

Measuring Income and Wealth through Household Surveys for Welfare Monitoring
10 – 14 December, 2018
Perugia, Italy

Survey on income: EU-SILC case

Gabriella Donatiello

Senior Researcher
ISTAT

- **General overview of the EU-SILC project**
- **The European indicators on inequality and poverty**
- **Main futures of the Italian EU-SILC**
- **An introduction to the data collection strategy for improving quality**

THE OUTSET

- The EU Statistics on Income and Living Conditions was launched in 2003 on a gentlemen's agreement basis in six Member States (Regulations no.1177/2003)
- EU-SILC project replaced the ECHP (European Community Household Panel)
- From 1994 to 2001 the ECHP ran in 14 of the then 15 Member States as the source for the agreed social inclusion indicators for that period

THE OUTSET

The transition to the new EU-SILC project was due to some important changes

- New recommendations on income statistics have been published by the United Nations expert group in a detailed report (Camberra Group 2001) and:
 - ✓ the collection of gross income at component level (and not net income as in the ECHP) appeared to be preferable for income distribution analysis

- The decision was taken to stop the ECHP and launch EU-SILC:
 - ✓ for solving the ECHP technical problems of conforming to the new agreed definition of income
 - ✓ for extending the data collection to the enlarged EU (and beyond)

THE OUTSET

- Another important change was the introduction of an **Open Method of Coordination** (OMCs) with member states in the fields of social inclusion, pensions and health care
- Key elements of the new collaborative process were:
 - ✓ the definition of commonly agreed objectives for the European Union (the “social policy agenda”)
 - ✓ the development of appropriate national action plans to meet these objectives
 - ✓ the periodic reporting and monitoring of progress made

THE GOAL

- EU-SILC becomes the EU **reference source** for comparative statistics on income, living conditions and social exclusion at European level in the context of OMCs
- EU-SILC is carried out on an annual basis and is used to analyse both monetary (income) and non-monetary poverty
- The main purpose of SILC is to:
 - ✓ allow the Member States and the European Commission to monitor national and EU progress towards EU objectives in the area of social inclusion and social protection
 - ✓ be a major step forward in the development of EU cooperation in social policy

THE CONTENTS

- EU-SILC is based on the idea of a *common “framework”* and no longer a *common “survey”* as was the case for its' predecessor, the ECHP
- The common framework implies:
 - ✓ common guidelines and procedures
 - ✓ common concepts (household and income) and classifications
- The common framework defines the harmonised lists of:
 - ✓ target primary variables (collected every year)
 - ✓ secondary variables (every four years or less frequently)
- The objective is to maximize the **comparability** of data across Europe

THE CONTENTS

- EU-SILC is a **multi-purpose instrument** mainly focuses on income and detailed income components are collected mainly at personal level although a few components are collected at the household level
- It collects many other information covering housing, material deprivation, labour, health, demography, education
- It provides two types of data:
 - ✓ **Cross-sectional data** pertaining to a given time or a certain time period
 - ✓ **Longitudinal data** pertaining to individual-level changes over time, observed periodically over a four year period

THE CONTENTS

- The **primary target** variables concern either household or individual information
- The **secondary target** variables are included in one specific module per year (since 2005) only in the cross-sectional component
- Given the principle of flexibility of the implementation of the SILC project at national level, the number of questions needed to construct one target variable may vary from one country to another

THE CONTENTS

The EU-SILC variables cover the following domains:

- At **household** level: data on social exclusion are collected
 - ✓ Socio-demographic basic/core data
 - ✓ Housing
 - ✓ Material deprivation
 - ✓ Income

- At **individual** level (aged 16 or more):
 - ✓ Basic/demographic data
 - ✓ Education
 - ✓ Health
 - ✓ Labour
 - ✓ Income

THE EU-SILC PROJECT

The EU-SILC **ad-hoc modules** are relating to:

