

MICRO AND MACRO DATA
ON HOUSEHOLD WEALTH, INCOME
AND EXPENDITURE: COMPARING
THE SPANISH SURVEY OF HOUSEHOLD
FINANCES (EFF) TO OTHER STATISTICAL
SOURCES

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Olympia Bover, Laura Crespo, Sandra García-Urbe,
Marina Gómez-García, Paloma Urcelay and Pilar Velilla

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Olympia Bover

BANCO DE ESPAÑA

Laura Crespo

BANCO DE ESPAÑA

Sandra García-Urbe

BANCO DE ESPAÑA

Marina Gómez-García

BANCO DE ESPAÑA

Paloma Urcelay

Pilar Velilla

BANCO DE ESPAÑA

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Abstract

This paper assesses how magnitudes constructed from Spanish Survey of Household Finances (EFF) micro data compare with magnitudes from alternative sources, including the Financial Accounts of the Spanish Economy (FASE) and other income and consumption surveys. To do so, first we analyse the main differences among the sources and the main concepts that can be compared. For those magnitudes that are conceptually comparable, we quantify the extent to which the EFF magnitudes capture those from the other sources used. We document a high degree of conceptual and quantitative comparability. Our results show that aggregate non-financial assets and debts from the EFF are similar to the aggregated magnitudes from other sources. The composition of the financial asset portfolio held by households in aggregate terms is also similar across the sources, while the comparison for each individual financial asset category varies. In particular, listed and unlisted shares in the survey are the closest to their FASE counterparts. For income, the aggregate calculated on the basis of the EFF data is close to the aggregates calculated from several different sources. The results also show that the similarity between the EFF and other sources has improved across waves for some particular variables, for example, debt magnitudes.

Keywords: comparison of statistical sources, aggregates, micro data, wealth, debt, income, expenditures.

JEL classification: D31, E01, E21.

Resumen

El presente estudio muestra cómo comparan las magnitudes construidas a partir de los microdatos de la Encuesta Financiera de las Familias (EFF) con magnitudes de fuentes alternativas, como las Cuentas Financieras y otras encuestas de renta y consumo. Para ello, primero se analizan las diferencias más destacadas entre las fuentes y los principales conceptos que pueden compararse. Para aquellas magnitudes que son conceptualmente comparables, se cuantifica en qué medida las magnitudes de la EFF capturan las de las otras fuentes usadas. En este sentido, se documenta que el grado de comparabilidad conceptual y cuantitativa es alto. Los resultados muestran que tanto los agregados no financieros como las deudas en la EFF son similares a las magnitudes agregadas de las otras fuentes. La composición de los activos financieros en manos de los hogares en términos agregados es similar entre fuentes, mientras que la comparación individual de cada categoría de activo varía. En particular, las magnitudes correspondientes a las acciones cotizadas y las no cotizadas son las más cercanas a las magnitudes comparables de las Cuentas Financieras. Para la renta, el agregado calculado a partir de la EFF es similar a los agregados calculados a partir de otras fuentes diferentes. Los resultados también muestran que la similitud entre la EFF y otras fuentes ha mejorado a lo largo de las olas para algunas variables concretas, como, por ejemplo, para las magnitudes de deudas.

Palabras clave: comparación fuentes estadísticas, agregados, datos micro, riqueza, deuda, renta y gasto.

Códigos JEL: D31, E01 y E21.

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1 Introduction

In addition to the Spanish Survey of Household Finances (EFF¹ by its Spanish acronym), there are other statistical sources in Spain that provide information on the financial situation of Spanish households. From the macro data perspective, the most salient statistics are those provided by the Financial Accounts of the Spanish Economy (FASE), developed and computed by the Banco de España, and the Spanish National Accounts (SNA), produced by the National Statistics Institute (INE by its Spanish acronym), which provide aggregates for the financial assets held and income earned, respectively, by the household sector. However, unlike micro data, aggregates cannot be used to understand the distribution of wealth, debt, consumption and income. At the micro level, the Household Budget Survey (HBS), which is produced by the INE, provides detailed information on household expenditure, and the European Union statistics on income and living conditions (EU-SILC), also conducted by the INE and coordinated by Eurostat, provides detailed information on income at the household level.

