

**Income and Wealth Measurement in
Household Surveys**

**Issues in the
measurement of Wealth**

**The experience of the Bank of Italy's
Survey on Household Income and Wealth**

**Giovanni D'Alessio
World Bank (C4D2) - Bank of Italy**

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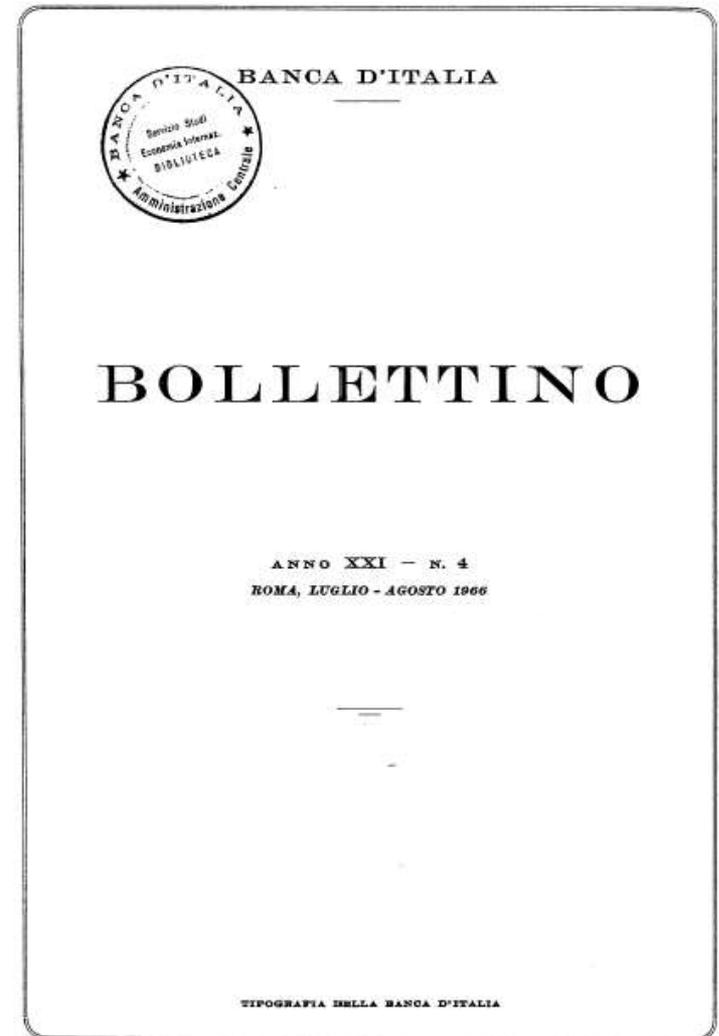
Outline of the presentation

1. Main characteristics of SHIW
2. Definition and characteristics of net wealth
3. Collecting data on net wealth
4. Some results on wealth distribution
5. Wealth variations: definition, data collection issues and some results

The Survey on Household Income and Wealth (SHIW)

Main characteristics of the survey

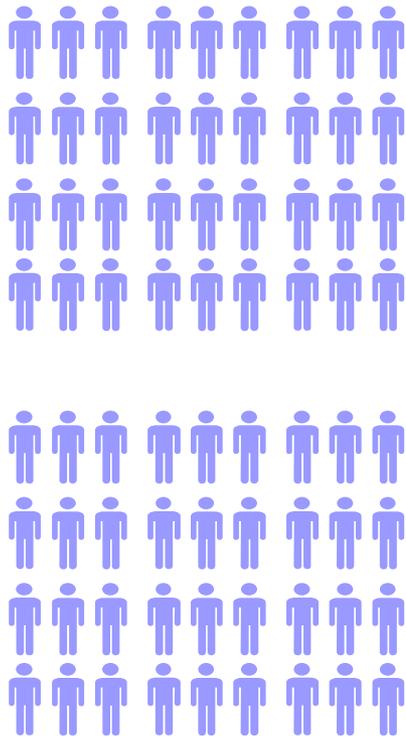
- Since 1966 (yearly up to 1986; since 1987 every two years)
- Sample of 8.000 households (about 20.000 individuals)
- Face to face interview (use of CAPI)
- Micro data freely available on the Internet (data from 1977 on)



The Survey on Household Income and Wealth (SHIW)

The sample design: a two-stage stratified sample

First stage: selection of 300 municipalities



Stratification by region and demographic size of municipalities



- Cities with more than 40.000 inhabitants are always selected
- Smaller cities are selected with a probability proportional to size

Second stage: selection of 8.000 households

(random sample from official registers of residents of the selected municipalities)



The Survey on Household Income and Wealth (SHIW)

The sample design: a two-stage stratified sample

Have all the units of the population the same **probability to be extracted** (as in SRS - Simple Random Sample)?



NO

	n	Population	Prob.
Rome	250	2,800,000	0.009%
Sorrento	30	50,000	0.060%

Unbiased estimators are obtained by using **weights**

	Weights (1/Prob)
Rome	11,200
Sorrento	1,667

Weights are defined as the inverse of the probability of inclusion (Horwitz Thompson estimator - the lower the probability to be selected, the higher the weight in the sample)

Design weights are adjusted (i.e. post-stratification) to take into account non-response and other external information (i.e. known margins)

Design effect index - Deff = $s.e._{DES}/s.e._{SRS}$ = around 1.5-2.0

The Survey on Household Income and Wealth (SHIW)

The panel

Until 1987 the survey was conducted with **time-independent samples** (cross sections) of households.

In order to facilitate the analysis of the evolution of phenomena over time, since 1989 part of the sample (40-50%) has comprised households interviewed in previous surveys (panel households)

Panel data allow:

- the analysis of **gross flows**
- **more efficient estimators of changes (and means)**
- **econometrics analysis** (unobservable variables)

The management of a panel can be **costly**. Moreover, the **attrition** may lead to biased estimates

The Survey on Household Income and Wealth (SHIW)

The panel: example of gross flows

Mobility of household among income classes, 2014-2016

Income 2014	Income 2016					
	Less than 1st quintile	1st - 2nd quintile	2nd -3rd quintile	3rd - 4th quintile	Over 4th quintile	Total
Less than 1st quintile	73.9	18.5	5.7	1.0	0.8	100.0
1st - 2nd quintile	18.6	49.5	24.8	5.1	2.0	100.0
2nd -3rd quintile	5.1	22.3	41.6	26.7	4.3	100.0
3rd - 4th quintile	1.4	6.7	22.3	47.5	22.2	100.0
Over 4th quintile	1.0	2.8	5.7	19.7	70.8	100.0
Total	20.0	20.0	20.0	20.0	20.0	100.0

The Survey on Household Income and Wealth (SHIW)

The questionnaire: permanent sections

- A. **Structure of the household** at the end of the year (number of components, sex, age, education, place of birth,...)
- B. **Employment and incomes** (job-status, hours at work, wages, incomes from self-employment, from pensions)
- C. **Payment instruments and forms of saving** (current accounts, credit cards, financial assets)
- D. **Principal residence and other property** (tenure, value, rent, owner, size, location, ...)
- E. Non-durable and durable **consumer goods**
- F. Forms of **insurance**
- G. **Assessment of the interview** (to be provided by the interviewer)



Variable sections: Inheritances, Capital Gains, Risk Aversion, Housework, Intergenerational Mobility, Use of Public Services, Social Capital, Tax Evasion, Income and Employment Expectations, Retirement Expectations, Financial Choices, New Technologies

The variable sections are sometimes submitted to random sub-samples (i.e. those born in a odd year answer to the section A while those born in a even year answer to the section B)

This technique is very useful to limit the respondent burden but provides data on smaller samples and does not allow for the joint use of the responses to the alternative sections A and B

The Survey on Household Income and Wealth (SHIW)

SHIW, HFCS, LIS and LWS

The Bank of Italy actively supports projects to improve the international comparability of survey data:

- Household Finance and Consumption Survey (**HFCS**) is a comparable framework of household surveys developed by most **National Central Banks** of the Euro Area and the **European Central Bank**
- SHIW data are included in the LIS and LWS database. The **LIS** (Luxembourg Income Study) and the **LWS** (Luxembourg Wealth Study) are comparable datasets containing income and wealth variables to enable cross-country comparisons

Definition and characteristics of net wealth

What is wealth and why is it important?

- **Wealth can generate wellbeing directly.** The homeowner benefits directly from the wealth possessed (the accommodation). The same way, owners of durable consumer goods (such as cars, household appliances, or valuable artworks) enjoy a "service" from using these goods (imputed income)
- **Wealth can create wellbeing when it is turned into current consumption** (by liquidating part of its wealth on the market).
- **Wealth is a safety net** (i.e. disease, pandemics)

Definition and characteristics of net wealth

What is wealth and why is it important?

- **Wealth may facilitate access to credit** (making it easier for individuals to obtain bank loans to start a business)
- **Wealth provides the owners with power, influence, and prestige** (especially in considerable amounts)

Definition and characteristics of net wealth

What is wealth and why is it important?

Income and consumption may fail to provide a complete picture of an individual wellbeing. **Wealth can be used to refine the analysis.**

Let's consider 2 cases:

- High income/consumption and low wealth, i.e. young people, no safety net (exposed to unpredicted events)
- Low income/consumption and high wealth (out of poverty? Illiquid wealth?)

Is wealth important for well-being? An example

A comparative analysis of poverty indicators

Step 1: Defining various indicators of well-being with SHIW data

- **Y** = income
- **C** = consumption
- **YW** = Y augmented by the flow of income that would be obtained if the household converted its wealth into a life annuity (estimated using mortality tables at the age of the reference person) (Weisbrod and Hansen, 1968)
- **YFA** = Y augmented by the flow of income that would be obtained if the household converted only financial assets into a life annuity
- **Other combined indicators of Y and W or Y and AF** (Haveman and Wolff, 2004)

Indicators are then adjusted with various equivalence scales

Is wealth important for well-being? An example

A comparative analysis of poverty indicators

Step 2: Defining a subjective indicator of well-being as benchmark of actual poverty status (*Is your household's income sufficient for you to get through to the end of the month ... very easily, easily, fairly easily, with some difficulty, with difficulty, with great difficulty*)

Step 3: Looking for the indicator maximizing the association with the subjective indicator, i.e. the objective indicator that goes along the subjective feeling of the population.

