INCOME MEASUREMENT in SURVEYS
General Introduction and Historical Background

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C4D2 - Training
Measuring Income and Wealth through Household Surveys for Welfare Monitoring
December 10 – 14, 2018 Perugia, Italy
2018 – December 10

1. 13:30 – 14:00
General Introduction and Historical Background
*Federico Polidoro*

2. 14:00 – 15:30
Concepts and Definitions
Overview of the Main Country Practices and data Sources: Survey and Administrative Data
*Federico Polidoro and Paolo Consolini*

3. 16:00 – 17:00
Survey on Income: EU SILC case
*Gabriella Donatiello*
2018 – December 11

4. 9:00 – 11:00
How to Measure Income Components
Paolo Consolini

5. 11:30 – 13:00
Income and Price Differences Federico Polidoro

6. 14:00 – 15:30
Micro (Survey) – Macro (NA) Comparison, Issues and Reconciliation Paolo Consolini

7. 16:00 – 17:00
Measuring Income, Consumption and Wealth and the EU SILC Module Gabriella Donatiello
General Introduction and Historical Background
General Introduction and Historical Background

Income as multidimensional concept
• Income level and income distribution
• Individual and household income
• Different points of view to look at income concept (for what concerns statistics, macro and micro point of view)
• Distribution of income across production factors and across households
• Multiple sources of income
• Nominal and real income: price dimension
• Income from hidden activities, underreporting and the multiple sources of income
Information concerning income crucial for different users

- First level producer (collecting and analyzing data from the original sources)
- Second level producers (producing estimates and data sets)
- Analysts and researchers (using estimates and data sets; i.e. microsimulators)
- Policy makers (assessing the impact of policies on population as a whole or on different groups of households)

Distributional aspects essential to analyse income and common to all the users above
Main purposes to compile statistics on income distribution

• Understanding the level of concentration of income and the monetary dimension of inequality

• Evaluating the impact of policies on income distribution (general and universal or actions targeted on different households groups) taking into the multiple policy issues that have consequences on income such as fiscal measures, housing, education, etc.)

• Analysing households well being (income influences capacity of households of acquiring goods and services) and the dimension of poverty and social exclusion
Households economic well being

- A household's economic well-being can be expressed in terms of its access to goods and services
- The more that a household can consume, the higher its level of economic well-being
- The extension of the concept of well-being to other dimensions

The concept of sustainable and equitable well-being ("Gdp and beyond", OECD and Stiglitz Commission)

- Economic parameters alone inadequate to evaluate the progress of societies
- Integration with social and environmental information and by measures of inequality and sustainability
General Introduction and Historical Background

Households economic well being

• Income

• A household can use income to purchase goods and services (Consumption is a crucial dimension)

• A household can save part of the income Saving could imply acquiring assets (Wealth) that will produce income in the future

• Economic well-being of households has to be investigated through all the dimension: Income, Consumption and Wealth (and wealth change across time)
General Introduction and Historical Background

Stiglitz-Sen-Fitoussi, Report 2009

• “Average income, consumption and wealth are meaningful statistics, but they do not tell the whole story about living standards”

• “Making distributional measures of income, consumption and wealth compatible in scope with average measures from the national accounts”
Some historical references


- Aiming at assisting countries to collect and disseminate income distribution statistics and to provide for international reporting and publication of comparable data
- Emphasis on the need to link micro level income distribution statistics with macro level national accounting standards
- The Provisional Guidelines were to be revised concurrently with the 1968 SNA (e.g. Norrlof, 1985).

Some historical references

1983 – The Luxembourg (inter-country) Income Study (LIS) was set up in 1983 to address the lack of comparability of household income data from different countries. LIS draws together unit record data from a wide range of countries and reorganises them according to a common set of concepts and definitions.

