9th Meeting of the Advisory Expert Group on National Accounts,
8-10 September 2014, Washington DC

Agenda item: 12.1

Distribution of income, consumption, and saving

Introduction:

A wealth of information is available in the national accounts focusing on the household sector as a whole: (adjusted) disposable income, social transfers in kind, consumption expenditure and investment, assets and liabilities, etc. However, usually no information is available on the distribution of these aggregate measures across household groups. On the other hand, micro-surveys provide more detailed information on the distribution of income, consumption, and wealth. The main objective of the Eurostat/OECD Expert Group on Disparities in National Accounts (EG DNA) was to consider how existing data can be used to produce measures of disparities between groups of households that are consistent with National Accounts totals.

Based on the first experimental results of the expert group, household saving consistently show significant negative values of gross saving for households in the lower quintiles, albeit with a large variation across countries. This paper investigates these initial results of the EG DNA and discusses the creation of a new informal expert group that will extend the work of the EG DNA.

Guidance on documentation provided

A short note on the work of the first Expert Group on Disparities in National Accounts as well as an extension of its mandate is attached.

Main issues to be discussed

This item is for information.

Distribution of income, consumption, and saving

1. Introduction

1. At the 8th Meeting of the Advisory Expert Group (AEG) on National Accounts the OECD presented initial results on distributional information on household income, consumption, and savings consistent with the system of national accounts. These results are the outcome of the joint OECD/Eurostat Expert Group on Disparities in National Accounts (EG DNA). Since the initial results were discussed previously, this paper focuses on the additional work done since last year and the creation of a new expert group to extend the work on household distributional information. For more information on the results of the first EG DNA, a brief note is attached as an annex to this paper[1].

2. Based on the first experimental results of the expert group, household savings consistently showed significant negative values of gross savings for households in the lower income quintiles, albeit with a large variation across countries. Section 2 of this paper investigates the results of the EG DNA and discusses economic theories of consumption behaviour as well as statistical issues that may explain the observed negative saving. Section 3 of this paper discusses the creation of a new informal expert group. The goal of this expert group is to review the methodology with a focus on improving the consistency of the results between income and consumption and to extend the work of the EG DNA.

2. Results from the previous exercise: How negative can gross savings get?

3. This section briefly illustrates the results on household savings and explores possible explanations in terms of both economic theory and possible statistical issues.

4. Based on the experimental distributional data, in all countries, savings are highly concentrated at the top of the distribution. Savings as a percentage of adjusted disposable income increase with income (see Figure 1 below). In the United States and Mexico, the richest households, on average, save more than 40% of their annual adjusted disposable income. At the bottom end of the income scale, the poorest households are dissaving, i.e. on average a poor household consumes more than its annual income during the year. Negative saving rates are shown for the poorest households in all countries except France. In respect of the latter, it should be

[1] Detailed results of the EG DNA are available in two working papers and can be downloaded using the following link: http://www.oecd-ilibrary.org/economics/oecd-statistics-working-papers_18152031 (papers 2013/03 and 2013/04).

underlined however, that prior to the use of the household micro- surveys to distribute the national accounts totals, the French experts adjusted the micro data[2].

5. Consuming more than the income received in a given year means either that households increase their debt, or they use financial assets accumulated in previous years to finance their consumption. Also, a negative saving rate for a given quintile does not necessarily mean that each household that belongs to the quintile has a negative saving rate, nonetheless a more negative saving rate for a given quintile implies that the percentage of households within the quintile having a positive saving is smaller than in other quintiles, and some households have even larger dis-savings than the quintile average.

6. The results in figure 1 refer to the gross savings[3] as a percentage of adjusted disposable income and are limited to the population included in the micro surveys (i.e. excluding people living in non-private dwellings, such as prisons, boarding schools, retirement homes etc., and excluding NPISHs). Household consumption refers to resident households regardless of whether goods and services have been consumed on the domestic territory or abroad.

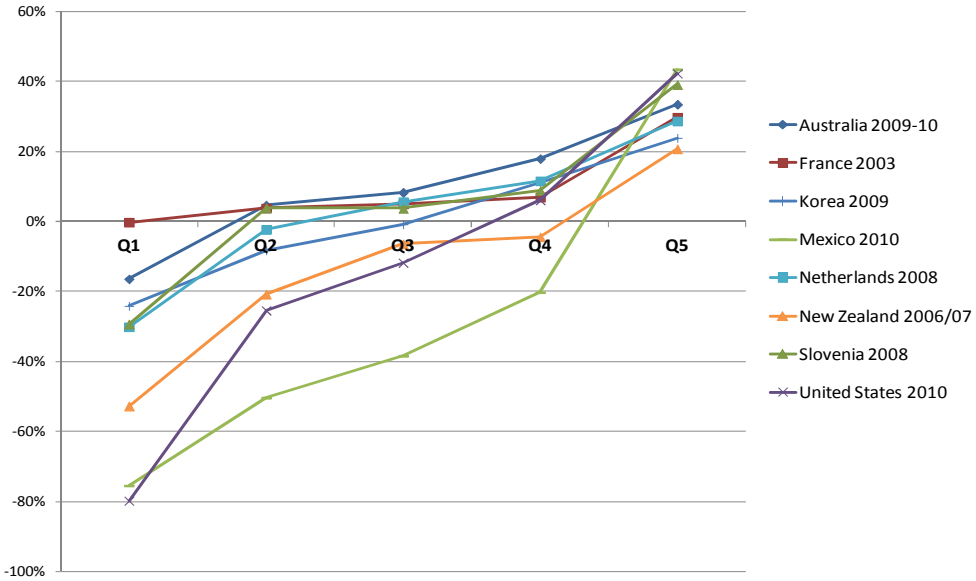
[2] As the micro-surveys in France show, respondents may be inconsistent in their answers to the survey – over-reporting consumption and/or under-reporting their income. In France consistency checks were applied at the micro level: the income level of the households who declared to consume much more than their earnings and who declared having no financial difficulty were corrected to ensure that their income level covers their level of expenditures. Without this correction on the micro data the average saving rate of the first quintile would be negative.

[3] Gross savings = adjusted disposable income

+ adjustment for the change in net equity of households on pension funds

– actual final consumption

Figure 1. - Saving as a percentage of adjusted disposable income
(by equivalised disposable income quintiles)



7. It should be mentioned that the experimental estimates presented in Figure 1 do not take into account transfers between households. Traditionally, because the primary focus of national accounts is to study households as a whole, these transfers are generally not (well) estimated. However, such transfers may have an impact on the observed saving rates per income quintile. For example a household composed of a single student, may receive transfers from the household of its parents, or for example elderly people living alone may receive goods and services, that are paid for by their children's households. Indeed, Australia, France, Korea, the Netherlands, and the United States have tried to estimate saving rates including transfers between households. However, the preliminary results (table 1) show that accounting for transfers between quintiles does not have a significant impact on the saving rates.

