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Developing distributional household balance sheets[1]

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[1] This paper was prepared for the meeting. The views expressed are those of the authors and do not necessarily reflect the views of the BIS, the IFC or the central banks and other institutions represented at the meeting.

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Abstract

In view of the potential role that distributional data can play in explaining macroeconomic developments, the Statistics Committee (STC) established EG-LMM in December 2015. This is a part of a broader trend to develop timely distributional data. The aim of the EG has been to understand, quantify and explain the main differences between the Household Finance and Consumption Survey (HFCS) and the Financial Accounts (FA). This work aims investigating possibilities to develop distributional household balance sheet measures. This paper discusses this development work.

Keywords: micro macro link, balance sheet, wealth survey, financial accounts

JEL classification: E01, D01 and D31

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1. Introduction

There is an increasing interest in having distributional measures on household wealth. Two underlying reasons can be seen for this development: increasing interest in household wellbeing and the increasing importance of wealth in particular of financial wealth.[2] The latter one is related to the liberalisation of financial markets as well the subprime mortgage crisis which started in 2008. The liberalisation of financial markets took already place in the majority of the European countries in the 1980s but this has also led to the continuous increase in investing in financial wealth. The subprime mortgage crisis also showed the importance having timely distributional measures showing the indebtedness and risks of different households. The underlying concerns are related to the counter-part risk, i.e. that the high-yield debt is a risk for the issuer of loan as well as the potential instabilities caused by large differences in the societies.

Several central bank presidents have emphasised the increasing importance of distributional issues. The ECB president Mario Draghi emphasised in his speech which was held in Washington in May 2015: *"First of all, it is important to make clear that there are also distributional effects from monetary policy inaction […] Secondly, there are always distributional consequences to monetary policy decisions[3]"*. A month later the U.S. Federal reserve governor Ben Bernanke said in the New York Times: *"Monetary policy is a blunt tool which certainly affects the distribution of income and wealth, although whether the net effect is to increase or reduce inequality is not clear.[4]"* In the IMF/FSB report to the G-20 Finance Ministers and Central Bank Governors was already in 2009 recommending distributional measures for financial and non-financial accounts.

Concerning the increasing interest in household wellbeing the release of the Stiglitz, Sen and Fitoussi Commission report in 2009 had an important role. This report did not really include anything new but the timing and political weight increased the importance of this report. This commission was mandated by the French president Nicolas Sarkozy and it included two Nobel Prize winners in economics. Additionally, the report was published in the middle of financial crisis and thus, the time was optimal for the data analysis which was also suggested by the report.

The main message in the measurement of quantitative welfare was to focus on households. The report emphasised the important of having comprehensive picture, i.e. to cover income, consumption and wealth and preferably to have an integrated view on those. These recommendations translated in the European Commission, OECD and other international organisations to different expert groups and practical recommendations and actions to move the focus of economic analysis on households and different aspects of household material wellbeing.

The Vienna Memorandum, which was adopted by the European Statistical System Committee (ESSC) in September 2016, confirmed much of the targets of Stiglitz et al. (2009) recommendations related to the measurement of household wellbeing.

[2] van de Ven 2017, S266-S86.

[3] IMF, Washington, DC, 14 May 2015.

[4] The New York Times, 1 June 2015.

The key message of the memorandum is to develop a joint framework measuring household income, consumption and wealth. At theoretical level European System of the Accounts 2010 (ESA2010) and System of the Accounts 2008 (SNA2008) provide a consistent framework but the consistency is reached rarely even at the macro level. In practice, the household net lending/borrowing which is calculated on the non-financial side of the accounts is different from the net lending/borrowing which calculated on the financial side of the accounts. On the survey side the integration is even more relevant as there are hardly any surveys which cover complete income, consumption and wealth items. The integration of surveys which have different underlying sample populations or even different statistical target years is difficult.

The second aspect of the data integration which is expressed by all of these above mentioned initiatives is the integration of household surveys and national accounts (NA) and in particular, distributional NA. At the European level this work has been divided into two: the OECD and European Commission are leading the Expert Group on Disparities in National Accounts which is focusing on developing distributional accounts for income, consumption and savings. The household distributional balance sheets are tackled by the European System of Central Banks (ESCB) Export Group on Linking Macro and Micro Data for the Household Sector (EG-LMM). The background of this labour distribution is the distribution in Europe, i.e. the European Commission (Eurostat) is typically responsible for the non-financial statistics as the European Central Bank (ECB) is typically responsible for the financial statistics and balance sheets. In this context, the ECB is also responsible for the quarterly Financial Accounts (FA) and coordinates the only European wide household wealth survey: the triannual Household Finance and Consumption Survey (HFCS).