All of these statistical sources have their own objectives, methodologies and definitions, which determine the nature of the information and the magnitudes they provide. Despite those potential differences, comparing EFF data with these other sources is of interest in order to assess how well the EFF approximates national aggregates or some distributional characteristics obtained from reliable benchmarks. This paper assesses how magnitudes computed from the EFF compare to those provided by these alternative statistical sources. We study household debts, non-financial assets, financial assets, income and expenditure. We do this for all available survey waves (2002-2020) and we show how the comparison has evolved over time for the different concepts of interest.

To do so, first we characterise conceptually the magnitudes of interest for each source, documenting the main differences among them. For those magnitudes which are conceptually comparable, we compute ratios or shares between the EFF magnitudes and those from the other sources to quantify the extent to which the EFF captures or matches the alternative sources.

Even though the degree of conceptual comparability is high, there are still differences that should be considered. For example, some non-financial wealth concepts, such as the tenure of the main residence or the ratio of housing wealth to total household assets, are highly comparable, as are some financial concepts such as listed shares or debt for house purchase. Regarding the housing wealth aggregate, the EFF measure represents around 65% of that from the corresponding macro source, but there are some conceptual differences between them. Even in cases for which we document several conceptual differences between the EFF and other sources, as in the case of certain financial assets, we show that the ratio of the

1 The EFF is a large-scale household survey that has been conducted by the Banco de España since 2002, providing detailed information on the income, assets, debt and spending of households living in Spain. See Barceló, Crespo, García-Urbe, Gento, Gómez and de Quinto (2020) for further details on the contents and methodological aspects of the survey.

EFF aggregate measure to the other corresponding source has also increased substantially over time. As for debts, the aggregate of total debts computed from the EFF represented 57% of the comparable measure in the first wave, and this ratio has improved over time, reaching 95% in the 2020 wave. In terms of income, the aggregate calculated on the basis of the EFF data is close to the aggregates calculated with other comparable sources. However, calculations related to households' expenditure show that the EFF underestimates somewhat all the expenditure measurements except for the acquisition of transport goods and holidays. The underestimation of some components is to be expected, as the EFF does not ask questions about all consumption items.

This paper contributes to the literature that evaluates survey data by linking micro and macro sources (Rothbaum, 2015; Andreasch and Lindner, 2014; Fesseau, Wolff and Liviana Mattonetti, 2013; Ravallion, 2003) or by linking micro and micro sources (Pfeffer, Schoeni, Kennickell and Andreski, 2016). The exercise also speaks to the distributional wealth accounts literature, where linking micro and macro sources is key to providing a reliable set-up to estimate the distributional series (Anhert, Kavonius, Honkkila and Sola, 2020; Batty et al., 2020).

The paper is structured as follows. Section 2 introduces the main conceptual differences that have to be taken into account when comparing micro and macro data sources, which are mainly related to the definition of the household sector. The detailed comparison of magnitudes computed from the EFF data and those from alternative sources (including micro data from other surveys) related to non-financial wealth, financial assets, liabilities, income and expenditure of households is presented in Section 3. When analysing the case of financial assets, we provide results for six major categories: pension funds and life insurance reserves, deposits, shares and other equity, investment funds, debt securities and other loans and advances (assets). Finally, Section 4 concludes.

2 Micro and macro data sources: the main conceptual differences

Before showing the results of the comparison for the different variables of interest that can be similarly computed using EFF data and other alternative sources, in this section we provide a detailed overview of the main differences in terms of definitions and valuation criteria among the different sources considered. We will return to these differences in the following sections, especially in the event of important quantitative discrepancies between sources.