The issue of comparability becomes crucial and it is stressed also in ‘90s by different international organizations showing different rankings (based on income) of countries depending on the different concept of income.
General Introduction and Historical Background

Some historical references

**1994** – Growing role of Eurostat with the agreement of the United Nations Economic Commission for Europe (UNECE), and the OECD in the revision of UN 1977 guidelines

- Updating in light with the revision of SNA and ESA above all relating to household income statistics (e.g. hidden and informal activities)

- Focus on the countries of the European Economic Area.
Some historical references

1994 – Eurostat launches the European Community Household Panel (ECHP)

• The central goal comparable statistics on income and other variables relating to social exclusion, within a longitudinal framework
• The use of a common questionnaire for all national surveys
• The use ensuring common concepts and content and common operationalisation
General Introduction and Historical Background

Some historical references

1996 – August - the 24th General Conference of the International Association for Research in Income and Wealth (IARIW)

• Session on International Standards on Income and Wealth Distribution focussed on the revision of UN 1977 Provisional Guidelines Once

• Macro-to-micro approach to be integrated with the micro-to-macro viewpoints in the revision of the international guidelines

• Integration of theory and application (difficult but not impossible), and revisions to the UN Provisional Guidelines for this purpose
Some historical references

**1996 – Birth of Canberra group**

- Focus on conceptual, methodological and practical issues faced by national statistical agencies in the field of statistics on household income distribution
- Grouping experts from NSOs, government departments and research agencies from Europe, North and South America, Asia, Australia and New Zealand, as well as from a number of international organisations

**2001 – The Canberra Group’s Final Report and Recommendations was published (Canberra Handbook)**

- highly influential in the development of new international standards for micro level household income statistics
General Introduction and Historical Background

Some historical references

2003 – The 17th International Conference of Labour Statisticians (ICLS) adopted the revised international standards for household income statistics

• Largely following the Recommendations of Canberra Handbook

2003 – The EU Statistics on Income and Living Conditions (EU-SILC) was introduced replacing the ECHP

2011 – Updated edition of Canberra Handbook was released
Concepts and Definitions
Income definition (ILO, 2004; Canberra handbook, 2011)

(1)

“Household income consists of all receipts whether monetary or in kind (goods and services) that are received by the household or by individual members of the household at annual or more frequent intervals, but excludes windfall gains and other such irregular and typically one-time receipts.”
Income definition (ILO, 2004; Canberra handbook, 2011) (2)

Household income receipts are available for current consumption and do not reduce the net worth of the household through a reduction of its cash, the disposal of its other financial or non-financial assets or an increase in its liabilities.

Household income may be defined to cover: (i) income from employment (both paid and self-employment); (ii) property income; (iii) income from the production of household services for own consumption; and (iv) current transfers received.”
Concepts and Definitions

Income definition (SNA, 2008) – Macro version

“the maximum amount that a household or other unit can afford to spend on consumption goods or services during the accounting period without having to finance its expenditures by reducing its cash, by disposing of other financial or non-financial assets or by increasing its liabilities”

• Similarities but different purposes
• Micro definition aimed at addressing issues concerning household income on its own and its distributional issues
• Macro definition aimed at considering household income within national accounts scheme thereof household is one sector and some recommendations are targeted at non-household with impact on the household sector in aggregate
Concepts and Definitions

Points to be stressed in the definition

• **Household income.**

It is preferred to personal income because the level of well being of people is generally determined by the level of income that they and the other family members living in the same dwelling receive. Similarities but different purposes

Personal income is at the center of attention in EU-SILC

• **Income consisting of all receipts whether monetary or in kind** (goods and services)

The difficult in measuring some in kind components such as STIK (Social Transfer in Kind)
Points to be stressed in the definition

- **Exclusion of windfall gains and other such irregular and typically one-time receipts**

Lottery prizes, gambling winnings, non-life insurance claims, inheritances, lump sum retirement benefits, life insurance claims (except annuities), legal/injury compensation (except those in lieu of foregone earnings) and loan
Points to be stressed in the definition

- **Household income receipts are available for current consumption and do not reduce the net worth of the household**

Exclusion of the proceeds deriving form the sale of assets, from loans obtained and from withdrawals from savings
UNECE 2011:
«It is undoubtedly a considerable disservice to users when two sets of statistics both labelled 'household income' appear to produce different results, and possibly have different implications for social and economic policy»
Income components, Income aggregation and hierarchical scheme (UNECE)
Income components

1. Income from employment (both paid and self-employment);
2. Property income;
3. Income from the production of household services for own consumption;
4. Current transfers received