The analysis has been done less in the context of balance sheets. The EG-LMM analysis is much based on the link which was established by Kavonius and Törmälehto (2010) and later completed by Kavonius and Honkkila (2013). This work created the first link between the FA and HFCS and also made the first comparisons for three countries. In some individual countries, comparisons and linking micro and macro balance sheets had at the time already been done. The work of EG-LMM started in 2015 and the project was kicked off with a separate meeting which also included presentations from France and the U.S. where they have analysed the linkage between macro and micro balance sheets.[5]

Statistics Committee (STC) of the European System of Central Banks (ESCB) agreed in the beginning of 2016 on the first mandate of the EG-LMM. The main elements of the mandate were to confirm the linkage between the FA and HFCS. The target was to understand, quantify and to explain the differences between these two statistics. This work was completed in 2017 and it was agreed that the group will continue by further closing the gaps between the two statistics, by developing further the FA breakdowns which could be estimated by using this link and additionally, consider methods how to estimate time series for these breakdowns. This group should deliver its final report by summer 2019.

[5] Dettling et. al. 2015. Durier et. al. 2012.

2. The linkage, different concepts and comparison

2.1. Generic differences between micro and macro data on household wealth

First, the project focused on analysing generic and other differences. The purpose of this linkage was first to identify the differences and then adjust those if possible. The following clear generic differences were identified: (1.) aim and set-up; (2.) definition of household; (3.) periodicity, timeliness and reference period; and (4.) valuation. The aim and set-up refers mainly to the fact that the FA is made to cover sectoral interlinkages and the balance sheet interlinkages between economic sectors as the HFCS is focused on the distribution between households. This appears in the collection of data. The FA data are often reported by counter-parts, i.e. often banks as the HFCS data are typically surveyed directly from the households. This can also lead to different interpretation of economic concepts.

Concerning the definition of household, the FA defines the households as a sector, while the HFCS as a group of households. The populations in two statistics differ slightly, i.e. persons living institutions are excluded from the survey population. Concerning the periodicity, timeliness and reference period, the FA are quarterly statistics which are available maximum four months after the reference period (last day of the quarter for balance sheet items). The HFCS is conducted every three years in most countries and there is typically a long lag between the data collection and data availability. The fieldwork periods are also typically varying from country to country, i.e. there is no one common fieldwork period for all countries. Finally, concerning the valuation, the FA follow in principle market valuation although this is not always really possible as there is no market price for all assets. Unlisted shares and other equity can be mentioned as an example of these types of assets. The valuation of the HFCS is based on self-assessment of households. This is supposed to be coherent with market valuation but particularly in the case of less liquid assets households may not be able to report market prices.

The purpose of this exercise is to minimise the differences, i.e. to adjust the data when it is possible. This means in the case of the definition of household as well as periodicity, timeliness and period. This was done by choosing the closest quarter of the FA to the HFCS reference period which varies from country to country. The population adjustment was done by adjusting the balance sheet items by the differences of the population in two statistics, i.e. it was assumed that the portfolio of households living in the institutions correspond with the average portfolio of the whole population.

Additionally, the HFCS and FA specific issues and potential errors related to these issues are analysed. However, these are typically issues which cannot be corrected in the short-term. In the case of the HFCS – and households surveys overall – these are typically related to reporting and sampling bias. Particularly, the sampling biases vary from country to country and different countries are dealing those with the different oversampling strategies, largely depending on the availability of external data sources applicable for oversampling. These different strategies typically effect on the comparability of the results between the countries. Additionally, the way of collecting data vary from country to country. The majority of countries are collecting

the most of their data with traditional surveys via CAPI (Computer Assisted Personal Interviews), but the Netherlands is collecting their data through a web-survey and Finland is using a combination of telephone interviews, registers and register-based estimations. These different data collection practices effect also on the reporting biases. In the case of Finland reporting bias does not exist for most balance sheet variables as in the case of the Netherlands the reporting error is different from the "traditional survey countries". The underlying reason is that it is easier for respondents to underestimate/overestimate their answers if they reply in internet rather than replying to physical person.

Concerning the FA, these errors are related to the source statistics. The household sector data are typically based on the counter-part reporting, i.e. the reporting of banks and other financial institutions. There are typically weaknesses in the valuation of assets which do not necessarily have an obvious market price. Additionally, as the FA are a balanced system, which covers all the economic sectors, some sectors need to be adjusted. In the case of households, deposits and other accounts payable/receivable are typically items which are adjusted. This means to say that these are typically items which are considered to be less reliable than other parts of the accounts – and therefore, the inconsistencies are typically allocated to these less reliable items.

2.2. Asset-specific differences and the linkage

After identifying generic and source-specific differences, the EG-LMM assessed the comparability of financial wealth and its components. The concepts and definitions of items included in household wealth in the HFCS and FA are different. In the FA the definitions of instruments, sectors and concepts such as valuation are given by the European System of Accounts (ESA 2010) and are mandatory in the all EU countries. The HFCS data collection is based on a set of common definitions and descriptive features according to an output-oriented approach. The definition of household wealth in the FA is the entire balance sheet, while the HFCS is able to measure only items that can be reliably collected during an interview. Due to sensitivity issues, values of cash are usually not collected in household surveys. In addition, the collection of public pension wealth has proven to be difficult in both sources. Money owed by other households is included in the wealth concept of the HFCS, but not in the FA.

As a conclusion of this exercise a bringing table between the HFCS and FA was constructed.[6] The updated version is included in appendix 1. The main difference between these two versions was that the first was version was based on the European Systems of Accounts 1995 as the current version was updated to correspond to the European System of Accounts 2010. Additionally, comparing to the previous work, the linkages between different assets types has been assessed, i.e. whether the concepts are low, medium or high comparable. It is important to notice that this assessment is based only on the conceptual comparability and does not indicate anything concerning the actual differences.