Table 1. Impact of transfers between households on saving rates

	difference of saving rates before and after transfers between households				
	Q1	Q2	Q3	Q4	Q5
Australia	-0.1%	0.1%	0.5%	0.2%	-0.2%
France	2.6%	0.7%	0.4%	-0.4%	-1.1%
Korea	0.5%	0.7%	-0.6%	-0.7%	0.4%
Netherlands	-1.6%	0.8%	0.5%	0.2%	-0.3%
Unites States	-2.2%	0.0%	0.2%	0.1%	0.0%

Positive values refer to higher saving rates after transfers have been taken into account

Economic Theory

8. Two widely accepted macro-economic theories of consumer's behaviour may provide an explanation of the results of the first exercise: the Permanent Income Hypothesis and the Life Cycle Hypothesis. On the one hand, the Permanent Income Hypothesis (PIH) proposed by Milton Friedman (1957) emphasizes the attempts of the individual to smooth its consumption over time, adjusting consumption and saving levels according to an expected long-term permanent income, and therefore evaluating income shocks by their persistence: smoothing out temporary fluctuations in income, and adjusting consumption levels to income shocks that are perceived to be long lasting. On the other hand, the Modigliani and Brumberg's (1954) Life Cycle Hypothesis (LCH) states that individuals plan their consumption behaviour over their lifetime: in their early (student) years they may consume more than their income (for example on their education), then in their most productive (highest income earning years) they pay back the accumulated debt and save for their retirement, and finally they dis-save as pensioners (use up the accumulated assets).

9. In line with the permanent income hypothesis (PIH) every household that faces a transitory negative income shock will move towards a lower income quintile (if the income shock is sufficiently large). However, as the shock is transitory (or the household perceives it as transitory), such a household will maintain its previous consumption level, resulting in a lower, potentially negative saving rate. In the case of a positive transitory income shock, households move to upper quintiles, and show higher saving rates. For example, people in short/medium term unemployment may face a significant but temporary drop in their income, yet they could maintain their level of consumption until they find a new job. To assess the relevance of transitory income shocks in producing the negative saving rates, one would need a panel of households (so that it would be possible to trace movements of households across quintile borders), however even in this case, assessing the transitory or permanent nature of income shocks would be difficult and require long time series. An alternative, less ambitious, exercise would be to have estimates of the magnitude of income shocks and consumption shocks through panels of households (even if each individual is surveyed only for two consecutive periods and if income and consumption come from two different panel sources). The PIH would receive a strong support if income shocks proved to be larger than consumption shocks for any given category of households. Another exercise could aim at estimating income shocks generated by short term unemployment (using data available on unemployment and length of unemployment and modelling the associated income shocks) to assess how much the phenomenon contributes to lower savings in the lower income quintiles, under the assumption that people facing short-term unemployment would only marginally adjust their consumption and not proportionally with the drop in their income.

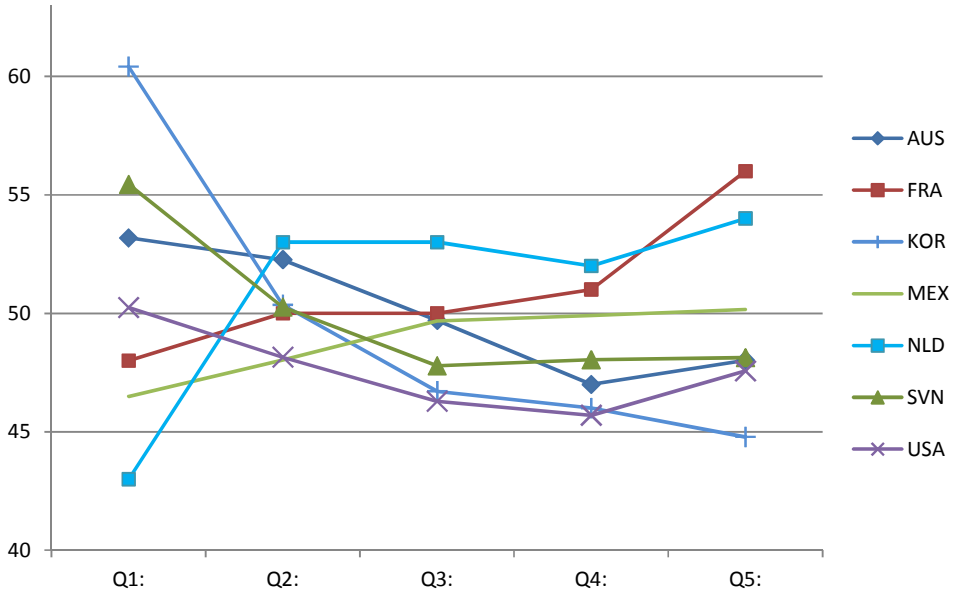
10. Based on the permanent income hypothesis one would expect that aggregate saving rates are pro-cyclical, i.e. households save more in booming periods and save less or

dis-save in recessions. However, the behaviour of aggregate saving rates, for a number of countries show quite the opposite, suggesting that households cannot perfectly distinguish ex-ante between cyclical and long-term changes in their income stream, and correct their consumption and savings behaviour with some lag. Some of the observed cyclicality in saving rates can also be due to the recording of consumer durables in national accounts. The benefits of cars and other consumer durables in general are enjoyed for longer periods, not only in the period in which they are purchased, however they are recorded as consumption only in the period they are purchased. This means that if the timing of the purchase of such goods is cyclical, the "true"[4] consumption of these goods is overestimated during the booming years and underestimated in recessions. It remains to establish the pro-cyclicality of durable goods purchases, in particular of lower income households. If pro-cyclicality can be established, it would justify lower savings (under the current accounting rules) when data refer to booming periods, and suggest higher savings during recessions.

11. The Life Cycle Hypothesis (LCH) can also provide an explanation of the observed dis-saving in the lower quintiles. Based on the LCH, it would be likely to observe a large number of single-student households, or households primarily receiving income from pensions in the lower income quintiles and, at the same time, observe a concentration of households with active income earners in the upper income quintiles. Therefore, the analysis of the number of people by age group in the different quintiles as well as the household types present in the group may provide empirical evidence to support the LCH as possible explanation of the observed dis-saving.

Figure 2. Average age of the head of the household by equivalised disposable income quintiles.

[4] Arguably, purchases of durable goods could be recorded as investment, and accordingly, what we refer to as "true" consumption would be a consumption of imputed services associated with this new type of capital good.