- 2005: Inter-generational transmission of poverty;
- 2006: Social participation
- 2007: Housing conditions
- 2008: Over-indebtedness and financial exclusion
- 2009: Material deprivation
- 2010: Intra-household sharing of resources
- 2011: *Intergenerational transmission of disadvantages*
- 2012: *Housing conditions*
- 2013: *Well-Being*
- 2014: *Material deprivation*
- 2015: *Social and cultural participation and material deprivation*
- 2016: *Access to services*
- 2017: *Health and Children Health + Consumption and Wealth*
- 2018: *Well-being*

THE SOURCES

- The EU-SILC framework fostered the use of existing sources and/or administrative data, however not all EUSILC variables can be obtained from registers
- Two main groups of countries can be identified
 1. The register countries (DK, FI, IS, NL, NO, SE, SI) where:
 - ✓ administrative registers provide data on income and some demographic information
 - ✓ interview provides data on other personal variables and social exclusion
 2. The non-register countries where the full information is obtained through survey among household and interview with household members

THE SAMPLE DESIGN

- EU-SILC collects harmonised information on income distribution and living conditions, through a **flexible** survey design
- In this way, the cross-sectional and longitudinal data can come from separate sources and depending on the country, micro-data could come from:
 - ✓ Two or more national sources (surveys and/or registers)
 - ✓ One or more existing national sources combined or not with a new survey
 - ✓ A new harmonized survey to meet all EU-SILC requirements
- In most countries, the SILC variables are embedded into a larger national survey

THE SAMPLE DESIGN

- According to the Commission Regulation on sampling and tracing rules (N° 1982/2003), the cross-sectional and longitudinal (initial sample) data are to be based on a nationally representative **probability sample** of the population residing in private households within the country (excluded persons living in collective households)
- Most of the countries have adopted an **integrated sample design** (4-year rotational design) in a new survey as recommended by Eurostat
- Rotational design refers to the sample selection based on a number of sub-samples or replications (four), each of them similar in size and design and representative of the whole population
- From one year to the next, a part of the sample is rotating and the other part is unchanged

THE SAMPLE DESIGN

- For countries using the integrated design:
 - ✓ same sampling strategy to provide cross-sectional and longitudinal estimates
 - ✓ all variables are in both cross-sectional and longitudinal components
- The Framework Regulation N° 1177/2003 defines the minimum effective sample sizes to be achieved
- The comparison between the minimum effective sample sizes and the achieved sample sizes is available in the annual quality report produced by Eurostat available at: <https://ec.europa.eu/eurostat/web/income-and-living-conditions/quality/eu-and-national-quality-reports>

DATA COLLECTION

- There was a gradual shift from PAPI (Paper and Pencil Interview) to CAPI (Computer Assisted Interviewing) and to a mixed mode including the CATI (Computer-Assisted Telephone Interview)
- In the register countries, the collection of additional variables was mainly conducted via CATI

UNIT OF ANALYSIS

- In the non-register countries, all household members aged 16 or more answer a personal questionnaire and one member answer the household questionnaire
- In the register countries, only a selected household respondent receives a personal questionnaire and household and income variables are collected either through register or through the selected respondent

THE FIELDWORK

- National surveys also differ through the period during which the fieldwork is carried out
- Regulation recommends that the one shot survey fieldwork is extending over less than 4 consecutive months and the lag between income reference period and fieldwork is limited to 8 months
- When continuous surveys are used, the sample allocation over time should be controlled and weighting adapted to produce unbiased estimates of the annual average
- The range of durations is described in the annual quality report published by Eurostat

DATA RELEASE

- Annual data collection under EU-SILC is governed by a Framework Regulation of the European Council and the Parliament (no. 1177/2003 amended by no. 1553/2005) and by a series of implementing Commission Regulations
- The Framework Regulation makes provision for the release of anonymised micro data to researchers
- The EU-SILC microdata are transmitted to Eurostat without any direct identifiers (e.g. name, address, official identifiers) and are freely available on Eurostat website: <https://ec.europa.eu/eurostat/data/database>

