, but are not consistently used across studies (Sierminska (2005).

[4] See Jenkins (1990) for other conceptual issues in defining wealth.

[5] Social security and private pension wealth quite often is excluded from the concept of net worth due to measurement difficulties.

[6] We use OECD price indices and purchasing power parities for actual private consumption to convert the data to 2007 USD. Then we use the exchange rate to convert to Euros (USD-Euros=.7306).

In Finland, net worth includes financial and non- financial assets, including housing and consumer durables net of debts. The main omission in this definition is the value of forests -a very common asset among the population. The sample is based on Income Distribution Surveys, which over-samples high-income earners, but does not specifically target the wealthy. A comparison of interview with register data in the Finnish case suggests that average gross wealth from tax data is estimated to be about one half of that based on detailed interviews (Jäntti (2006)). For debts, administrative data are estimated to be a little higher than the interview information. Tax data thus tend to under-value assets and value debts close to their true value. Using tax assessment is cost effective for data gathering purposes, but is associated with many well known problems, such as large undervaluations of different assets and the fact that whatever is not included in the tax assessments is missed altogether. The Swedish sample is based on a household panel survey, the HUS.

Banks et al. (2002) look at the distribution of financial wealth in Great Britain and provide some analysis of pensions and housing wealth. Their concept of net worth includes savings, investments (excludes pensions and housing) and debt. A more comprehensive analysis of British wealth is not yet possible due to the lack of a survey that would measure all dimensions of wealth.[7]

We also show results for the US, which has the most comprehensive wealth survey in the world (Survey of Consumer Finances (SCF)). In addition to asking multiple wealth questions, it over-samples the wealthy, which allows for more accurate measurement of wealth at the top of the distribution and therefore also of both total and mean wealth. The SCF also multiply imputes missing values, which improves its accuracy. To highlight the sensitivity of results to different sampling frames and data collection techniques we also include results from another US survey the Panel Survey of Income Dynamics (PSID). The PSID uses some imputation methods, but has substantially fewer wealth questions and does not over sample the wealthy. Even though the SCF is more comprehensive, the PSID is often used as it is more comparable to other available European surveys.

Sampling is particularly important in wealth surveys, since wealth is much more highly concentrated than income. Questions about wealth are often deemed sensitive, potentially leading to large non-response rates. If non-response in-creases with the level of wealth, the total level of wealth can be seriously under-estimated if special care is not taken to ensure sample responses at the higher end of the wealth distribution.

The 1998 German data we report stems from the Income and Expenditure Surveys conducted by the German Statistical Offices. The data are top coded for income and have been obtained from self-assessments of wealth,[8] which are considered to understate true wealth (Eymann and Börsch-Supan (2002)). The data from 2002 come from the German Socio-Economic Panel (SOEP) and include seven wealth components: main residence and other real estate property (including debt), financial assets, private pensions, business assets, tangible as-sets and consumer credit (Frick et al. (2007)). The Dutch data in turn stem from the Center Saving Survey (CSS), an annual panel that has a substantial over-sampling of high-income earners. The data have quite comprehensive information on different components of household wealth.

In Spain, the data come from the Spanish Survey of Household Finances (EEF) and the net worth concepts includes financial assets, pension wealth, real estate wealth, business equity, vehicles and jewelry and other valuables net of all outstanding debt (Bover (2008)).

[7] The Wealth and Asset Survey will be made available in late 2009 by ONS.

[8] In most surveys data on wealth is self-declared.

As has been demonstrated available wealth data have been collected in many different ways and differ in their scope and sampling methodology. These differences should be considered when conducting cross-national comparisons.