Aggregation of the components of income in a hierarchical scheme aimed at providing users and analysts with selected measures of income for particular analytical purposes (Total and disposable income are the main income aggregates produced)
Income components

1. Income from employment (both paid and self-employment)

“Income from employment comprises receipts from participation in economic activities in a strictly employment related capacity. It consists of payments, in cash or in kind, received by individuals, for themselves or in respect of their family members, as a result of their current or former involvement in paid or self-employment jobs” (CH, 2011)
Income components

1. Income from employment

- 1.1 Employee income
- 1.2 Income from self-employment
- 3. Income from household production of services for own consumption
- 4. Current transfers received

Household Income

2. Property Income
Income components

1.1 Employee income

1.1.1 direct wages and salaries for time worked and work done
1.1.2 cash bonuses and gratuities
1.1.3 commissions and tips
1.1.4 directors’ fees
1.1.5 profit-sharing bonuses and other forms of profit related pay
1.1.6 remuneration for time not worked such as for annual leave, holidays or other paid leave
1.1.7 share entitlements
1.1.8 free or subsidised goods and services from an employer
1.1.9 Severance and termination pay
1.1.10 Employers’ social insurance contributions
1.1 Employee income

1.1.1 Wages and salaries
1.1.2 Cash bonuses and gratuities
1.1.3 Commissions and tips
1.1.4 Directors’ fees
1.1.5 Profit-sharing bonuses and other forms of profit-related pay
1.1.6 Remuneration for time not worked such as for annual leave, holidays or other paid leave
1.1.6 Shares offered as part of employee remuneration
1.1.7 Free or subsidised goods and services from an employer
1.1.8 Severance and termination pay
1.1.9 Employers’ social insurance contributions
1.1 Employee income

1.1.9 Severance and termination pay

It excludes lump sum retirement payments, which are treated as capital transfers

1.1.10 Employers’ social insurance contributions

Social insurance contributions made by employers to secure social benefits for their employees (remuneration in NA). Entitlements to these benefits dependent on certain events or circumstances occurring, such as sickness, accident, redundancy or retirement (benefits in household secondary income in NA)
1.2 Income from self-employment

“Income from self-employment is income received by individuals as a result of their involvement in self-employment jobs. Net income from self-employment includes the profit or loss that accrues to owners of, or partners in, unincorporated enterprises who work in these enterprises. It also includes the estimated value of goods and services produced for barter, as well as goods produced for own consumption, less expenses. Income from self-employment excludes profits or losses from the capital investment of partners who do not work in these enterprises (‘silent’ partners) since these are included in dividend income” (CH, 2011)
1.2 Income from self-employment

1.2.1 Profit/loss from unincorporated enterprise

1.2.2 Goods and services produced for barter, less cost of inputs

1.2.3 Goods produced for own consumption, less cost of inputs
Income components

1.2 Income from self-employment

Concept of net income
“value of gross output less operating costs and after adjustment for depreciation of assets used in production. **Profits** occur when receipts are greater than operating expenses, while a **loss** occurs when operating expenses are greater than receipts” (CH, 2011)
2. Property Income

Household Income

1. Income from employment

2. Property Income

3. Income from household production of services for own consumption

4. Current transfers received
2. Property income

“Therefore income is defined as *receipts that arise from the ownership of assets* (return for use of assets) *provided to others for their use*. They comprise returns, usually monetary, from financial assets (interest, dividends), from non-financial assets (rent) and from royalties (return for services of patented or copyrighted material).” (CH, 2011)
2. Property income

2.1 returns from financial assets: interests

2.2 returns from financial assets: dividends

2.3 returns from non-financial assets: rents

2.4 returns for services of patented or copyrighted material: royalties
2. Property income

2.1 returns from financial assets: interests (i.e. certificates of deposit, government bonds/loans)

2.2 returns from financial assets: dividends (investment in an enterprise in which the investor does not work such as pensions in the form of dividends from voluntary private insurance schemes)

2.3 returns from non-financial assets: rents

2.4 returns for services of patented or copyrighted material: royalties (i.e. receipts from writings)
3. Income from household production of services for own consumption