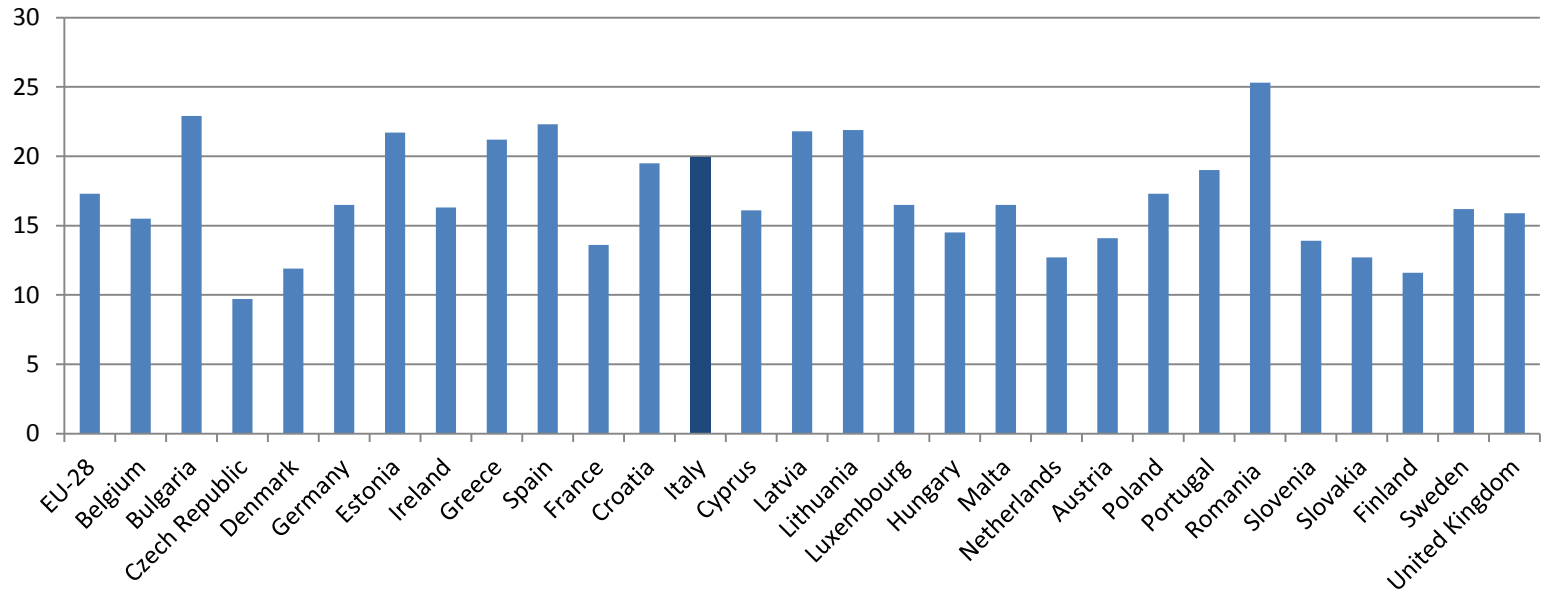
- In June 2010 the Member states endorsed a new EU strategy for jobs and smart, sustainable and inclusive growth, known as the **Europe 2020 strategy**
- The strategy will help Europe to recover from the crisis and come out stronger, by boosting competitiveness, productivity, growth potential, social cohesion and economic convergence
- To ensure the achievement of these priorities 5 headline indicators were established:
 - 1. Share of renewables in gross final energy consumption**
 - 2. Severely materially deprived persons**
 - 3. Tertiary educational attainment by gender and age group 30-34**
 - 4. Population at risk of poverty or social exclusion**
 - 5. People living in households with very low work intensity**