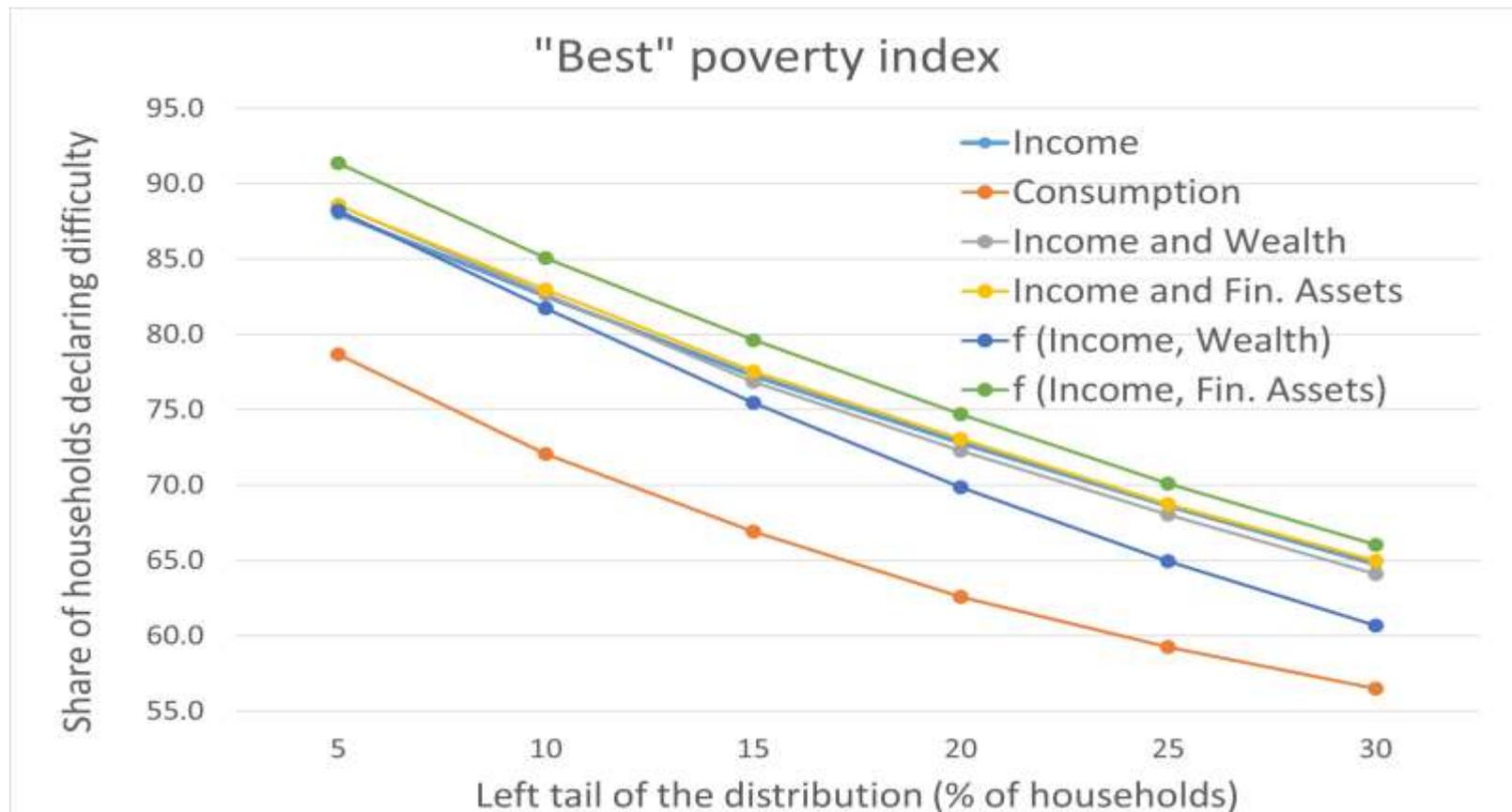
Poor individuals should be conscious of their own condition and declare «great difficulty» or «difficulty» in getting through the end of the month)

Is wealth important for well-being? An example

A comparative analysis of poverty indicators

Association between poverty indicators and perceived bad economic conditions

(share of households declaring perceived bad economic condition in the left tail of distribution)



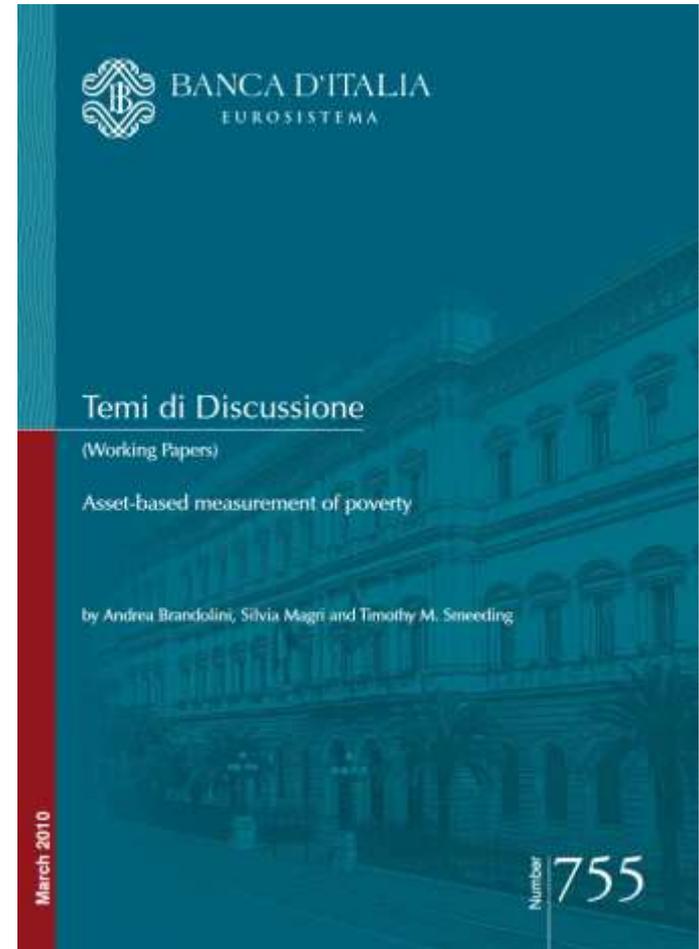
Definition and characteristics of net wealth

What is wealth and why is it important?

Wealth is important for well being ...
and for policy too

Public authorities have usually
information on income and wealth
(contrary to consumption) on
registries and this info can be
subject to control (tax evasion)

In Italy, wealth is included in the
indicator for the eligibility of
household public services and
subsidies (ISEE)



Definition and characteristics of net wealth

Wealth components

$$\text{Net wealth} = RA + FA - FL$$

Net wealth can
be negative!

Real assets + Financial assets - Financial liabilities

- **Real assets** (houses, other buildings, land, valuables, business, livestock, durables)
- **Financial assets** (Deposits, bonds, shares, private pensions, life-insurances, other fin. assets)
- **Financial liabilities** (Mortgages and other bank debts, debts towards other families or companies)

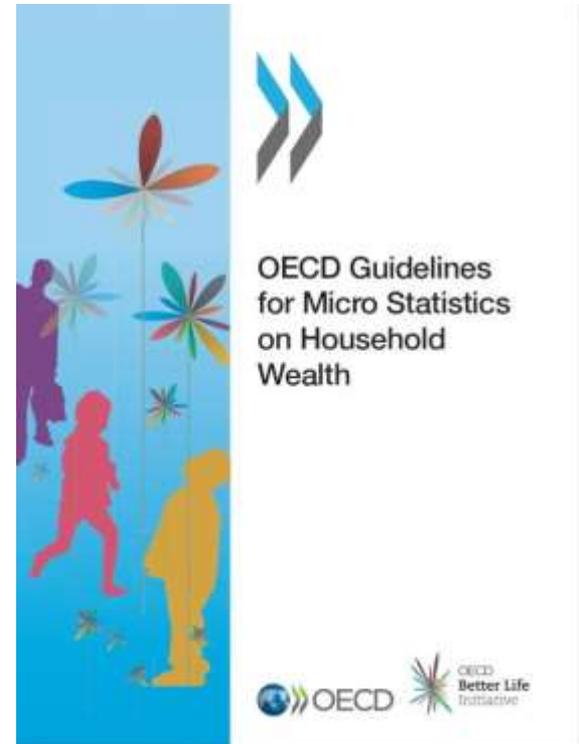
Definition and characteristics of net wealth

Consumer Durables (CD)

A CD (i.e. a car) is a good that may be used for purpose of consumption repeatedly over a period of 1 year or more (SNA)