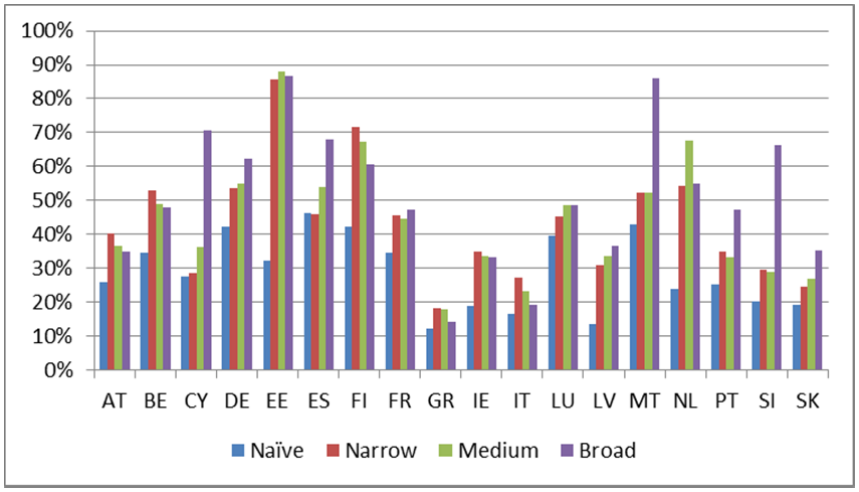
[6] The linkage has been presented before in: Kavonius and Törmälehto 2010. Kavonius and Honkkila 2013.

In contrast to the strategy applied by the OECD/Eurostat Expert group assessing macro-micro differences of income and consumption, the macro-micro comparison on wealth should not necessarily include the entire balance sheet, but only items that are assessed to be medium or high comparable. According to the bridging table, items with high comparability are deposits, quoted shares, mutual funds and bonds, as well as loans. Voluntary pensions and business wealth have medium comparability. Business-related wealth is a specific topic that has gained a lot of attention in the work combining micro and macro data. HFCS data on businesses not publicly traded are separated to self-employment businesses, i.e. ones in which a household member either is self-employed or has an active role in running the business, and businesses in which the household is a passive owner. Wealth in self-employment businesses is classified as non-financial assets in HFCS reporting, although it may include financial assets. Furthermore, the item is collected in net terms. The concept of business wealth as such does not appear in the FA.

The adopted working method was a similar than adopted by Dettling et. al. 2015., i.e. the comparisons were made by using different wealth concepts. The starting point is a naïve concept which shows simple comparison of the HFCS and FA financial wealth concepts without any adjustments. This concept disregards major differences in the definitions and methodologies between the two statistics and the coverage ratio cannot be expected to be 100%, since the wealth definition in the FA is broader than in the HFCS.

The second, narrow adjusted concept includes only items with high comparability, as shown in Appendix table 1. A third medium adjusted concept includes the narrow concept and voluntary pension wealth. The final, broad adjusted concept includes additionally a part of the HFCS concept business wealth, namely that of businesses having legal form other than sole proprietor or partnership[7].

Figure 1: Comparison of naïve, narrow, medium and broad wealth concept for 18 euro area countries



Source: ECB calculations.

[7] See more on business wealth in Annex 2.

Coverage ratios with the four financial wealth concepts are shown in figure 1 for the 18 euro area countries having participated in the second HFCS wave. In the assessment of coverage ratios it is important to recognise that coverage ratio of 100% does not necessarily indicate perfect comparability. If the adjusted wealth concept potentially includes HFCS assets that are not covered by the FA – beyond items that are considered of high comparability – a high coverage ratio may only imply that the low coverage of comparable items is artificially compensated by non-comparable items.

Comparisons for euro area countries have indicated that the FA may produce significantly higher levels of financial wealth than the HFCS. In the comparison presented in the table the adjustments for differences in reference periods and the household definition as described above are done. All figures are shown in per capita terms, using the source-specific population as a denominator. These accounts are adjusted implicitly for the differences in population between the two sources, assuming that the wealth of persons living in institutions is on average not different from the population covered by the survey.

The first conclusion from figure 1 is that limiting the analysis only to comparable items improves comparability, both from theoretical and practical point of view. The impact of adding items with medium comparability differs across countries. In most countries, the coverage ratio of private pension wealth is higher than the coverage ratio of assets included in the narrow concept. This is not unexpected, since private pension wealth is probably much less concentrated than e.g. quoted shares, bonds or mutual fund shares, and sampling bias can be assumed to be smaller. On the other hand, one may expect higher reporting bias for pension wealth, but this bias may be positive or negative.

In some countries adding business wealth to the analysis increases coverage ratios quite significantly. However, it is not obvious that this is a conceptual improvement of comparability. The huge impact of classifying business wealth as financial wealth with rather generic methodologies leads to suspect that this item may not be conceptually comparable between the HFCS and FA. More work needs to be done on business wealth at the national level to ensure the feasibility of the classification applied in this exercise.