POVERTY AND SOCIAL EXCLUSION

AT RISK OF POVERTY RATE (ARP)

- Share of people with an equivalised disposable income below the **at-risk-of-poverty threshold** (i.e. 60% of the national median)
- Relative measure of poverty:
 - ✓ Individuals with lower standards of livings than the rest of the population
 - ✓ It is a monetary measure of the standards of living
 - ✓ It depends on national standards of living

AT RISK OF POVERTY RATE 2016



MATERIAL DEPRIVATION (MD) AND SEVERE (SMD)

➤ Share of the population who **cannot afford** at least three or four the following nine items (for MD and SMD respectively):

1. to pay rent, mortgage or utility bills
2. to keep home adequately warm
3. to face unexpected expenses
4. to eat a meal involving meat, fish or a vegetarian equivalent every second day
5. to go on holiday for one week
6. to purchase a television set
7. to purchase a washing machine
8. to purchase a car
9. to purchase a telephone

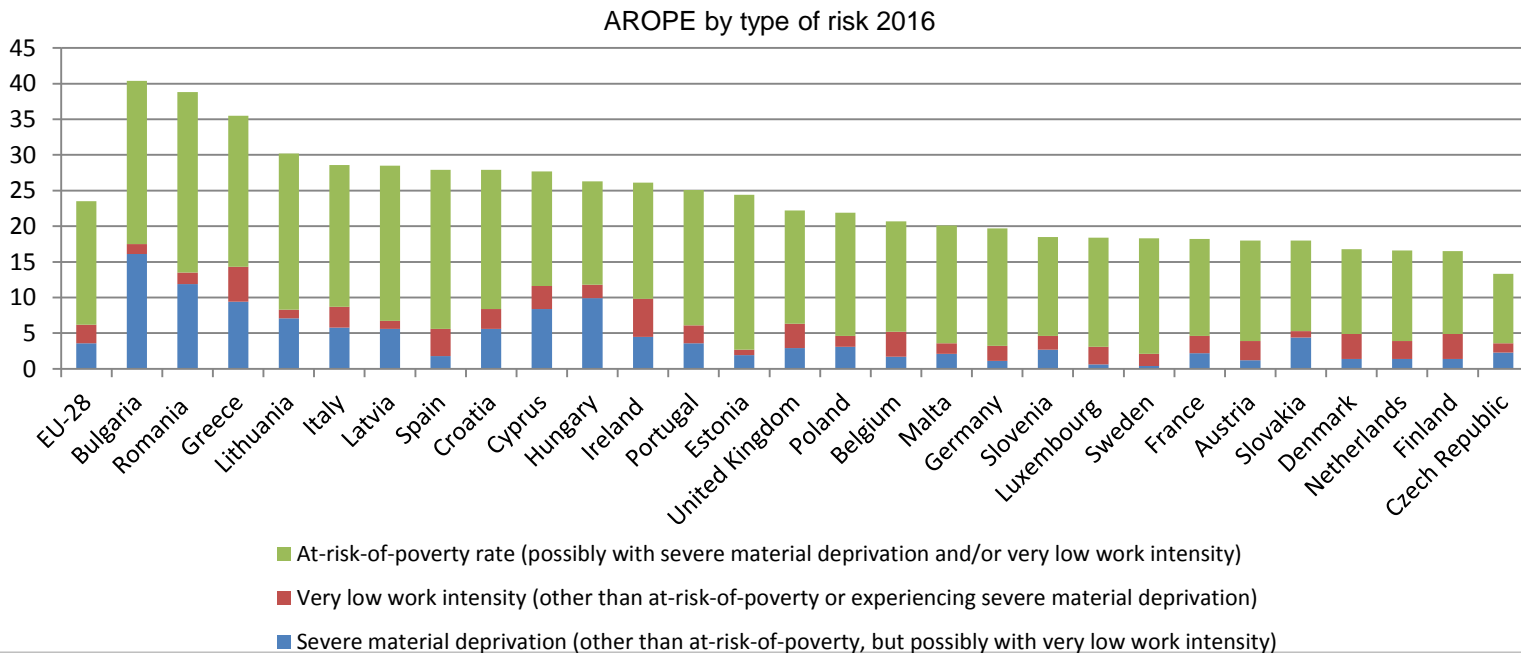
➤ **Non monetary** measure of the standards of living