Micro and macro estimates differ mostly in four dimensions. First, the definition of the household sector is not the same across sources. The macro definition includes not only households but also individuals or groups of individuals as producers of goods and non-financial services for their exclusive final use. The second major difference refers to the definition and the valuation criteria used to compute magnitudes for the financial and non-financial assets held by households. This endeavour involves a detailed analysis of the different concepts and valuation methods, where, in some instances, there is not even a clear way of aligning concepts and assumptions must be used. Third, both the macro statistics and micro surveys are subject to different approximation and statistical errors, given the differences in how the information is collected and processed. As a result, quantitative discrepancies are expected even when similar definitions and valuation criteria are applied. Finally, the reference period for macro data is generally the end of the quarter, while the EFF data are collected over a period of 8-9 months starting in October of the reference year. Although households are interviewed approximately uniformly over the data collection period, the survey agency is contractually obliged to complete 50% of the interviews by the end of the reference year.

As a result, all these conceptual and methodological differences might lead to quantitative discrepancies and should be well documented and understood.

2.1 Household surveys

In Spain, two surveys – in addition to the EFF – collect and provide both monetary and non-monetary information at the household level: the HBS and EU-SILC. The population of interest in both of these surveys comprises individuals who are members of private households and live in main family dwellings. In both surveys, the concept of private household is defined as the group of individuals who jointly occupy a main family dwelling or part of it and consume and/or share food or other goods in the same budget.²

The main goal of the HBS is to provide information on household expenditure (INE, 2020). To measure such expenditure, each household member in a selected household is requested to keep a record of and report all spending on the different goods and services

² There is a subtle methodological difference with respect to the EFF. In the EFF people living in the same dwelling and sharing expenses are not necessarily a single household. Only people in the dwelling who make vital, economic and financial decisions jointly are considered to be part of the household. An exact comparison in terms of microeconomic statistics may require comparing magnitudes expressed in household equivalent units.

they acquire. In addition, the HBS collects information on the different sources of household and individual income, as well as other measures of living standards. Information is provided not only on the spending by each household member but also on the value of goods intended for self-consumption or self-supplied, in-kind wages, free or discounted meals and rent imputed to the dwelling in which the household is living (when that dwelling has been provided for free (fully or partially) by other households or institutions). The previous version of the HBS (Encuesta Continua de Presupuestos Familiares (ECPF by its Spanish initials)), which was conducted quarterly between 1997 and 2005, was replaced by the current version in January 2006. For each quarter, the ECPF collected data from two subsamples, both of them representative of the population. The first of these subsamples (“subsample g”) only asked about expenditures with a periodicity greater than one week, while the second one (“subsample G”) was required to provide greater detail, including questions about a series of weekly expenditures (such as expenditure on certain foods). In order to avoid household fatigue, as well as to facilitate the partial renewal of the sample, a rotation scheme was introduced between the two subsamples throughout the different quarters. The compilation of the ECPF from a rotating sample resulted in the publication each quarter of two different files with data on expenditure: one containing data from both subsamples (g and G) and another containing only subsample G (and therefore more detailed expenditure items). To calculate aggregates of total expenditure and of certain expenditures that only subsample G contains, as our analysis requires, it is therefore necessary to work with expenditure file G. Were we to use the first file (containing information on subsamples g and G) we would be omitting some weekly expenditures from the calculation of the aggregates. In addition, to calculate means and medians at the household level, the INE recommends using subsample G. In the 1997 base survey, 8,000 households were interviewed per quarter (8,064 in 2002), which meant an annual sample size of approximately 11,000 households – once the rotating panel design of the survey is taken into account. The ECPF’s successor, the HBS, provides similar information but with much larger sample sizes of around 24,000 households on an annual basis (19,170 households in 2020).

The annual EU-SILC was launched in 2004. It was preceded by the European Community Households Panel (ECHP), which was conducted between 1994 and 2001. Both surveys had similar characteristics and objectives. The main goal of EU-SILC is to provide detailed information on income both at the individual and at the household level. This information is needed to characterise the distribution of income and to analyse issues related to social exclusion and social mobility for the population of households. EU-SILC also contains questions on the demographic and socio-economic characteristics of the household members and questions related to the dwelling and its equipment. An important change was made to its methodology in 2013: since then the compilation of income data has been the result of a mixed methodology which combines survey data with administrative records of the Spanish Tax Administration Agency, Social Security, the Navarre Tax Agency and the Provincial Government of Bizkaia. This change seems to have affected income levels but not income distributions (Méndez and Vega, 2011). Under the new methodology, retrospective micro data files have been provided for the period 2008-2012 (base 2013). The sample size was 12,996 households in 2005 and 15,043 in 2020.