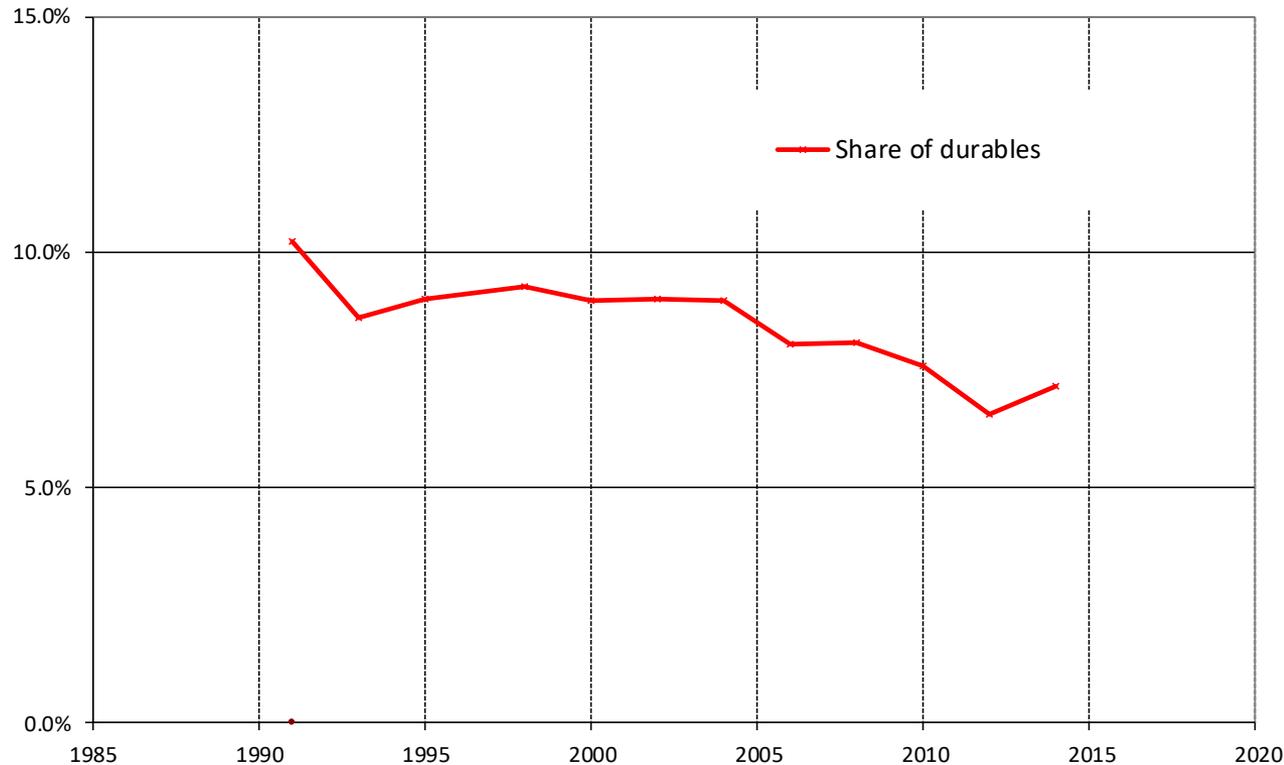
OECD guidelines for microdata on wealth **suggest** to include CD in household wealth (even if SNA **excludes** CD from wealth)

In LMIC it can be useful to account for CD



Definition and characteristics of net wealth

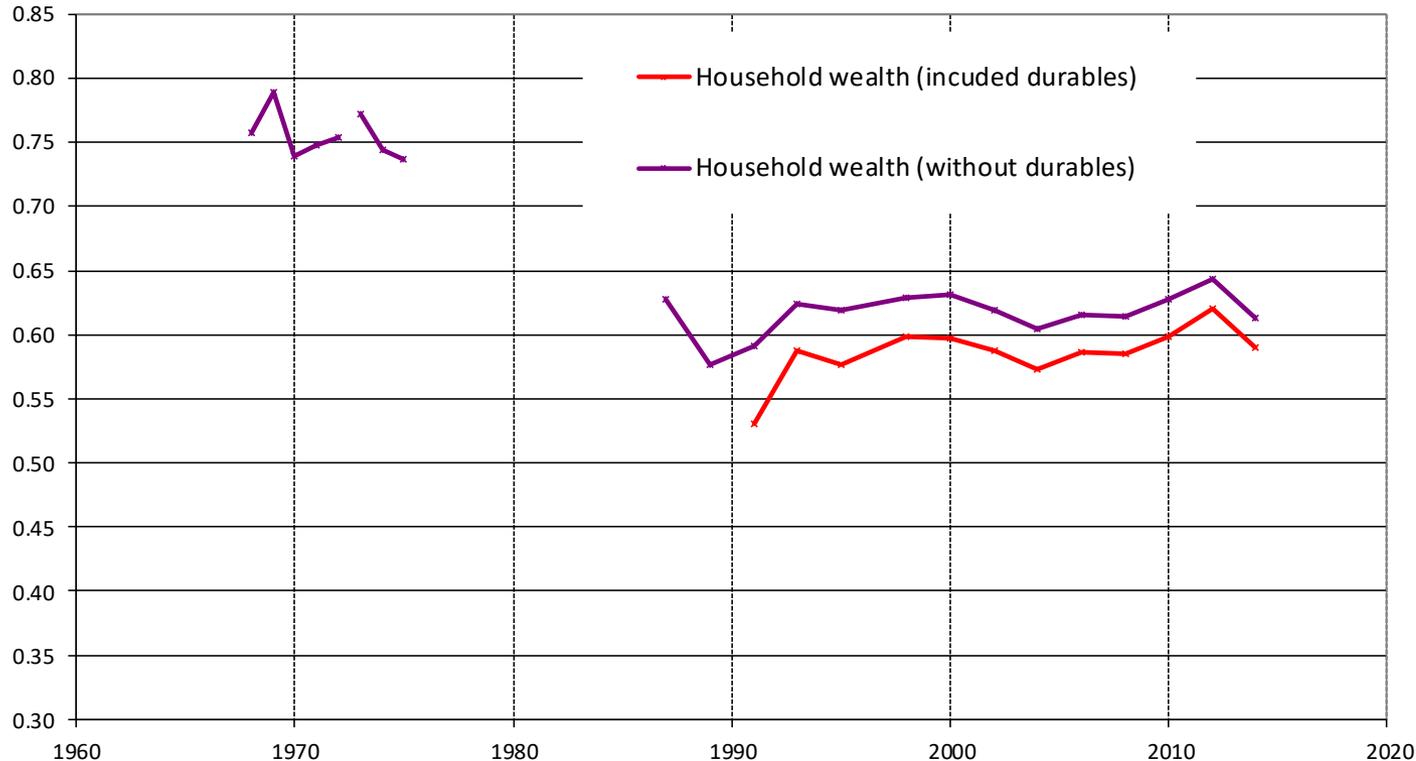
Share of Consumer Durables (CD) on net wealth



The inclusion of CD in the net wealth has an impact on the amount of net wealth (+7-10%). The share is decreasing over time

Definition and characteristics of net wealth

Impact of Consumer Durables (CD) on inequality (Gini index)



The inclusion of CD in the net wealth has an impact on the concentration index too (from 0.61 to 0.59 in 2014)

The impact is decreasing over time (0.06 in 1991 vs 0.02 in 2014)

Aggregation of variables: Net Wealth

Variable name	Description ⁽¹⁾	Questionnaire reference ⁽²⁾
W	Net wealth	
RA	Real assets	
RA1	Property	D1/9*D1/2 + D/28*D/4 + D/33
RA2	Business equity	B2/16 + B3/15 + B4/9
RA3	Valuables (and consumer durables)	E/5(1) + E/5(2) + E/5(3)
FA	Financial assets	
FA1	Deposits	C/24 (A,B)
FA2	Government securities	C/24 (C)
FA3	Other securities	C/24 (D,E,F,G,H)
FA4	Trade credit or credit due from other households	B2/11(5) + B3/10(5) + C/32(1)
FL	Financial liabilities (-)	
FL1	Liabilities to banks and financial companies	C/31(a,b,c,d,e) + B2/11(1,2,3) + B3/10(1,2,3)
FL2	Trade debt	B2/11(4) + B3/10(4)
FL3	Liabilities to other households	C/32(2)

$$W = RA + FA - FL$$

(1) A minus sign indicates that the item is included with a negative sign in calculating the aggregate of which it is a component.

(2) The questionnaire reference is coded as follows: section or annex/question (where necessary, line of question).

Collecting data on wealth

Timing of interview and evaluation of assets

Wealth evaluation refer to a specific point in time (usually **end of year** or **time of interview**)

The end of the year represent a common point in time: it improves the comparability across respondents, surveys and with aggregate statistics, but it may produce less reliable answers (compared to the time of interview) due to memory bias

In the SHIW the stock variables (i.e. net wealth) refer to the **end of the year**, while the flow variables (income and consumption) refer to the **year preceding the interview**

There are some exceptions to the general rule (i.e. houses values: hypothetical questions usually refer to the time of interview)

Collecting data on wealth

Timing of interview and evaluation of assets

It is important to consider:

- a) how long it takes the **field** (in SHIW 4-5 months)
- b) the dynamic of asset **prices**
- c) if you can rely on **documents** (i.e. bank statements)

The bias in the evaluation induced by the time lag between the interview and the reference point can be ex post adjusted (knowing the **date of interview** and information on asset price dynamic)