LOW WORK INTENSITY

- Share of people living in households with very low work intensity are defined as people of all ages (0–59) living in households where the members of working age worked less than 20.0 % of their total potential during the previous 12 months (i.e. work intensity below **0.20**)
- **Work Intensity**=ratio of the total number of months that all working-age household members have worked (during the income reference year) and the months they could have worked

AT RISK OF POVERTY OR SOCIAL EXCLUSION (AROPE)

- Individuals who are either at-risk-of-poverty, and/or severely deprived, and/or living in households with very low work intensity



AT PERSISTENT RISK OF POVERTY (APRP)

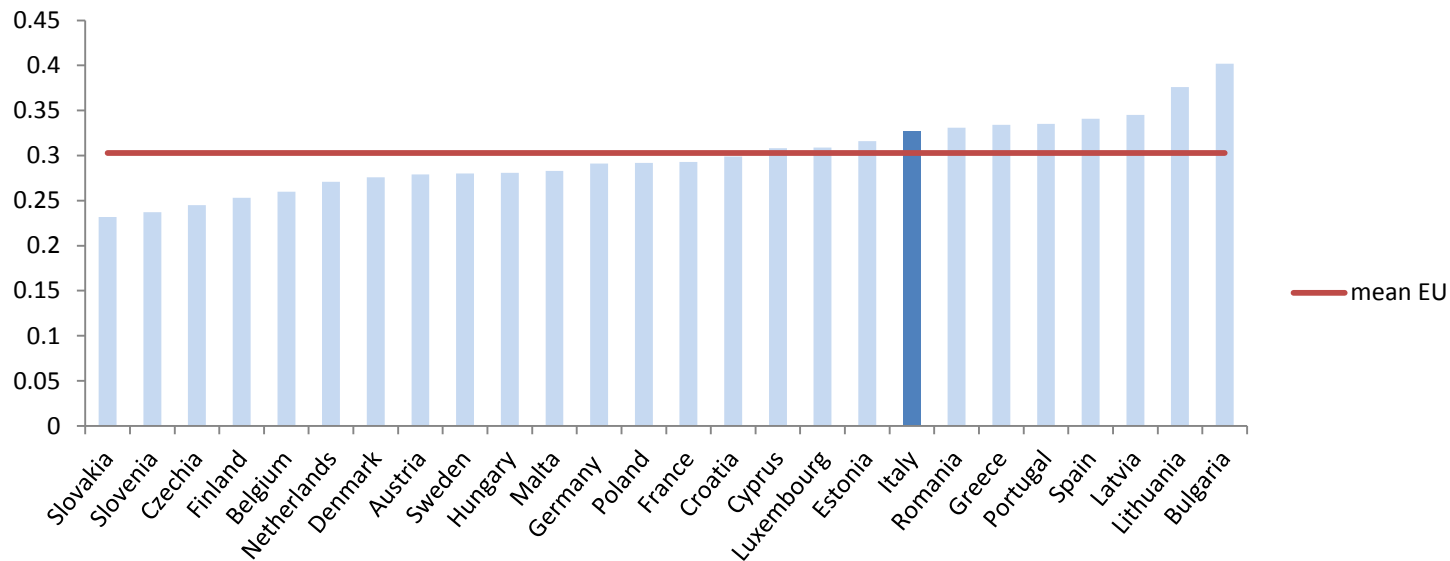
- The persistent at-risk-of-poverty rate shows the percentage of the population at-risk-of-poverty in the current year and at least two out of the preceding three years
- Its calculation requires a longitudinal instrument, through which the individuals respondents are followed over four years