“Income from household production of services for own consumption include services produced within the household for the household’s own consumption and not for the market. They include services from owner-occupied dwellings and from consumer durables owned, as well as own-produced domestic services. They are valued net of expenses that go into their production” (CH, 2011)
3. Income from household production of services for own consumption
3. Income from household production of services for own consumption

- 3.1 Imputed rents
- 3.2 Unpaid domestic services
- 3.3 Services from household consumer durables
3. Income from household production of services for own consumption

3.1 Imputed rents as net estimated value of housing services provided by owner-occupied dwellings (value of housing services less housing costs sustained by households as landlords)

3.2 Unpaid domestic services. Estimated value of own-produced domestic services such as cooking, housekeeping, minor repairs, child care (excluded from operational definition due to practical measurement issues)

3.3 Services from household consumer durables. Imputed value of services provided by washing machines, refrigerators, cars (excluded from operational definition due to practical measurement issues)
Income components

4. Current transfers received

Household Income

1. Income from employment
2. Property Income
3. Income from household production of services for own consumption
4. Current transfers received
4. Current transfers received

“Transfers are receipts for which the recipient does not provide anything to the donor in direct return for the receipts. Transfers can consist of cash (in the monetary sense), of goods, or of services and may be made between households, between households and government, or between households and charities, both within or outside the country. The main motivation is to redistribute income either by government (e.g. pensions) or privately (e.g. child support). Current transfers received directly affect the level of disposable income available and should influence the consumption of goods and services. They consist of all transfers that are not transfers of capital. In concept, all current transfers received in cash and as goods or services are regarded as income.” (CH, 2011)
Income components

4. Current transfers received

Transfers of capital: acquisition or disposal of assets when the receiving party makes no payment to the provider of the asset (infrequent and irregular such as inheritances). Capital transfers add to the stock of net worth of the recipient and reduce the stock of net worth of the donor.
4. Current transfers received

- 4.1 Social security pensions/schemes
- 4.2 Pensions and other insurance benefits
- 4.3 Social assistance benefits
- 4.4 Current transfers from non-profit institutions
Income components

4. Current transfers received

4.1 Social security pensions/schemes. Benefits and allowances generated from government sponsored social insurance schemes such as pensions, unemployment, and sickness benefits.

4.2 Pensions and other insurance benefits. Pensions and other insurance benefits from employer sponsored social insurance schemes and private funded schemes.

4.3 Social assistance benefits. From government but out of social security scheme (4.1).

4.4 Current transfers from non-profit institutions. Current transfers from non-profit institutions (i.e. charities, trade unions) in the form of regular gifts and financial support (scholarships, union strike pay, union sickness benefits).
Income aggregation

- **Hierarchical aggregation** of income components to produce **specific income measures** for different analytical purposes

- **Total income** and **Disposable Income** the key measures

- **Income from production** \((5=1+3)\) (all income from productive activities) is the sum of Income from employment (relationship between employment status and income) and Income from household production of services for own consumption

- **Primary Income** \((6=2+5)\) is the sum of Property Income \((2)\) and Income from production \((5)\)
Income aggregation

- **Total income** \((7=4+6)\) consists of Primary Income (6) + Current transfers received (4)

- **Current transfers paid** (8)
  
a. Direct taxes (net of refunds)
  
b. Compulsory fees and fines
  
c. Current inter-household transfers paid
  
d. Employee and employers’ social insurance contributions
  
e. Current transfers to non-profit institutions

- **Disposable Income** \((9=7-8)\) consists of Total income – Current Transfers paid
Income aggregation

- **Disposable Income (9)** represents the preferred measures to analyze income distribution given that Income after taxes should be more equally distributed in particular if the fiscal regime is progressive as it is in many countries.

- Generally speaking disposable income is the income available to households for both consumption and saving aims.

