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EU-SILC and households sector account

EUROPEAN COMMISSION

Statistical Office of the European Communities

COMPARING HOUSEHOLD SECTOR ACCOUNTS WITH EUROPEAN UNION STATISTICS ON INCOME AND LIVING CONDITION

Progress in the a-minima exercise
(December 2011 version)

WG Members are asked to comment on:

- the EU-SILC variables selected for the comparison
- first results

I. INTRODUCTION

I.1. Background

The 'Stiglitz-Sen-Fitoussi' Commission on the Measurement of Economic Performance and Social Progress recommended complementing average measures of income, consumption and wealth with indicators that reflect their distribution into groups of population (rec. No 4 "Give more prominence to the distribution of income, consumption and wealth")[1].

Eurostat set up the task force Households perspective and distributional aspects of income, consumption and wealth (TF-HP) in charge, among other tasks, of analysing how the European statistical system should meet this challenge (i.e. the production of disparities indicators for income, consumption and wealth matched with national accounts data by crossing household NA with social statistics).

In its report finalized in May 2011, TF-HP expressed special recommendations on the future steps for producing these indicators by disaggregating the Households Sector Account with household income and expenditure (and wealth) micro information. Among these recommendations, TF-HP gave the mandate to a specific forum to deal with the methodological aspects linked to the production of these indicators.

To coordinate the efforts in the European Statistical System (ESS), this TF-HP recommendation was related to a parallel initiative launched by the OECD. Consequently a joint OECD-Eurostat expert group on "Disparities in a National Accounts framework" (EG-DNA) was set-up at the beginning of 2011 to assess the feasibility of producing such indicators by the end of 2012.

25 countries volunteered to participate to the EG[2], plus the European Central Bank (ECB) and the Luxembourg Income Study (LIS).

Whereas the members of the EG-DNA should perform the production of disparities indicators by using all the micro information available in each country, Eurostat agreed on performing a centralised exercise of matching the NA household account with the available micro ESS information for all EU27 members (plus EFTA); i.e. mainly the following social statistics data sets: European Union Statistics on Income and Living Conditions (EU-SILC) and Household Budget Survey (HBS). These two different exercises will be called respectively "country specific" exercise and the "a-minima" exercise. The latter exercise puts more emphasis on the comparability of the data across countries whereas the "country specific" studies take advantage of the heterogeneous but richer datasets available at the national level.

This document, that relates to the a-minima exercise, first describes the scheme followed to compare the micro and macro data sets estimates (§I.2). It then enters into details with the analysis of the main conceptual and methodological differences between both data sets with respect to income statistics, as the "a minima" exercise will firstly work with SILC data and then with HBS data (§I.3).

Preliminary results of the comparison of EU-SILC data with Households Sector Accounts (HSA) data for 26 out of the 31 countries members of EU27 and EFTA will then be presented in part II. Conclusions are drawn in the last part.

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[1] The report is downloadable at the following link:
http://www.stiglitz-sen-fitoussi.fr/documents/rapport_anglais.pdf.
[2] AT, DK, FR, ES, DE, IT, NL, PT, PL, SE, SI, UK, CH, AU, CA, CL, IN, IL, JP, KR, MX, NZ, TR and US. FI asked to be kept informed.

I.2. Performing the comparison of EU-SILC and NA data

The a-minima exercise aims at <u>exploring consistencies and measuring discrepancies</u> between National Accounts and EU-SILC/HBS data sets from both a conceptual and a practical point of view.

To detect these coherences and incoherencies, Eurostat has realised a both conceptual and practical comparison of the micro and macro data sets.

The comparison has been performed in the following steps:

1. analysis of the main conceptual and methodological differences between the two data sets;

2. choice of a specific sets of aggregates in National Accounts (from the allocation of primary income to the secondary distribution income accounts)

3. identification of the comparable EU-SILC variables for the chosen NA aggregates on the basis of their own definitions[3];

4. grossing up of EU-SILC data to the population targeted, for the latest year available, related to income to the total of population using the weights available in the Eurostat database for the year chosen;

5. comparison of EU-SILC variables, after grossing up to population totals, and the corresponding NA figures and calculation of a resulting rough percentage ratio ('coverage') for each aggregate.

Then the results of the comparison, i.e. the coverage rates, together with the basic data used for the comparison and the SAS code for grossing-up EU-SILC data, have been communicated to different micro and macro fora to collect comments and feedback.

The set of coverage rates has been recalculated by using supplementary information coming from the EU-SILC data and metadata, especially the intermediate quality reports; and, from clarifications supplied by national experts from both the macro and micro fields. This general and/or country specific information has allowed Eurostat detecting more practical reasons, besides the conceptual ones, for discrepancies between both data sets.

To calculate the coverage rates, the discrepancies detected have been tackled with the aim of reconciling the content of micro and macro data sources for income as far as possible. Consequently closeness/approaching adjustments have been applied to the aggregates coming from both data sets.

For example from the macro point of view, the available the items on Total interest before FISIM[4] allocation have been used to deal with the comparison for property income in the use and resource side (§II.3 and §II.7). The other way round, from the micro point of view, the income concepts from EU-SILC have been complemented or/and taken net by some aggregates to increase its coherence with the NA income concept.

I.3. NA and EU-SILC data: general conceptual and methodological differences

Before crossing national accounts with the social statistics, conceptual and methodological differences between the two sets of estimates should be investigated. We should distinguish between general differences that impact on almost all the aggregates and others that are aggregate specific. This paragraph presents a list of general differences between the two macro and micro data sources. One of the first results of this analysis is, for example, the

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[3] EU-SILC definitions are mainly in Commission Regulation (EC) No 1980/2003 of 21 October 2003.
[4] Financial Intermediation Service Indirectly Measured.

identification of a suitable year for NA data for the comparison. Aggregates specific differences are explored instead in part II.

Methodological differences

EU-SILC is a sample survey for which information is extracted either from registers or collected from interviews. NA data are the results of merging and complementing data coming from different data sources at both the macro and micro level. In EU-SILC imputations are performed to add some variables or correct the data surveyed. In NA corrections are adopted to reach internal consistency and exhaustiveness.

Reference population and scope

The reference population of EU-SILC and NA coincides for the part that in EU-SILC is called private households[5]. Actually EU-SILC surveyed the current members of all private households residing in the territory of the Members State at the time of data collection.

Persons living in collective households and in institutions[6] are generally excluded from the target population whereas they are included in the NA. An estimate of the percentage of population excluded for most part of the EU27 and EFTA countries, based on the 2001 census, is reported in Table 1.

Table 1: Population living in institutional and collective accommodations on total population (%, 2001)

Country (%)	ES	CY	BG	CZ	IT	LT	SI	NO	DE	LV	PT	AT	PL	EE	DK	BG	NL	RO	IE	SK	LU	UK	FI	FR	HU	LI	EL	CH
	0.6	0.6	0.7	0.7	0.7	0.7	0.7	0.8	1.0	1.0	1.0	1.1	1.1	1.2	1.3	1.4	1.4	1.5	1.6	1.6	1.7	1.8	1.9	2.2	2.5	3.2	3.4	4.1

Source: Eurostat (cens_nhtype)

Moreover small parts of the national territory amounting to no more than 2% of the national population and the national territories may be excluded from EU-SILC (e.g. in FR the overseas territories).

Statistical units and detail availability

EU-SILC data collection refers to personal and household information[7], but as in EU-SILC only household members aged 16 and more are interviewed, the personal information is available only for people aged more than 15 years.

At the gross income level (EU-SILC concept), only the variable "income received by people aged under 16 years" is collected by EU-SILC.

As NA does not make this age distinction for its variables, it means that some hypotheses are needed to deal with income for people less than 16 years old.

Income reference period

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[5] From Regulation No 1177/2003 of the European Parliament and of the Council of 16 June 2003: "'private household': means a person living alone or a group of people who live together in the same private dwelling and share expenditures, including the joint provision of the essentials of living".

[6] From Commission Regulation no 1982/2003 of 21 October 2003:
"Collective household: refers to a non-institutional collective dwelling such as a boarding house, dormitory in an educational establishment or other living quarters shared by more than five persons without sharing household expenses. Also included are persons living as lodgers in households with more than five lodgers".
"Institution: refers to old people's homes, healthcare institutions, religious institutions (convents, monasteries), correctional and penal institutions. Basically, institutions are distinguished from collective households by virtue of the fact that, in the former, the resident persons have no individual responsibility for their housekeeping. In some cases, old people's homes can be considered as collective households on the basis of that rule."

[7] By convention the personal EU-SILC variables start with P (like PY010G) and the household items start with H (like HY110G). Consequently EU-SILC aggregates used for the comparison starting with P does not include people less 16 years old by definition.

For most countries the income reference period is the year previous to the data collection[8]. For example EU-SILC 2009 data collection for Italy refers to income accrued in 2008. However, at the household level the income information refers to the household composition by the year of the survey.

At the time this comparison exercise has been performed, EU-SILC 2009 data collection was available and year 2008 was the income reference period for the Household National accounts.

Income concept

EU-SILC data is a relatively new data collection. It was introduced in 2003 by the so-called "framework regulation" No 1177/2003 of the European Parliament and of the Council of 16 June 2003. The EU-SILC content and concepts may change at each new round of data collection reason why the paper distinguishes the round chosen for the comparison (2009 EU-SILC data collection) from subsequent rounds.

The variables which are not included, by definition, in the EU-SILC income concept (even if they are available in the EU-SILC data base) are the following:

- Imputed rents (gross operating surplus for NA)

- Non-cash employee income other than company cars (compensation of employees for NA)

- Value of good produced for own consumption (mixed income for NA)

- Interest repayments on mortgage (property income paid in NA)

Conversely, for the year chosen the income concept includes among social benefits the housing allowances which should be recorded in social transfers in kind according to SNA. However, the a-minima exercise has shown that this SNA rule is not followed in practice by a certain number of countries.

In the successive 2010 data collection, the EU-SILC income concept was, among other changes, enriched with a variable called private pensions. As this variable is related to one of the country specific disparities met during the a-minima exercise, this subject is further detailed in paragraph II.4. In the same paragraph the topic housing allowances (already part of the EU-SILC concept) is detailed too.