The working approach of the group has been that first, the corrections, which are possible with the given data, are implemented by reclassifying or adjusting the figures. However, several of the comparability issues are such that they require comprehensive work either with the FA of HFCS. The EG-LMM indicated to the Working Group on Financial Accounts (WG-FA) and Household Finance and Consumption Network (HFCN) improvements which would increase the comparability of these two statistics. These are typically issues which cannot be solved directly and require work in the medium term. These topics are discussed in the following section.

2.3. Follow-up topics in the medium term

One of the most complicated conceptual comparability issues is related to the business wealth. Two issues related to this have been identified. First, the follow-up for the financial accountants concerning this item is particularly related to the estimation and valuation of unlisted shares and other equity. These assets should be valued at market prices, i.e. for instance at the value of similar kind of company

which has a market value but in practice several countries value these at book value. This is a complicated issue and several countries will need to further develop their methodologies and sources to better value these assets.

The second is related to the different definitions and delineations of business wealth. In the field of NA much time concerning this has already been dedicated. The difficult issue is the borderline between the producer households, i.e. the entrepreneurs whose assets are classified as the assets of households, and quasi-corporations whose assets are recorded in the corporation sector. Correspondingly, the household holds hold either unlisted shares or other equity of the quasi-corporations. The ESA2010 as well as SNA2008 are somewhat wake in defining this borderline as the classification is depended on the independence of these corporations. Independence is reflected by issues like own book-keeping and whether these corporations (and their assets and economic activity) can be distinguished from households. In the most of cases sole proprietorships and partnerships are recorded in the household sector and the rest in the corporation sector although there is much variation in the country practices. In practice, the classification of these assets is depended on how well counterparts, i.e. for instance banks, are able to identify whether the counterpart is a household or corporation.

In the HFCS all these assets are classified in the business wealth and more detailed data collection of self-employment business wealth in surveys would improve the comparability of these assets. However, due to a heavy response burden, this is not feasible in the short or even medium term. During the second mandate of the EG-LMM several methodologies to improve the comparability of business-related assets have been developed (see Chapter 3).

The EG-LMM also concluded that rent deposits (i.e. money deposited by tenant households as a security for renting a flat) are not well covered by the HFCS. Such deposits are part of financial wealth in the FA, and can be significant in countries with low homeownership rates. The collection of this item is difficult in surveys. Furthermore, it is not clear to what extent rent deposits should be considered household wealth with the definition relevant for the analysis of survey data.

The final long-term follow-up item is the treatment of missing rich. In the case of the FA, this means how the wealth of rich people is captured. Rich people can own their property either directly or through different property arrangements like foundations. In theory, if these types of property arrangements are owned by one person, the balance sheet should be directly recorded on the balance sheet of household. If the property arrangement has several owners then on the balance sheet of households is recorded the equity of the property arrangement, i.e. typically other equity. In practice, however, countries are rarely following this convention and it is difficult to say how the property is recorded. In this type of cases, the property is typically included in the total wealth but it is difficult to say how it is recorded. Additionally, as indicated earlier, other equity is often under-valued.[8]

The large problem related to the wealth of rich is capturing the property which is abroad. Even directly owned assets which are located abroad can be difficult to capture but particularly, different property arrangements are hardly captured in the

[8] See: Final Report of the Task Force on Head Offices, Holding Companies and SPEs.

FA. Similarly, non-financial assets, i.e. for instance second residences or holiday houses which are located abroad should be treated as notional units. The equity of these notional units, i.e. the worth of these non-financial assets, should be recorded as equity of the households. As the b.o.p./i.i.p. is often either the main source for foreign assets data or it is consistent with the FA, the potential measurement problems should be solved together with the b.o.p./i.i.p. The WG-FA and WG-External Statistics (WG-ES) have discussed this topic and decided to organise a workshop to clarify it. It has been recognised that there are problems in capturing these assets but in reality, only in the medium- to long-term it is possible to develop data sources to capture these assets.

As mentioned in Chapter 2.1., the HFCS is missing information from the richest households in the population, often holding a significant share of total household wealth. The impact of the missing rich on micro-macro gap has been estimated by Vermeulen (2018). Chakraborty et. al. (2018) continued this work by linking the missing rich estimations with the framework by Kavonius and Honkkila (2013) and estimated how much these missing rich would explain the gap between the HFCS and FA. After this Chakraborty and Waltl (2018) develop this method further to identify in which asset types the underestimation is largest and how the distribution should be corrected. Overall, the outcome of this analysis is that this missing rich does explain only a small share of the gap between the FA and HFCS. The share of missing rich is larger in the countries where oversampling of rich households has not been implemented. This is illustrated in Table 1 which shows the impact of the rich households with different estimation thresholds. Using a lower threshold generally bears the risk to include observations in the estimation that may not be Pareto distributed. The main message of the table is anyhow clear: the effect in Austria and Germany is large, i.e. in the countries, where the oversampling is not done or it is based on geographical areas the impact is large, as in other countries, where the applied oversampling strategies are more effective, the impact is relatively small.