- If it is possible to compute **Social Transfers In Kind (STIK)** (10), 9 + 10 constitutes adjusted disposable income.
10. Social transfers in kind (STIK)

Goods and services provided by government and non-profit institutions that benefit individuals but are provided free or at subsidized prices (i.e. medical services provided for free or at subsidized prices, government provided education)

STIK is excluded from the operational definition of income due to practical measurement issues.
5. Income from production

= 

1. Income from employment (both paid and self-employment) 

+ 

3. Income from the production of household services for own consumption
6. Primary income

= 

2. Property income

+ 

5. Income from production
7. Total income

= 

4. Current transfers received

+ 

6. Primary income
Income structure and sequence

1 – INCOMES FROM EMPLOYMENT

2 – PROPERTY INCOMES

3 – INCOME FROM THE PRODUCTION OF HOUSEHOLD SERVICES FOR OWN CONSUMPTION (IMPUTED RENTS)

4 – TRANSFERS RECEIVED

5 – INCOME FROM PRODUCTION

6 – PRIMARY INCOME

7 – TOTAL INCOME

R8 – TRANSFERS PAID

R9 – DISPOSABLE INCOME

Overview of the Main Country Practices and data Sources: Survey and Administrative Data

The survey comprised two questionnaires:
- a robustness assessment (33+15 countries)
- data item inventory (52 countries)

Some results (not for 52 countries) displayed in the following tables and concerning how much the different components of income are covered by the countries and what are the main sources (survey, panel survey, administrative data)
Sources of income

EMPLOYEE INCOME
Direct wages and salaries for normal time worked
Bonuses
Overtime
Directors' fees
Commissions and tips
Severance and termination pay
Remuneration for time not worked
Free or subsidised goods and services from employer
Employers' social insurance contributions

INCOME FROM SELF-EMPLOYMENT
Profit or loss from own unincorporated enterprise
Goods produced for own consumption
Goods and services produced for barter

PROPERTY INCOME
Interest, dividends, profit from capital invested in unincorp. enterprises
Rental from produced assets (net of expenses)
Rent from unproduced assets (net of expenses)
Royalties

NET VALUE OF OWN PRODUCTION OF SERVICES FOR OWN CONSUMPTION
Services from owner-occupied dwelling
Home produced services
Services from other consumer durables

TRANSFERS
Government cash transfers
Alimony, child support, parental support etc. from other households
Cash support, scholarships, strike pay etc. from NPISH
Employer sponsored pensions schemes
Employer provided insurance benefits
Regular receipts from inheritances and trusts from other households
Government social transfers in kind (goods)
Government social transfers in kind (services)
Free or subsidised goods from other households
Free or subsidised goods from NPISH
Free or subsidised services from other households
Free or subsidised services from NPISH

Deductions for disposable income

TAXES AND COMPULSORY TRANSFERS
Direct taxes on income less refunds
Employee social security contributions
Employer social insurance contribution
Compulsory fees

INTER-HOUSEHOLD FAMILY SUPPORT PAID
Alimony, child support and other compulsory payments
### Table 1 Main source of Information