Other differences

Seven of the countries analysed in the a-minima (Denmark, Germany, Ireland, Austria, Sweden, United Kingdom and Switzerland) disseminated National Accounts for Households mixed with Non Profit Institutions Serving Households (NPISH) mainly because of data sources lacking for NPISH.

II. FIRST RESULTS

This part presents the first results for the comparison between EU-SILC NA aggregates from the allocation of primary accounts to the secondary distribution of income account. These results come from a conceptual and practical analysis.

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[8] IE and UK are exceptions. In Ireland the income reference period is the last twelve months. In the United Kingdom the current income is annualised and aims to refer the current calendar year, i.e. weekly estimates are multiplied by 52, monthly by 12.

The conceptual analysis is performed by comparing definitions and contents of the two data sources by aggregate to determine specific similarities/differences. The immediate consequence is a general comparison pattern between the two data sources.

The practical analysis is carried out throughout a numerical comparison of two data sources based on the general pattern resulting from the conceptual analysis above.

To perform the practical analysis coverage rates are built as percentage of EU-SILC data value on NA estimates, with the following formula for each aggregate x and country t:

1)
$$Coverage_{x,t} = \frac{EU-SILC_{x,t\_weighted\_total}}{NA_{x,t.}} * 100$$

In the a-minima exercise these coverage rates are calculated for a given income year (2008) for 26 countries out of the 31 EU and EFTA members and for the EU27 as a whole. The European coverage rates are obtained directly by working with NA and EU-SILC data at the EU27 level.

More precisely coverage rates are estimated for 24 members of the EU27 (BE, CZ, DK, DE, EE, IE, EL, ES, FR, IT, CY, LV, LT, LU, HU, NL, AT, PL, PT, SI, SK, FI, SE, UK) and for NO and CH.

This experiment is not applicable to the remaining 5 countries because:

1. though present in the EU-SILC data base, NA data for BG, MT, RO, IS are not available at all or insufficient for the comparison scope;

2. LI does not produce both data sets for the income year chosen.

To calculate the coverage rates for the 7 countries which present only households jointly with NPISH[9] data, the available NA data are netted by NPISH following an experimental procedure.

The EU27 average for the EU-SILC coverage on NA data has been calculated on the basis of the European NA aggregates for the joint household and NPISH sectors produced by Eurostat.

Cleaned by the NPISH part on the basis of the above estimation for NPISH and the available country data, the European aggregates are compared to the EU-SILC EU27 totals following the general comparison pattern produced by the theoretical analysis.

Finally, except for the balancing item disposable income, it must be specified that the comparison has been based on NA figures expressed in gross terms i.e. without deducting the consumption of fixed capital.

II.1.   Compensation of Employees

Table 1 lists the items used for this comparison and the corresponding definitions in the two datasets. For employees' income, equation (1) becomes

2)
$$Coverage_{x,t} = \frac{(PY010G + PY020G + PY030G + HY110G)_{x,t\_weighted\_total}}{D1_{x,t.}} * 100$$

For year 2008 the EU27 average of the micro coverage on NA data for "Compensation of employees" is 87.5% (Chart 1). 15 countries show coverage higher than the EU average, with the highest values for LU, CY and NL (more than 100%).
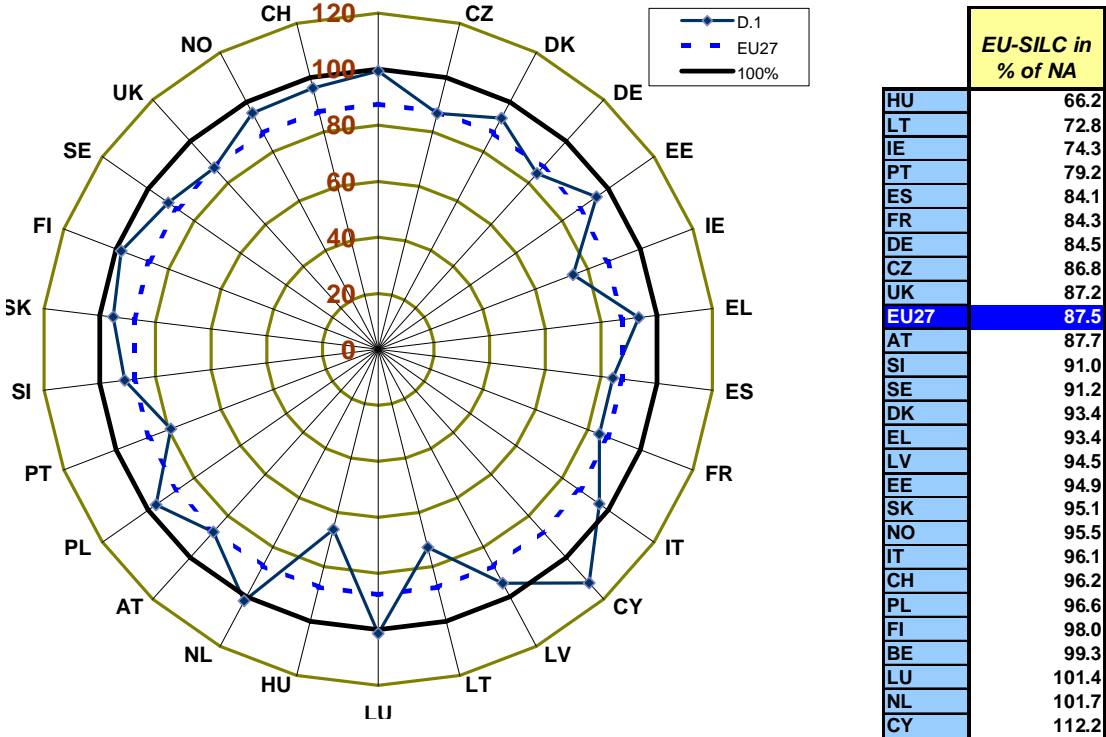
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[9] With two exceptions: Austria and Switzerland present separately some items for S14 and S15.

Most probably the sample variability for relative small size of EU-SILC sample can justify coverage higher than 112% for CY.

Table 2: Compensation of employees

National Accounts (NA)	EU-SILC
Compensation of employees (D.1/RES) "total remuneration, in cash or in kind, payable by an employer to an employee in return for work done by the latter during the accounting period" (ESA 1995, §4.02) Components: (+) wages and salaries (D.11/RES) (in cash and in kind) (+) employers' social contributions (D.12/RES) (= D.6111/USE + **D.612/USE**, later deducted, see social contributions)	Employee income: "total remuneration, in cash on in kind, payable by an employer to an employee in return for work done by the latter during the income reference period" Components: (+) gross cash or near-cash employee income (PY010G) (+) gross non-cash employee income (PY020G) (+) employers' social insurance contributions (PY030G) (EU-SILC Reg., Annex I, Art. 2.1) + Income received by people aged under 16 (HY110G)
Remarks: Employers' social contributions (D.12/RES) are included in employee income, but the same amount is subtracted as part of social contributions (D.6111/USE + **D.612**/USE),	Remarks: 1. HY110G is included by some countries in the social benefits comparison 2. Imputed social contribution are not in the micro source

Chart 1: Results of the comparison for Compensation of employees (2008)

	EU-SILC in % of NA
HU	66.2
LT	72.8
IE	74.3
PT	79.2
ES	84.1
FR	84.3
DE	84.5
CZ	86.8
UK	87.2
EU27	87.5
AT	87.7
SI	91.0
SE	91.2
DK	93.4
EL	93.4
LV	94.5
EE	94.9
SK	95.1
NO	95.5
IT	96.1
CH	96.2
PL	96.6
FI	98.0
BE	99.3
LU	101.4
NL	101.7
CY	112.2

II.2. Gross operating surplus and mixed income

In Table 3 the definitions of gross operating surplus (B2G), gross mixed income (B3G), property income (D.4r) are compared to the information available in the EU-SILC data base.

For gross operating surplus and mixed income equation (1) becomes:

3) $$Coverage_{x,t} = \frac{(PY050G + PY070G + HY030G + p * HY040G)_{x,t\_weighted\_total}}{(B2 + B3)_{x,t.}} * 100$$

Where p is a coefficient that represents HY040G part related to dwellings.

Table 3 Gross Operating surplus and mixed income

National Accounts (NA)	EU-SILC
Operating surplus and mixed income (B.2 + B.3)	Self-employment income
Mixed income: "element corresponding to remuneration for work carried out by the owner or members of his family which cannot be distinguished from his profit as entrepreneur" (ESA 1995, §8.19)	"Income received, during the income reference period, by individuals, for themselves or in respect of their family members, as a result of their current or former involvement in self-employment jobs, i.e. jobs where the remuneration is directly dependent upon the profits (or the potential of profits) derived from the goods and services produced (where own consumption is considered to be part of profits). The self-employed person makes the operational decisions affecting the enterprise, or delegates such decisions while retaining responsibility for the welfare of the enterprise. (In this context, 'enterprise' includes one-person operations.) The remuneration of hobbies shall be regarded as self-employment."
Operating surplus: "income which the units obtain from their own use of their production facilities" (ESA 1995, §8.18); includes own-account production of accommodation services by owner-occupier households (ESA 1995, §8.20).	
Components:	Components:
(+) market output (P.11) at basic price	(+) market output
(+) output produced for own final use (P.12)	(+) market value of goods and services bought for the unincorporated enterprise but consumed by the entrepreneur and his/her household members.
(+) other non-market output (i.e. output provided for free or almost for free) (P.13)	**(+) property income received in connection with financial and other assets belonging to the enterprise**
(–) intermediate consumption (P.2)	(–) intermediate consumption
(–) compensation of employees paid (D.1/USE)	(–) compensation of employees
(–) other taxes on production paid (D.29/USE)	(–) taxes on production and import taxes
(+) other subsidies on production (–D.39/USE)	**(–) interest paid on business loans**
	(–) rents paid on land and other non-produced tangible assets rented by the enterprise
	(–) consumption of fixed capital
	(+) subsidies
Remarks:	*(=) gross cash profits or losses from self-employment (including royalties) (PY050G)*
• Goods and services produced and consumed within the same accounting period and within the same local kind-of-activity unit are not recorded as part of the output (ESA 1995, §3.14).	(+) value of goods produced for own consumption (PY070G)
	(+) a certain percentage of Income from rental of a property or land' (HY040G))*
	(EU-SILC Reg., Annex I, Art. 2.2).
• Non-market output provided to others is valued in basic prices.	(+) Imputed rent (HY030G)
• Imputed rents included in NA refer only to dwellings owned by household sector.	"the value that shall be imputed for households that do not report paying full rent, either because they are owner-occupiers or they live in accommodation rented at a lower price than the market price, or because the accommodation is provided rent free"; only for dwellings (and associated buildings, such as garage) used as main residence by the households; paid for the "due right to use an unfurnished dwelling (...) excluding charges for heating, water, electricity, etc." (EU-SILC Reg., Annex I, Art. 2.3)
• P2 is adjusted for FISIM	*choice of the percentage based on the answers received by EU-SILC and EGDNA delegates

Note: in bold the main differences between EU-SILC and NA

The results of the comparison of NA and EU-SILC for operating surplus plus mixed income data are reported in Chart 2. The European average is equal to 65.5% and, therefore, lowers than in D1. Actually the across country variability of coverage rate is very high for this aggregate. SK and DE[10] present the minimum value below the 40%, whereas DK, CY, NO show values greater than 110%. The comparison for CH signals some problems (more than 160% of EU-SILC coverage for NA).