12. In the absence of more detailed information, the age of the head of the household has been used as a loose proxy of the households' stage in life. The average age of the head of the household by quintile (figure 2) suggests some age related patterns by income quintiles, however it is not conclusive. While some countries clearly show a pattern, the countries where the largest dis-savings are observed in the lowest quintiles are not always associated with the highest age of the head of household (the underlying assumption being that households with more retired people are in greater numbers in the dis-saving group). As the LCH related savings patterns do not only concern retired people, but also people in the earliest years of career, for better accuracy we should rely on micro-surveys, where much better demographic data are available to help us establish the relevance of LCH-related phenomena (number of people by age group and by quintile, or household type by quintile).The expected LCH related features would show up differently depending on the typical pension scheme of the country. In countries where unfunded pension schemes are prevalent neither dissaving nor a significant drop in income will be noticeable for retired people. Negative savings is only an issue for countries with predominantly funded social security schemes. In this case, the drop in savings would be noticeable for the relevant people (due to the change in net equity in pension funds), but it will not fully show as a decrease in their incomes. Nonetheless, this hypothesis may indeed explain negative savings in the case of low incidence of social insurance, which triggers households to take out personal saving schemes or individual life insurances, in which case, negative savings will be coupled with large drops in income for retired people. It still need to be verified if this is indeed the case for New Zealand, Mexico and the United States.

13. The above described theories suggest that even if the population is homogeneous, i.e. everyone has the same propensity to consume in relation to their long term income, it seems quite obvious to observe an increasing saving rate from lower income quintiles

to higher income quintiles. The steepness of the savings-rate curve is determined by many factors – the size, the frequency and persistence of income shocks, the structure and trends in population growth, education, pensions and household-types.

Statistical issues

14. Statistical issues can also contribute to explain the dis-savings observed in the lower quintiles. This section present the most relevant issues so far identified,

15. The allocation of income related to the non-observed economy across quintiles may be underestimated for the lower income quintiles. Indeed, it is possible that households in the lowest quintile are more prone to engage in informal, underground or illegal economy, barter goods and services that are not recorded as income, but show up in expenditure surveys.

16. The use of separate micro sources for the estimation of income and consumption could potentially introduce inconsistencies leading to a possible overestimation of dis-saving in the lowest quintile. The inconsistency can occur if the household income rankings used in the calculation of consumption variables is less accurate than the household rankings for disposable income. The consumption of higher income households would then erroneously show up in the lowest quintile and push up the estimates of the consumption variables. However, empirical evidence from the experimental results point to a limited impact of this potential error: important negative saving are recorded for Korea, New Zealand and Mexico (see Figure 1) despite the fact that a single micro source for income and consumption was used. This could suggest that, even though the separate quintile definition of income and consumption variables theoretically can be a source of a negative bias in the savings-rates, it is certainly not the main culprit.

17. The treatment of owner-occupied dwellings appears to be quite different across countries, primarily due to the delineation of what is included in intermediate consumption related to the production of housing services (such as FISIM on mortgages and maintenance and repairs). These differences may have had an impact on savings.

3. Creation of informal expert group

18. As the previous section shows, the extent to which the lowest income quintiles present such negative savings rates clearly needs more research. As illustrated in the detailed working papers (see foot-note 1), a number of assumptions are required to produce estimates on distribution across households consistent with national accounts. The way in which micro estimates have been made consistent with national accounts totals in cases of significant gaps in totals and/or definitions may also need further investigation and harmonisation across countries.

19. To further investigate those aspects, the OECD has extended the mandate for the expert group until December 2015. Two main streams of work have been identified:

i. To produce distributional information on income and consumption for a more recent year, via a streamlined questionnaire, to assess the robustness of the assumptions made and the techniques developed to link micro and macro data; and

ii. To develop and evaluate methods and sources for extrapolating distributional dynamics from benchmark years using more timely available aggregate statistics.

20. For work stream 1, the national experts will compile estimates of distributional information for a more recent year and, whenever possible, also revise previous estimates by applying the same methodology if needed. In the new exercise, particular attention will be devoted to testing the robustness and assumptions of the methodology used in the prior exercise, with a special focus on the large negative values for savings in certain income quintile. To limit the burden for national experts, the new exercise will focus primarily on the grouping of households according to income quintiles, where the concept of income used to determine the income quintiles is based on the Canberra disposable income definition (2011 version)—a cash concept of disposable income. However, extensions to additional grouping, by source of income and/or by composition of the household, are welcome should member countries have the possibility to implement them.

21. The OECD secretariat will take the lead in the second work stream by developing and evaluating a method to increase the timeliness of the estimates. The goal is to have first estimates shortly after the first release of the annual national accounts data. The method will most likely result in a rather technical methodology, by extrapolating distributional information using macro-sources (national accounts, labour force survey, etc.). The support of national experts is sought for evaluating possible sources, discussing proposed methods, and applying and testing the methodology (using the results from work stream 1).

22. The expert group met in April 2014 to discuss its mandate and organise the work. Results from the previous EG DNA exercise were analysed as well as selected country case studies. In particular, the discussion focused on the plausibility of the results for savings, including possible economically valid reasons why countries may show negative savings rates in the lower quintiles. Another major topic is the treatment of social transfers in kind (STiK) and how these transfers should be allocated to subgroups of households.

23. At the beginning of September 2014, the OECD secretariat will issue a redesigned questionnaire template for the collection of data and metadata together with a set of guidelines for work stream 1. The redesigned questionnaire template consists of an initial page with general information; three tables for the collection of data (income, consumption & saving, and socio-demographic information); and a final page for the metadata.

24. By the end of March 2015, national experts are expected to report back estimates for a more recent benchmark year based on the agreed methodology as well as revised estimated for the previous benchmark year based on the amended methodology if needed. The OECD secretariat will validate the data in April-May 2015 and results will be presented at the expert EG DNA meeting to be held in June 2015.

25. A final report on the results and methodological advances, and on the feasibility of a regular and more timely production of national-accounts compatible distributional estimates of household income, consumption and savings will be produced by the end of the year 2015.

4. Conclusions

26. The extension of the mandate of the EG DNA can shed some light on both the methodological and the more practical issues identified during the first mandate of the group. Although well-established economic theory can provide a plausible explanation for the recorded negative saving, there is scope for furtherer improvement. A repeated exercise will possibly allow initiating a longitudinal analysis to assess households' movements across quintiles as well as better address some of the technical issues so far identified.

27. Moreover, increasing the timeliness of the estimation is a key element of the new informal expert group, to enhance the policy impact of the distributional information on income, consumption and saving. The second work-stream of the EG DNA will focus particularly on this aspect, with the ambitious objective of having the first estimates available shortly after the first release of the annual national accounts data.

References

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ANNEX: MEASURING DISTRIBUTION OF INCOME AND CONSUMPTION IN A NATIONAL ACCOUNTS FRAMEWORK

1. Background

Currently, national accounts data provide hardly any information on how income, consumption and wealth are distributed across socio-economic classes of households. Such information is, however, clearly of interest for economic policy. Policy questions such as how to arrive at more inclusive growth, where the largest possible proportion of society shares its benefits, drives many political agendas. An uneven distribution of income and wealth clearly results in varying degrees of economic well-being across households. It also results in varying levels of exposure to financial risk, and an uneven ability to absorb income shocks. The associated policy needs are explicitly mentioned and reflected in the Stiglitz-Sen-Fitoussi report[5], which calls for more distributional information; distribution being considered as an important factor contributing to the well-being of people. The G20 Data Gaps Initiative, which aims at closing information gaps highlighted by the economic and financial crisis, also made a number of recommendations encouraging the compilation of more detailed household measures in national accounts[6].