Collecting data on wealth

Timing of interview and evaluation of assets

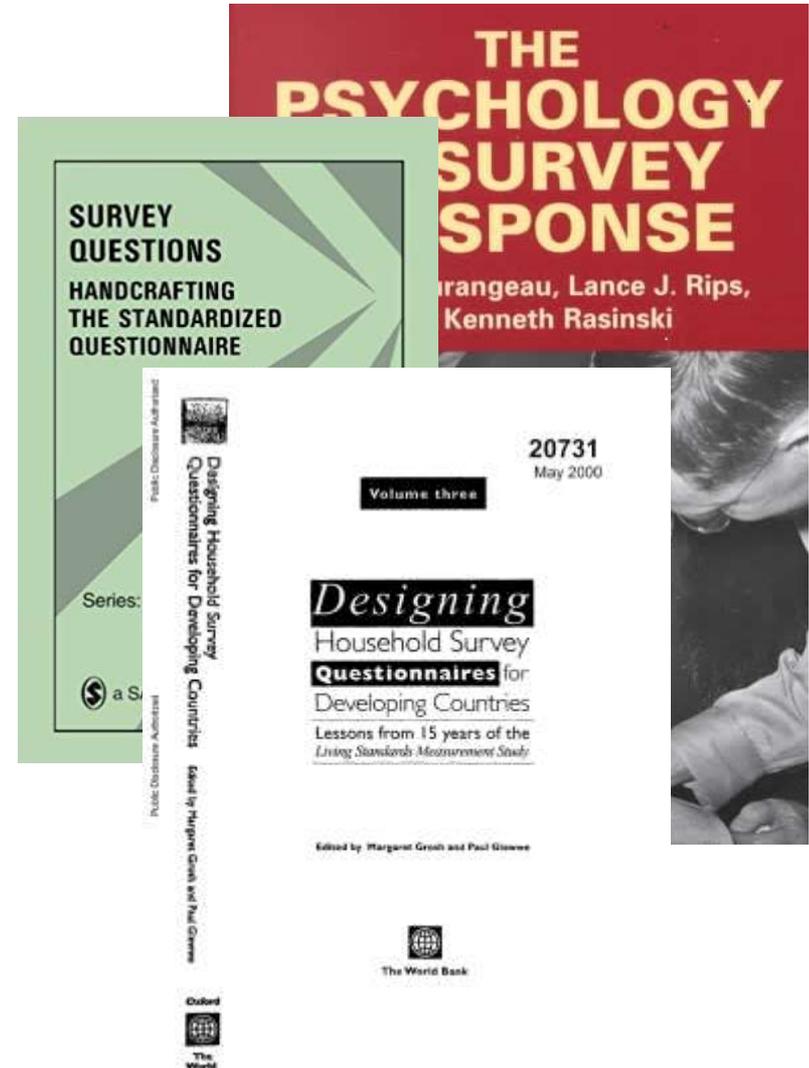
	Real estate assets		
	Average values (euro) and percentage variations		
	Unadj	Adj	(A-U)/U
2008	206,913	206,791	-0.10%
2010	220,478	219,675	-0.40%
2012	206,359	210,353	1.90%
	Percentage changes and differences		
	ΔU	ΔA	$\Delta U - \Delta A$
2010-2008	6.60%	6.20%	-0.40%
2012-2010	-6.40%	-4.20%	2.20%

Changes in the estimates of levels and variations

Collecting data on wealth

How the questions should be asked

- Interests/priorities
- Context
- Respondent burden
- How the question is asked in similar surveys (and in the past) (**comparability!**)



Collecting data on wealth

Real estate: principal residence

(Questions D01 to D22 refer to the household's principal residence on 31-12-2020)

D01. How long has your family lived in this house?

- Since ... (Year) |__|__|__|__|

D02. The household's home on 31-12-2020 was..... ?
(Interviewer! Read aloud)

- owned by the household 1 → **Quest. D03**
 - rented or sublet 2 → **Quest. D11**
 - under redemption agreement 3 → **Quest. D03**
 - occupied in usufruct 4
 - occupied free of charge, i.e.
loaned by friends or relatives or
given in exchange for services,
such as caretaking, cleaning and
so on 5
- } → **Quest. D15**

Collecting data on wealth

Principal residence (and other houses held)

D18. How large (in square meters) is the house/flat? (*Consider the usable area*)

M² |__|__|__|__|

D19. When was it built?

Year |__|__|__|__|

D20. How many bathrooms are there?

- 1 bathroom 1
- 2 or more bathrooms 2
- none 3

D21. In your opinion, how much is your house/flat worth (unoccupied)? In other words, if you could sell it today how much would you think would be the price of it (including any cellar, garage or attic)? Please consider the value of the entire residence, not just your/your household's share.

Please give your best estimate.

€ |__|__|_|_|_|_|_|_|_|_|_|_|

- Valuation: current value in the market (general SNA framework)
- Pros and cons of subjective estimates (knowledge of the house vs knowledge of the market prices)
- Similar questions on other residential and non-residential properties

Collecting data on wealth

Principal residence (and other properties held)

Other characteristics of the properties are collected

- Verify the coherence between the amount provided and data on its characteristics: location, size, original acquisition price, imputed rents... (checks, edits)
- Allow item non-response → model imputation

Collecting data on wealth

Business wealth

■ How much do you think your business would be worth if you wished to stop working and sell it? Include any equipment used, stocks and goodwill but exclude the value of buildings and land and any debts.

■ € | _ | _ | , | _ | _ | _ | , | _ | _ | _ |

Be carefull in considering what is included or excluded!

Collecting data on wealth

Valuables and consumer durables

Can you give an estimate, even a rough one, of the value of all the goods owned by the household at the end of 2020 in the following categories: valuables, means of transport, furniture/furnishings/household appliances? (SHOW CARD)

Think of what you would have received in 2020 if you had sold them.

- **Valuables** (jewellery, ancient or gold coins, works of art, antiques)

€ |__|_|_|,|_|_|_|_|,|_|_|_|_|

- **Cars**

€ |__|_|_|_|,|_|_|_|_|

- **Other means of transport** (motorcycles, caravans, motorboats, boats, bicycles)

€ |__|_|_|_|,|_|_|_|_|

- **Furniture, furnishings, household appliances, sundry equipment** (furniture, furnishings, rugs and carpets, lamps, small household appliances, washing machine, dishwasher, vacuum cleaner, floor polisher, TV, PC, fridge, cooker, heater, air conditioner, radio, video-recorder, CD player, HI-FI equipment, mobile phone, fax machine, camera, camcorder, etc.)

€ |__|_|_|_|,|_|_|_|_|

Collecting data on wealth

Financial assets

Strategy for complex and sensitive questions: **stepwise selection** of respondents meeting criteria + use of **unfolding brackets** technique (Juster, 2006)

Did the household **have** ... (list of different forms of saving and investment) at 31-12-2020? (*Code in column code 1=Yes or 2=No*)

(*For each form of saving or investment held at 31-12-2020*). What was the value on 31 December 2020? Answer using one of the **ranges** on this card. (*Write in column the code for the value range*)

Collecting data on wealth

Financial assets

(For each form of saving or investment held at 31-12-2020) Can you tell us the **approximate value** on 31 December 2020?

(If no value is given) Could you at least tell me whether the value of the household's savings or investments was closer to (**lower bound**), to (**upper bound**) or about **halfway** between the two?

(Interviewer, enter the code: I=lower, C=middle, S=upper in column)

The SHIW list of financial assets is very detailed (according to the Financial Accounts breakdown): it could be simplified according to LMIC contexts

Collecting data on wealth

Financial liabilities

1. Did you take a mortgage/loan for the purchase or for the renovation of your residence?

- Yes 1
- No 2

...

19. What was the amount outstanding of debt on 31/12/2020 (How much would you have had to repay to extinguish the mortgage)? Please consider only the capital to be repaid and not the interest |__|,|__|__|__|,|__|__|__|

Similar question for other debts connected to real estate properties, business wealth, ...

Collecting data on wealth

Financial liabilities

D28. Let us now talk about other loans, such as consumer credit for the purchase of a specific good, usually obtained at the point of sale, or any other **loan for consumer spending**. Again, do not consider any loans connected with your business.

By the end of 2020 did the household **have any...**? (*N.B. Read aloud one at a time and enter codes*) (*If "Yes"*) **How many?** For each debt: What was the **amount outstanding** of debt on 31-12-2020 (How much would you have had to repay to extinguish the mortgage)? Please consider only the capital to be repaid and not the interest

	YES	NO	Number of debts
c) loans for the purchase of motor vehicles (car, etc.)	1	2 (<i>If "Yes"</i>)	_ _
d) loans for the purchase of furniture, household appliances, etc	1	2 (<i>If "Yes"</i>)	_ _
e) loans for the purchase of non-durable goods (holidays, etc).	1	2 (<i>If "Yes"</i>)	_ _
f) loans for the purchase of other goods or for daily expenses	1	2 (<i>If "Yes"</i>)	_ _
g) loans for education (university, master's)	1	2 (<i>If "Yes"</i>)	_ _

D32. On 31-12-2020, did the household have **credits or debts with relatives or friends** not living with the household? (*If "Yes"*) What was the amount?

YES NO AMOUNT

- credits	1	2 (<i>If "Yes"</i>)	□ € _ , _ _ _ , _ _ _
- debts	1	2 (<i>If "Yes"</i>)	□ € _ , _ _ _ , _ _ _

Measurement errors

The reliability index

Let's imagine we measure a variable X with an error e :

$$Y = X + e$$

The measure Y differs from the true value X due to a random error that we can assume to have the following properties (**uncorrelated errors**):

$$E(e) = 0 \quad E(X, e) = \sigma_{X,e} = 0 \quad E(e, e) = \sigma_e^2$$

In such a case the mean of the measure Y is unbiased,

$$E(Y) = E(X)$$

but the variance is inflated by measurement errors.

If we measure twice the same variable X , the **reliability index** is the correlation between the two measures $r = \lambda_x$

Measurement errors

Comparing the answers provided by the same panel households on the size of (the same) residence houses,

2012-2014 (squared meters)

Obs	2012	2014			
1	160	160	16	85	85
2	120	120	17	250	250
3	80	100	18	150	155
4	180	180	19	70	70
5	80	90	20	100	100
6	45	45	21	104	110
7	96	90	22	200	140
8	120	120	23	100	110
9	90	90	24	58	55
10	80	90	25	80	80
11	100	100	26	75	75
12	95	100	27	85	80
13	107	107	28	118	118
14	60	60	29	80	80
15	300	200	30	108	108

Reliability index (the correlation between the two measures) = 0.8

Measurement errors

Why does it matter?

- This type of measurement errors **inflates standard errors.**
- Increased variance due to measurement errors **inflates estimates of poverty rates and inequality indexes**
- Determines **attenuation in correlation and regression analysis:** in presence of uncorrelated measurement errors on X, the correlation between two variables X and Z is $r = \lambda_x \rho$, i.e. the coefficient is attenuated according to the reliability index of X. If also the variable Z is measured with error: $r = \lambda_x \lambda_y \rho$.

Measurement errors

Reliability for time-varying variables: the Heise index

Defined X_1, X_2 e X_3 the true values of the same variable X at the times 1, 2 e 3 respectively and Y_1, Y_2 e Y_3 the corresponding observed values:

$Y_t = X_t + e_t \forall t$, where for each error term e_t is assumed zero mean, constant variance and no correlation among errors and among errors and true variables X_t .