III. Wealth levels across EU countries

A comparison of average household wealth levels for the late 1990s and early 2000 can be found in Table 1. European countries have been grouped to the left and other countries have been grouped to the right. According to the broadest measure of wealth – net worth – in Europe striking differences exist in average wealth levels. Average wealth in the richest country (Italy) is over 4 times the wealth in the poorest country (Finland). The highest levels of wealth can be found in Italy and Spain, then Germany and the Netherlands, and finally Sweden and Finland. The ranking of these countries can be summarized as follows -the highest level of wealth is in Mediterranean countries, then continental countries and finally Nordic countries.

The wealth levels in other, non-European countries are for the most part more than those in Spain with the exception of Canada. We also note a very big difference in the measurement of average wealth using different surveys in the US. These numbers are skewed upwards by a relatively small number of wealthy households, as the difference disappears once we look at the median level of wealth.

As mentioned, differences in sample design and in particular whether the wealthy are over-sampled may have a large impact on the estimated average wealth levels. The analysis of median, rather than mean, wealth levels therefore is warranted.

There is a lot more evidence on the typical or `median' household in non-European countries compared to European countries. We find that median net worth is much closer and the dispersion smaller in European countries. In non-European countries we find the richest household to be in Japan followed by Australia and the USA. Once we switch to this measure the specific survey in the USA has no effect on our conclusions. We also can gain some idea of wealth inequality in the USA, for example by noting that median USA net worth is much closer to that in Sweden, whereas the average was 2.5-3 times more.

It is tempting to speculate that in some European countries' low levels of net worth and difference across countries in part can be explained by the presence of legislated earnings-related pensions.[9] While the details vary across countries and also change over time within countries, the presence of pension legislation which make future benefits a function of earnings or in some cases lifetime earnings (e.g. Sweden and Finland) will almost certainly affect the perceived need for savings and therefore of wealth accumulation. A partial correction for this in cross-national studies would be to impute, based on labor market characteristics, some measure of the net present value of future expected pensions for those who have not yet retired. Such corrections are not possible without access to individual level microdata, which is rarely collected.

Because of the non-negligible differences in the net worth concepts used by authors it may be more meaningful to examine the most comparable or specific components of net worth across countries, for example, the value of the principal residence. The owned home is the main component of assets in most countries roughly amounting to 2/3 of the value of the

[9] This has been the case for Australia and Germany, for example. Frick and Headey (2009) show that wealth levels in households with retired heads are equalized once estimates of future social pension income flows are included. Without social pension entitlements the wealth level in Australia is more than twice as much as in Germany.

wealth portfolio. In Europe, the highest average value is found in the UK, Italy, Sweden, Germany and Finland.

The rankings change once averages conditional on ownership are compared. Bicakova and Sierminska (2008) find in a five-country study that the highest home values among homeowners are in Germany, the UK, Italy followed by the United States and Finland. Once we turn to medians conditional on ownership a similar ranking prevails. Turning next to debt, the lowest level in Europe is found in Italy, Finland, Germany, Sweden, and the Netherlands. In other countries it is much higher, with the USA leading followed by Australia and Canada.

IV. Distribution of wealth

To present evidence on the distribution of wealth between households we collect evidence from two international studies on wealth inequality. These provide summary income inequality indices such as the Gini coefficient and quintile group shares. The Davies et al. (2008) study assembles estimates clustered around the year 2000. The source of these data are mostly household surveys, but there are three from wealth registers (Denmark, Sweden and Switzerland) and two from estate multiplier estimates (France and the UK). The Luxembourg Wealth Study (LWS) is a data archive of household surveys whose goal is to harmonize wealth and income data in order to provide a cross-nationally comparable definition of wealth. In the figure presented in order to achieve a common wealth definition some components such as business assets and retirement accounts have been omitted. In addition survey techniques differ in these countries as some over estimate the rich and others do not. In other words details of the data choices limit the extent to which any two estimates of the same statistic can be compared across countries.

To provide an idea of the differences in distribution of wealth and income, the Gini coefficient for household disposable income from the Luxembourg Income Study (LIS) are included in the last column. Note that the coefficient for income is half the size and often one third the size of the coefficient for wealth suggesting very large wealth inequality and confirming the discussed characteristics of the wealth distribution: large skewness of the data and large concentration of very low and zero values.