Micro-surveys provide more detailed information on the distribution of income, consumption and wealth. However, the relevant micro-data often focus only on one of the three dimensions, while information on the joint distribution is also relevant. Furthermore, in most countries, consistent time series are not available. Moreover, household micro-statistics following international statistical standards are currently lacking, especially on household wealth, which make comparisons across countries difficult[7]. Related to the latter is the difficulty to link the concepts and definitions used in micro-surveys to macro-economic statistics such as national accounts hampering a direct analysis of, for example, government policy and its impact on distributional issues.

The above limitations call for an enhanced integration of the results from micro-surveys to the system of national accounts. However, achieving such integration requires confronting a number of challenges. For example, micro-data needs to be adjusted before they can actually be used to inform about the distribution of income, consumption and wealth within a national accounts framework. One has, for example, to adjust for differences in concepts, to deal with under-representation of specific subpopulations in surveys (e.g. immigrants, homeless, people living in institutions), and to adjust for the underreporting of particular income and wealth items in household surveys.

[5] http://www.stiglitz-sen-fitoussi.fr

[6] http://www.imf.org/external/np/g20/pdf/093012.pdf

[7] It should be noted that an OECD Expert Group was created in parallel to the Expert Group on measuring Disparities in National Accounts (EG DNA) to develop an international framework for micro statistics on the distribution of household income, consumption and wealth, and to develop standard guidelines on wealth. The two reports are available at: http://www.oecd.org/statistics/icw-framework.htm and http://www.oecd.org/statistics/guidelines-for-micro-statistics-on-household-wealth.htm.

To address the above issues, early in 2011, Eurostat and the OECD set up a joint Expert Group on Disparities in National Accounts (EG DNA). Some 25 countries nominated experts to participate in this Expert Group[8]. The European Central Bank and the Luxembourg Income Study also joined the Group, chaired by Wim van Nunspeet from Statistics Netherlands (CBS). The work of the Expert Group could be carried out thanks to the support from France, through a secondment at the OECD, and from Italy, through a secondment at Eurostat, in addition to all the input provided by the national experts. In parallel to the Expert Group work, Eurostat launched a similar study, the so-called "a-minima exercise", carried out at the centralised level and covering more European countries.

The main objective of the EG DNA was to arrive at distributional information on household income, consumption and saving, consistent with the system of national accounts, for three different breakdowns of households: (i) income quintiles; (ii) main sources of income; and (iii) household types. The work has been performed in two steps. First, country experts compared micro- and macro-data sources on households' economic resources (i.e. income, consumption and wealth) to better understand similarities and divergences between both data sources. The comparison was carried out at a very detailed level for each of the three household aggregates, for a given year, generally 2008, 2009 and 2010. Some 20 countries studied all (or part) of the components for (adjusted) disposable income, 21 all or part of the components for (actual) final consumption, and 7 all or part of the components for household wealth. In a second step, country experts allocated the national account totals of income and consumption to groups of households using distributive information from a range of micro-sources. Breakdowns have been fully or partially completed by 16 countries for a given year, generally 2008, 2009 or 2010[9].

Detailed results of the EG DNA have been published in two working papers, one showing the comparison between micro- and macro-sources on household income, consumption and wealth (step 1), the other one presenting the experimental results of the allocation of national account totals for household adjusted disposable income, actual final consumption and saving to household groups (step 2). Both working papers also include a comparison between the results of the EG DNA and the outcomes of the a-minima exercise for the relevant countries. The two working papers can be downloaded using the following link: http://www.oecd-ilibrary.org/economics/oecd-statistics-working-papers_18152031 (papers 2013/03 and 2013/04).

This statistics brief contains a summary of the results. Following on, section 2 will mainly dwell upon the results from the comparison of micro-data and national accounts totals, whereas section 3 will briefly discuss the main results of the exercise. In section 4, a

[8] Australia, Austria, Canada, Chile, Denmark, Finland, France, Germany, Israel, Italy, India, Japan, Korea, Mexico, Netherlands, New Zealand, Poland, Portugal, Slovenia, Spain, Sweden, Switzerland, Turkey, United Kingdom, United States.

[9] The Eurostat a-minima exercise conducted in parallel to the EG DNA has followed as far as possible the methodology agreed by the EG DNA. The a-minima exercise covered data on household adjusted disposable income for 28 European countries and for the European aggregate EU27. The breakdowns have been performed for 2008, mainly using data from the harmonised European Survey on Income and Living Conditions (EU-SILC) available at Eurostat.

comparison between the results of the EG DNA and the results from micro-sources will be presented, using an inequality indicator as an example. Section 5 will describe the main conclusions, including the way forward.

2. Results from the comparison of micro-data and national accounts totals

As noted before, the first step of the work of the EG DNA consisted of comparing the aggregated results from the micro-surveys with the relevant national accounts totals. The results of this micro macro comparison on income, consumption and/or wealth components are illustrated using the following two indicators:

- The coverage rate: the micro-total as a percentage of the relevant national accounts total, for each of the detailed components of income, consumption and wealth. As a very first approximation, coverage rates between 80% and 120% were considered as a reasonably fair degree of alignment between micro- and macro-totals.
- The average gap indicator: a weighted average of the absolute differences between micro- and macro-totals across several components. Here, average gap indicators below 20% were considered as a reasonably fair degree of alignment between micro- and macro-totals.

Figure 1 shows the coverage rates for each country for which a detailed comparison between micro- and macro-estimates on income components has been performed. The results show that micro- and macro-estimates for the main components of received income are generally reasonably well aligned. For more than four fifths of countries, the match between micro- and macro-totals for “wages and salaries” and “actual employers’ social contributions” is considered good. For almost three quarters of the countries, the match is also considered good for “current taxes” and “social benefits in cash”. On the other hand, the alignment is much lower for some other income components: the match for “interest and distributed income received from corporations” is good in the case of only one fifth of the countries. There is also a wide spread of coverage rates across countries. Finally, only one quarter of countries has a good match for the component “income from self-employment”.