Two kinds of problems affect the collection of this information on a micro basis:

1. the difficulty of including in the sample the highest incomes, (it results in underestimation of self employed income)

2. without a set of accounts, the collection of these kind of data on the basis of a self declaration (no distinction of the different forms of income, or problems in estimating consumption of fixed capitals, etc..). For a certain number of countries this self declaration is based on estimation made by the interviewed people on the amount drawn out from the business for personal use (e.g. ES, AT).

In addition how Table 3 shows, strong content differences between the two sources characterise this aggregate.

For gross operating surplus and mixed income the EU-SILC proxy includes:

- property income receive in connection with financial and other assets belonging to the enterprise (D.422 in NA)

- the deduction of part of the business expenditure like interest paid on business loans and consumption of fixed capital already netted by the EU-SILC aggregates;

- a different content of imputed rents. In NA the aggregate is usually calculated on the stocks of dwellings that belong to households. Instead in the EU-SILC this aggregate can refer to dwellings owned by a sector other than the households sector. For example, in the case of households living in a dwelling owned by a cooperative that rents the house for a price lower than in the market (e.g. in SE). On the other hand only principal residence are included in SILC whereas NA cover also holidays homes;

- no adjustment for financial intermediate services indirectly measured (FISIM), for instance when a producers has a mortgage related to his business.

To progress in the reconciliation of the two data sources the following closeness adjustments should be applied to the NA data:

1. removal of consumption of fixed capital

2. removal of the FISIM adjustments;

3. inclusion in the comparison of B2+B3 the "withdrawals from the income of quasi corporation (D.422)".

Regarding the first adjustment, the EU-SILC depreciation should not cover in theory the depreciation of owner-occupied dwellings which is the major part of consumption of fixed

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[10] The very poor coverage for DE for this aggregate and for property income is partially due to the fact that the EU-SILC sample is a subset of the micro census stratified sample (1% of population). The micro census respondents are asked for the availability to the EU-SILC interview. If they volunteer they are included in the sample. The practical experience has shown that high income people hardly volunteer to enter in the EU-SILC sample.

capital (K1) for households in some countries[11]. The a-minima exercise exploits this information only at the end of experiment for the disposable income. However this topic needs further investigation

No information is available at the moment for the second adjustment.

Chart 2: Results of the comparison for gross operating surplus plus gross mixed income (2008)

EU-SILC in % of NA	
SK	32.2
DE	39.2
PL	50.6
CZ	52.9
LV	53.5
ES	56.4
NL	58.6
SI	59.7
PT	64.8
EU27	65.5
AT	68.3
EL	72.4
UK	72.6
LU	75.4
IT	76.2
FR	76.5
FI	83.2
BE	83.8
HU	84.6
IE	89.2
EE	90.7
SE	99.0
LT	99.2
DK	110.6
CY	114.9
NO	118.6
CH	160.4
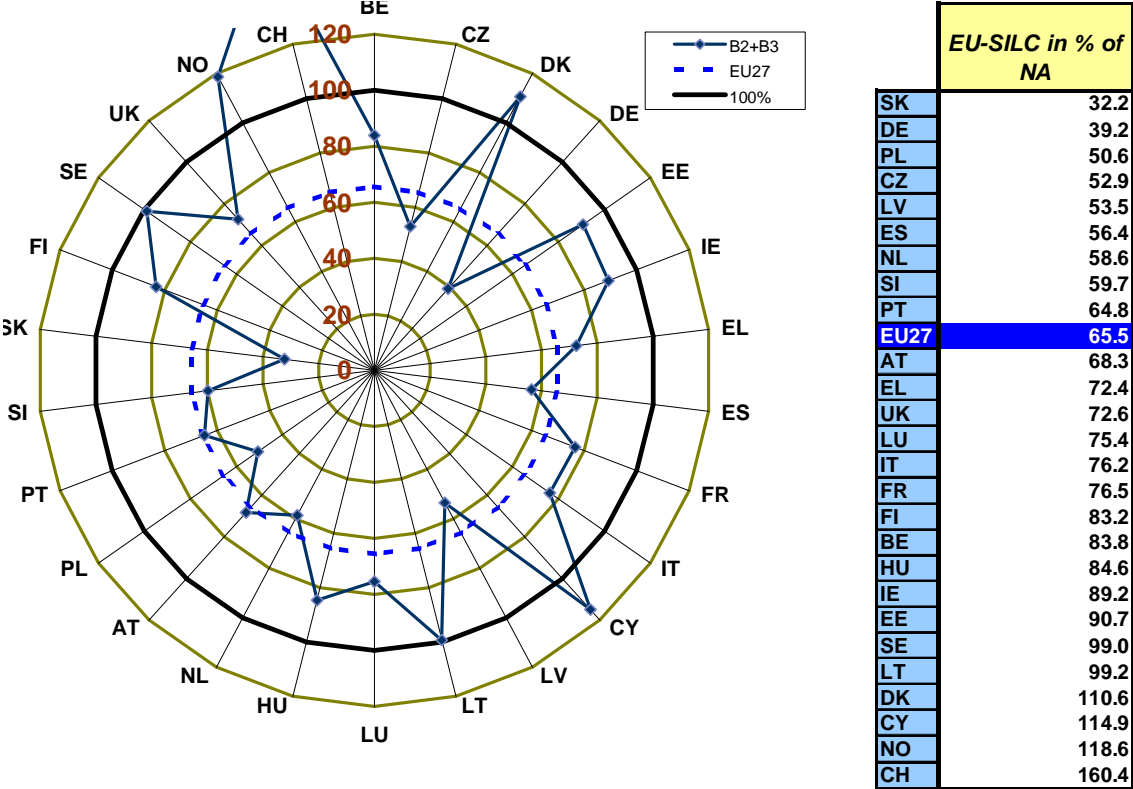
NB. IT NA data for B2+B3 include D422 and D423

If we apply the third adjustment, equation (3) would become:

$$Coverage_{x,t} = \frac{(\text{PY050G} + \text{PY070G} + \text{HY030G} + p*\text{HY040G})_{x,t\_weighted\_total}}{(B2_{no\_FISIM\_adj} + B3_{no\_FISIM\_adj} + D422)_{x,t.}} * 100$$

The first adjustment has been experimented in the exercise for Italian data as this country publishes currently the information on D422. Next chapter presents more details on the topic.

It's here worthwhile to notice that this kind of adjustment increases the denominator of the (3) and therefore brings directly to a reduction of the coverage

II.3.   Property income received

As the NA adjustment for FISIM does not correspond to any equivalent adjustment in EU-SILC, the comparison was carried out with NA data for interests before FISIM adjustment (gross interest flows). Data in Chart 3 include this closeness adjustment.

For this aggregate the coverage is calculated by the following formula:

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[11] Actually, in France 60% of K1 is linked to owner occupied dwellings and leased dwellings. Instead 40% is linked to unincorporated enterprises' assets. Due to the importance of unincorporated enterprises in Italy the percentage for owner-occupied dwelling could be less than 60%.

4) $$Coverage_{x,t} = \frac{(HY090G + (1-p)*HY040G)_{x,t\_weighted\_total}}{(D4_{no\_FISIM\_adj})_{x,t.}} *100$$

Where p is a coefficient that represents HY040G part related to dwellings.

For year 2008, the EU-SILC coverage of NA data is poor with an average value of 20.6% for the EU27. EU-SILC data for 9 countries explain less than 10% of NA (minimum coverage reached by SK with 3.1%). EU-SILC data cover NA for more than 50% only for 2 countries, among them FR, whose coverage is 76.1%.

Table 4 Property income, received

National Accounts (NA)	EU-SILC
Property income received (D.4/RES) "income receivable by the owner of a financial asset or a tangible non-produced asset in return for providing funds to, or putting the tangible non-produced asset at the disposal of, another institutional unit" (ESA 1995, §4.41) Components: (+) interest received (D.41/RES) (+) distributed income of corporations (D.42/RES) (+) **property income attributed to insurance policy holders (D.44/RES)** (+) rent received (D.45/RES) Remarks • D41 is adjusted for FISIM	Property income "the income received less expenses accruing, during the income reference period, by the owner of a financial asset or a tangible non-produced asset (land) in return for providing funds to or putting the tangible non-produced asset at the disposal of another institutional unit" Components: (+) interest, dividends, profits from capital investment in an unincorporated business (HY090G) (EU-SILC Reg., Annex I, Art. 2.4) (+) a certain percentage of Income from rental of a property or land' (HY040G))* * choice of the percentage based on the answers received by EU-SILC and EGDNA delegates

Note: in bold the main differences between EU-SILC and NA

The reasons behind this general poor coverage are similar to the ones presented for the aggregate B2+B3.