When comparing the wealth Gini coefficients in the two studies we find similarities as well as differences. These may be the result of either different surveys, different wealth definition or different survey years. The two sets of Gini coefficients suggest similar orderings of the countries, but different magnitudes. For instance, Sweden has the highest Gini coefficient in LWS and the next highest Gini coefficient in the estimates of Davies et al. (2008). At the same time it has one of the lowest values based on the mean and median results. On the other hand, there are similarities as well. For example, Finland (US) has one of the lowest (highest) levels of net worth inequality using all available measures. These differences in levels of net worth inequality from different sources underline the importance of researchers being able to make their own data definitions and choices using microdata from several countries in drawing conclusions about both wealth levels and distribution.

When looking at top shares the picture is similar to the one painted by the Gini coefficient. In Europe, Sweden has one of the highest shares of wealth held by the top ten followed by Germany and the UK, Finland and Italy.

It is interesting to note that Sweden and Germany are seen as the most unequal countries in Europe in terms of wealth; meanwhile this is not at all the case in terms of income. One of the reasons for these findings is that a large share of households has very little or negative wealth. In Germany around 38 percent and in Sweden 32 percent (Sierminska et al. (2006)). Low

wealth levels can reflect measurement errors, but also low homeownership rates (in Germany) and high debt (in Sweden) and the dampening effect of public pensions on savings.[10]

V. Implications of taking account of wealth in inequality and poverty measures

Social indicators used to monitor social cohesion and inequality over time and across countries such as quintile shares, and poverty rates are routinely computed from data on household income (Jenkins and Van Kerm (2009)). This is not so much the case for wealth. In fact, much less is known comparatively across countries about other measures of economic well-being such as inequality in consumption expenditure or wealth and asset holdings. However there is little dispute that the latter is a relevant measure of living standard too, and one, which is able to better capture long-term economic resources than monthly or annual income flows. The main reason for this unbalance between the use of income-based social indicators and wealth-based indicators up till now is the availability of reliable data. Although many standard tools used for income analysis can also be used for wealth analysis some particular features of wealth distributions make the measurement of inequality somewhat more challenging - these include the presence of a substantial fraction of negative net worth in most sample data on wealth, the strong skewness and the fat tails of the distributions with extreme data and because a large fraction of the population has little or no wealth{the large concentration of values usually at zero.

Jenkins and Jäntti (2005) review tools developed for summarizing income distributions that can be applied to wealth distributions and conclude that a subset of the former can be used with some care. The development of methods, which take account of the particular characteristics of wealth data are still in progress. For now the most common measures used in wealth studies are the Gini coefficient and top shares.

Although there is considerable agreement on the appropriate measure of in-come poverty in cross-national context, there is no consensus on wealth poverty, because there is little work on this topic for any one country and even less cross-nationally. In the United States in the poverty literature there are some attempts to incorporate wealth in the income measure either by annuitizing it over the expected remaining years of life (Weisbrod and Hansen (1968); Rendall and Speare Jr. (1993)), for example and adding it to annual income or treating it as a stock. Haveman and Wolff (2004) review the past literature and indicate that when this income-net worth measure is used to calculate poverty rates in the US it is found that when measured for all families, the rate of income-net-worth poverty is lower than the rate of income poverty, with substantial decreases in poverty rates for older families. Haveman and Wolff (2004) are also one of the first to use the concept of asset poverty, which serves to complement indicators of poverty that are based on income flows alone. The idea is that assets serve as a safety net in case of income fluctuations and can be drawn upon in times of economic stress, hence should be accounted for in the measure of economic well-being. Those with a low level of assets are in a particularly economically vulnerable if alternative income sources are suddenly interrupted and those with high level of assets may barely be affected by their loss of income. The authors define an asset poor household as one “with insufficient assets to enable it to meet basic needs for a period of time (three months)...” To provide a measure of joint income/asset measure they label the poor as those that have neither annual income in excess of the poverty line nor assets in excess of .25 of the poverty line. They find that while there has been a decrease in income poverty, asset poverty has slightly

[10] On pensions, see Domeij and Klein (2002) for Sweden and Frick and Headey (2009) for Germany.

increased over the last two decades of the previous century. In addition asset poverty falls monotonically with age and education and is higher for renters than homeowners. There is also a big variation in poverty rates by family type.