Figure 1. Coverage rates by country for the main income components

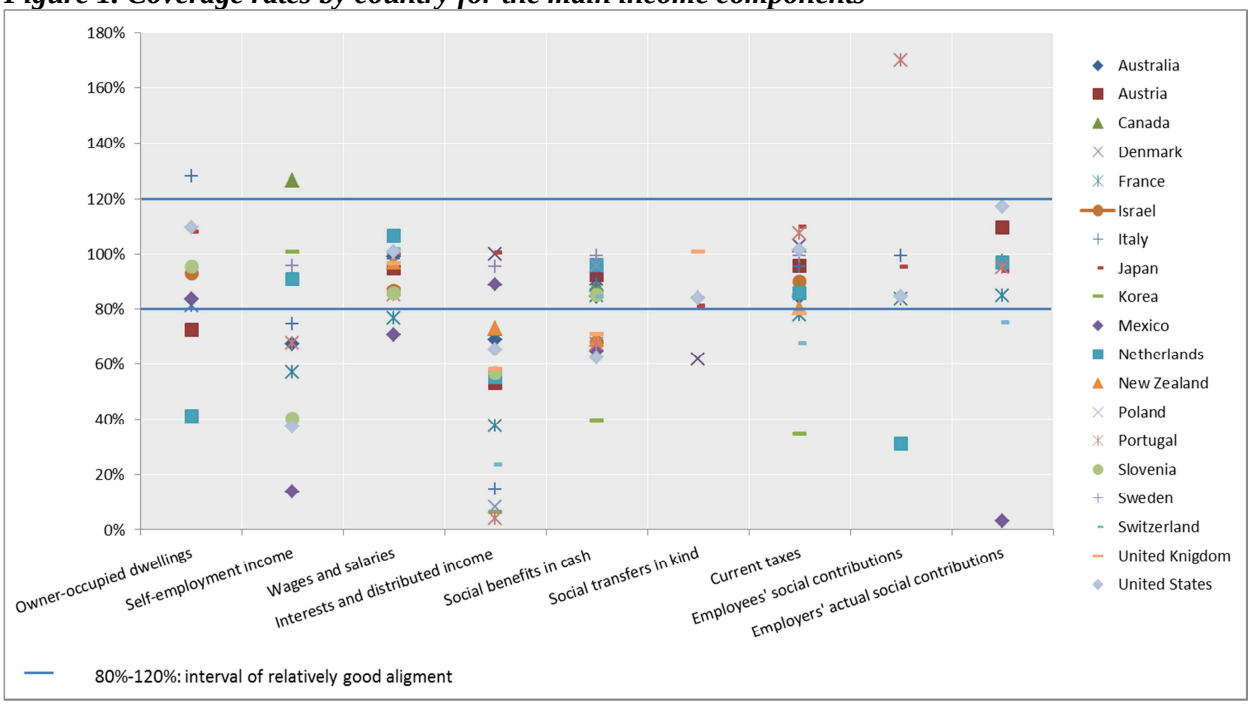
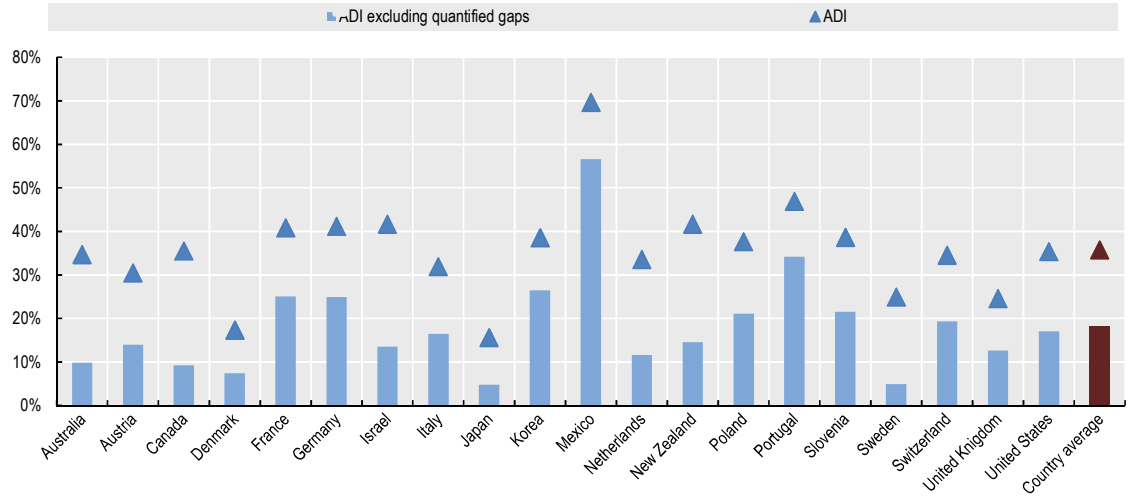


Figure 2 shows the average gap indicator for two different aggregations of the income components. The "ADI" measure covers all income components included in Adjusted Disposable Income (ADI) according to the definition of national accounts, whereas the "ADI excluding quantified gaps" excludes the items that are hardly ever covered and measured in micro-surveys (people living in institutions) and/or are "imputed", for various reasons, in the system of national accounts, for example Financial Intermediation Services Indirectly Measured (FISIM), social transfers in kind, etc.

When looking at the cross country average for ADI, the gap indicator is 36% on average. Once the quantifiable gaps are excluded from the calculation, the average gap is reduced to 18%. In both cases, there are quite significant divergences across countries.

These coverage rates and average gap indicators provide useful information for both data compilers and users. However, when micro- and macro-totals are very far from each other, the accuracy of both micro- and macro-estimates should be further verified. It should also be noted that coverage rates are not necessarily an indicator of the quality of micro-estimates. The compilation methods followed by national accounts may have different degrees of reliability, as they are subject to statistical adjustments whose accuracy is difficult to assess (e.g., adjustment for under-reporting) or they sometimes relate to values estimated through a residual method. Moreover, macro-estimates are often subject to revisions that may have a significant impact on the coverage rates. Finally, it should be noted that the comparisons shown here refer to a single year and to specific surveys. The use of other surveys and/or other years could result in quite different results.

Figure 2. Average gap indicator for income components



3. Results for the distribution of income, consumption and saving

Distributional information consistent with national accounts has been compiled for three different types of household groupings: income quintile; main source of income; and household type. For this article the focus is on the results for the income quintiles[10].

Figure 3 shows that the households in the top quintile have significantly higher incomes than the average household, especially in Mexico and, to a lesser extent, in the United States. The average income of the richest household group is between 1.6 times the overall average in Slovenia, and 3.2 times the overall average in Mexico. The first quintile has an average income equal to 24% of the overall average in Mexico, in contrast to 65% in Slovenia. In all countries the median income, approximated by the average income of the median quintile Q3 is lower than the average income. The median income accounts for 54% of the average in Mexico, as compared to 95% of the average in the Netherlands. In the Netherlands, the middle of the distribution is particularly flat.

[10] Following this grouping classification households were ranked according to the value of their equivalised disposable income and allocated to five equal groups (quintiles), each of them containing 20% of all households. The Oxford-modified equivalence scale (also called the OECD-modified scale) is used to calculate equivalised disposable income. This scale assigns a value of 1 to the household head, of 0.5 to each additional adult member and of 0.3 to each child.