Table 1: the impact of estimated Pareto tail above with the threshold of EUR 500 000, EUR 1 million and EUR 2 million on the coverage ratio on the coverage ratio of broad concept (Figure 1)

	>2 mil threshold	**>1 mil threshold**	**>500 000 threshold**
Austria	+12%	+7%	+5%
Germany	+14%	+14%	+18%
Spain	+3%	+6%	+3%
Finland	+4%	+4%	+1%
France	+4%	+4%	+1%

Source: Chakraborty et. al. 2018.

For the further work of adjusting the gap between the FA and HFCS, this analysis is handicapped as the analyses have been conducted rather at the macro level, not allowing an assessment of this impact at the level of household groups, except for wealth deciles. Ideally, current methodologies to estimate the wealth of the missing rich in surveys should be further developed at the instrument level, as well as at the level household groups or even households. Access to administrative data sources on financial wealth with information on the entire population offers further possibilities for this topic. Finland, Estonia and Denmark (for the 2017 wave) are already using administrative sources in the compilation of HFCS results. While it is

not realistic to assume numerous other national level data sources to become available in the short term, experiences from existing data to assess the impact of sampling bias on the coverage ratios should be further collected. This would require a change in the working approach, i.e. the different approaches should be solved at national level as the work is much defined by the availability data at the national level. Currently, the work is mostly done by the ECB for all the countries conducting the HFCS.

3. The second mandate and distributional indicators

In spring 2017 the STC decided that the work of the EG-LMM should continue with a second mandate. This mandate is divided into two work streams. The first work stream covers the following tasks: i) to further assess the impact of generic and instrument-specific differences on HFCS-FA coverage ratios and their varying impact across instruments and across countries; ii) to develop recommendations for improving the link between the HFCS and FA and for achieving better coverage ratios for future HFCS waves; iii) to assess the availability of administrative sources for improving the HFCS-FA linking. The second work stream covers the following issues: i) to define a set of distributional indicators for the household sector balance sheet, with focus on items with comparability "medium" and "high"; ii) to calculate experimental results for 2010 and 2014 (or the two periods closest to the HFCS fieldwork) for these indicators and assess the feasibility of deriving estimates at annual frequency; iii) to extend the comparison to non-financial assets; and finally, iv) to seek the views of potential ECB/ESCB users to identify user priorities.

During the second mandate, the work of the EG has organised in the following way: The EG has been divided into separate task teams and the task teams have taken care of separate issues. The HFCN and WG-FA are also working parallel on the issues which are discussed in the previous section. Moreover, the ECB has continued working on the administrative sources and time series estimation. As referred earlier, the ECB has only the possibility of taking stock of available administrative sources. The administrative sources as well as the possibility to access those vary much from country to country and therefore, the only realistic possibility is that the potential utilisation of these sources would be analysed at the country level.

The following task teams were established within the EG-LMM: distributional indicators and user requirements, business wealth, non-financial assets, methods for integrating macro and micro sources and pension wealth. Concerning the pensions it was concluded that the EG will focus on "private pensions" which are covered in tables of sector accounts. At this stage the work focusing on "social security pensions" was postponed later as with the current data availability is more limited.

Concerning the work of the task team on indicators, it has conducted a survey to seek the views of potential users to identify user priorities. The requirements are related to data requirements. i.e. which detail of data or indicators were requested and how timely. The survey was conducted by interviewing a number of users in the ECB, national central banks, European Commission and OECD. Overall, the user requirements are quite moderate, i.e. simple indicators covering assets and liabilities at annual frequency are expected to become available.

The task team on business wealth intends to improve the conceptual comparability between the HFCS concept 'business wealth' and the FA instruments 'unlisted shares' and 'other equity', and maximise the practical comparability of both the

current available data as well as launch recommendations on how to improve the collection of data in the long term. The task team recognised three possibilities for improvement. First, to be implemented already in the short term, national level classifications to separate quasi-corporations and producer households in the FA should be applied to HFCS data on self-employment business wealth instead of the simple delineation between sole proprietors and partnerships vs. other legal forms. Second, in the longer term, the HFCS classification of legal form may be improved to enable a reliable distinction between incorporated and unincorporated businesses. Third and finally, a more detailed breakdown of balance sheets of producer households should be conducted, particularly separating between financial and non-financial assets. After the last proposal was brought forward to the HFCS, a more detailed data collection was not consider feasible due to already heavy response burden for self-employed households. A modelling-based approach using external information is seen as an alternative to be developed.

The non-financial task team focused on the ways of including non-financial assets in this comparison. The non-financial assets were not included in this exercise for three reasons. First, the non-financial assets are not a part of financial accounts and it was first decided to focus on the core assets of the financial accounts. Second, there are/were problems in availability of non-financial assets, namely land became obligatory only in the beginning of 2018 in the ESA Transmission Programme. As this is large share of the housing wealth, the comparison would have been incomplete. Third, there are number comparability issues in the transmitted data. The ESA Transmission Programme data include non-profit institutions serving households (NPISH). Additionally, the land data cover all land, not only land which is underlying dwellings. This implies that if the housing wealth is estimated by aggregating dwellings and land, the housing wealth would overestimated by land underlying other building as well as by agricultural and forestry land owned by the household and NPISH.

