

Measuring Income and Wealth through Household Surveys for Welfare Monitoring
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Measuring Income, Consumption and Wealth and the EU-SILC Module

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- Some important issues in measuring income, consumption and wealth
- The actions done to fill the gap in terms of data requirements
- Highlight the 2017 IT-SILC Module on Consumption and Wealth

- The income, consumption and wealth (ICW) are the three main dimensions that determine the economic well-being and material inequality of individuals
- Studies on material living conditions have traditionally focused on using either data on income or consumption expenditures
- The income or consumption single-handedly cannot fully explain the households material conditions
- Low levels of income do not necessarily imply low levels of consumption as households could preserve consumption by adjusting savings or receiving cash support from relatives

- The consumption of goods and services is considered a key indicator of living standards
- Consumption is considered as a better measure since it reflects households long-run resources rather than current income
- However the current and future household consumption possibilities are mainly determined by income and wealth
- For measuring the material living conditions is necessary to consider the level of consumption but also the economic resources in terms of income and the wealth that enable household consumption of goods and services

- In this context, the availability of coherent and reliable data on the distribution of all households economic resources could improve the studies of the inequality and poverty
- Considering jointly the ICW components requires having information on the three dimensions at the same time for the same individuals or households
- Joint statistics on income, consumption and wealth could be used for:
 - ✓ comparing the economic well-being of different socio-economic groups
 - ✓ understanding consumption patterns and economic behaviors
 - ✓ identifying the impact of policy actions on sub-groups of population

THE COMMON FRAMEWORK

- Although there is a growing consensus on the need for distributional measures of well-being as a joint function of income, consumption and wealth, there is not yet a common framework for their joint collection and analysis

- Towards international standards for the production of integrated statistics
 - ✓ OECD ICW Framework 2013
 - ✓ UNECE Canberra Group Handbook 2011
 - ✓ Eurostat-OECD Expert Group on measuring the joint distribution of household income, consumption and wealth at micro level

OECD Income Consumption and Wealth Framework 2013

- Long tradition of international standards for macroeconomic data (eg: National accounts UN-SNA 2008 and EU SEC 2010)
- First international framework for the compilation of integrated statistics on the main dimensions of the economic well-being
- It aims to encourage countries to adopt shared concepts and definitions to establish international standards

OECD Income Consumption and Wealth Framework 2013

- It is a **guideline** for the collection, compilation and dissemination of joint statistics produced with household surveys
- It provides conceptual definitions, classifications, recommendations for the survey design and the questionnaire, for a progressive convergence of the methodologies used
- It proposes the exchange of best practices and tools for greater international harmonization and comparability of data

UNECE Canberra Group Handbook 2011

- This second edition of the 2001 handbook drawn up by a group of international experts represents the first **compendium** for statistics on the distribution of income and to a lesser extent on consumption
- The main objective was to promote the development of income statistics
- It is at the base of the Framework Regulation of EU-SILC survey, under revision

EUROSTAT-OECD EXPERT GROUP (EG) 2017

- Eurostat-OECD Expert Group works on:
 - ✓ the development of estimates of the joint distribution of ICW
 - ✓ the definition of operational guidelines and quality framework for measuring joint distribution
- It should lead to an ICW database filled in with micro data, that could be updated regularly
- ISTAT and Bank of Italy are members of the EG
- Eurostat has already published data on the joint distribution of ICW for the years 2010 and 2015 as Experimental Statistics

INTEGRATED STATISTICS ON ICW

- The key objective is providing data on the joint distribution of ICW
- Income and consumption are complex concepts
- Different data collection techniques are used (diary for consumption)
- They are typically collected with specific surveys

INTEGRATED STATISTICS ON ICW

- The surveys currently available provide data on the distributions for each of the three dimensions
- Example of surveys that simultaneously observe 2 dimensions (e.g. income and consumption)
 - ✓ SHIW Bank of Italy (HFCS European Central Bank)
 - ✓ Israel (consumption survey)
 - ✓ Canada (financial security survey)
 - ✓ Denmark (extended Household Budget Survey - HBS)
- In these surveys the information on 2 dimensions present different levels of accuracy

INTEGRATED STATISTICS ON ICW

- Integrated statistics include stock data (wealth held at any given time) and flow data (income, expenditures for consumption, financial assets)
- From a theoretical point of view, establishing a relationship between consumption and income means finding a set of **classification variables** for which consumption is an increasing function of income and some individual characteristics (age, sex, education, type of employment, territorial breakdown, etc.)