INEQUALITY AND INCOME DISTRIBUTION

- To measure income inequality, the Gini coefficient is a leading indicator
- The Gini coefficient may range from 0, corresponding to perfect equality (income is equally distributed among every individual in a given society) to 100, corresponding to perfect inequality (when all of the income is received by a single person)
- A lower Gini coefficient reflects a more egalitarian distribution of income

INEQUALITY

The Gini coefficient 2016

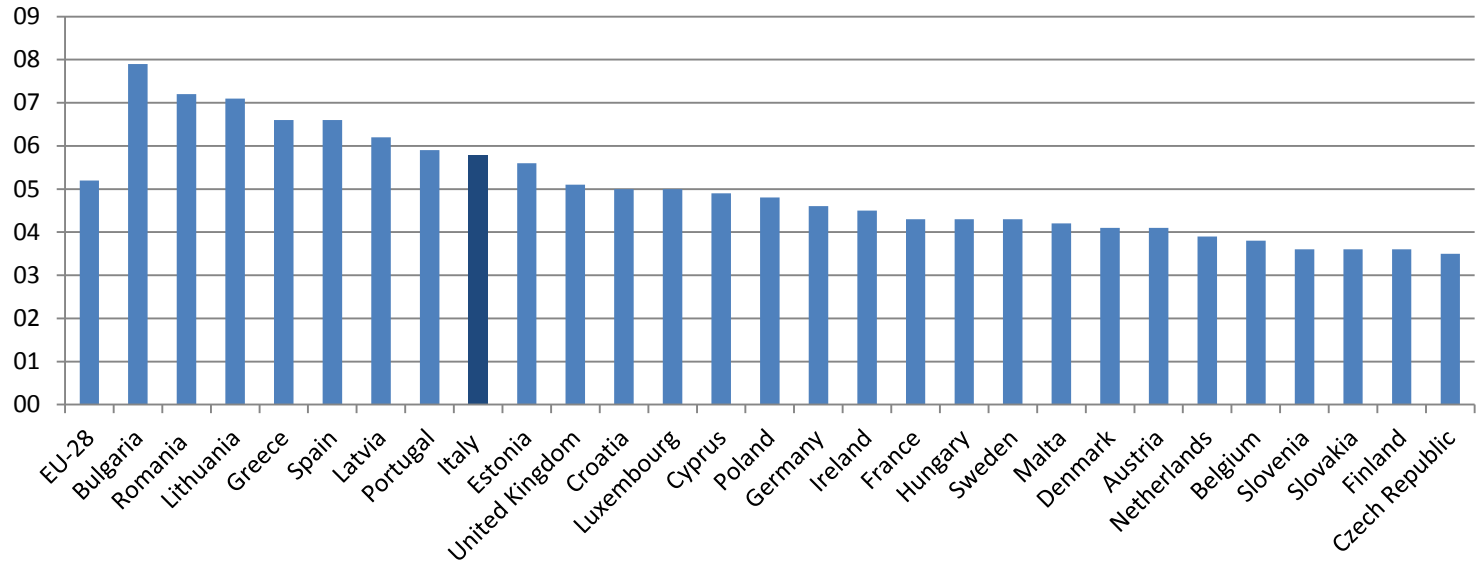


INEQUALITY

- To analyse the inequality of income distribution, the **income quintile share ratio** (S80/S20) is used
- The S80/S20 is the ratio of total income received by the 20% of the population with the highest income (the top quintile) to that received by the 20% of the population with the lowest income (the bottom quintile)
- All incomes are compiled as equivalised disposable incomes
- High values for this ratio suggest that there are considerable disparities in the distribution of income between upper and lower income groups