The task team decided to estimate housing wealth aggregate as well as possible. Through the questionnaire of the Working Group on General Economic Statistics (WG-GES) the task team collected data from several countries on land underlying dwellings. For these countries by adding up dwellings and the collected land data, the housing wealth is estimated. The rest of the reported assets are assumed to be "business wealth assets" of the sole proprietorships and partnerships (i.e. producer households). As indicated in the outcome of the "business wealth team", from the HFCS business wealth the corresponding business wealth are separated and this is assumed to be comparable with the rest of the FA non-financial assets.

The task team on developing methods for integrating macro and micro sources was assigned the task to align to the largest extent possible micro and macro estimates using of statistical methods available in the literature. During the stock taking exercise the task team has analysed re-weighting approaches (constructing a new set of weights to meet benchmark constraints on known population totals) and imputation methods to correct for the differences between micro and macro data. The task team will also assess various ways to account for the missing wealth of very rich households. The first conclusion of the task team has been that different models may need to be applied for different countries and indicators.

As referred earlier even though the time series estimations are not the highest priority in this work flow, there have been some attempts to test different methods to estimate time series for the distributional measures. In longer run time series

aspect will be important, as vis-à-vis to the survey the value added of these data is time series and timelier data. Bankowska et al. (2017) as well as Kavonius and Honkkila (2016) estimate time series by using the approach of applying distribution of an earlier year. The results of applying this methodology are not satisfactory. Honkkila et al. (2018) tests auxiliary data sources, i.e. to use related property income flows in estimating underlying stocks, and a microsimulation method where the effect of recent macroeconomic changes are simulated on households at the micro level. These methods give better results than the previous exercise in which the old distributions are used. However, the optimal methods vary from country to country and the paper concludes that one individual method cannot be recommended for all countries.

In the context of the EG, the ECB has also developed also aggregation methods for the euro area aggregates. These calculations are based on naïve assumption but the whole philosophy of this work is that the sources and methods will improve later. As the reference years of the national surveys are different, interpolation methods between the two conducted waves have also already been tested.

4. Epilogue

The work linking micro and macro data has started and this EG will provide its final report in spring 2019. The report will include several recommendations and already on the basis of work several workflows have been started. As an example we can name the recording of wealth of rich individuals in the FA. Most likely also some distributional balance sheet or a part of distributional balance sheets which are based on naïve assumptions will be provided.

It would not be an intellectual challenge to find aspects and reasons to criticise this work. However, this work is unavoidable. Even though we would not ever have distributional household balance sheets, we need to be position of explaining these differences between the statistics for users as well as for the fellow-statisticians. This process has also already now raised problems in different statistics. From this point of view, the first results are not necessary the best one but the process of integrating and harmonising these statistics has started. This also means that in the future the results can be expected to be in future better than they are now.

Appendix 1: Overview of the main balance sheet items of NA/FA (ESA 2010) and of the HFCS

NA/FA (ESA 2010)	HFCS	Conceptual comparability
FINANCIAL ASSETS (+)		
F21 Currency	N/A	N/A
F22+F29 Deposits	Deposits	High
F3 Debt Securities	Bonds and other debt securities	High
F4 Loans	Money owed to household	High
F5 Equity and investment fund shares	Shares, publicly traded	Medium to High
	Investment in non-self-employed business	
	Investment in self-employed business[9]	
	Mutual Funds	
F6 Insurance, pension and standardised guarantee schemes	Voluntary pension/whole life insurance schemes	Medium
	Occupational Pension Plans[10]	Low
F7 Financial derivatives and employee stock options	Other financial assets	Low
F8 Other accounts receivable		
N/A	Managed Accounts	Low
LIABILITIES (-)		
F4 Loans	Mortgages and loans	High
	Outstanding debts on credit cards, credit lines and overdraft balances	
F8 Other accounts payable	N/A	N/A
FINANCIAL NET WORTH		
NON-FINANCIAL ASSETS (+)		
AN.111 Dwellings	Household main residence	
AN.112 Other buildings/structures	Other properties	
AN.113 Machinery and equipment	N/A	
AN.13 Valuables	Valuables	
N/A	Vehicles	
AN.211 Land	N/A (included in entries above)	
NET WORTH		

[9] Classified as real wealth in the survey.

[10] Usually excluded in the survey definition of financial wealth in the HFCS, but collected in most countries.

Appendix 2: Business wealth

The HFCS collects two variables that are comparable with the FA concepts 'unlisted shares' and 'other equity'. The HFCS concept 'non-self-employment unlisted shares' is consistent with this FA definition, but only includes assets of enterprises in which no household member is either self-employed or has an active role in running the business. In addition, HFCS collects values of self-employment business, a part of which is also consistent with the above mentioned FA concepts. The value of self-employment business wealth in the HFCS can be described as the market value of businesses. The item is collected in net terms[11], i.e. assets and liabilities related to the business are not collected separately, which causes a conceptual discrepancy, the extent of which is difficult to evaluate.