Finally, the EFF is a household survey which has been conducted every three years³ by the Banco de España, in collaboration with the INE and the tax authorities, with the main objective of providing detailed information on Spanish households' wealth and financial decisions. Households are asked detailed questions regarding the current status of their non-financial and financial assets and liabilities and their income. Some information on consumption is also collected. One fundamental aspect of this survey is the over-sampling of wealthy households. This feature is crucial to guarantee a sufficient number of rich households in the sample as the distribution of wealth is heavily skewed and certain types of assets are held by only a small fraction of the population. The sample size ranges from 5,143 households in 2002 to 6,313 in 2020.⁴

2.2 The SNA definition of the household sector

The SNA and the FASE compute economic and financial aggregates for the different types of subjects or agents involved in monetary and financial transactions. These subjects are called institutional units. An institutional unit is an elementary economic decision-making centre, characterised by uniformity of behaviour and decision-making autonomy in the exercise of its principal function. For analytical purposes, units are combined into groups (the so-called institutional sectors) on the basis of their main function. Three principal kinds of functions are distinguished: production, redistribution of income and consumption. According to the European System of Accounts (ESA 2010) (European Commission, 2013), the household sector behaves mainly as a consumption unit.

Households as consumers may be defined as small groups of people who share the same living accommodation, who pool some, or all, of their income and wealth and who consume certain types of goods and services collectively, mainly housing and food.

Specifically, the household sector defined by these macro sources includes:

- Individuals or groups of individuals whose principal function is consumption.
- Persons living permanently in institutions who have little or no autonomy of action or decision in economic matters (e.g. members of religious orders living in monasteries, long-term patients in hospitals, prisoners serving long sentences, old persons living permanently in retirement homes). Such persons are treated as a single institutional unit: a single household.
- Individuals or groups of individuals whose principal function is to consume and that produce goods and non-financial services exclusively for their own final use; only two categories of services produced for own final consumption are included

³ In 2020 the EFF was changed to a biennial survey.

⁴ The sample size was 5,962 households in 2005, 6,197 households in 2008, 6,106 households in 2011, 6,120 households in 2014 and 6,413 in 2017.

within the system: services of owner-occupied dwellings and domestic services produced by paid employees.

- Sole proprietorships and partnerships without legal status (other than those treated as quasi-corporations) which are market producers.
- Non-profit institutions serving households (NPISHs), which do not have independent legal status, or those which do but which are of only minor importance.

Household surveys exclusively include households of the first and fourth types.⁵ However, macro sources also include NPISHs which are not separate legal entities, as well as homeowners' associations and jointly held property (they are considered to be consumption units given that their main function is to consume) and individuals with no fixed abode. In addition, most FASE series also include NPISHs, which are separate legal entities.

⁵ According to the INE there were approximately 18.8 million households in 2020. To our knowledge there is no information available on the number of households as defined in the FASE, such that a quantitative comparison on this basis cannot be undertaken.

3 Comparative analysis between different sources

Tables 1 to 8 provide the results for concepts that are comparable across the different sources. In particular, we compare magnitudes computed from the EFF data and other alternative statistical sources (including micro data from other surveys) for several concepts referring to households' non-financial wealth, financial assets, liabilities, income and expenditure.⁶ Results from all the EFF waves are provided to show the evolution and robustness of the comparison. For additional details on variable definitions and reference sources, see Tables A.1-A.3 in the Annex.

Section 3 is structured as follows. Section 3.1 compares the EFF data with other micro and macro magnitudes related to non-financial wealth. Section 3.2 focuses on the comparison of financial asset aggregates, which are divided into six major groups: pension funds and life insurance reserves, deposits, shares and other equity, investment funds, debt securities and other loans and advances (assets). The comparison of aggregates related to liabilities is presented in Section 3.3. Finally, Sections 3.4 and 3.5 provide the results for the analysis of income and expenditure aggregates.