INEQUALITY

The income quintile share ratio 2016



- The EU-SILC data are used for:
 - ✓ monitoring progress towards the **Europe 2020** headline target for poverty reduction, namely to reduce the number of people at risk of poverty or social exclusion by 20 million
 - ✓ the structural indicators of **social cohesion** (at-risk-of poverty rate, S80/S20 and gender pay gap) and in the context of the Open Methods of Coordination
 - ✓ the indicators for **social inclusion**, the so-called "Laeken indicators", including poverty rate, persistent poverty rate (crossed by age, gender, household type, activity status, work intensity and tenure status), S80/S20, Gini coefficient, in-work poverty

1. **Some important issues in defining and measuring income**
2. **Main features of the Italian EU-SILC**
3. **A multi-sources data collection strategy for improving quality**

INCOME DEFINITION

- On the basis of **economic theory**:
Income is the maximum amount of money that can be spent over a period of time (eg the year) without diminishing wealth

- Income can be spent or saved:
 - ✓ When it is spent entirely, the savings are zero
 - ✓ when spending more than income, you must borrow and / or sell some of the wealth accumulated in the past

DEFINING AND MEASURING INCOME

INCOME SOURCES

From the market:

LABOUR dependent employment
self-employment

CAPITAL rents
profits, interests
royalties

Transfers:

PUBLIC pensions
other cash benefits (e.g. child allowance)

PRIVATE alimonies, help from relatives / friends
charity

NON-MONETARY COMPONENTS

• INCLUDED

- Self-production
- In-kind wages
- Imputed rents of houses inhabited by the owners

• NOT INCLUDED

Social transfers in kind (education, health, etc ...)

Sudden jumps in wealth:

- Capital gains/losses
- Lottery wins
- Inheritances

DEFINING AND MEASURING INCOME

Gross monetary household income can be:

- spent on consumption
- transferred to the public administration (tax)
- given to other households (alimonies etc...)
- added to wealth (savings)

INCOME SURVEYS usually collect data on:

- earnings from various sources
- public transfers
- private transfers from other households/institutions

Net of TAX

Usually Consumption and Savings are not observed

• REFUSALS

- Privacy (fear of a tax control)
- Approach to households (distrust)

• MISSING ANSWERS

- Ancillary questions (approximate amounts)
- Imputations/ Linkage with administrative data

• UNDER-REPORTING

- Checks, validation
- Linkage with administrative data

THE IT-SILC

- The Italian survey is conducted annually since 2004 on a sample of about 30 thousand households (for a total of almost 70 thousand individuals), distributed in about 650 Italian municipalities of different demographic size
- The sampling design follows a two-stage scheme (municipalities -households) with stratification of the municipalities according to the demographic dimension
- The survey provides both cross-sectional and longitudinal statistics through an integrated rotational sample design, with four independent rotational groups
- The permanence of each individual in the sample is 4 years
- Individuals have to be traced and followed in the national territory in case of transfer

DATA COLLECTION

- PAPI 2004-2010
 - CAPI 2011-2014
 - CAPI-CATI 2015 onwards: mixed mode
-
- **The questionnaire:** four survey models
 - ✓ Contact form
 - ✓ Register form (about 40 qualitative variables)
 - ✓ Household questionnaire (about 150 qualitative + 40 quantitative variables)
 - ✓ Individual questionnaire (about 270 qualitative + 60 quantitative variables)

THE QUESTIONNAIRE

Contact form:

- Households list
- Attempts to contact the household (when; at the address/by phone)
- Final outcome

Register form:

- Individual demographic information
- Parental relationship (with reference person – 20 possible relationships)
- Child-care target variables

Household questionnaire

- Housing condition (characteristics, durables, housing costs....)
- Accommodation (rented, owned...)
- Economic situation (material deprivation items, economic distress, household income...)
- Income of household members younger than 16
- Household ad-hoc module