INTEGRATED STATISTICS ON ICW

- The classification variables must be able to capture:
 - ✓ the heterogeneity of the preferences related to the choices between consumption and savings
 - ✓ the variability in the propensity to consume due to the different household needs and lifestyles
- It is a question of grouping households that have a similar propensity to consume or save
- Among the determinants there are the level of wealth, information usually missing in the surveys on income (value of residences, financial investments, etc.)

INTEGRATED STATISTICS ON ICW

- The joint collection of ICW represents a major challenge for National Statistical Institutes for:
 - ✓ NSIs' budget constraints for conducting new surveys
 - ✓ significant reporting burden on respondents if the data are collected in a single survey

- Better exploitation of existing data sources:
 - ✓ Multi-sources strategy by combining survey and administrative sources to obtain data on income or wealth (**first best**)
 - ✓ Data matching techniques as an additional tool for bringing together data from different surveys (**second best**)

AT EUROPEAN LEVEL

- Three main integration techniques were identified by Eurostat for producing Joint statistics on ICW
 1. statistical matching based on the available surveys
 2. *ex-ante* collection of information on wealth/consumption in SILC, through a simplified module, in order to use these variables as matching variables
 3. using SILC subjective questions on vulnerability and financial constraints which could help to identify income poor and asset based poor

AT EUROPEAN LEVEL

- Experimental statistics on income, consumption and wealth are based on the statistical matching of SILC, HBS, Household Finance and Consumption Survey (ECB)
- The aim is the measurement of vulnerability and poverty, focusing on the left tail of the distribution
- The statistical matching is used as no single data source provides joint information on all the relevant variables
- Strong prerequisites for data matching :
 - ✓ coherence of data sources and of the common variables
 - ✓ better harmonization across SILC, HBS and other important social surveys

THE WORK AT ISTAT

- The strategic project of building an Integrated System of:
 - ✓ Statistical Registers
 - ✓ Surveys and Registers, namely The Census and Social Surveys Integrated System (CSSIS)
- Provide micro data on ICW through the statistical matching of IT-SILC , HBS and SHIW of the Bank of Italy
- *Ex-ante* harmonization of the social surveys in order to fulfil those pre-conditions essential for micro-integration of different data sources

THE WORK AT ISTAT

- *Ex-ante* harmonization of social surveys
 - ✓ From 2011, ISTAT carried out a deep process of standardization of concepts, statistical units and variables
 - ✓ Especially EU-SILC and HBS have been reconciled to harmonize as much as possible the shared variables (e.g. demographic variables, household composition, family relationship, level of education, ILO labour status, dwelling facilities, etc.)
- *Ex-ante* collection of variables useful for data matching procedures
 - ✓ EU-SILC Module on Consumption and Wealth

THE EU-SILC MODULE

- The legal basis of EU-SILC is under revision within the new Framework Regulation on Social Statistics (IESS), which should enter into force in the European Union in 2021
- The new regulation on social statistics will change the EU-SILC survey in a structural way, and the variables currently collected in the annual survey will be divided between variables collected annually and variables collected in rolling modules with a frequency of 3 or 6 years
- Before the entry into force of the new regulation, member states are testing some of the new modules on a voluntary basis

THE EU-SILC MODULE

- ISTAT decided to test the rolling module on Consumption and Wealth (C&W) into EU-SILC 2017, under an EU-Grant Agreement
- The primary aim was to develop the variables related to household consumption and wealth for the future 6-year module “Over indebtedness, consumption and wealth”
- The Italian module was implemented taking into account the experiences on consumption and wealth surveys at national and international level