Figure 3. Relative position of each household group's adjusted disposable income compared to the average

Adjusted disposable income per consumption unit for each group to the average adjusted disposable income per consumption unit in the country

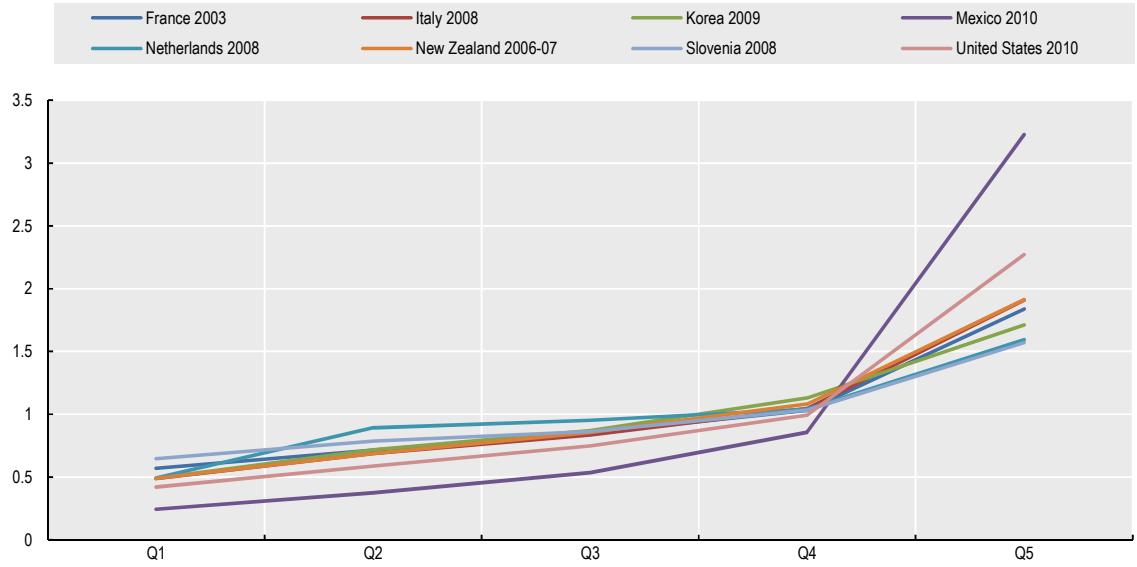
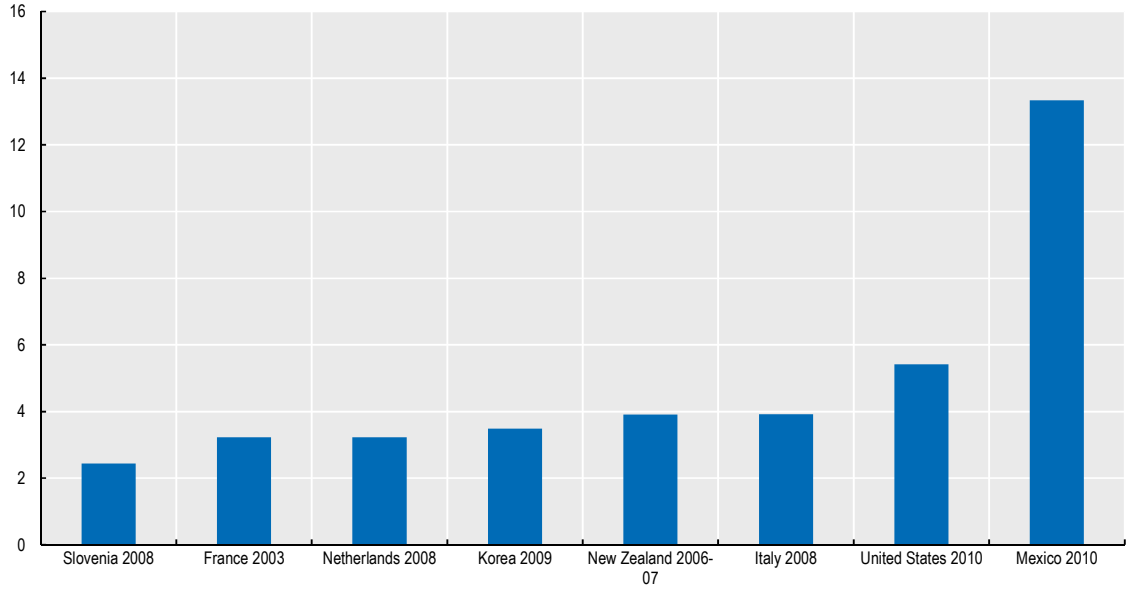


Figure 4 presents the relative position of the 20% highest income households to the 20% lowest income households. In Mexico, on average, the richest households receive an adjusted disposable income which is 13.3 times higher than the one received by the poorest households. In other countries, this ratio ranks from 2.4 (Slovenia) to 5.4 (United States).

Figure 4. Relative position of the 20% richest households to the 20% poorest households
Adjusted disposable income per consumption unit for the fifth quintile to the adjusted disposable income for the first quintile



The relative position of each household group compared to the overall average is different when measured on primary income, i.e. before deducting any income taxes and social contributions paid and before adding transfers in cash and in kind. Comparing the distributional indicators measured on adjusted disposable income and primary income illustrates how net current transfers, mainly related to the intervention of general government and pension schemes, brings some household groups closer to the average. Table 1 shows that, when measured for primary income, the income gap between the 20% highest income households and the 20% lowest income households is significantly higher in the United States and New Zealand. Net current transfers reduce the income disparity between the highest and the lowest income households by 9.0 points in the United States and by 8.8 points in New Zealand.

Table 1. Impact of net transfers on the relative position of richest to the poorest households

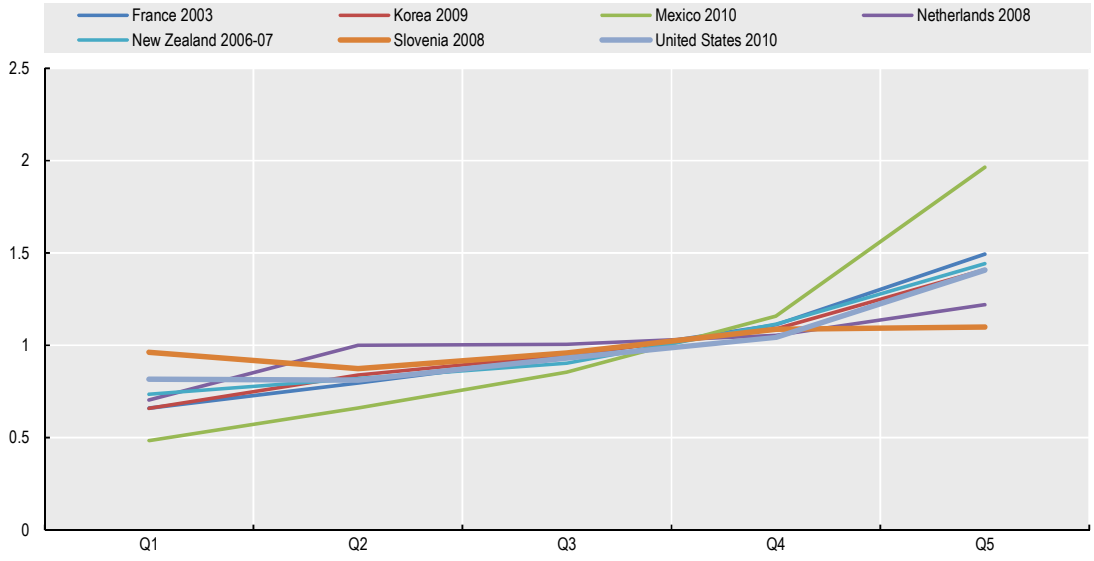
Primary income and adjusted disposable income per consumption unit: value for the fifth quintile to the first quintile; and difference in points