More recently, there have been a number of studies that also apply the concept of asset poverty in cross-national comparisons with a slight modification. Here households are considered asset poor if their financial asset holdings are less than six months (50%) of income at the poverty threshold of 50% of median income (Gornick et al. (2009a,b)). The cross-national findings for elderly women indicate that asset poverty is very prevalent (between 30-55% is asset poor) in European countries and in between 43-56% of households are income or asset poor or both.

Another way of taking account of wealth when examining the distribution of economic well-being would be to consider the joint distribution of income and wealth. While there are obvious links between income and net wealth accumulation through savings and borrowing constraints, the dependency between these two covariates cannot be summarized in a simple way. The relationship between income and wealth is somewhat mitigated by, for example, wealth portfolio allocation choices, life-cycle effects, intergenerational transfers (inheritance), past income streams and their volatility, etc. Nevertheless, there is interest in capturing and understanding how these measures of economic well-being covary in a better way. A finer knowledge about the joint distribution of income and wealth is also relevant for the design of taxation and redistribution policies as well as for better identification and targeting of vulnerable population groups.

There have been attempts to gain a better understanding of the relationship between income and wealth in a descriptive manner by providing information on income and wealth portfolios and treating wealth as an additional leg in the multi legged stool that is represented by multiple income streams (see for example, Sierminska et al. (2007); Gornick et al. (2009b)).

There is relatively little known about the dependence between income and wealth when modeled together, especially outside the United States (Kennickell (2009)), although some work has begun using the Luxembourg Wealth Study (Jäntti et al. (2008)). The latter study indicates that net worth and disposable income are highly, but not perfectly correlated across people within countries. 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.

Yet another strand of literatures considers one of the components of wealth and identifies financially vulnerable households. Given the growing indebtedness of households particularly of those that take up loans to finance their homes and other consumption goods, vulnerable households have been identified as those that experience difficulties in paying back their loans. The main idea here is to compare the share of disposable income needed in a period to pay interest on debt and in the case of durables to pay back the principal. This is considered to be the debt-service ratio: if it above a certain threshold the household is considered to be financially vulnerable (for an example using the EU-SILC, see Brandolini et al. (2009)).

VI. Concluding remarks

Attempts to provide descriptive statistics for the level, composition and distribution of wealth across countries is known to be difficult because of differences in definitions and measurement. The particular features of wealth distributions are an additional challenge in providing meaningful indicators. Nevertheless, recently there has been some progress in

identifying comparability issues through the construction of the Luxembourg Wealth Study (Sierminska et al. (2006)) and providing solutions for future data collection e orts (ECB (2009)). It remains undisputable that wealth provides an additional dimension in the measurement of economic well-being and should be considering when assessing the overall well-being of European populations.

Annex – Tables

Table 1. Wealth levels across countries (means and medians in thousands of 2007 euros)