From the chart the FR coverage looks like an outlier but in reality this coverage is due to the fact that of a specific way of collecting and improving micro data that adopted by FR. From the exchange of information with the EU-SILC delegate it results that the France EU - SILC[12] variables is adjusted by means of most of data sources used for the NA aggregate. As a matter of fact the HY090 variable contains:

- all information about property income which are declared to the Tax Administration (by linkage with tax registers);
- imputation of annual income made with external sources as Household Wealth Survey and data from French Central Bank for some financial products, such as equity savings plans or exempt savings accounts.

As already noted in the previous paragraph, EU-SILC data on self-employment income include the amount classified by NA in the item "withdrawals from the income of quasi corporation (D.422)". An adjustment is hence required to put in line the two data sets but in the ESA Transmission Program the D.422 detail is not available.
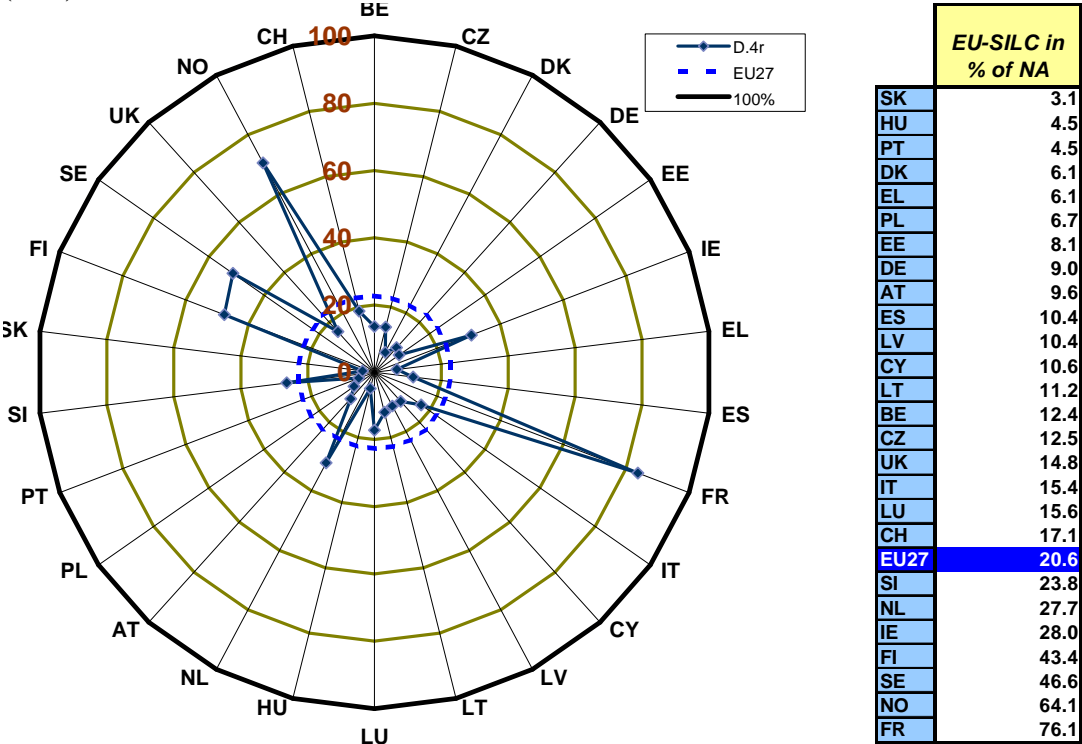
Information on D.422 is available in the national publication of the Italian annual sectors accounts. Moreover, as IT splits the household sector in consumer and producer households[13],

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[12] National accounts use data from fiscal registers and data from the French Central Bank.

[13] In Italy the household sector is split into two sub-sectors: consumer households (whose main function consists of consumption and production of goods and services for own final use) and producer households (own-account workers and sole proprietorships, simple partnerships and de facto partnerships with up to 5 employees and all financial auxiliaries with no employees). Productive units which do not have the legal status of corporations, but are not classified among producer households either, are considered as quasi-corporations and are included in the corporations sector S11.

an item called "other withdrawals from corporation's income (D.423)" should be part of the comparison for Income from self-employment. This item is available in the above-mentioned publication.

Chart 3: Results of the comparison for property income on the resource side, before FISIM allocation (2008)

	EU-SILC in % of NA
SK	3.1
HU	4.5
PT	4.5
DK	6.1
EL	6.1
PL	6.7
EE	8.1
DE	9.0
AT	9.6
ES	10.4
LV	10.4
CY	10.6
LT	11.2
BE	12.4
CZ	12.5
UK	14.8
IT	15.4
LU	15.6
CH	17.1
EU27	20.6
SI	23.8
NL	27.7
IE	28.0
FI	43.4
SE	46.6
NO	64.1
FR	76.1

NB. IT NA data for B2+B3 exclude D422 and D423

Equation (4) becomes

$$Coverage_{x,t} = \frac{(HY090G + (1-p)*HY040G)_{x,t\_weighted\_total}}{(D4_{no\_FISIM\_adj} - D422)_{x,t.}} *100$$

Where p is a coefficient that represents HY040G part related to dwellings.

Chart 4 shows the results of the comparison obtained by increasing B.2+B.3 of the value of D.422 and D.423 and by decreasing D.4 by the same amount. It should be noted that the total (B2+B3+D4r), and finally the total resources, remain unchanged by this adjustment.

With this adjustment, the coverage of EU-SILC data for property income (now net of D.422 and D.423) increases by 12%, whereas the EU-SILC coverage for "operating surplus plus mixed income" (plus D.422+D.423) decreases by 25%, making NA aggregates closer to SILC totals.

Chart 4: Effect of redistribution in the NA data of "withdrawals of income of quasi corporation and alia" on "property income" and "operating surplus plus mixed income" for Italy (2008).

13
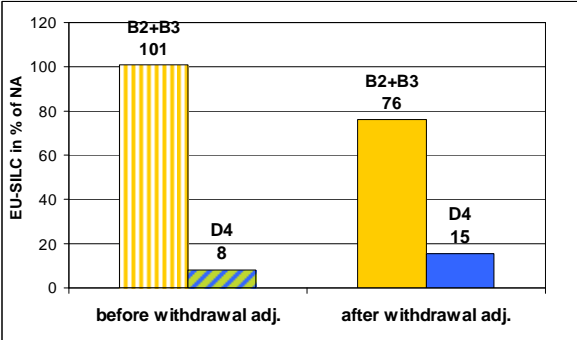
II.4. Social benefits other than social transfers in kind and other receipts

Detailed information for social benefits other than social transfers in kind (D.62) is available in the EU-SILC data base. The EU-SILC variables related to social benefits are showed in Table 5, where they are also compared to NA definitions.

Table 5 Social benefits other than social transfers in kind

National Accounts (NA)	EU-SILC
Social benefits other than social transfers in kind (D.62/RES)[14] "Social benefits are transfers to households, in cash or in kind, intended to relieve them from the financial burden of a number of risks or needs, made through collectively organised schemes, or outside such schemes by government units and NPISHs"; include payments from general government to producers which individually benefit households and which are made in the context of social risks or needs. (ESA 1995, §4.83) List of covered risks or needs: • sickness; • invalidity, disability; • occupational accident or disease; • old age; • survivors; • maternity; • family; • **promotion of employment**; • unemployment; • housing; • education; • general neediness. (ESA 1995, §4.84) Components: (+) social security benefits in cash (D.621) (payable by social security funds) (+) private funded social benefits (D.622) (payable in cash or **in kind**, mostly by insurance enterprises) (+) unfunded employee social benefits (D.623) (payable by employers) (+) social assistance benefits in cash (D.624) (payable by government units or NPSIHs to meet the same needs as social insurance benefits but which are not made under a social insurance schemes) (ESA 1995, §4.103)	Social benefits "current transfers received by households during the income reference period and intended to relieve them from the financial burden of a number of risks or needs, made through collectively organised schemes, or outside such schemes by government units or NPISH"; restricted to cash benefits (except housing benefits); include the value of social contributions and income tax payable on the benefits by the beneficiary; must be compulsory and based on the principle of social solidarity. Components: (+) family/children-related allowances (HY050G) (+) unemployment benefits (PY090G) (+) old-age benefits (PY100G) (+) survivors' benefits (PY110G) (+) sickness benefits (PY120G) (+) disability benefits (PY130G) (+) education-related allowances (PY140G) (+) social exclusion not elsewhere classified (HY060G). (+) **housing allowances (HY070G)**
Remarks Housing allowances are included in D62 for some countries	(EU-SILC Reg., Annex I, Art. 2.5.1)

Note1: in bold the main differences between EU-SILC and NA

Note2: In EU-SILC private funded social benefits in cash can be recorded in "gross cash or near-cash employee income PY010" if they can not be separately and clearly identified as social benefits. PY010 is already includes in the compensation of employees comparison.