<table>
<thead>
<tr>
<th>Country</th>
<th>Name of the dataset</th>
<th>Year commenced</th>
<th>Most recent available</th>
<th>Frequency of availability</th>
<th>Nature of data sources</th>
<th>Other topics beyond household income covered</th>
<th>Time lag between collection and availability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Armenia</td>
<td>Armenian Households Integrated Living Conditions Survey</td>
<td>2001</td>
<td>2009</td>
<td>Annually</td>
<td>Cross sectional survey</td>
<td>Expenditure, material deprivation, housing, occupation and other</td>
<td>Less than 1 year</td>
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<tr>
<td>Australia</td>
<td>Survey of Income and Housing</td>
<td>1995</td>
<td>2008</td>
<td>Every 2 years</td>
<td>Cross sectional survey</td>
<td>Expenditure, wealth, material deprivation</td>
<td>1 to 2 years</td>
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<td>Austria</td>
<td>EU Statistics on Income and Living Conditions</td>
<td>2003</td>
<td>2009</td>
<td>Annually</td>
<td>Cross sectional and panel survey</td>
<td>Material deprivation, housing</td>
<td>1 to 2 years</td>
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<td>Azerbaijan</td>
<td>Household Budget Survey Results</td>
<td>2001</td>
<td>2008</td>
<td>Annually</td>
<td>Cross sectional and panel survey</td>
<td>Expenditure, wealth, material deprivation</td>
<td>Less than 1 year</td>
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<td>Belarus</td>
<td>Household Income and Expenditure Survey</td>
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<td>2009</td>
<td>Quarterly</td>
<td>Cross sectional survey</td>
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<td>EU Statistics on Income and Living Conditions</td>
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<td>2009</td>
<td>Annually</td>
<td>Cross sectional and panel survey</td>
<td>Wealth, material deprivation, housing</td>
<td>1 to 2 years</td>
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<td>2006</td>
<td>2009</td>
<td>Annually</td>
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<td>Material deprivation, housing</td>
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<td>Canada</td>
<td>Survey of Labour and Income Dynamics</td>
<td>1993</td>
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<td>Annually</td>
<td>Combination of cross sectional and panel survey with administrative data</td>
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<td>CASEN</td>
<td>1990</td>
<td>2006</td>
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<td>China’s Urban Household Survey</td>
<td>1992</td>
<td>2009</td>
<td>Annually</td>
<td>Cross sectional survey</td>
<td>Expenditure, wealth, housing</td>
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<td>2009</td>
<td>Annually</td>
<td>Cross sectional survey</td>
<td>Expenditure, housing, holdings of durable goods</td>
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<td>Familiekommet (Family Income Survey)</td>
<td>1978</td>
<td>2007</td>
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<td>Administrative data</td>
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<td>Combination of cross sectional and panel survey with administrative data</td>
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<tr>
<td>France</td>
<td>Fiscal and social income survey (ERFS)</td>
<td>1970</td>
<td>2008</td>
<td>Annually</td>
<td>Combination of administrative data and survey</td>
<td>Employment</td>
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<td>German Socio Economic Panel (SOEP)</td>
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<td>Annually</td>
<td>Panel survey</td>
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<td>Israel</td>
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<td>1 to 2 years</td>
</tr>
<tr>
<td>Japan</td>
<td>Comprehensive Survey of Living Conditions</td>
<td>1986</td>
<td>2009</td>
<td>Annually</td>
<td>Cross sectional survey</td>
<td>Wealth, housing, situation of the household, consciousness for the life, monthly total consumption</td>
<td>1 to 2 years</td>
</tr>
<tr>
<td>Korea</td>
<td>Household Income Expenditure Survey</td>
<td>1963</td>
<td>2009</td>
<td>Every month or quarter</td>
<td>Cross sectional survey</td>
<td>Expenditure</td>
<td>Less than 1 year</td>
</tr>
<tr>
<td>Kyrgyzstan</td>
<td>Integrated sample survey of household budgets and employment</td>
<td>2001</td>
<td>2009</td>
<td>Quarterly</td>
<td>Cross sectional survey</td>
<td>Expenditure, housing</td>
<td>Less than 1 year</td>
</tr>
<tr>
<td>Latvia</td>
<td>EU Statistics on Income and Living Conditions</td>
<td>2005</td>
<td>2009</td>
<td>Annually</td>
<td>Combination of cross sectional and panel survey with administrative data</td>
<td>Wealth, material deprivation, housing</td>
<td>1 to 2 years</td>
</tr>
<tr>
<td>Lithuania</td>
<td>EU Statistics on Income and Living Conditions</td>
<td>2005</td>
<td>2009</td>
<td>Annually</td>
<td>Combination of cross sectional and panel survey with administrative data</td>
<td>Material deprivation, housing</td>
<td>1 to 2 years</td>
</tr>
<tr>
<td>Luxembourg (a)</td>
<td>EU Statistics on Income and Living Conditions</td>
<td>2003</td>
<td>2009</td>
<td>Annually</td>
<td>Cross sectional and panel survey</td>
<td>Material deprivation, housing</td>
<td>1 to 2 years</td>
</tr>
<tr>
<td>Malta (a)</td>
<td>EU Statistics on Income and Living Conditions</td>
<td>2005</td>
<td>2009</td>
<td>Annually</td>
<td>Combination of cross sectional and panel survey with administrative data</td>
<td>Material deprivation, housing</td>
<td>1 to 2 years</td>
</tr>
<tr>
<td>Mexico</td>
<td>ENIGH</td>
<td>1984</td>
<td>2008</td>
<td>Every 2 years</td>
<td>Cross sectional survey</td>
<td>Expenditure, material deprivation</td>
<td>1 to 2 years</td>
</tr>
</tbody>
</table>