	Finland	Germany	Germany*	Italy	NL	Spain	Sweden	UK	Australia	Canada*	Japan	US	US*
Mean													
Net worth	*68.4*	*124.1*	*70.4*	*310.5*	*120.4*	*202.5*	*106.2*	*-*	*270.6*	*153.4*	*302.5*	*259.8*	*375.3*
Assets	*80.4*	*145.9*	*-*	*314.8*	*159.0*		*136.0*	*-*	*316.4*	*182.2*	*-*	*-*	*426.8*
Financial assets	*15.1*	*35.6*	*9.4*	*89.7*	*43.9*		*38.2*	*23.3*	*99.9*	*53.4*	*90.2* (2)	*107.0*	*179.3*
Non-financial assets	*84.8*	*-*	*-*	*225.1*	*-*		*-*	*-*	*216.6*	*106.4*	*164.0* (2)	*158.3* (4)	*247.6*
Housing (main)	*35.2*	*-*	*49.4*	*117.0*	*-*		*69.3*	*134.1*	*137.7*	*69.0*	*-*	*67.1* (4)	*116.1*
Debt	*12.0*	*21.8*	*-*	*4.3*	*38.6*		*29.8*	*3.4* (3)	*45.8*	*28.8*	*-*	*6.3* (4)	*51.6*
Mortgages	*8.8*	*20.3*	*16.0*	*-*	*34.1*		*-*	*-*	*34.4*	*22.3*	*-*	*-*	*38.8*
Median													
Net worth	*45.5*	*42.0*		*-*	*-*	*128.6*	*73.0*	*-*	*146.2*	*-*	*192.7*	*84.6*	*81.7*
Assets	*60.4*	*49.8*		*-*	*-*		*-*	*-*	*192.8*	*104.9*		*-*	*139.6*
Debt	*0.2*	*0.0*		*-*	*-*		*-*	0.0 (3)	*6.7*	*22.3*	*-*	*0.2* (4)	*36.8*

Note: *median for those with item

(2) net financial assets=financial assets-debt; net housing assets=housing assets-housing debt

(3) Non-housing debt

(4) Includes main home equity not value of main home. For debt refers to 'other debt'

(5) Primary residence mortgage

Source:

Australia 2002:Headey, Marks and Wooden (2005);

Canada 1999: Statistics Canada (2006)

Finland 1998: Jantti (2006)

Germany 1998: Ammermûller et al (2005)

Germany* 2002: Frick, Grabka and Sierminska (2007)

Italy 2000: Brandolini et al (2004)

Netherlands 1998: Alessie, R. et al (2002)

Spain 2001: Bover (2008)

Sweden 1997: Klevmarken (2006)

UK 2000: Banks, Smith and Wakefield (2002)

US 2001: Gouskova and Stafford (2002) Bucks, Kennickell and Moore (2006)

US* 2001 2004: Bucks, Kennickell and Moore (2006)

Table 2. Asset composition (in percentages shares of total)

	Finland	Germany	Italy	NL	Sweden	UK	Australia	Canada	Mexico	US
Financial assets:	**16**	**29**	**29**	28	28	17	**32**	**18**	**45**	**36**
Non-financial assets:	**84**		**71**	68	72	83	**68**	**64**	**55**	**64**
Housing	**64**	89	37	64	61	74	54	51		50 †
Business	**-**		7	4	-	-	10	14	**-**	26
Total assets	**100**	**29**	**100**	100	**100**	100	**100**	**100**	**100**	**100**
					-	-				
Debt:	**16**	18	1	24	35	21	**100**	18	**100**	100
Mortgages	**11**	16		22	-	18	75	12	-	70 †
Net worth	**84**	**100**	**99**	76	65	**100**	**100**	**82**	**100**	**100**

Note: †Total real estate

Australia 2002:Headey, Marks and Wooden (2005);
Canada 1999: Morissette et al (2002);
Finland 1998: Sierminska et al (2006)
Germany 1998: Ammermûller et al (2005)
Italy 2000: Brandolini et al (2004)
Mexico: Bernal (2006)
Netherlands: Alessie et al 2002
Sweden 2002: Sierminska et al (2006)
UK 2000: Sierminska et al (2006)
US: Gouskova and Stafford (2002) Bucks, Kennickell and Moore (2006)