For social benefits in cash equation (1) becomes:

$$5) \quad Cov_{x,t} = \frac{(HY050G + HY060G + PY090G + PY100G + PY110G + PY120G + PY130G + PY140G)_{x,t\_weighted\_total}}{(D62)_{x,t.}} * 100$$

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[14]The ESA95 definition refers to social benefits in general, in other words it refers to both "social benefits other than social transfers in kind" and to "social transfers in kind" however only the former are included in disposable income.
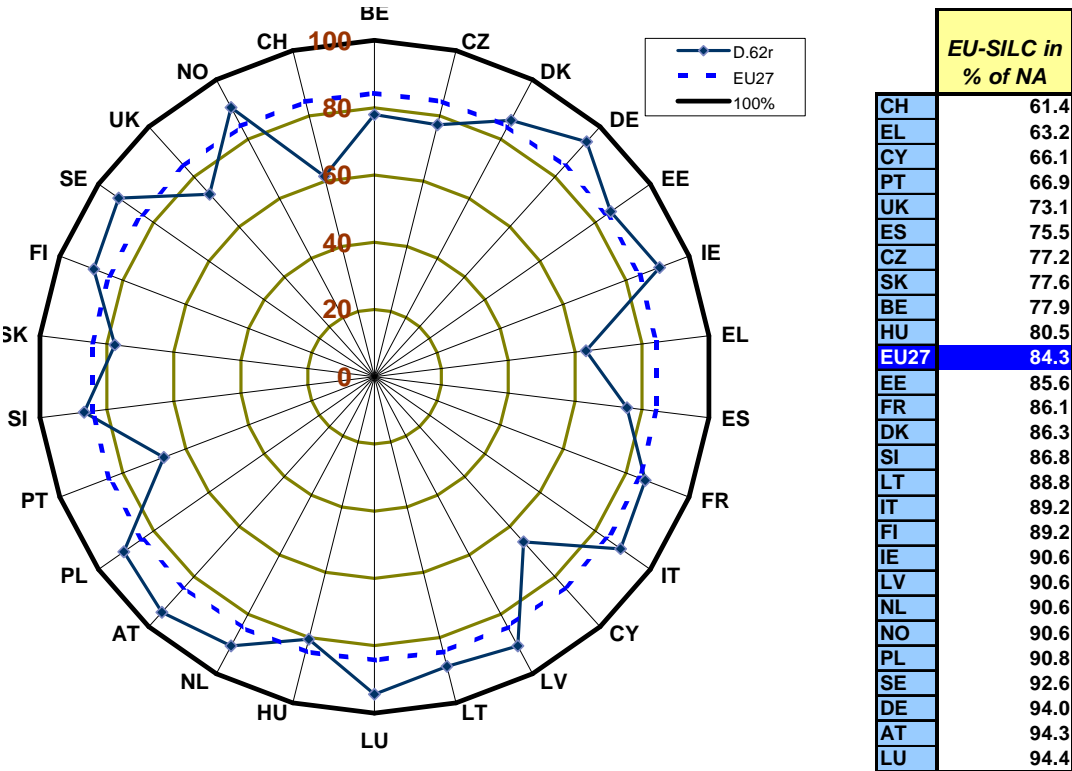
Error! Not a valid bookmark self-reference. shows the coverage of EU-SILC data for the NA household D.62 varying from 61.4% (CH) to 94.4% for LU with a EU27 average equals to 84.3%.

During the a-minima exercise two issues related to social benefits arise. The first issue concerns the way of recording housing allowance in National Accounts, the second issue is related to pensions from individual private plans.

Regarding the first issue, the EU-SILC variable "housing allowances" has been excluded from the comparison of EU-SILC data with NA for disposable income to be consistent with European System of integrated Social PROtection Statistics (ESSPROS) and SNA93 that recommend recording them in social transfers in Kind.

However the exchange of information with NA and EU-SILC experts has allowed to understand that the NA treatment of housing allowances is not the same in all the countries. For example, the Italian NA directorate records this allowance in D.62 whereas France, records them as social transfers in kind (D.63). For this reason in the EU-SILC/NA comparison for all the countries that confirmed to treat these allowances like in the Italian case, the EU-SILC value for "housing allowances" is added to the numerator of the (1) to estimate the coverage. Conversely for the other countries this value is withdrawn by the comparison. But, of course it can be used to work on D.63.

Chart 5: Results of the comparison for social benefits other than social transfers in kind (2008)

	EU-SILC in % of NA
CH	61.4
EL	63.2
CY	66.1
PT	66.9
UK	73.1
ES	75.5
CZ	77.2
SK	77.6
BE	77.9
HU	80.5
EU27	84.3
EE	85.6
FR	86.1
DK	86.3
SI	86.8
LT	88.8
IT	89.2
FI	89.2
IE	90.6
LV	90.6
NL	90.6
NO	90.6
PL	90.8
SE	92.6
DE	94.0
AT	94.3
LU	94.4

The second issue is a little bit trickier to be tackled on. Actually, the EU-SILC variable "pensions from individual private plans (PY080)" includes data on annuities received by the beneficiaries of private insurance other than social ones (Table 6). The definition is about old age, survivors, sickness, disability and unemployment pensions in the form of interest and dividends from insurance other than social (life and non-life insurance).

According to the EU-SILC methodology and from a micro point of view[15] in general, these benefits/annuities are property income and as such should be part of the income definition. And from the 2010 data collection onwards PY080G is included in EU-SILC "total disposable income aggregate", HY020. The same variable that is used to calculate, for example, indicators on material deprivation.

Following the NA methodology, PY080G should not be included in the comparison except for the part concerning annuities from non-life insurance (D.72) because benefits from life-insurance are considered financial items.

Various countries have instead asked to include it in the a-minima comparison and, among them, one country has confirmed that for some extent private insurance (other than social) are recorded in their NA data (item D.622).

What finally comes out from this collection of information is a double requirement: firstly a clarification requirement on the content of PY080G from the EU-SILC side (and for a certain extent from the NA side) and secondly, a decision requirement on a possible adjustment that can lead to include in the comparison this variable.

Table 6 EU-SILC definition of PY080G

Regular pensions from individual private plans (other than those covered under ESSPROS) (PY080G)   Regular pensions from private plans (other than those covered under ESSPROS) refer to pensions and annuities received, during the income reference period, in the form of interest or dividend income from individual private insurance plans, i.e. fully organised schemes where contributions are at the discretion of the contributor independently of their employers or government.   It includes: - Old age, survivors, sickness, disability and unemployment pensions received as interest or dividends from individual insurance private plans.   It excludes: - Pensions from mandatory government schemes.   - Pensions from mandatory employer-based scheme

II.5.   Other receipts

No information is available in the EU-SILC data base in general with respect to other current transfers received (D.7).

Non-life insurance claims (D.72), for the part related to sickness, disability and unemployment pensions, are recorded in PY080G but they are mixed with annuities from life-insurance.

For Miscellaneous current transfers (D75):

1. the transfers in the scope of lotteries and gambling and compensation payments are not surveyed by EU-SILC.

2. Information on current cash transfers between household coming from abroad are mixed in the EU-SILC in a variable called regular inter-household cash transfers received (HY080G). Table 7 contains more information on this topic.

For this reason firstly Eurostat has tentatively made a comparison between national accounts D.75 and the EU-SILC variable HY080G.

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[15] From the micro point of view only annuities related to life insurance (old-age and survivors' pensions) are part of income. See for example the paragraph 2.3.2 Property income in the Canberra Group Handbook on Household Income Statistics, Second Edition (2011).

However, following the advices given by EU-SILC experts on the incomparability of the two items, the comparison between other transfers of the resources side has been discarded from the exercise.

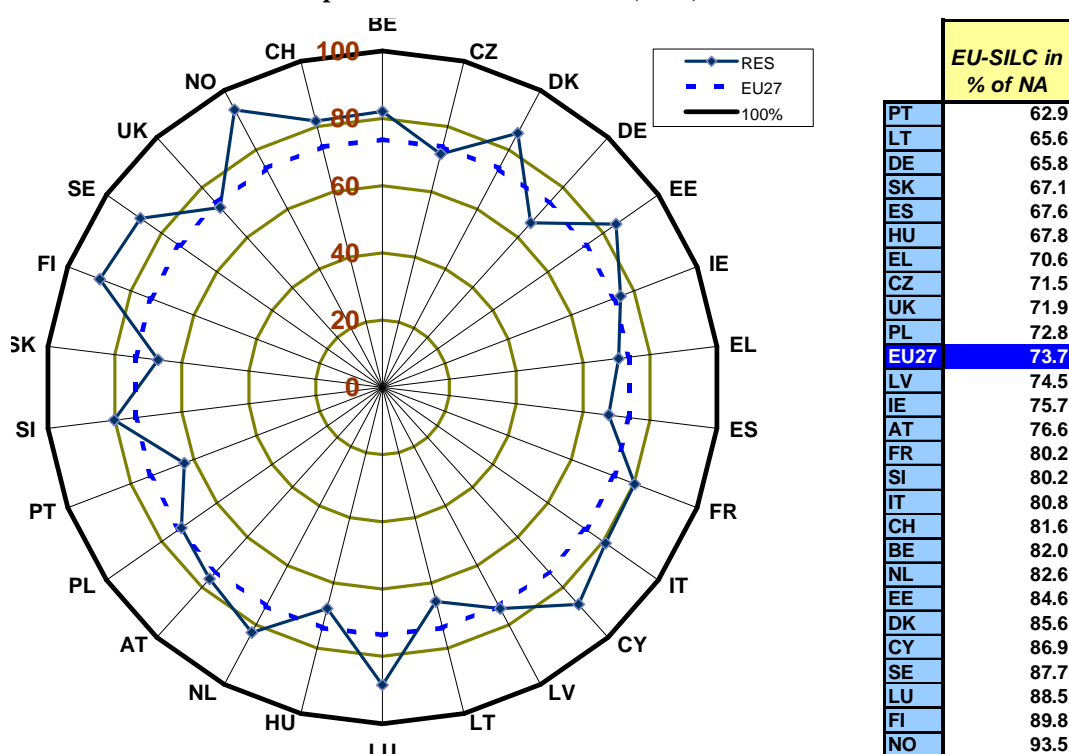**Table 7 Miscellaneous current transfers (res)**

National Accounts (NA)	EU-SILC
Miscellaneous current transfers received (D.75/RES) Components: (+) current transfers between households: all current transfers (in cash or in kind) or received from other households (consolidated at the macro level) (+) **transfers in the scope of lotteries and gambling** (+) **compensation payments** (+) **other** (ESA 1995, §§4.125-136)	(+) Regular inter-household cash transfers received (HY080G) "regular money amounts received, during the income reference period, from other households or persons"; does not include subsidised housing. Components: (+) compulsory alimony and child support (+) voluntary alimony and child support (+) regular cash support from persons other than household members (+) regular cash support from households in other countries. (EU-SILC Reg., Annex I, Art. 2.5.2)
	Remarks: • EU-SILC records inter-household transfers only if they are in cash (in contrast to NA).

Note: in bold the main differences between EU-SILC and NA

II.6. Total resources

In Chart 6 the results of the comparison between EU-SILC and NA data for the item "total resources" are reported. Data for property income are not adjusted for FISIM. To obtain total resources in a consistent way the aggregate of B2+B3 before the FISIM imputation should be available. Actually even for these items FISIM are imputed. However the amount of this adjustment is not included in the ESA-TP.