NA not available  - not applicable (a) Data supplied by Eurostat
Overview of the Main Country Practices and data Sources: Survey and Administrative Data

- Long standing tradition in the use of administrative data for statistical purposes in Denmark, Finland, Norway and Sweden
- First registers (i.e., systematic administrative data collections) date back to sixties
- ……although they started to be disseminated as official output by NSIs only from middle seventies, after several tests (need to reconcile concepts, definitions and classifications to statistical standards).
- E.G: the Norwegian employment register is an official output from 2001, although admin data collected from 1967)
• **A legal act** provides a key foundation for the use of administrative data sources for statistical purposes.
• Administrations are obliged to provide individual micro-data to the NSI (*one-way traffic*).
• NSIs can **link** individual micro data from different sources and use them for statistics or for research purposes only.

• The common legal framework had a sort of **“convergence effect”** on concepts and definitions from different sources and that improved data quality in time.
## Overview of the Main Country Practices and data Sources: Survey and Administrative Data

### Registers in Scandinavian countries. Population by country and type of register by country and year

*(population in millions)*

<table>
<thead>
<tr>
<th>Type of register:</th>
<th>Denmark</th>
<th>Finland</th>
<th>Norway</th>
<th>Sweden</th>
</tr>
</thead>
<tbody>
<tr>
<td>Household¹</td>
<td>1968</td>
<td>1970</td>
<td>2001</td>
<td>2011</td>
</tr>
<tr>
<td>Business Register</td>
<td>1975</td>
<td>1975</td>
<td>1965</td>
<td>1963</td>
</tr>
</tbody>
</table>

### Population by country and year

<table>
<thead>
<tr>
<th>Country</th>
<th>Population (2016)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Denmark</td>
<td>5,707,251</td>
</tr>
<tr>
<td>Finland</td>
<td>5,503,297</td>
</tr>
<tr>
<td>Norway</td>
<td>5,258,317</td>
</tr>
<tr>
<td>Sweden</td>
<td>9,995,153</td>
</tr>
</tbody>
</table>
Overview of the Main Country Practices and data Sources: Survey and Administrative Data

• Administrative data is a total substitute of survey data only in population, education and housing registers (in Norway income register, too)

In these cases, survey data are used exclusively for microdata quality checks

• In the rest of registers integration between admin. and survey data is the current best practice

• In general both sources can be used for:
  - Calibration in model estimates (e.g.: FI uses LFS data)
  - Micro imputations of missing data in one source
  - Correction of measurement errors in surveys
  - Creation of derived variable if necessary
Overview of the Main Country Practices and data Sources: Survey and Administrative Data

**UNECE**
(4 main aggregates)

- INCOME FROM PRODUCTION
- PRIMARY INCOME
- TOTAL INCOME
- DISPOSABLE INCOME

**Dissemination breakdown**
(25-33 variables)

**Intermediate breakdown**
(80-130 variables)

**Data sources**
(330-550)

- National breakdown
- Variables for internal/research use (*minimum set*)

Dissemination breakdown (25-33 variables)

*UNECE (4 main aggregates)*

Survey and Administrative Data

Intermediate breakdown (80-130 variables)

Variables for internal/research use (*minimum set*)

Data sources (330-550)
Income and Price Differences
Some analytical purposes are focused on the comparison of income not only between different groups of household but also for the same group of household in different points in time (temporal comparison) and for the same group of households between different geographical areas (spatial comparison).

Carrying out correctly temporal comparison implies taking into account temporal price changes (inflation).

Carrying out correctly spatial comparison implies taking into territorial differences of prices (spatial price indices).