Individual questionnaire

- Quality of life (education and health conditions)
- Employment (the work history: if it is currently occupied, or the last work done)
- Income by source and any ancillary items
- Individual ad-hoc module

THE IT-SILC PRODUCTION PROCESS

- **A multi-sources** data collection strategy for improving data quality
- Focused on the integration of survey data and administrative data for the construction of net and gross income variables
- THE MAIN STEPS
 - ✓ Data collection
 - ✓ Integration of administrative sources
 - ✓ Correction and imputation of missing income
 - ✓ Microsimulation and ADMIN data for the gross income

THE IT-SILC PRODUCTION PROCESS

The Income Target Variables

- ✓ collected by personal interview
- ✓ net of taxes and social insurance contributions
- ✓ survey data integrated with administrative data (employee and self-employment income)
- ✓ pensions and some social transfers (unemployment, severance pay & education benefits) collected mainly by administrative data
- ✓ converted into gross target variables

THE INTEGRATION PROCESS

- The integration of survey and register data has the most important aim to reduce the under-estimation of incomes on the basis of available information (survey and registers)
- The ADMIN data are essentially exploited in order to support the editing and imputation processes:
 - ✓ fill in the survey missing values
 - ✓ correct outliers or unreliable values

THE INTEGRATION PROCESS

- The ADMIN data are employed for of the production of gross incomes
- Microsimulation is the traditional technique used for the estimation of incomes before taxes and social insurance contributions
- In Italy microsimulation and integration of fiscal data are used together

THE INTEGRATION PROCESS

- Problems arising from the integration of different data sources:
 - ✓ harmonization of units and definitions
 - ✓ incoherencies of the type of income sources
 - ✓ reconciliation of inconsistent income amounts

- By combining ADMIN and survey data is definitely possible to improve the coverage and the quality of income data

- The joint use of the fiscal tax and the microsimulation estimates:
 - ✓ has the advantage of reciprocal comparison and validation
 - ✓ enhances the advantages obtainable with the exclusive use of one of the two sources

THE WAY FORWARD

- Several projects for further improving data quality are conducting at ISTAT
- Extending the administrative sources used and the timeliness of data

REFERENCES

EUROSTAT

- https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Living_conditions
- <https://ec.europa.eu/eurostat/data/database>

ISTAT

- <https://www.istat.it/en/archivio/212387>
- ISTAT, Income, living conditions and fiscal burden of households – Year 2017, 6th December 2018: <https://www.istat.it/en/archivio/224687>
- Consolini P., Donatiello G. (2015), Multi-source data collection strategy and microsimulation techniques for the Italian EU-SILC, in Istat, Rivista di Statistica ufficiale, n.2 2015, pp. 77-93: http://www.istat.it/it/files/2015/10/rsu_2_2015.pdf

REFERENCES

ISTAT

- Consolini P., Donatiello G. (2013), "Improvements of data quality through the combined use of survey and administrative sources and micro simulation model". Eurostat, The use of registers in the context of EU-SILC: challenges and opportunities, Statistical Working Paper, Luxembourg, Publications Office of the European Union 2013: http://epp.eurostat.ec.europa.eu/cache/ITY_OFFPUB/KS-TC-13-004/EN/KS-TC-13-004-EN.PDF

IN ITALIAN

- Consolini P. (a cura di) (2009), Integrazione dei dati campionari Eu-Silc con dati di fonte amministrativa, Metodi e Norme, n. 38, 2009: http://www3.istat.it/dati/catalogo/20090318_00/
- Donatiello G. (a cura di) (2011), La metodologia di stima dei redditi lordi nell'indagine Eu-Silc - Indagine europea sui redditi e le condizioni di vita delle famiglie, Istat Metodi e Norme n. 49, 2011. http://www3.istat.it/dati/catalogo/20110726_00/metodologia_stima_redditi_lordi_indagine_eu_Silc.pdf

**Thank you for
your attention!**