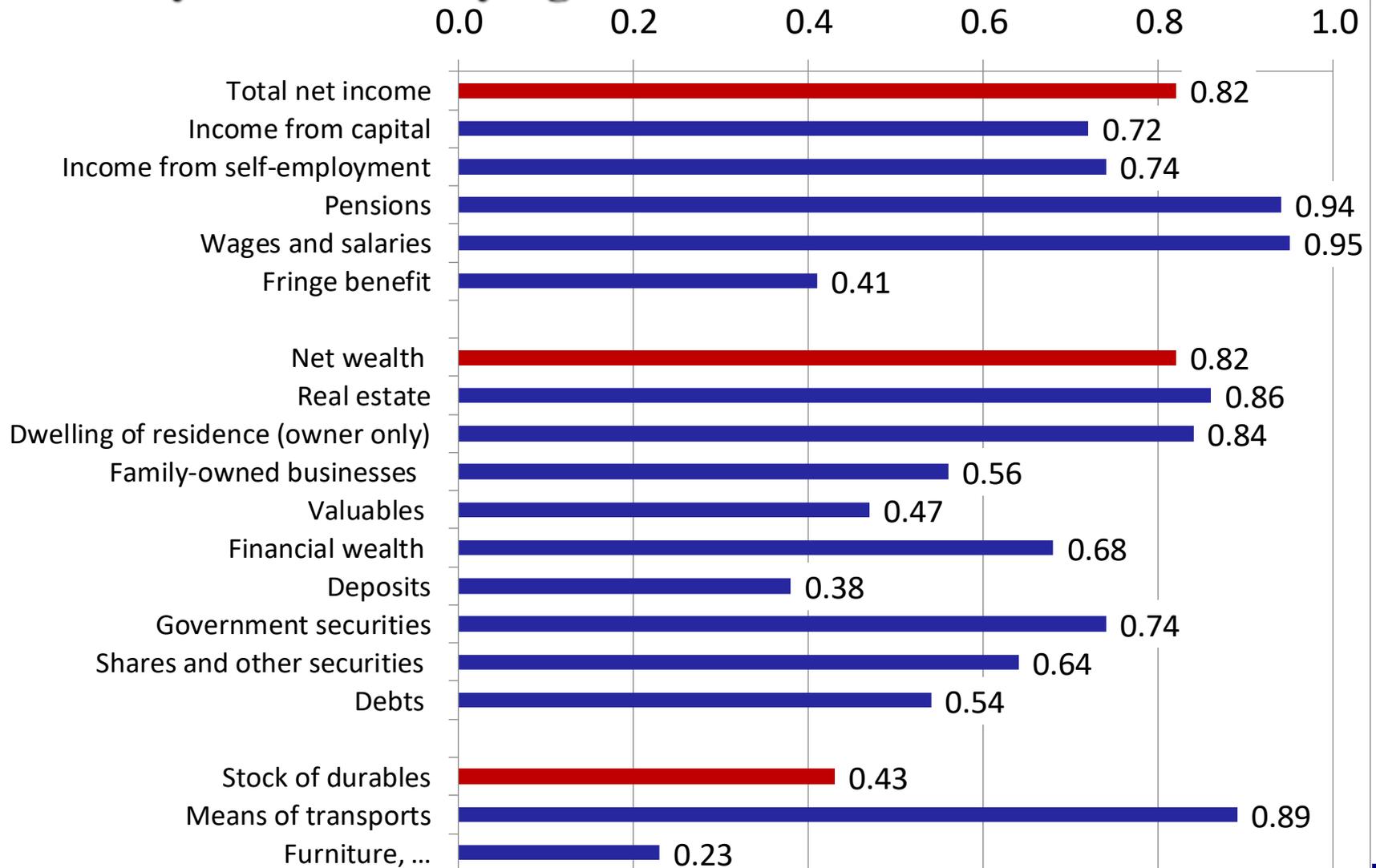
The true values X_1, X_2 e X_3 are assumed to be pairwise related through independent, first-order autoregressive models, which do not need to be stationary: $X_1 = \delta_1$; $X_2 = \beta_{21}X_1 + \delta_2$; $X_3 = \beta_{32}X_2 + \delta_3$

where $\beta_{t+1,t}$ is the autoregressive coefficient and δ_t the innovation term of the process; innovations are uncorrelated pairwise.

Under the above hypotheses, assuming a constant reliability across the measures: $\lambda^2 = r_{12} r_{23} / r_{13}$

Measurement errors

Reliability for time-varying variables: the Heise index



Collecting data on wealth

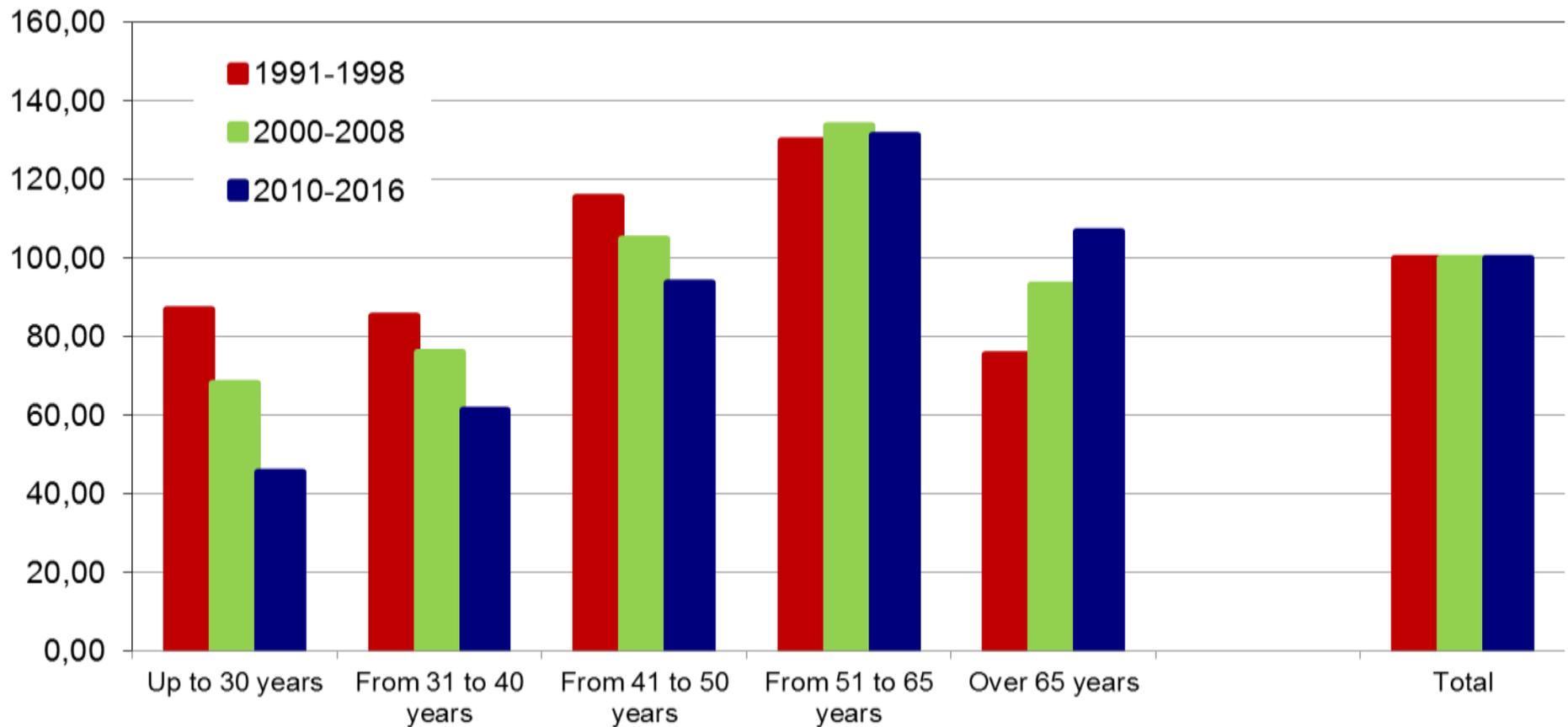
Consumer durables: a more detailed section

Commodity	Does your household own any item?	How much do you think could obtain if you sell the ... you presently own?
D1. Motor Car	Yes1 No2 ► D2	
D2. Motorbike	Yes1 No2 ► D3	
D3. Bike	Yes1 No2 ► D4	
D4. Refrigerator	Yes1 No2 ► D5	
D5. Electrical/gas stove	Yes1 No2 ► D6	
D6. Washing machine	Yes1 No2 ► D7	
D7. Generator	Yes1 No2 ► D8	
D8. Television	Yes1 No2 ► D9	
D9. TV decoder (e.g. DSTV GoTV)	Yes1 No2 ► D10	
D10 Radio	Yes1 No2 ► D11	
D11. Computer/laptop	Yes1 No2 ► D12	
D12. Cellphones (smartphone and mobile phone)	Yes1 No2 ► D13	

When did you acquire this
..[DURABLE GOOD]..?

What was the initial purchase value of
...[DURABLE GOOD]..?