In both cases (temporal and spatial comparison) the is comparing the real income level in terms purchasing power parities.
Adjusting for price differences is crucial when:

• The temporal comparison is carried out between periods that are very distant

• In periods of high inflation

• The level of prices between different geographical areas are relevant (Italian case)
Adjusting for price changes over time - issues

The first issue is the choice of an appropriate index that is coherent with the income definition and the same population of households

- Adjusting disposable income means using a consumer price index that captures items that can be purchased by disposable income (i.e. excluding local/government property taxes)

- Adjusting income that includes imputed rents implies using a consumer price index that takes into account the temporal evolution of imputed rents
Adjusting for price changes over time - issues

• The consumer price index (CPI), or one of its sub-indices, is most frequently used to adjust for price changes over time.

• However, CPIs differ in their underlying income and consumption definitions. In some countries the CPI is defined to include only monetary consumption expenditures (as it is the case of European Harmonized Index of Consumer Prices, HICP), and may not include imputed rents for owner-occupiers.

• Frequent differences in coverage and treatment of goods or services received as social transfers in kind, or from own account production (in general excluded from the CPIs).
Adjusting for price changes over time - issues

- **Population and geographical coverage.**

Income data referred to resident households (ideal index for deflation should refer to the same population).

The coverage of households in the CPI varies. Weights of HICP (for example) are based on the so-called domestic concept, which includes consumption expenditure in the country, whether made by resident or foreign households (it implies that in countries with large cross-border shopping or substantial tourism this may mean that the overall CPI does not properly reflect the price changes that are experienced by resident households).
Adjusting for price changes over time - issues

- **Population and geographical coverage.**

It is preferable adopting a CPI whose consumption concept makes reference to resident households

Italian case where together with HICP and CPI (Italian acronym is NIC) for the whole nation (both based on the domestic concept) a third CPI is produced that is the white and blue collar index (Italian acronym is FOI) whose weights are based on the consumption of the resident households whose reference person is a non agricultural employee
Income and Price Differences

Italian NIC and FOI:
Annual indices and rates of change. 2011 - 2017

NIC index
FOI index
NIC annual rate of change
FOI annual rate of change
Adjusting for price changes over time - issues

• **Appropriate price concept**

CPIs should be based on prices actually paid by households (purchaser prices, that includes indirect taxes and are net of subsidies)

• **Pure price index or cost of living index?**

In HICP (and also in Italian national CPIs) the basket of goods and services to monitor inflation and their weights are kept constant for at least one year (Laspeyres type index). It implies a risk of overestimates of price changes with respect to a Cost of Living Index (COLI) that should take into account the adjustments in quantities carried out by households to deal with increasing prices)
Adjusting for price changes over time - issues

• Indices for specific groups of populations

In general CPIs weights consider data on expenditures (PxQ). It implies that they are influenced by the most affluent groups of households whose expenditure are wider than the expenditures of the poorest households.

“The consumption pattern of high income households, which often consume more, will be attributed a larger weight than the consumption pattern of low income households. While this is appropriate for measuring overall price changes it may not suit income studies that wish to attribute equal weights to all households” (CH, 2011)
Income and Price Differences

Italian HICP by population groups

- HICP of the fifth of households with the lowest expenditures
- HICP of the fifth of households with the highest expenditures
Adjusting for price changes over time - issues

“To consider the appropriateness of the CPI in terms of coverage of goods and services, population and geographical coverage, and whether the index is likely to introduce any bias into the income statistics, analysts should consult with the compilers of the CPI or any other price index that is used. The index compilers will also be able to provide more information on the availability of price indices for types of households or by region” (CH, 2011)
Adjusting for spatial price differences – Italian evidences

**Food Products (Italy=100)**

**Non-Food Products (Italy=100)**
Adjusting for spatial price differences – Italian evidences

• Comparison exercise carried out using scanner data coming from retail trade modern distribution for grocery products

• Price levels in Southern regions are below the national average both for Food and Non-Food products, with the exception of Abruzzo (101.90 and 101.33, respectively), Molise (102.90 and 101.24) and Sardinia (101.93 and 101.57)

• On average, Tuscany proved to be the less expensive region for both product aggregates (96.24 and 95.17)
Income and Price Differences

Results: Regional Spatial Price Indexes

Food Products (Italy=100)

Non-Food Products (Italy=100)
Scandinavian countries’ experience (cont’d)

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The Income register structure in DE, FI, NO and SE

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