THE EU-SILC MODULE

- The main goal of C&W module is the measurement of joint distribution on income-consumption-wealth at household level
- The C&W module provides an approximate measure of consumption and wealth observed jointly for the first time on the same survey
- In Italy the Consumption & Wealth Module was carried out together with the annual 2017 IT-SILC data collection (29,952 households)
- Distribution of the sample by survey mode: CAPI 46,2%, CATI 53,8%
- Complete household interviews 74,4%

THE CONSUMPTION MODULE

- Target variables on Consumption included in the module:
 - ✓ Food at home
 - ✓ Food outside home
 - ✓ Public transport
 - ✓ Private transport
 - ✓ Regular savings

- In IT-SILC a large set of variables on housing costs is collected yearly

THE CONSUMPTION MODULE

- Before implementing the Consumption module, we made a deep analysis of:
 - ✓ the Italian HBS
 - ✓ the list of variables proposed by Eurostat Guidelines
- **Food at home** collected at the household level using as reference period the “typical week”
- **Food outside home** four questions were submitted to respondents: 2 at the household level (school lunch for children) and 2 at the individual level (bar/pastry shop, canteens/restaurants) using the typical week as reference period

THE CONSUMPTION MODULE

- **Public transport** collected through four questions: 2 at the household level (school transport for children) and 2 at the individual level, using the “typical month”, as reference period as it covers most of the regular transport expenses
- **Private transport** collected through five questions: 2 at the household level (purchasing of a car or motorcycle) and 3 at the individual level (fuels, garage/parking, insurance and maintenance costs), using the typical month as reference period

THE CONSUMPTION MODULE

- **Regular savings**
- Particular attention was paid to the collection of this variable, corresponding to the disposable income not used for the final consumption, useful both for:
 - ✓ adjustment of the total consumption estimate in SILC
 - ✓ shared variable with HBS and SHIW and useful for statistical matching purposes
- Two variables were included in the questionnaire collected at the household level and using as reference period the typical month (punctual value and income classes)
- Before asking the regular savings, there is an important question on the use of the monthly income (if the household spends the income for consumption, saves a part or it reduces savings)

THE WEALTH MODULE

- Composed of six target variables
 - ✓ Value of main residence
 - ✓ Possession of second (more) residence(s)
 - ✓ Possession of deposits
 - ✓ Value of deposits
 - ✓ Possession of bonds, shares publicly traded or mutual funds
 - ✓ Value of bonds, shares publicly traded or mutual funds

THE WEALTH MODULE

- The development of the wealth module was preceded by an analysis of the Bank of Italy SHIW
- It was analyzed the list of variables related to wealth and financial assets (the wording, the concepts, the level of data collection and the reference period)
- The variables related to the possession of more residences, the possession and value of deposits and other financial activities are also collected yearly in IT-SILC since 2004
- A detailed comparison with the available SHIW micro data was carried out, before implementing the wealth module

DATA COLLECTION

- The fieldwork was carefully monitored in order to:
 - ✓ limit the non-response rates
 - ✓ have an adequate coverage of the national territory
 - ✓ guarantee a successful outcome