Some results: net wealth by age, 1991-2016 (index number, average=100)



In the past 25 years strong changes occurred in the wealth distribution by age. Young households are poorer while older households are richer than in the past

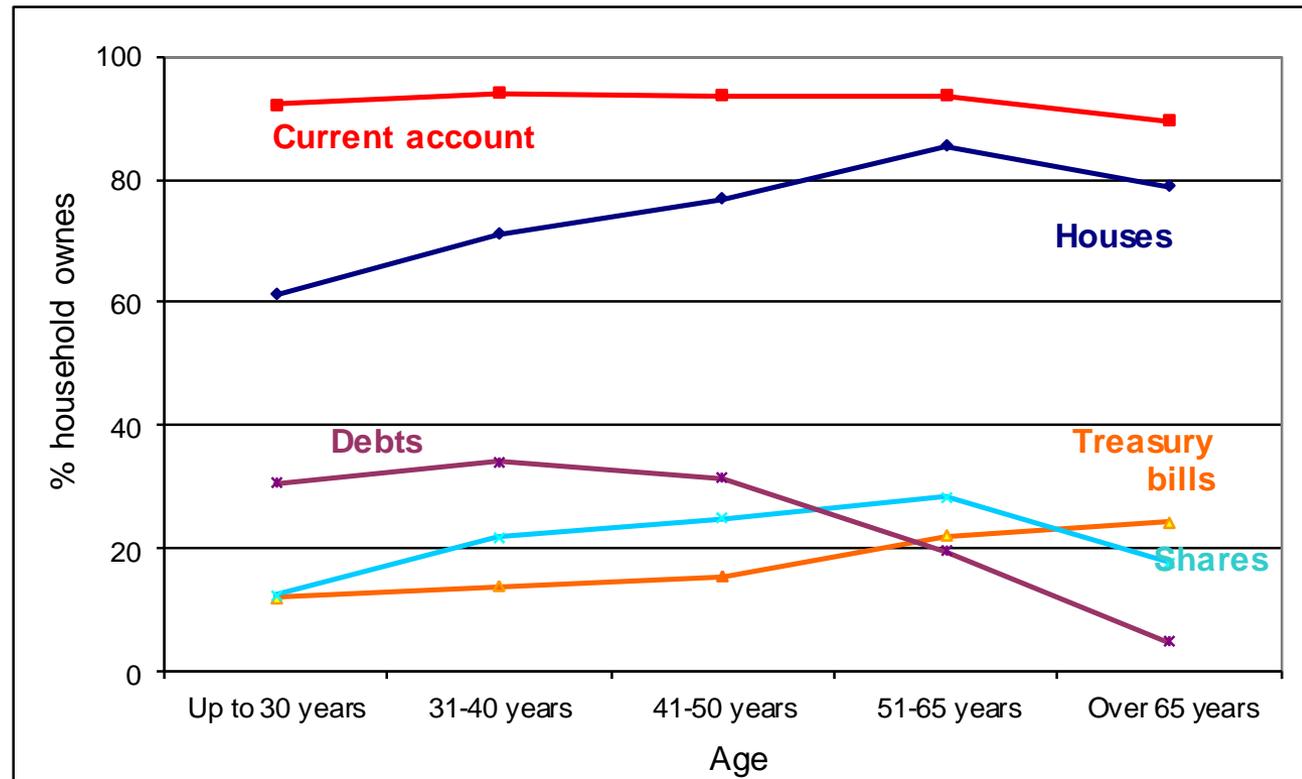
Some results: assets and liabilities by age, 2016

Houses and shares grow with age up to 65 years old, then decrease



Treasury bills grow with age

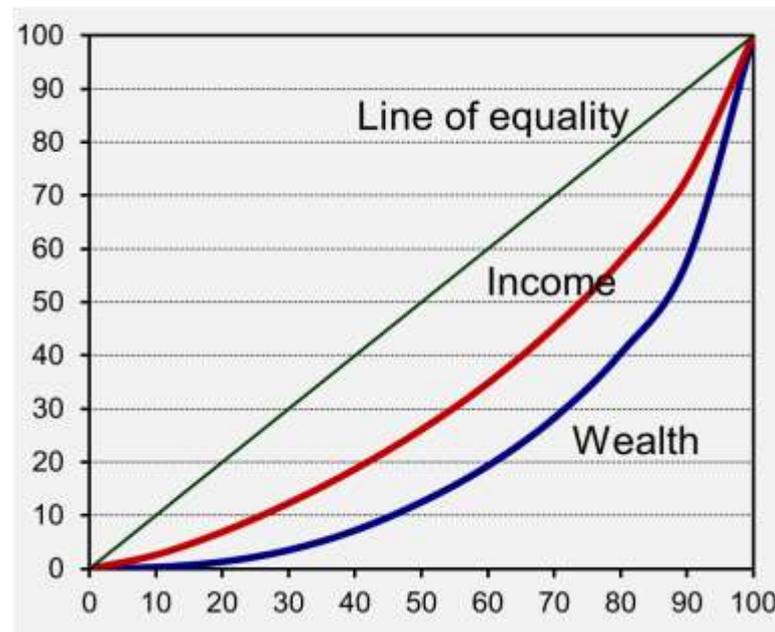
Debts decrease with age



Taking the wealthy into account

Wealth is usually much **more concentrated** than income (in Italy the Gini index is 0.63 vs 0.35). In particular financial assets (0.75)

This is one of the main reasons why survey wealth data usually underestimate National Accounts aggregates.



A very tiny share of population may have a significant share of the total wealth (in Italy the richest 10 persons hold more net wealth than the 3 millions poorest individuals). This extreme cases would even be a problem (outliers) in the sample!

Sometimes can be useful **oversample the wealthy** (i.e. higher sampling fractions in strata including rich households)

Household vs individual wealth

Gender wealth gap

Wealth distribution is usually analyzed at the household level (assuming an equal intra-household distribution)

The intra-household distribution of wealth is important (Deere e Doss, 2006)



D06. Which members of the household own the dwelling? (N.B. Use the member numbers from Section A - Composition of the household)

- Owner(s)(enter member number(s))

Recent estimates for SHIW (D'Alessio, 2018)

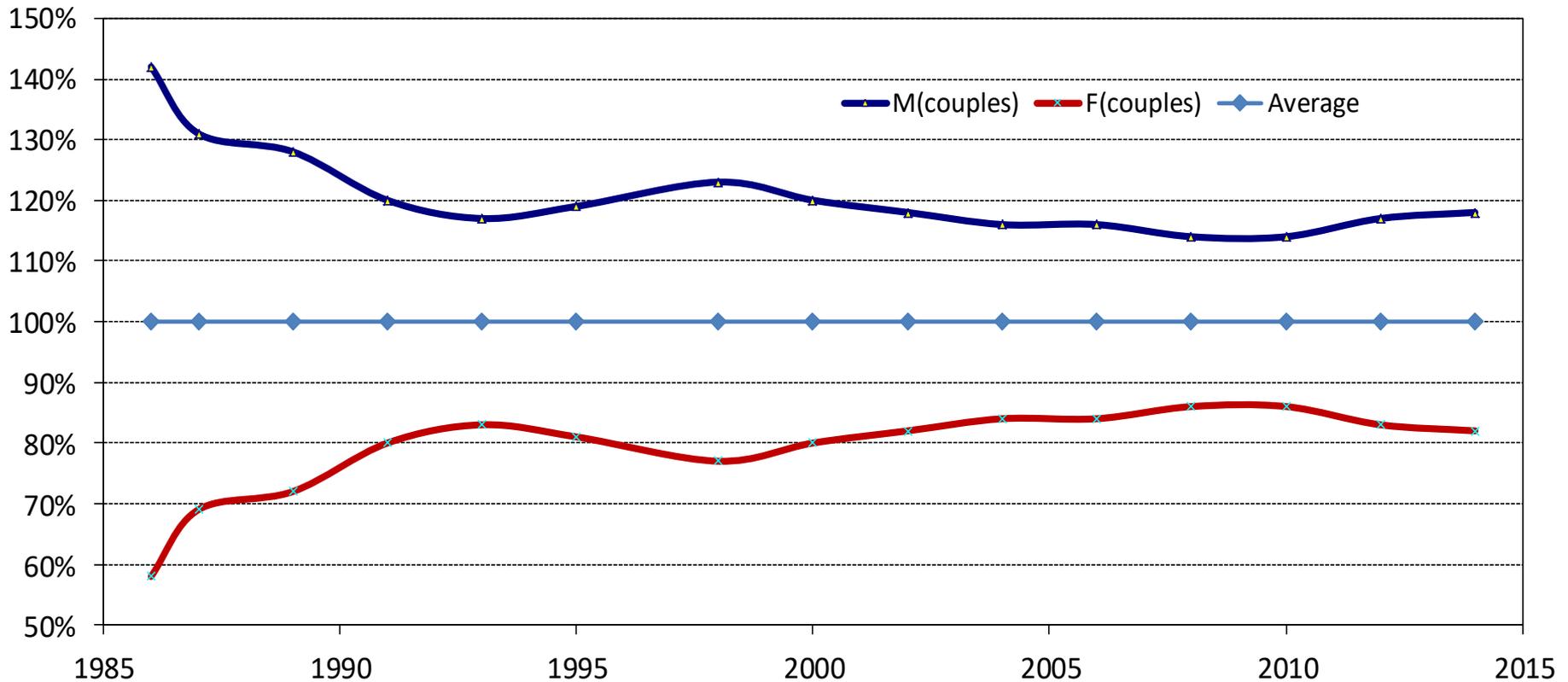
- Properties: (every wave collected data on the owners - assumed equal shares)
- Financial assets: data on the intra-household distribution of financial assets collected in a special 2013 module
- Financial liabilities: imputed (where possible) according to the related asset
- Residual parts (i.e. valuables, other debts): equal shares among adults
- WB MEXA project (T. Kilic, H. Moylan, 2016) and Koolwal et al. (2022)

Individual wealth

Gender wealth gap

Properties held by men and women, 1986 - 2014

(Index number; Total = 100)



- M/F Gap 70% in 1986 – 28% in 2010 – 36% in 2014

Individual wealth

Gender wealth gap

Intrahousehold wealth - Men vs women wealth, 1991-2014

(Percentages of couples)

	1991-1998	2000-2006	2008-2014	2014
Totale				
a. W Women > W Men	13.2	13.3	19.9	22.2
b. W Women = W Men	53.6	54.1	36.7	33.6
c. W Women < W Men	33.3	32.6	43.4	44.2
(c – a)	20.1	19.3	23.5	22.0

If you don't consider intra-household gaps, you may underestimate wealth inequality

Wealth variations

The origin of wealth: where does wealth come from?

$$\Delta W_t = S_t + CT_t + CG_t + OVV_t$$

- **Savings** $S = Y - C$
- **Capital transfers (CT)**: NA consider transfers involving non-resident households (or other sectors). At the micro level, CT are an important source of wealth variation (gifts and bequests between households)
- **Capital Gains (CG)**: variations of wealth deriving from changes in the prices of its items
- **Other Volume Variations (OVV)** include catastrophic losses due to earthquakes or floods, etc ... At the micro level, OVV may assume also other forms (Lotteries and gambling ...)