	France 2003	Italy 2008	Korea 2009	Mexico 2010	Netherlands 2008	New Zealand 2006-07	Slovenia 2008	United States 2010
Primary income (1)	8.3	7.7	6.0	20.3	5.7	12.7	4.7	14.5
Adjusted disposable income (2)	3.2	3.9	3.5	13.3	3.2	3.9	2.4	5.4
Impact = (2) - (1)	-5.0	-3.8	-2.5	-7.0	-2.4	-8.8	-2.3	-9.0

Regarding consumption, only the 20% highest income households in Mexico show consumption levels per consumption unit significantly higher than the average (see Figure 5). On the other hand, the level of consumption of the lowest income households is significantly lower than the average in most countries except in Slovenia and, to a lesser extent, the United States. Disregarding the two latter countries, Figure 5 shows that on average, the consumption of the 20% lowest income households equals 48% of the average consumption in Mexico to 73% in New Zealand.

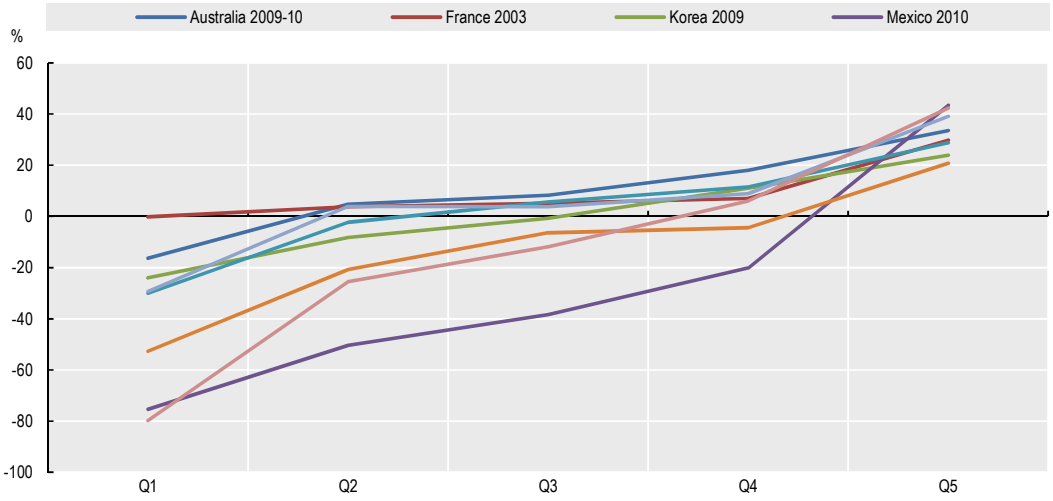
Figure 5. Relative position of each household group's actual final consumption compared to the average

Actual final consumption per consumption unit for each group to the average actual final consumption per consumption unit in the country



When looking at saving, the average saving rate (saving as a percentage of adjusted disposable income[11]) for all households ranks from minus 3% in New Zealand in 2006-07 to plus 16% in Australia in 2009-10. New Zealand is the only country showing a negative saving rate for the household population as a whole. In all countries, saving is highly concentrated in the top of the distribution. Saving rates clearly increase with income (see Figure 6). In the United States and Mexico, the highest income households, on average, save more than 40% of their annual adjusted disposable income. At the bottom end of the income scale, the lowest income households have a negative saving in all countries except in France[12], i.e. on average a low income household consumes more than its annual adjusted disposable income during the year. The average saving rates are negative beyond the first quintile in Mexico, the United States, New Zealand, Korea and the Netherlands.

Figure 6. Saving as a percentage of adjusted disposable income



Consuming more than the income received in a given year does not necessarily mean that households increase their debt. Some households in the lowest income quintiles may use financial assets accumulated in previous years to finance their annual consumption. This may, for example, be true for retired people living from savings and/or life insurance policies. Another explanation for the negative saving rates in the lowest income quintiles may be related to people in short/medium term unemployment which face a significant but temporary drop in their income, yet maintain their level of consumption until they find a new job.

[11] Saving is the difference between adjusted disposable income and actual consumption plus the change in net equity of households in pension funds. The adjustment for net equity in pension funds is necessary because of the way contributions paid to pension funds and pension benefits received from these funds, are treated in national accounts.

[12] Prior to the use of the household budget survey to distribute the national accounts totals, the French experts corrected the micro-data. Thus, the income level of the households who declared to consume much more than they earn and declared having no financial difficulty were corrected to ensure that their income level covers their level of expenditure. Without this correction on the micro-data the average saving rate of the first quintile would be negative.

Furthermore, it should be mentioned that the experimental estimates presented in Figure 6 do not take into account transfers between households.

Traditionally, because the primary focus of national accounts is to study households as a whole, these transfers are generally not (well) estimated. However, such transfers may have an impact on the observed saving rates per income quintile. For example, a household composed of a single student may receive transfers from the household of its parents, or elderly people living alone may receive goods and services, that are paid for by their children's households. Australia, France, Korea, the Netherlands and the United States have tried to estimate saving rates including transfers between households, using micro-sources. However, the preliminary results show that accounting for transfers between quintiles does not have a significant impact on the saving rates. Nonetheless, further investigations and harmonisation on how to estimate these transfers may be needed.

Leaving apart the above reasons, there may well be "statistical artefacts" which account for these intuitively not very well explainable saving rates. For example, the allocation of income related to the non-observed economy across quintiles may be underestimated for the lower income quintiles. Is it possible that the households in the lowest quintile are more prone to engage in informal, underground or illegal economy, barter goods and services that are not recorded as income, but show up in expenditure surveys? Furthermore, as the micro-surveys in France show, respondents may be inconsistent in their answers to the survey – over-reporting consumption and/or under-reporting their income (footnote 8). More generally, possible inconsistencies between the relevant micro-sources, here those used for income versus those used for consumption, could easily lead to an overestimation of the size of dis-saving in the lowest quintile. If the household income rankings used in the calculation of consumption variables is less accurate than the household rankings for disposable income, then the consumption of higher income households would erroneously show up in the lowest quintile and push up the estimates of the consumption variables.