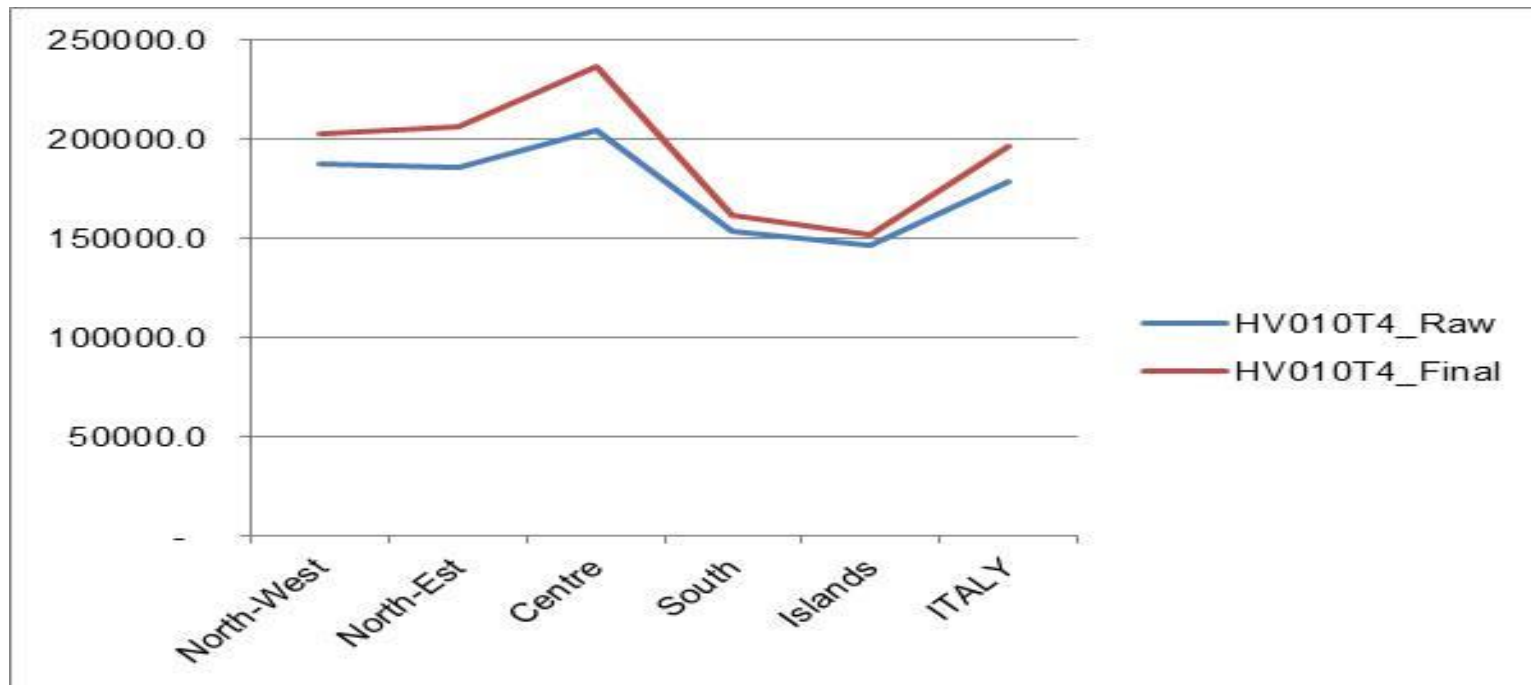
- At the end of the fieldwork, the analysis of the non-response rates and the mean and median values of the variables made it possible to identify the main strong points and weaknesses in the individual and household level of data collection

PRODUCTION PROCESS

- For the C&W module we applied the same methodologies used for the main survey for what concerns the treatment and imputation of the most relevant variables
- For the value of the main residence, the ADMIN data relating to tax returns were used to estimate, starting from the cadastral value of the residence, a market value
- The estimated market values were mainly used for:
 - ✓ comparing the data collected in the module
 - ✓ donating the information in case of missing values
- In this way we estimated the value of the main residence for all the owners with a significant increase in the value of the collected data

THE CONSUMPTION AND WEALTH MODULE

Value in euros of the main residence (HV010T4) before and after the imputation by macro areas



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Measuring ICW and the EU-SILC Module