Chart 6: Results of the comparison for total resources (2008)

	EU-SILC in % of NA
PT	62.9
LT	65.6
DE	65.8
SK	67.1
ES	67.6
HU	67.8
EL	70.6
CZ	71.5
UK	71.9
PL	72.8
EU27	**73.7**
LV	74.5
IE	75.7
AT	76.6
FR	80.2
SI	80.2
IT	80.8
CH	81.6
BE	82.0
NL	82.6
EE	84.6
DK	85.6
CY	86.9
SE	87.7
LU	88.5
FI	89.8
NO	93.5

In year 2008 the EU-SILC data cover more than 80% of NA estimates for 13 out of 26 countries and the EU27 average is equal to 73.7%.

Nordic countries, where register data are extensively used for both the micro and macro data sources, rank among the countries with the highest coverage. The coverage is lowest for PT, LT and DE.

II.7. Property income on the use side

In Table 8, the definitions for current transfers on the use side for National Accounts are compared to the definitions of the available information in the EU-SILC data base.

Table 8 Property incomes paid

National Accounts (NA)	EU-SILC
Property income paid (D.4/USE)	Interest paid on mortgage (HY100G)

Components:
    interest paid (D.41/USE) (EU-SILC: covered by interest in PY050G and HY100G **except consumption credit**)
    rent paid (D.45/USE)
	"total gross amount, before deducting any tax credit or allowance, of mortgage interest on the main residence of the household during the income reference period"
	
	(EU-SILC Reg., Annex I, Art. 2.7.1)

	Remarks: Rent paid on land and interest paid on business loans by the enterprise of self-entrepreneurs are subtracted under "self-employment", see §II.2.

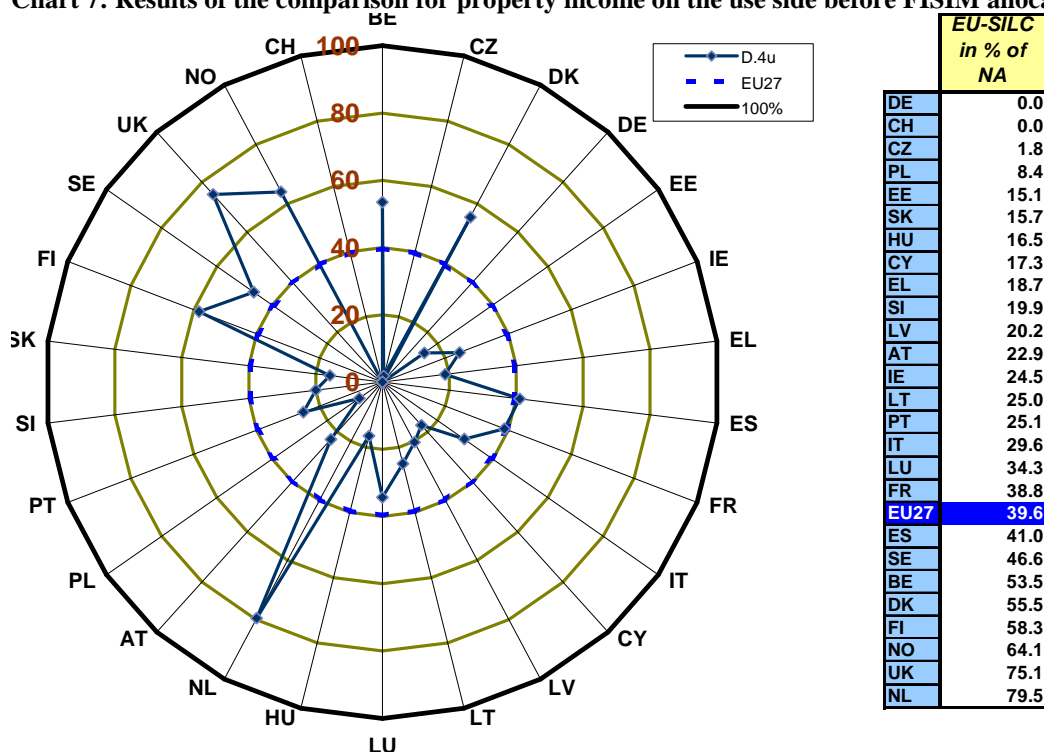**Note: in bold the main differences between EU-SILC and NA**

Analogously to what has been done in the resources side; the interest in the uses side (D.4u) are adjusted by the FISIM imputation.

For property income on the use side, the coverage is calculated as follows:

6) $$Coverage_{x,t} = \frac{\text{HY110G}_{x,t\_weighted\_total}}{(D4_{no\_FISIM\_adj})_{x,t.}} * 100$$

Chart 7 shows results of this comparison.

Chart 7: Results of the comparison for property income on the use side before FISIM allocation (2008)

	EU-SILC in % of NA
DE	0.0
CH	0.0
CZ	1.8
PL	8.4
EE	15.1
SK	15.7
HU	16.5
CY	17.3
EL	18.7
SI	19.9
LV	20.2
AT	22.9
IE	24.5
LT	25.0
PT	25.1
IT	29.6
LU	34.3
FR	38.8
EU27	39.6
ES	41.0
SE	46.6
BE	53.5
DK	55.5
FI	58.3
NO	64.1
UK	75.1
NL	79.5

The EU-SILC coverage on NA data for this aggregate is generally low with the exception of NO (64.1%), UK (75.1%) and NL (79.5%). The European average is 39.6% and for some countries the coverage is close or equal to zero (DE, CH and CZ). Nordic countries show coverage higher that the EU27 average.

There may be two concurrent causes for such low coverage: one is the availability in EU-SILC data base of interest paid on mortgage only, and the second is, as we have seen in paragraph II.2, that inclusion of in part of the D4 NA aggregate as negative items in the EU-SILC variable for self employment income. This D4 part involves rent paid on land and interest paid on business loans by enterprises of self entrepreneurs.

II.8. Current taxes and Social contributions

As EU-SILC collects information on taxes on income and on social contribution mainly mixed together (Table 9), a separate comparison for taxes on income and social contribution is not possible.

Table 9 Current taxes and Social contributions

National Accounts (NA)	EU-SILC
Taxes on income (D.51/USE) "consist of taxes on income profits and capital gains"; assessed on the actual or presumed incomes of individuals, households, corporations, or NPIs; include taxes assessed on holdings of property, land or real estate when these holdings are used as a basis for estimating the income of their owners." (ESA 1995, §4.78) Social contributions (D.61/(USE)) Components: employers actual and imputed social contributions (D.6111/USE + D.612/USE) employees' social contributions (D.6112/USE) social contributions by self- and non-employed persons (D.6113/USE) (ESA 1995, §§4.92-102)	Tax on income and Social insurance contributions (HY140G) "refers to taxes on income, profits and capital gains"; assessed on the actual or presumed income of individuals, households or tax-unit; include taxes assessed on holdings of property, land or real estate when these holdings are used as a basis for estimating the income of their owners. (EU-SILC Reg., Annex I, Art. 2.8.1) "employees', self-employed, unemployed, retirement and any other contributions (if applicable) paid during the income reference period to either mandatory government or employer-based social insurance schemes (pension, health, etc.)" (EU-SILC Reg., Annex I, Art. 2.8.1) employers' social insurance contributions (PY030G)*
Remarks: Employers' social contributions (D.6111/USE + D.612/USE) are included in social contributions, but the same amount is added as part of employee income (D.12/RES), see above.	Remarks: Employers' social insurance contributions are included in employee income (see above) and deducted in the calculation of disposable income (EU-SILC Reg., Annex I, Art. 4.2)
Other current taxes (D.59/USE) Components: current taxes on capital: taxes payable periodically on the ownership or use of land or buildings by owners; current taxes on net wealth and other assets, not mentioned in D.29 or D.51 **poll taxes, levied per adult or per household,** **independently from income or wealth** **expenditure taxes** **payments for licences,** *i.e.* **to own or use vehicles** **taxes on international transactions** (ESA 1995, §4.79)	Regular taxes on wealth (HY120G) "taxes that are payable periodically on the ownership or use of land or buildings by owners and current taxes on net wealth and on other assets (jewellery, other external signs of wealth)" (EU-SILC Reg., Annex I, Art. 2.8.2)

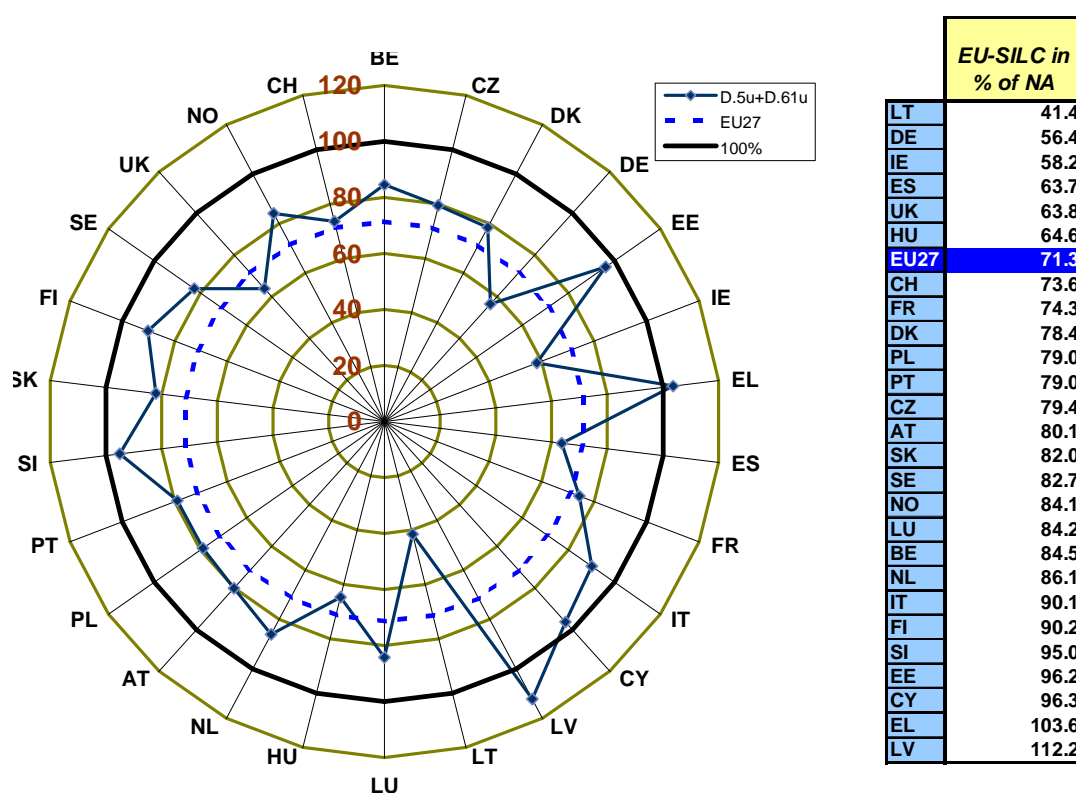**Note: in bold the main differences between EU-SILC and NA**

For this aggregate equation (1) becomes:

7) $$Coverage_{x,t} = \frac{(HY140G + HY120G + PY030G)_{x,t\_weighted\_total}}{(D5u + D61u)_{x,t.}} *100$$

As the formula (7) clearly shows the coverage given in for current taxes and social contributions (D.5u+D.61u) include employers' social contribution.