Three countries among the ones shown in Figure 6, however, used a single micro-source for income and consumption components, namely Korea, New Zealand, and Mexico. The relatively large size of dis-saving for these countries suggests that, even though the separate quintile definition of income and consumption variables theoretically can be a source of a negative bias in the saving rates, it is certainly not the main culprit. Whatever the case, the results for saving rates clearly warrant additional research and investigation.

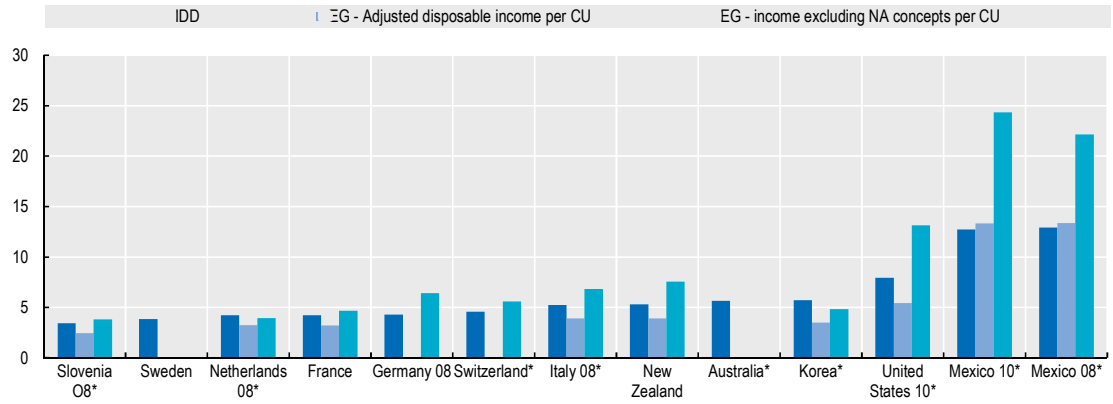
4. Comparing the results on the distribution of income with the results from micro-surveys

It goes without saying that it would be good to know whether the alignment of micro-surveys to the totals of national accounts actually has an impact on the distributional indicators. The OECD Income Distribution Database (IDD) provides comparable sets of data on income distribution across OECD countries. This database entirely relies on micro-sources, mainly household surveys. The comparison is shown in Figure 7, based on a ratio of the average income of the 20% highest income households to the average income for the 20% lowest income households. Doing so, the results of the EG DNA are shown with and without some typical national accounts elements that are largely excluded in micro-surveys: income from

owner-occupied dwellings, FISIM, social transfers in kind, and property income attributed to insurance policy holders.

As it becomes clear from Figure 7, the comparison between the IDD and the results of the EG DNA shows, in some cases, quite substantial differences[13]. Most countries have household income disparities that are lower than those reported in the IDD, mainly due to the inclusion of social transfers in kind in the national accounts definition. Once the "national accounts concepts" are excluded, the inequality ratio comparing the highest to the lowest income quintiles is higher in the EG DNA results, with the exception of the Netherlands and Korea. Finding higher levels of inequality in the EG DNA is due to the fact that the income components, which are poorly covered by micro-sources, such as property income received, tend to be more unequally distributed across households than other components, such as wages and salaries, which are well covered by micro-sources. As a consequence, the benchmark procedure tends to increase inequalities. Figure 7 also shows, however, that the extent to which the inequality ratio is increased differs across countries: the increase is particularly significant in Mexico, and to a lesser extent in the United States.

Figure 7. Richest to poorest ratio - comparison between the IDD and the Expert Group results[14]



5. Conclusions and way forward

The research into the differences between micro- and macro-sources, and the attempt to align both estimates clearly provided some useful insights. However, it is also clear that this is work in progress. The main conclusion from this comparison exercise is that for most countries, micro-sources provide distributive information for most of the national accounts components,

[13] Some caution regarding the interpretation of the results is warranted. For example, the national micro-source used by the Expert Group may be different from the one used in IDD. The data may also relate to a different year. Moreover the IDD indicators have individuals as a starting point. Each individual is given the equivalised income of his/her household. Instead, the Expert Group analyses households. If the poorest are larger households than the other households, the first quintile in the Expert Group's study will include more than 20% individuals.

[14] The legend indicates the extent to which the IDD and the Expert Group results are comparable. A star indicates similar micro-sources. In case a similar year is used for the IDD and the Expert Group, this year is added to the country label using two digits.

although for some of them with quite significant gaps (e.g., income from self-employment, interest and dividends received, alcohol and tobacco expenditures, holdings of shares and other equity, non-housing loans). Overall, micro- and macro-totals are closer to each other for income components than for consumption and wealth components. The results also show a greater heterogeneity for consumption components, when comparing the results from the micro-survey with the relevant national accounts aggregates. More generally, the exercise has provided a much better understanding of the areas where micro- and macro-estimates differ from each other. As such, they will certainly be helpful in improving the estimates of both the micro-surveys and the national accounts.

Results show that inequality is higher for income than for consumption, leading to an even higher disparity across households for saving. The extent to which the lowest income and the highest income households diverge from the income and saving averages is quite different across countries. Countries also show differences in the extent to which government intervention, through taxation and social contributions and benefits, reduces inequalities. Having said that, more research is clearly needed into the alignment of income and consumption data, including its impact on saving rates, especially for the lower income quintiles.

Analysis of the impact of the alignment of micro-sources to national accounts shows that the exercise can have a quite significant impact on the distributional information. In most countries income inequality, as measured by the EG DNA, are lower than those shown in the micro-sources. This is mainly due to the inclusion of social transfers in kind, which are typically not included in micro-surveys. However, once these concepts are excluded, the EG DNA inequality ratio shows higher levels of income inequality in most countries, the main impact coming from more significant adjustments to income components which are particularly unevenly distributed across households.

As illustrated in more detail in the working papers, a number of assumptions are required to produce estimates on distribution across households consistent with national accounts. In particular, one assumption that significantly impacts on the results is the way in which social transfers in kind are imputed at the individual level. The allocation of these transfers raises both conceptual and practical issues that may need further discussion. The way in which micro-estimates have been made consistent with national accounts totals in cases of significant gaps in totals and/or definitions may also need further investigation and harmonisation across countries, certainly taking into account its impact on the saving rates.

More generally, countries are encouraged to have much more interaction between micro and macro compilers, and to make and discuss comparisons of micro- and macro-estimates on a regular basis. Furthermore, it seems advisable to launch studies on improving the consistency between micro-sources covering income and those covering household expenditures, and to test the possibility of statistical matching of micro-sources.

At the international level, it has been agreed to continue the work of the Expert Group for another two years, with the following goals:

i. to refine the methodology for compiling distributional information consistent with macro-economic indicators, with a special focus on the results for the saving rates;
ii. to repeat the exercise producing experimental estimates for another year, so as to assess developments over time in economic aggregates for household groups; and
iii. to test the feasibility of a methodology to compile distributional information in a more timely manner, combining very timely macro-data and the usually less timely distributional information from micro-sources (surveys and administrative or tax registers).

The latter is considered particularly important in view of the increasing user demands for timely data.