3.1 Non-financial wealth

According to the ESA rules, non-financial assets include a broad set of produced non-financial assets such as fixed assets, dwellings, non-residential buildings, plant and machinery, crops and livestock and intellectual property products, inventories and valuables, and non-produced non-financial assets such as lands, non-cultivated biological resources, water resources, as well as contracts, leasing and licences and business goodwill. However, there are limited aggregate data in Spain on the value of these assets either for the household sector or for other institutional sectors. Since March 1987 the Banco de España has provided an estimate of the market value of the total stock of housing held by households, which is published as part of its housing market summary indicators (SI). The SI estimate is based on the following assumptions:

- The stock of housing in each year is derived from the number of finished houses in the 2001 and 2011 censuses, applying an annual depreciation rate of 0.34%.
- The average surface area in square metres each year between 2001 and 2011 is approximated by a linear interpolation of that of finished houses according to the 2001 and 2011 census data. Furthermore, that area has not changed since 2011.
- The price of dwellings per square metre appraised by professionals (up to 2004) or the set of registered transaction prices (from then onwards).⁷

⁶ Not all financial assets could be considered for the comparison since it is not possible to compute magnitudes for all of them from the two sources. For example, cash holdings are excluded from the comparison because the EFF does not ask households how much cash they hold in their wallets.

⁷ The level of the series in €/m² is set from historical statistics of average values for appraised housing published by the Ministry of Public Works between 1987 and 2004 Q4, extended to 1980 by the Banco de España (using Technigrama Information). For the period 2005-2006, the corresponding rates of Tinsa's general housing price index (IMIE) are applied. Since 2007 the series has used the annual rates in the Housing Price Index (HPI) published by the INE. Unlike the pre-2007 appraisals-based data, the HPI is based on actual prices of purchased dwellings. For the final real estate calculation, the linked and non-seasonally adjusted housing price series is used.

At the micro level, the EFF survey is the only publicly available statistical source that provides population-wide household-level information about the ownership and value of all types of non-financial assets.⁸ Indeed, based on the EFF data, the total non-financial wealth of the household can be computed as the sum of real estate properties (i.e. dwellings, non-residential buildings and land), businesses related to the self-employed and other valuables (jewellery, antiques and works of art). These components are generally valued at selling prices, estimated by the respondents. There are four main conceptual differences between these two sources. Firstly, the survey figure refers to real estate wealth, i.e. houses and other real estate assets, while the aggregate data considers only the stock of housing. Secondly, the aggregate measure is based on the assumption that the entire stock of housing belongs to households, which is not necessarily the case (García and Roibás, 2020). Thirdly, the aggregate measure does not include housing wealth abroad, whereas in the survey it is included. Lastly, the valuation of the aggregate data is based on appraisals up to 2004 and transaction prices thereafter, while the survey data is based on households' estimated market values.

Regarding the first problem, the EFF collects the individual value of the three most important properties, aside from the main residence if owned, after which the remaining properties are reported as a bundle. Despite this, Table 1 presents an approximation of the value of housing wealth. The EFF/SI ratio for housing wealth is between 60% and 70%, which is lower than the one including all real estate assets. Indeed, the comparison of all real estate wealth based on the EFF with the housing SI magnitude shows that the EFF accounts for around 70% to 80% of SI wealth, capturing quite well the time trend of housing wealth. The gap between both sources might also be explained by the second conceptual difference mentioned above, i.e. the stock of real estate wealth being assigned to all households. However, there are also institutions, such as hedge funds and non-profit organisations, that own real estate assets and the aggregate measure does not differentiate between them. It is unlikely that the consideration of housing abroad explains the differences because that would lead to assets being overvalued in the survey, and this is not the case.

A final methodological difference resides in the valuation method. In the EFF, households are asked for the estimated selling price at the time of the survey, while the estimation provided by the SI uses the average price per square metre, which may be affected by upper tail prices. Furthermore, the valuation of the aggregate data is based on appraisals up to 2004, and the literature has documented that up to 2011 appraisals used to be larger than transaction prices (García-Montalvo and Raya, 2012; Bover, Torrado and Villanueva, 2019). These results contrast with those of the literature on the self-reported valuation of dwellings, which documents households' overvaluation of housing values with respect to professional appraisals (Kain and Quigley, 1972; González-Navarro and

⁸ Since 2012 the INE has also provided information on households' fixed assets and inventories, non-produced assets and land provided as part of the annual non-financial accounts by institutional sectors balance sheet data. In the particular case of dwellings and land, the data date back to 1995. However, for land, there is no separation between land underlying dwellings and other land. As the temporal availability of the rest of the series starts at 2012 we cannot include comparisons with non-real estate household real assets.