Results of the comparison for current taxes and social contribution are shown in Chart 8. Among the 26 countries analysed, the coverage of EU-SILC data on NA seems to be medium high with a EU27 average of 71.3%. LT, DE and IE show the worse coverage with a value of respectively 41.4%, 56.4% and 58.2%. Instead EU-SILC data for EE, CY and EL seem to explain a very high percentage of NA data with coverage of 96.2% and 96.3% for the first two and 103.6% for EL. LV EU-SILC data rank first but with a coverage that needs further investigation (112.2%).

Chart 8: Results of the comparison for current taxes and social contribution (2008).

	EU-SILC in % of NA
LT	41.4
DE	56.4
IE	58.2
ES	63.7
UK	63.8
HU	64.6
EU27	**71.3**
CH	73.6
FR	74.3
DK	78.4
PL	79.0
PT	79.0
CZ	79.4
AT	80.1
SK	82.0
SE	82.7
NO	84.1
LU	84.2
BE	84.5
NL	86.1
IT	90.1
FI	90.2
SI	95.0
EE	96.2
CY	96.3
EL	103.6
LV	112.2

II.9. Other current transfers, use side

Net non-life insurance premiums (D.71), for the part related to contribution to sickness, disability and unemployment insurances, are recorded in a EU-SILC variable called PY035G but they are mixed with contribution for life-insurance.

As the comparison for miscellaneous current transfers (D.75u) part related to inter-household cash transfers has encountered the same critics for the equivalent comparison on the resource side, the a-minima exercise has been performed without directly comparing D75u with HY130G (see for a detailed analysis Table 10).
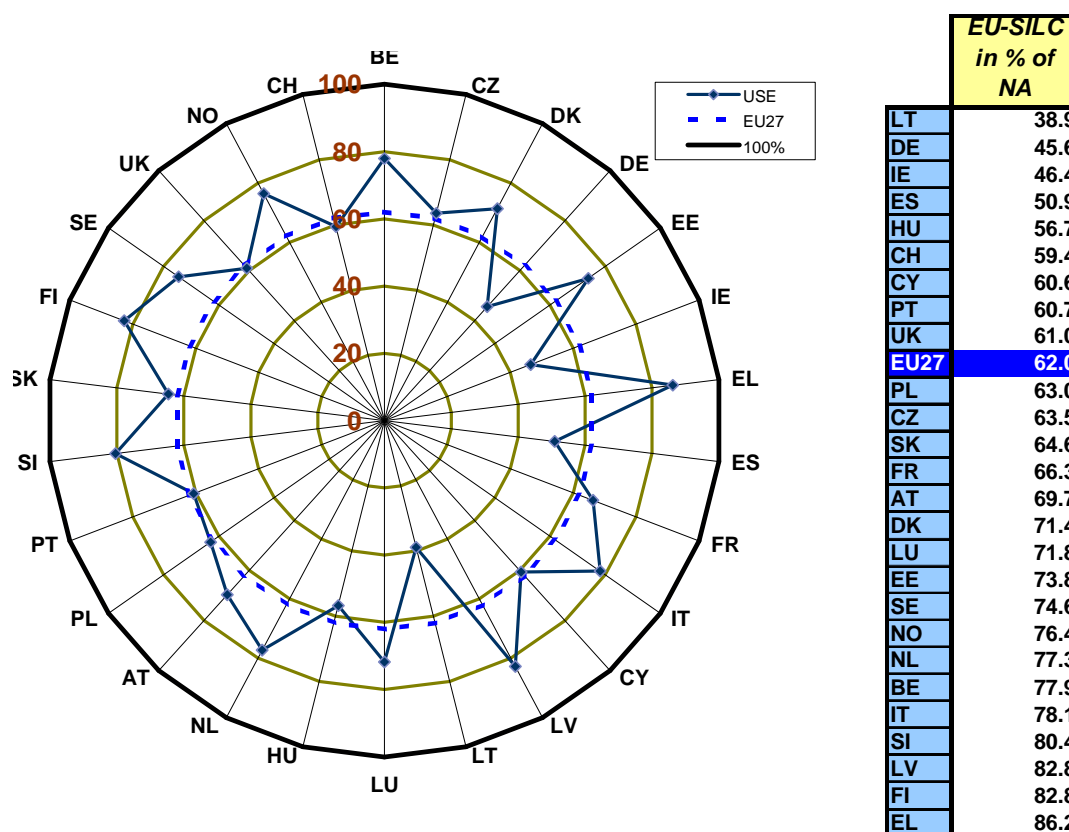
II.10. Total uses

Adding up the EU-SILC proxies for above analysis, an EU-SILC variable has been built to perform the comparison at the level of total use. To be consistent on what was done for total resources; data for property income are not adjusted for FISIM

The EU-SILC coverage for NA total uses is reported in Chart 9. The EU27 average is 62%; LT, DE and IE show the lowest coverage and, conversely; LV, FI and EL the better performance. FI is one of the countries with better coverage in the resources side too.

Table 10 Miscellaneous current transfers, use side

National Accounts (NA)	EU-SILC
Miscellaneous current transfers paid (D.75/USE) Components: • current transfers between households: all (cancel out at the macro level) • current transfers (in cash or in kind) or paid to other households • transfers in the scope of lotteries and gambling • payments of compensation • other (ESA 1995, §§4.125-136)	Regular inter-household cash transfers paid (HY130G) "regular monetary amount paid, during the income reference period, to other households". Components: • compulsory alimony and child support • voluntary alimony and child support paid on a regular basis • regular cash support to persons other than household members • regular cash support to households in other countries Remarks: EU-SILC records inter-household transfers only if they are in cash (in contrast to NA).

Chart 9: Results of the comparison for total uses (2008).

	EU-SILC in % of NA
LT	38.9
DE	45.6
IE	46.4
ES	50.9
HU	56.7
CH	59.4
CY	60.6
PT	60.7
UK	61.0
EU27	62.0
PL	63.0
CZ	63.5
SK	64.6
FR	66.3
AT	69.7
DK	71.4
LU	71.8
EE	73.8
SE	74.6
NO	76.4
NL	77.3
BE	77.9
IT	78.1
SI	80.4
LV	82.8
FI	82.8
EL	86.2

II.11. Disposable income

An EU-SILC proxy for gross disposable income is obtained by doing the differences between the total resources and total use proxy plus the difference (HY080G-HY130G).

Paragraphs II.5 and II.9 explain that the EU-SILC variables HY080G (Regular inter-household cash transfers received) and HY130G (Regular inter-household cash transfers paid) are comparable with NA at both the resource and use side. Actually, these variables include current transactions between households living in the national territory that are consolidated in NA data.
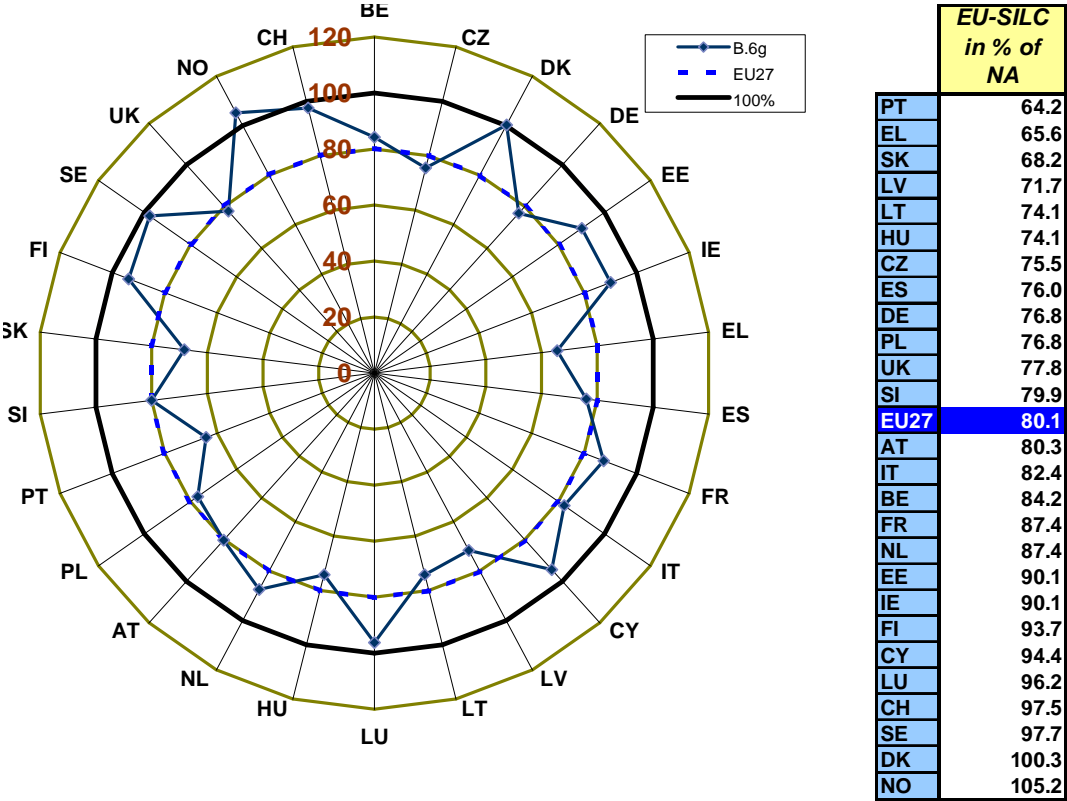
However for one country the difference between these variables cancels national households' transactions out by retaining only regular exchange among national households and households of the rest of the world. As in NA similar exchanges are recorded in D75 in both the resource and use side and disposable income includes the net value (D75r-D75u), the difference (HY080G-HY130G) is added to the EU-SILC proxy for gross disposable income.