Table 3. Top wealth shares and Gini coefficient

	Shares				Gini					
	DSSW		LWS		Wealth				Income	
	top 10%	top 1%	top 10%	top 1%	Year	DSSW	Year	LWS	Year	LIS
Denmark	76	29			1975	0.81				
Finland	42		45	13	1998	0.62	1998	0.68	1995	0.22
France	61	21			1994	0.73			1994	0.29
Germany	44		54	14	1998	0.67	2002	0.78	2000	0.28
Ireland	42	10			1987	0.58			1987	0.33
Italy	49	17	42	11	2000	0.61	2002	0.61	2000	0.33
Norway	51				2000	0.63			2000	0.25
Spain	42	18			2002	0.57			2000	0.34
Sweden	59		58	18	2002	0.74	2002	0.89	2000	0.25
Switzerland	71	35			1997	0.80			2000	0.28
UK	56	23	45	10	2000	0.70	2000	0.66	1999	0.35
Australia	45				2002	0.62			2001	0.32
Canada	53		53	15	1999	0.69	1999	0.75	1998	0.31
Japan	39				1999	0.55				
Korea	43	14			1988	0.58				
New Zealand	52				2001	0.65				
USA	70	33	71	33	2001	0.80	2001	0.84	2000	0.37

Note: DSSW -Davies, Sandstrom, Shorrocks and Wolff (2008)
LWS-Luxembourg Wealth Study in Sierminska, Brandolini and Smeeding (2006b)
Spain in LWS: Bover (2008)

References

Atkinson, A. B., Rainwater, L., and Smeeding, T. M. (1995). Income distribution in OECD countries : Evidence from the Luxembourg Income Study. Paris: Organization for Economic Co-operation and Development; Washington, D.C.

Banks, J., Smith, Z., and Wakefield, M. (2002). The distribution of financial wealth in the UK: Evidence from 2000 BHPS data. Institute for Fiscal Studies Working Paper 02-21, University College: London.

Bicakova, A. and Sierminska, E. (2008). Mortgage market maturity and home-ownership inequality among young households: A five-country perspective. Discussion Papers of DIW Berlin 778, DIW Berlin, German Institute for Economic Research.

Bover, O. (2008). Wealth inequality and household structure: US vs. Spain. unpublished manuscript.

Brandolini, A., Cannari, L., D'Alessio, G., and Faiella, I. (2004). Household wealth distribution in Italy in the 1990s. Temi di discussione, Banca d'Italia: Roma.

Brandolini, A., Magri, S., and Smeeding, T. (2009). Asset-related measures of poverty and economic stress. unpublished manuscript.

Davies, J. B., Sandström, S., Shorrocks, A., and Wolff, E. N. (2008). The world distribution of household wealth. In Davies, J. B., editor, Personal Wealth from a Global Perspective. Oxford University Press.

Davies, J. B. and Shorrocks, A. (2000). The distribution of wealth. In Atkinson, A. and Bourguignon, F., editors, Handbook of Income Distribution, volume 1, pages 605{675. North Holland Publishing Co., Amsterdam.

Domeij, D. and Klein, P. (2002). Public pensions: To what extent do they account for Swedish wealth inequality? Review of Economic Dynamics, 5:503{ 34.

ECB (2009). Eurosystem household finance and consumption network, survey data on household finance and consumption: Research summary and policy use. ECB Occasional Paper No. 100, European Central Bank.

Eymann, A. and Börsch-Supan, A. (2002). Household portfolios in Germany. In Guiso, L., Haliassos, M., and Jappelli, T., editors, Household Portfolios. MIT Press: Cambridge MA.

Frick, J. R., Grabka, M. M., and Sierminska, E. M. (2007). Representative wealth data for Germany from the German SOEP: The impact of methodological decisions around imputation and the choice of the aggregation unit. Discussion Papers of DIW Berlin 672, DIW Berlin, German Institute for Economic Research.

Frick, J. R. and Headey, B. (2009). Living standards in retirement: Accepted international comparisons are misleading. Journal of Applied Social Science Studies, 129:309{319.