Collecting data on wealth variations

Savings, inheritance and capital gains

Difficult to obtain reliable estimate of Savings

$S = Y - C$ (measurement errors on both sides)

Difficult to define *good* direct questions for saving (some “payments” include savings, i.e. instalment mortgages)



SHIW collects data on transfers (donations and inheritances). As the phenomenon is quite stable, the survey collects very simple information every wave and submits special modules every 10-15 years

Collecting data on wealth variations

Inheritances and gifts

Stable questions about the origin of the house of residence and other real estate (2/3 of net wealth)

How did the household acquire ownership of the dwelling?

- purchased from private individual 1
- purchased from private firm/organization (e.g. construction company) 2
- purchased from public-sector firm/agency (e.g. pension fund) 3
- **inherited** 4
- **part purchased/part inherited** 5
- **received as a gift** 6
- built by household or as part of a cooperative 7
- other 8

In what year did the household acquire ownership of the dwelling?

- Year |__|__|__|__|

Received houses (inheritances and gifts), 1977-2020

(share of net wealth)

- We can simply sum up the values of all the inherited houses that are already owned by the households
- But what about the houses that have been sold after the inheritance? Is it possible to adjust our estimates?
- If we hypothesize that the probability of selling a house received one year ago is p we can inflate the values of the houses received V_1 applying the inverse of the probability of $(1-p)$, i.e. $V_1 / (1-p)$
- And what about the houses that I observe in the sample inherited 2 years ago? If I suppose that the probability p remains constant across time, I can estimate $V_2 / (1-p)^2$
- And so on ...

Received houses (inheritances and gifts), 1977-2020

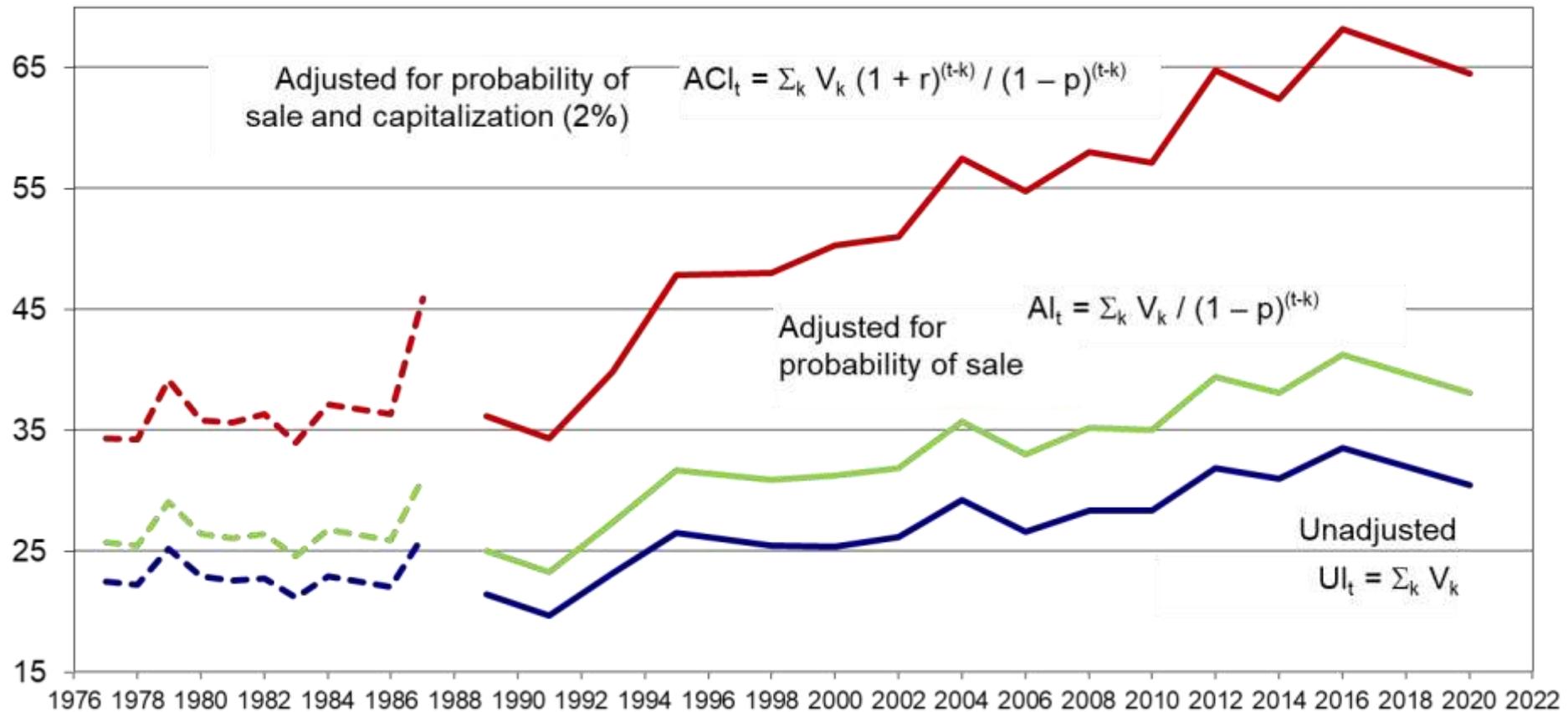
(share of net wealth)

The household A and B inherited the same amount (say 100,000 euros) but A inherited it ten years ago while B inherited it yesterday. Are these two transfers equivalent? Old debate! (Kotlikoff and Summers (1981)). If not, how can I take this difference into account?

- The present value of 100.000 received ten years ago can be obtained by capitalizing the transfers received in the past through a yearly rate of return (r) (usually set around 1%-2%)

Received houses (inheritances and gifts), 1977-2020

(share of net wealth)



V_k = Value of houses received in the year k; p =probability of sale; r =rate of return
 Worth noting: capital gains/losses are entirely attributed to inheritances/gifts

Collecting data on wealth variations

Special module on inheritances and gifts (2002)

In the 2002 and in 2016 surveys, household heads and their spouses/cohabitants were asked to indicate both the value of the Capital Transfers (CT) (bequests and gifts) **made** and **received** during the respondent's lifetime and those that they **expected to make or receive** in the future

CT are mostly bequests (inconsistencies between the estimates of CT received and given in the sample)

Past CT: *memory bias, evaluation issues*

Future CT: *expectations, plans, hopes*

Special 2002 module - Received transfers

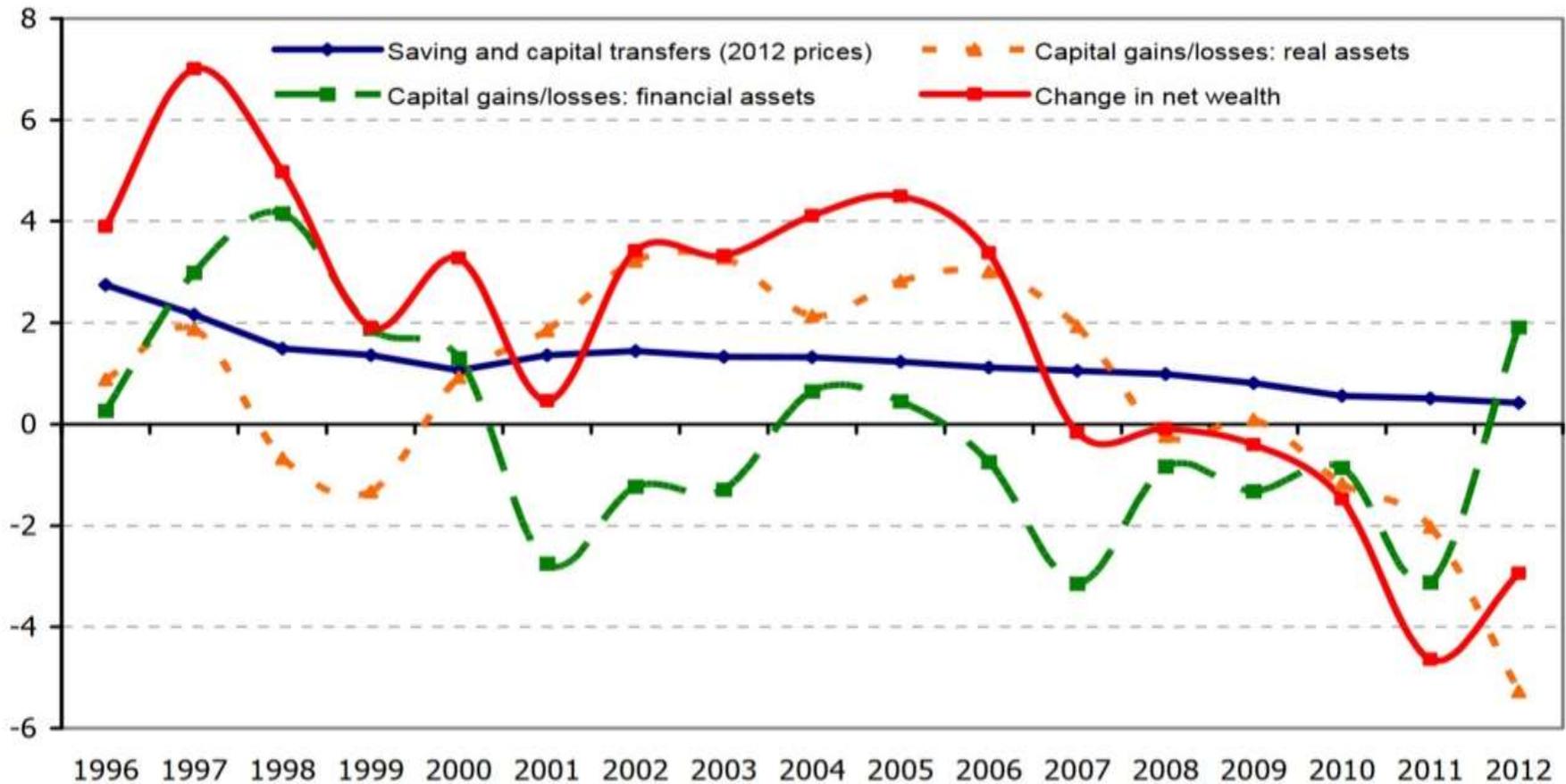
Think of all the transfers of assets that you (or your spouse/cohabitant) have received as a bequest or gift and answer the following questions:

Bequest	Gift	To the head of household or his/her spouse/cohabitant		From parents (or grandparents) or other persons?		Year of the transfer	Value of the transfer in the year it was made €	or Value of the transfer in € (year)		
		HH 1	SP 2	PA-GR 1	OTHER 2				→	
1	2	HH 1	SP 2	PA-GR 1	OTHER 2	_ _ _ _	_ . _ _ _ _ _ _ _ _	_ . _ _ _ _ _ _ _ _	→	_ _ _ _
1	2	HH 1	SP 2	PA-GR 1	OTHER 2	_ _ _ _	_ . _ _ _ _ _ _ _ _	_ . _ _ _ _ _ _ _ _	→	_ _ _ _
1	2	HH 1	SP 2	PA-GR 1	OTHER 2	_ _ _ _	_ . _ _ _ _ _ _ _ _	_ . _ _ _ _ _ _ _ _	→	_ _ _ _
1	2	HH 1	SP 2	PA-GR 1	OTHER 2	_ _ _ _	_ . _ _ _ _ _ _ _ _	_ . _ _ _ _ _ _ _ _	→	_ _ _ _
1	2	HH 1	SP 2	PA-GR 1	OTHER 2	_ _ _ _	_ . _ _ _ _ _ _ _ _	_ . _ _ _ _ _ _ _ _	→	_ _ _ _

Wealth variations

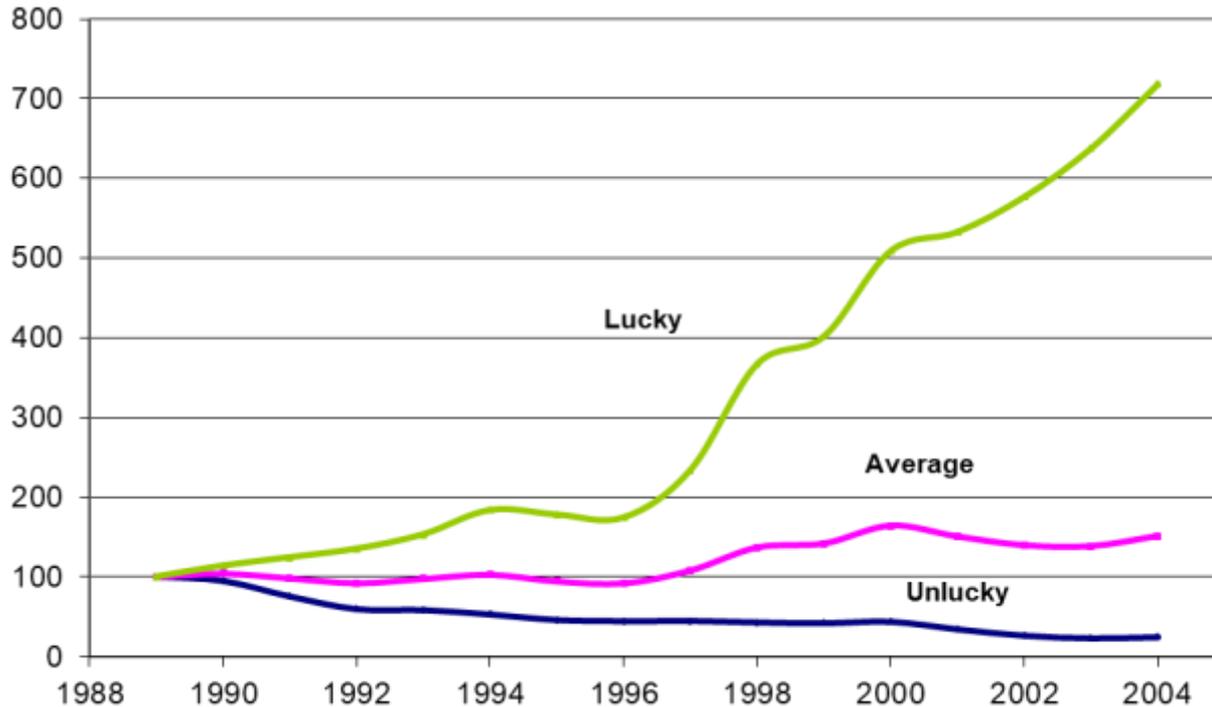
Savings, capital gains/losses and changes in net wealth in Italy

(percentage of net wealth; constant price)



$$\Delta W = S + CG_r + CG_f + VV$$

Capital Gains and wealth variations: an example

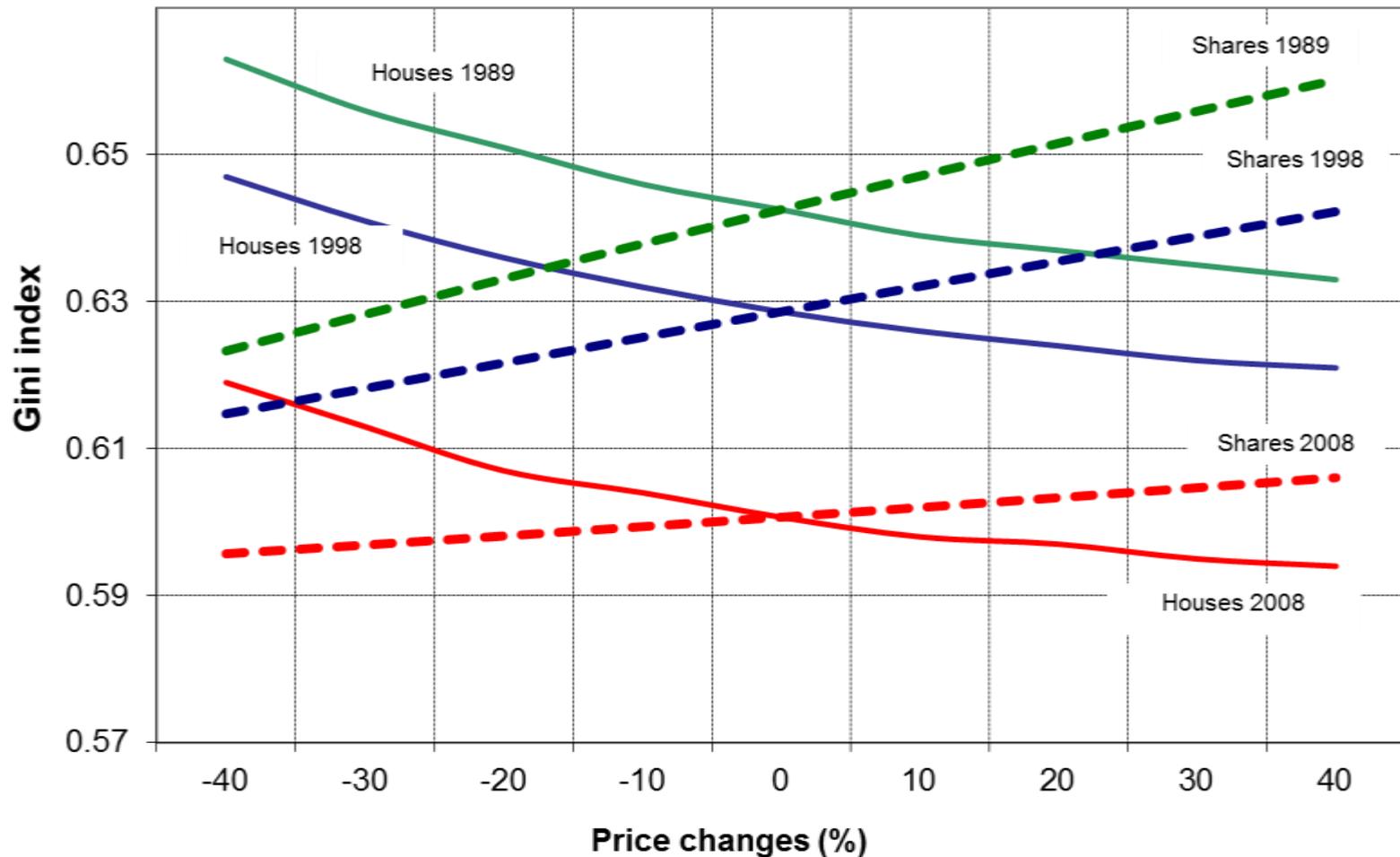


Year	Lucky/ average	Lucky/ unlucky
1989	1.00	1.00
1990	1.09	1.20
1991	1.26	1.65
1992	1.46	2.27
1993	1.57	2.62
1994	1.78	3.46
1995	1.88	3.85
1996	1.89	3.90
1997	2.16	5.19
1998	2.68	8.50
1999	2.84	9.53
2000	3.11	11.57
2001	3.55	15.34
2002	4.14	21.46
2003	4.61	27.00
2004	4.76	28.79

Unrealistic example. It's difficult to choose always the best investment ... transaction costs ... but ...

→ CGs may have great impact on household wealth

Inequality and price changes of houses and shares



Take home messages

- Wealth is important to complement information on income and consumption ... also for poverty analysis
- Collect good quality data on wealth: evaluation of the factors on which to concentrate, how the questions are asked, ... Whenever possible, refer to international standards (improves comparability!)
- Tools for evaluating the questions: measurement errors may seriously affect estimates
- Wealth distribution is highly skewed – (consider oversampling, ...)
- Data on transfers (i.e. inheritances, gifts) and capital gains are also important to understand how household wealth changes over time



Thanks for your attention

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