The way unincorporated self-employment business assets of the HFCS are treated in the FA depends on whether the enterprise is classified as a producer household (to be classified within the household sector) or as a quasi-corporation (to be classified within the non-financial corporations sector). In the case of producer households, no separation is assumed to exist between the firm and its owner(s). Consequently, the financial assets and liabilities of firms classified as producer households are recorded as assets/liabilities of the household under the corresponding instrument class. On the contrary, quasi-corporations are treated as separate entities and their total net worth appears in the FA as an asset of the households sector recorded in one of the two items "unquoted equity" or "other equity".

For self-employment businesses the HFCS collects information on the legal form. Based on the legal form, all other legal forms except for sole proprietors and partnerships can be identified as incorporated enterprises or quasi-corporations, and the assets associated with these enterprises correspond to unlisted shares and other equity in the FA. Such businesses, as well as non-self-employment businesses, are aggregated to construct a concept of business wealth comparable to the unlisted shares and other equity in the FA.

On the other hand, sole proprietors and partnerships can be interpreted as producer households. The assets of such enterprises would not be included in the FA concept 'unlisted shares and other equity'. Since there is no information on the type of assets included in the balance sheets of sole proprietors and partnerships, the assets included in such businesses are in the current analysis classified as real assets, as in the reporting of the HFCS results, and excluded from the comparison of financial wealth in this paper. This is a careful approach which ensures that only assets that really correspond to the FA financial wealth are included.

[11] The wording in the blueprint questionnaire is: "What is the net value of (your /your household's) share of the business? That is, what could you sell it for, taking into account all (remaining) assets associated with the business and deducting the (remaining) liabilities?"

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BANK FOR INTERNATIONAL SETTLEMENTS

Ninth IFC Conference on "Are post-crisis statistical initiatives completed?"

Basel, 30-31 August 2018

Developing distributional household balance sheets[1]

Ilja Kristian Kavonius and Juha Honkkila,
European Central Bank

[1] This presentation was prepared for the meeting. The views expressed are those of the authors and do not necessarily reflect the views of the BIS, the IFC or the central banks and other institutions represented at the meeting.

Developing distributional balance sheets

Ilja Kristian Kavonius

European Central Bank

9th IFC Conference on

"Are post-crises statistical initiatives completed?"

Introduction

- Increasing interest in wellbeing and increasing importance of (financial) wealth
- Importance of distributional data on household income, consumption and **wealth**
  - Stiglitz, Sen and Fitoussi (2009)
  - Vienna Memorandum (2016)
  - Importance for monetary policy / central banking (Draghi, Bernanke)
- Practical work on distributional national accounts indicators
  - International level: OECD (income and consumption)
  - US, Canada, Australia (including wealth), France
- Expert Group on Linking Macro and Micro Statistics on Household Wealth (EG-LMM), 2016->
  - ECB initiative, several micro and macro experts from EU (NCB + NSI)
  - First mandate completed in April 2017 and the group continued its work (second mandate)

The linkage, different concepts and comparison

Most important generic and HFCS/FA-specific differences:

- Valuation
  - Self-assessment vs. ESA valuation concepts
  - Accuracy of self-assessment if prices change rapidly or are difficult to know?
  - Accuracy of ESA valuation if no observed market prices?
- Measurement
  - Unit and item non-response, underreporting in HFCS
  - Counterparty sector reporting, variety of data sources, estimates & balancing adjustments in FA
- Conceptual issues
  - Instrument-specific comparability
  - Delineation of the household sector
- Population definition and reference periods
  - Impact limited and can (to a large extent) be identified and/or adjusted for

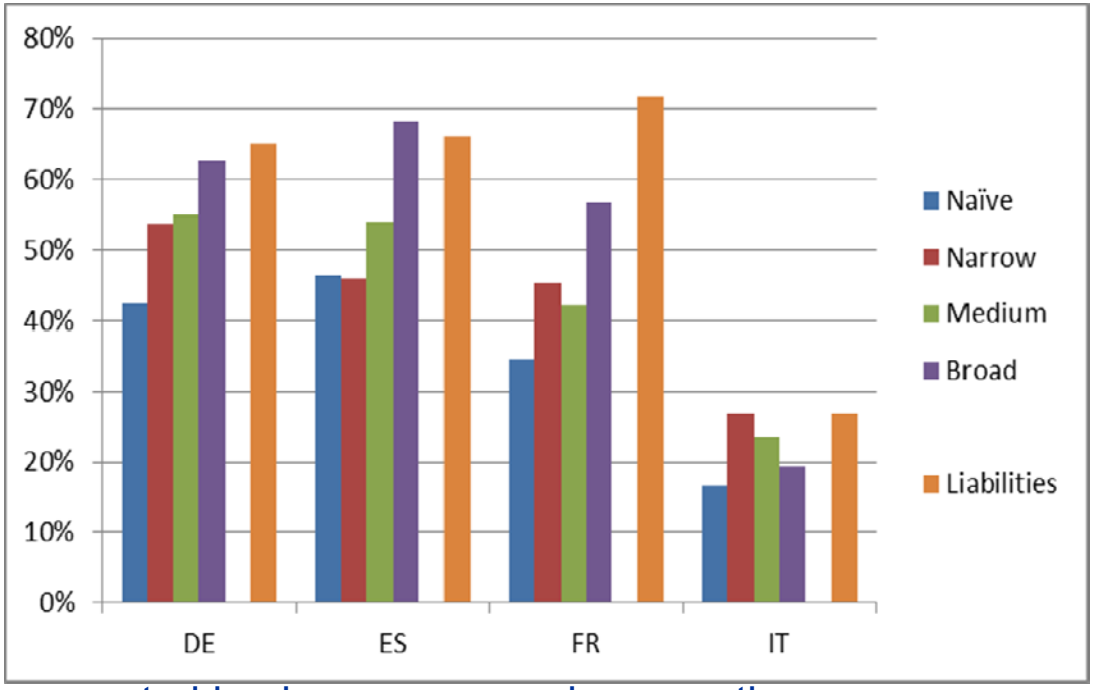
Conceptual comparability of financial instruments