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PRODUCTION PROCESS

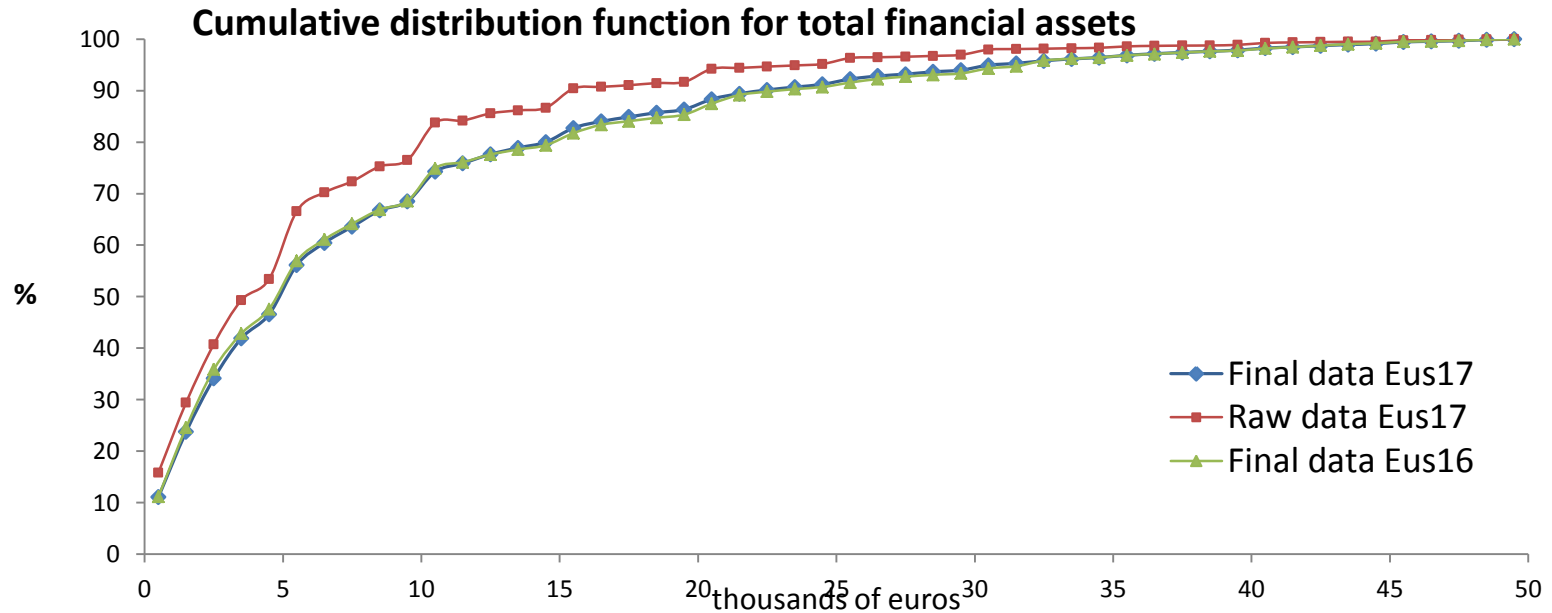
- The variables on financial assets collected in income surveys are usually underestimated:
 - ✓ they are largely based on the answers provided by the respondents
 - ✓ only in marginal cases it is possible to use ADMIN data

- We applied a new estimation methodology through the application of interest rates to stocks and extensive use of longitudinal data able to corrected both the number of the recipients and the value of the financial assets

- Assessment of data quality through the comparison with the available benchmarks:
 - ✓ the HBS for the experimental consumption variables
 - ✓ SHIW for the wealth variables

THE CONSUMPTION AND WEALTH MODULE

Comparison of the distributions of the Total financial assets respectively for raw and final data 2017 versus final data 2016



QUALITY ASSESSMENT Comparison with HBS year 2016

(Values in euros, weekly/monthly reference period)

	N	Mean	Median	Minimum	Maximum	Sum
FOOD AT HOME						
HBS (Division 01 of COICOP)	15321	104.8	91	1	927	2,687,490,587
SILC	22226	103.9	95	0	1200	2,681,403,926
FOOD OUTSIDE HOME						
HBS	10413	39.8	24	0	516	697,109,817
SILC	14538	63.5	45	1	770	1,073,172,246
PUBLIC TRANSPORT						
HBS	3777	13.8	7	0	417	96,563,361
SILC	3829	12.2	7	0	581	59,322,805
PRIVATE TRANSPORT						
HBS	12985	47.1	41	2	314	1,008,719,806
SILC	17357	51.0	41	1	2354	1,019,928,562
REGULAR SAVINGS						
HBS	3450	390.5	250	0	8250	2,095,643,950
SILC	6461	312.5	200	1	12000	2,215,597,891

QUALITY ASSESSMENT Comparison with SHIW year 2016

Value in euros of households' savings deposits/account held by Banks & P.O.