The comparison between the NA gross disposable income (B6g) and the EU-SILC information described until now produces the coverage rates of Chart 10. For gross disposable income PT, EL and SK present the lowest performance and SE, DK, NO the best. The EU27 average is equal to 80.1%.

As in the EU-SILC data the consumption of fixed capital resulting from a self-employment activity is deducted in the calculation of self-employment income (§II.2), the a-minima exercise has attempted the comparison of EU-SILC data with NA net disposable income (B.6n). The results of this comparison are in Chart 11.

Consistently with it was done before, Chart 10 and Chart 11 show the results of the comparison for the item "disposable income" before FISIM allocation in the national accounts data for property income.
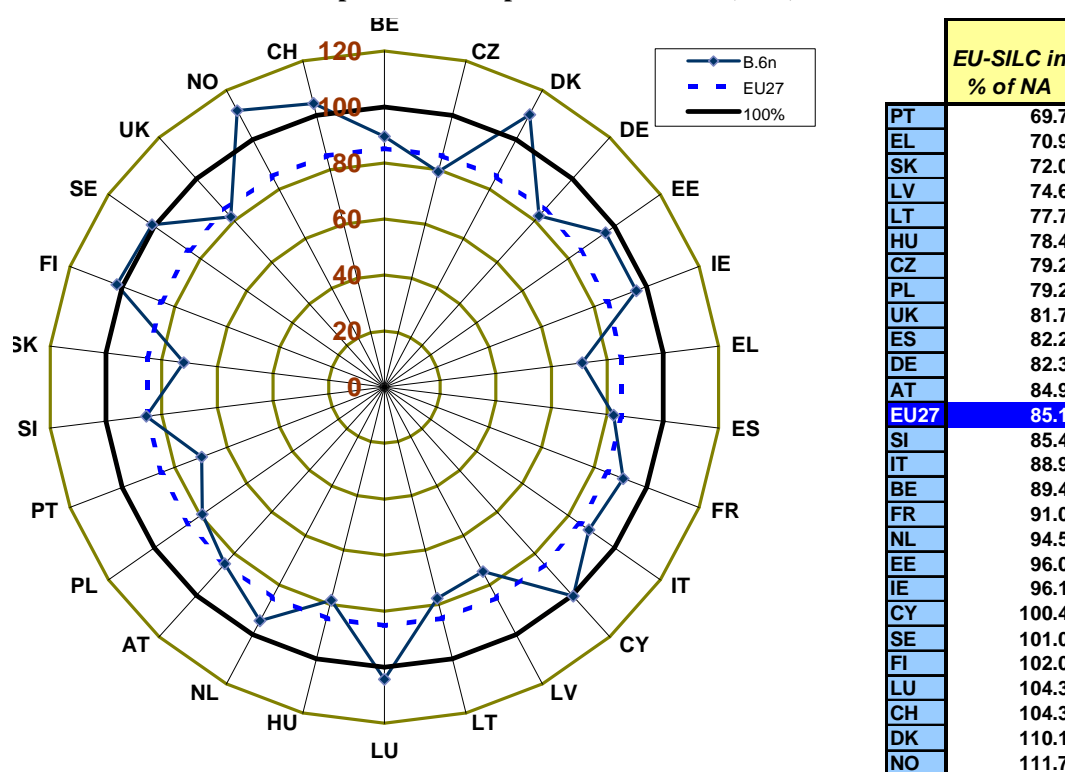
Chart 10: Results of the comparison for disposable income gross (2008).

EU-SILC in % of NA	
PT	64.2
EL	65.6
SK	68.2
LV	71.7
LT	74.1
HU	74.1
CZ	75.5
ES	76.0
DE	76.8
PL	76.8
UK	77.8
SI	79.9
EU27	80.1
AT	80.3
IT	82.4
BE	84.2
FR	87.4
NL	87.4
EE	90.1
IE	90.1
FI	93.7
CY	94.4
LU	96.2
CH	97.5
SE	97.7
DK	100.3
NO	105.2

It should be noticed that using net NA data significantly improves the matching results for the countries where the values of consumption of fixed capital is higher (in proportion to B.6g). the EU27 average increases of 5.0%.

However for some countries the hypothesis that EU-SILC self-employed income is, for some extents, net of "depreciation" should be discharged because the coverage increases over 100%. As explained in paragraph II.2, the EU-SILC depreciation and the way of collecting information on it need further investigation.

Chart 11: Results of the comparison for disposable income net (2008)

	EU-SILC in % of NA
PT	69.7
EL	70.9
SK	72.0
LV	74.6
LT	77.7
HU	78.4
CZ	79.2
PL	79.2
UK	81.7
ES	82.2
DE	82.3
AT	84.9
EU27	85.1
SI	85.4
IT	88.9
BE	89.4
FR	91.0
NL	94.5
EE	96.0
IE	96.1
CY	100.4
SE	101.0
FI	102.0
LU	104.3
CH	104.3
DK	110.1
NO	111.7

III. CONCLUSIONS AND FUTURE STEPS

This document reports on the attempt to match EU-SILC information with National Accounts data on household disposable income for a given year (2008) for 24 members of EU27 and 2 EFTA countries. The NA aggregates compared to SILC data are the following:

1. Compensation of employees
2. Operating surplus plus mixed income
3. Property income (resources)
4. Social benefits other than social transfers in kind
5. Property income (uses)
6. Current taxes plus social contributions
7. Disposable income (gross and net)

This was the first step of matching national accounts data with social statistics. It provides first insights into the main convergences/discrepancies between both sets of data. In most of the cases that NA aggregates are systematically higher than the SILC equivalent which might corroborate the assumption that NA data are more comprehensive, through the use of counterpart sources, whereas SILC data are more detailed. On the other hand it is important to underline that improvements of the coverage are observed when the adjustments carried out by NA compilers like the correction for FISIM are removed.

Next step, as TF-HP recommends limiting the comparison to private households, it is the adjustment of NA aggregates for collective households as they are not included in the EU-SILC data collection scope. And then finally the production of NA data by household categories.

ANNEX I.   Data sources used in the a-minima exercise

National Accounts data on Household and Household plus NPISH
Source: Eurostat
online data code: nasa_nf_tr
http://appsso.eurostat.ec.europa.eu/nui/show.do?wai=true&dataset=nasa_nf_tr
year: 2008
Data extraction: 2011-11-03

Source: Istat
link http://www.istat.it/it/archivio/33602
year 2008
Data extraction: 2011-11-03

EU-SILC data
Source: Eurostat
PDB dataset
year: 2009 for all the countries but IE, UK
year: 2008 for UK
years: 2008 and 2009 for IE
Data extraction: 2011-11-03

ANNEX II. SAS code used for obtain the weighted total for EU-SILC aggregates:

```
/*****************************************************
*D A T A   S E T - U P for
distributional analysis
*created by maria-liviana.mattonetti@ec.europa.eu tel 31628 April 2011
/*****************************************************;


/******************************
* Define the D A T A libraries *
/******************************/
*place where longitudinal files are stored (all d, h, p, r files);
libname pdb '/ec/prod/server/sas/0eusilc/pdb/' access = readonly;


data h09 (rename = (hb020=country hb010=year hb030 = hid)); *household
answers by country for year 2009 (income year 2008);
set pdb.c09h;
run;


*matching of the total household sample (db) with the household answers (hb)
to have the household identity;
data d09 (rename = (db020=country db010=year db030 = hid) );
set pdb.c09d;
run;
proc sort data = d09 ;
by year country hid;
run;


proc sort data = h09 ;
by year country hid;
run;


data work.hfile;
merge  h09 (in= h) d09 (in = d);
by year country hid;
if h;
run;


*extract info from the personal file (pb) and calculated the variable hid
(household identity);
data pfile (rename = (pb020=country pb010=year pb030 = pid));
set pdb.c09p;
hid=int(pb030/100);
run;


PROC SQL;*sum the personal file to obtain household value;
 CREATE TABLE hfile2 AS SELECT country, year,hid,
(SUM(PY010G)) AS S_PY010G, (SUM(PY020G)) AS S_PY020G,
(SUM(PY021G)) AS S_PY021G,(SUM(PY030G)) AS S_PY030G,
(SUM(PY050G)) AS S_PY050G,(SUM(PY070G)) AS S_PY070G,
(SUM(PY080G)) AS S_PY080G,(SUM(PY090G)) AS S_PY090G,
(SUM(PY100G)) AS S_PY100G, (SUM(PY110G)) AS S_PY110G,
```

```
(SUM(PY120G)) AS S_PY120G, (SUM(PY130G)) AS S_PY130G,
(SUM(PY140G)) AS S_PY140G

FROM WORK.PFILE
 GROUP BY country, year, hid;
QUIT;

proc sort data = hfile2 ;
by year country hid;
run;

data work.hfile;
merge  hfile (in= h2) hfile2;
by year country hid;

if h2;
run;

proc means data=hfile sum;
var HY030G
HY040G
HY050G
HY060G
HY070G
HY080G
HY090G
HY100G
HY110G
HY120G
HY130G
HY140G
HY010
HY020
S_PY010G
S_PY020G
S_PY021G
S_PY030G
S_PY050G
S_PY070G
S_PY080G
S_PY090G
S_PY100G
S_PY110G
S_PY120G
S_PY130G
S_PY140G;
class country;
weight db090;
run;
```