NA/FA (ESA 2010)	HFCS	Conceptual comparability
FINANCIAL ASSETS (+)		
F21 Currency	N/A	N/A
F22+F29 Deposits	Deposits	High
F3 Debt Securities	Bonds and other debt securities	High
F4 Loans	Money owed to household	High
F5 Equity and investment fund shares	Shares, publicly traded	Medium to High
	Investment in non-self-employed business	
	Investment in self-employed business	
	Mutual Funds	
F6 Insurance, pension and standardised guarantee schemes	Voluntary pension/whole life insurance schemes	Medium
	Occupational Pension Plans	Low
F7 Financial derivatives and employee stock options	Other financial assets	Low
F8 Other accounts receivable		
N/A	Managed Accounts	N/A
LIABILITIES (-)		
F4 Loans	Mortgages and loans	High
	Outstanding debts on credit cards, credit lines and overdraft balances	
F8 Other accounts payable	N/A	N/A
FINANCIAL NET WORTH		

- Starting point for differences and linkages: Kavonius and Törmälehto 2010. Kavonius and Honkkila 2013.

The linkage, different concepts and comparison

- First: adjust for differences in the household definition and align reference periods
- Similar approach than adopted by Detlling et. al:
  - Naïve concept: financial wealth as it is in each source
  - Narrow concept: Deposits + Mutual Funds + Bonds + Quoted shares (good conceptual comparability)
  - Medium concept: Narrow + Voluntary pensions and whole life insurance
  - Broad concept: Medium + Comparable business wealth*



* Incorporated businesses + quasi-corporations

Follow-up topics in the medium term

- First to the distributional measures as well as possible with the given the data the increasing comparability is a longer process…
- Main conceptual issues identified:
  - Business wealth: (1.) valuation of unlisted shares/other equity and (2.) delineation and classification of different corporations (hh vs. nfc)
  - Treatment of the rent deposits (HFCS)
  - Missing rich in the FA: (1.) How are treated – different property arrangement; (2.) where are located – legal and not-legal tax planning; how well non-financial assets abroad are captured? ---> WG-ES/WG-FA workshop on this topic
  - Missing rich in the HFCS: Vermeulen (2018). Chakraborty et. al. (2018) and Chakraborty and Waltl (2018): in particularly countries with problems in oversampling – **the method applicable only on wealth distribution**
  - The impact of estimated Pareto tail above with different thresholds to the coverage of broad concept:

	>2 mil threshold	>1 mil threshold	>500 000 threshold
Austria	+12%	+7%	+5%
Germany	+14%	+14%	+18%
Spain	+3%	+6%	+3%
Finland	+4%	+4%	+1%
France	+4%	+4%	+1%

The second mandate and distributional indicators

- The ongoing work of the EG is divided into two work streams:
- The tasks of the first work stream are:
  - Assess generic and instrument-specific differences on HFCS-FA coverage ratios;
  - Recommendations for improving the link;
  - Assess the availability of administrative sources.
- The tasks of the second work stream are:
  - Define a set of distributional indicator, with focus on items “medium” and “high”;
  - Calculate experimental results for 2010 and 2014 and assess the feasibility of deriving estimates at annual frequency;
  - Extend the comparison to the non-financial assets;
  - Seek the views/priorities of potential ECB/ESCB users.
- Open issues identified in the final report (first mandate), 4 specific task teams

The second mandate and distributional indicators – task teams

- Distributional indicators and user requirements:
  - Useful indicators and a selection process to pick up most relevant indicators;
  - Stock-taking will be followed by user consultations.
- Business wealth:
  - Comparability issues to be solved - HFCS business wealth identify separately:
    (1.) items comparable with FA unlisted shares and other equity;
    (2.) producer household assets;
- Methods for integrating macro and micro sources:
  - Stock-taking exercises and reviewed existing experiments;
  - In particular decreasing the gap, response and sampling biases
- Non-financial assets:
  - Include non-financial wealth in the analysis
  - Compare housing wealth and business wealth separately;
- Pension wealth:
  - Currently included only the pensions included in the national accounts main tables

Future work and epilogue

- This work will be completed by spring 2019 and the report delivered to the STC
- This work is only start – how will be continued?
- Several issues to be tackled: improve linkage/comparability, time series aspect etc.
- This is only the first step but it is necessary – the credibility of statistics requires that we are able to explain the differences and improve the results!

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