	N Obs	N	N Miss	Mean	Median	MIN	Q1	Q3	MAX	Sum
SHIW14	8156	7578	578	12221	5000	0	1500	10900	2000000	279,732,901,331
SHIW16	7421	6918	503	14630	5000	0	1601	12171	1770271	347,312,309,911
SILC17	22226	20856	1370	15480	8717	20	3392	19610	248510	371,646,293,327

Value in euros of households' bond, shares publicly traded or mutual funds

	N Obs	N	N Miss	Mean	Median	MIN	Q1	Q3	MAX	Sum
SHIW14	8156	2206	5950	54558	25000	0	10000	51046	5108000	331,503,204,447
SHIW16	7421	1738	5683	62877	23270	9	10000	50297	4700220	346,968,300,896
SILC17	22226	5168	17058	25164	10000	50	3360	29477	650066	163,762,136,574

CONCLUDING REMARKS

- The final results of the 2017 C&W module are quite good. Some variables, specifically those included in the household questionnaire, have a high response rate (e.g. food at home)
- The C&W module gives us the opportunity to improve the estimation of the value of the main residence and financial assets in IT-SILC data processing
- As expected the financial assets remain underestimated
- Italy decided to continue to test the module in the questionnaire 2018 and 2019 for having good proxy variables for our matching procedures

CONCLUDING REMARKS

- The collection of the new C&W module in EU-SILC has the important aim to address the analytical needs based on the joint distribution of income, consumption and wealth
- The small number of variables in an additional module cannot satisfy all the information needs but represent an important step to facilitate the micro integration of different surveys

CONCLUDING REMARKS

- Several exercises in literature explore the feasibility of imputing consumption values using a limited number of questions
- The collection of the new consumption variables on food and transport, jointly with the already available data on housing costs, could provide enough information to achieve a reliable prediction of total consumption expenditures into SILC to be used in our statistical matching procedures
- Finally, the experience made with the C&W in EU-SILC 2017 allows us to provide some recommendations to Eurostat for the definition of the variables of the 2020 EU-SILC ad-hoc module on Over-indebtedness, Consumption and Wealth

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

EUROSTAT - Experimental Statistics on Income, Consumption and Wealth

- <https://ec.europa.eu/eurostat/web/experimental-statistics>
- <https://ec.europa.eu/eurostat/web/experimental-statistics/ic-social-surveys-and-national-accounts>
- <https://ec.europa.eu/eurostat/web/experimental-statistics/income-consumption-and-wealth>

STATISTICAL MATCHING

- Donatiello G., D’Orazio M., Frattarola D., Rizzi A., Scanu M., Spaziani M. (2016), The role of the conditional independence assumption in statistically matching income and consumption, in “*Statistical Journal of the IAOS*, vol. Preprint, no. Preprint, pp. 1-9, 2016, 22 April, DOI: 10.3233/SJI-161000: <http://content.iospress.com/articles/statistical-journal-of-the-iaos/sji1000>
- Donatiello G., M. D’Orazio, D. Frattarola, A. Rizzi, M. Scanu, M. Spaziani (2014), Statistical Matching of Income and Consumption Expenditures. *International Journal of Economic Sciences*, III (3): 50-65
- D’Orazio M., M. Di Zio, M. Scanu (2006), *Statistical Matching: Theory and Practice*. John Wiley & Sons, Chichester

**Thank you for
your attention!**