Gornick, J. C., Munzi, T., Sierminska, E., and Smeeding, T. M. (2009a). In-come, asset and poverty: Older women in comparative perspective. Journal of Women, Politics and Policy, 30(2-3):272{300.

Gornick, J. C., Sierminska, E., and Smeeding, T. M. (2009b). The income and wealth packages of older women in cross-national perspective. The Journals of Gerontology: Social Sciences, Volume 64B, Number 3, May 2009:402{414.

Haveman, R. and Wolff , E. N. (2004). The concept and measurement of asset poverty: Levels, trends and composition for the U.S., 19832001. Journal of Economic Inequality, 2:145{169.

Jäntti, M. (2006). Trends in the distribution of income and wealth: Finland 1987-1998. In Wolff, E. N., editor, International Perspectives on Household Wealth. Edward Elgar: Northampton MA.

Jäntti, M. and Sierminska, E. (2008). Survey estimates of wealth holdings in OECD countries: Evidence on the level and distribution across selected countries. In Davies, J. B., editor, Personal Wealth from a Global Perspective. Oxford University Press.

Jäntti, M., Sierminska, E., and Smeeding, T. (2008). The joint distribution of household income and wealth: Evidence from the Luxembourg Wealth Study. OECD Social, Employment and Migration Working Papers 65, OECD, Directorate for Employment, Labour and Social A airs.

Jenkins, S. P. (1990). The distribution of wealth: measurement and models.
Journal of Economic Surveys, 4(4):329{360.

Jenkins, S. P. and Jäntti, M. (2005). Methods for summarizing and comparing wealth distributions. ISER Working Paper 2005-05, Institute for Social and Economic Research, University of Essex, Colchester, UK. http://www.iser.essex.ac.uk/pubs/workpaps/pdf/2005-05.pdf, forth-coming in Construction and Usage of Comparable Microdata on Household Wealth: The Luxembourg Wealth Study, Banca d'Italia, Roma.

Jenkins, S. P. and Van Kerm, P. (2009). The measurement of economic in-equality. In Salverda, W., Nolan, B., and Smeeding, T. M., editors, Oxford Handbook of Economic Inequality, chapter 3. Oxford University Press.

Kennickell, A. B. (2009). Ponds and streams: wealth and income in the U.S., 1989 to 2007. Finance and Economics Discussion Series 2009-13, Board of Governors of the Federal Reserve System (U.S.).

Rendall, M. S. and Speare Jr., A. (1993). Comparing economic well-being among elderly Americans. Review of Income & Wealth, 39(1):1-21.

Sierminska, E. (2005). The Luxembourg Wealth Study: A progress report. paper prepared for the workshop on "Construction and Usage of Comparable Microdata on Household Wealth: The Luxembourg Wealth Study" in Perugia, Italy, January 27-29, 2005.

Sierminska, E., Brandolini, A., and Smeeding, T. (2006). The Luxembourg Wealth Study: A cross-country comparable database for household wealth research. Journal of Economic Inequality, 4(3):375{383.

Sierminska, E., Brandolini, A., and Smeeding, T. M. (2007). Cross-national comparison of income and wealth status in retirement: First results from the Luxembourg Wealth Study (LWS). Working Papers, Center for Retirement Research at Boston College wp2007-03, Center for Retirement Research.

Weisbrod, B. A. and Hansen, W. L. (1968). An income-net worth approach to measuring economic welfare. American Economic Review, 58(5):1315-29.

Wolff, E. N. (1996). International comparisons of wealth inequality. Review of Income and Wealth, 42(4):433-51.

Wolff, E. N. (1998). Recent trends in the size distribution of household wealth.
Journal of Economic Perspectives, 12(3):131-50.

Wolff, E. N. (2004). Changes in household wealth in the 1980s and 1990s in the US. Levy Economic Institute Working Paper 407, Levy Economics Institute: Annandale-on-Hudson.