Table 1

NON-FINANCIAL WEALTH ACCORDING TO THE EFF AND OTHER COMPARABLE SOURCES

	2002	2005	2008	2011	2014	2017	2020
Housing wealth (€m)							
EFF (all real estate)	1,891,479	3,539,989	4,264,054	4,037,450	3,673,174	3,788,793	4,018,876
EFF	1,692,778	3,220,772	3,848,904	3,636,626	3,300,927	3,339,388	3,503,525
SI	2,851,636	4,906,038	6,054,496	5,207,979	4,263,589	4,959,984	5,554,601
EFF (all real estate)/SI ratio	66.33	72.16	70.43	77.52	86.15	76.39	72.35
EFF/SI ratio	59.36	65.65	63.57	69.83	77.42	67.33	63.07
Ratio of housing wealth to total household assets (excluding cash) (%)							
EFF	71.23	74.03	73.46	70.11	65.18	63.90	61.48
SI	73.17	76.74	78.87	75.40	68.09	68.76	69.29
Tenure of main residence							
% ownership							
EFF	80.71	80.27	81.90	82.56	80.35	75.88	73.93
EU-SILC	N.A.	80.55	79.63	79.59	78.05	76.72	75.24
HBS	84.10	86.56	80.25	77.63	77.39	75.88	76.75
% rent							
EFF	12.27	11.97	12.20	11.25	11.79	16.37	18.99
EU-SILC	N.A.	13.01	14.26	14.91	14.93	16.86	17.94
HBS	10.28	9.00	14.46	16.74	16.31	18.03	17.69
% other							
EFF	7.03	7.76	5.90	6.19	7.86	7.74	7.08
EU-SILC	N.A.	6.45	6.11	5.50	7.02	6.42	6.83
HBS	5.60	4.44	5.30	5.63	6.30	6.09	5.56
% of households that own a dwelling other than the main residence, and use it for holidays or other private use							
EFF	10.70	10.86	12.43	14.03	15.79	16.18	16.02
HBS	14.26	14.37	14.06	14.43	14.52	14.25	13.14
Average monthly rate paid by households that rent their main residence (€)							
EFF	277	337	410	393	429	419	465
EU-SILC	N.A.	327	430	436	408	446	491
EFF/EU-SILC ratio (%)	N.A.	103.14	95.28	90.11	105.13	93.90	94.73
Median of the ratio of rent payments to gross household income (%)							
EFF	17.49	20.75	21.36	20.42	26.00	23.40	23.01
EU-SILC	N.A.	19.71	22.41	24.53	25.13	24.09	22.90

SOURCES: Banco de España (EFF and SI) and INE (EU-SILC and HBS).

Quintana-Domeque, 2009; Benítez-Silva, Eren, Heiland and Jiménez-Martín, 2015; Tur-Sinai, Fleishman and Romanov, 2020) and has been found to be related to households' socio-economic characteristics.⁹ Finally, the estimates that use transaction prices (those

⁹ Nonetheless, to our knowledge there is no evidence for these facts in periods of real estate turmoil, such as 2007-2012.

between 2004 and 2011) may result in an overestimation of total housing wealth given that transaction prices only refer to the stock of transacted houses.

Housing assets account for between 60% and 70% of total assets (sum of financial assets excluding cash plus housing wealth) across the waves of the EFF and this matches quite well with the SI counterpart. In 2020 there was a small deterioration in the quantitative comparison of those relative weights (61% in the EFF and 69% in the SI). This is in part explained by an increase in the value of financial assets in the EFF, which enters into the denominator of the ratio (more details about this increase will be explained in the following subsection). The rest is explained by the fact that the difference between both sources regarding the housing wealth aggregate also increased in 2020.

Other comparable magnitudes can be calculated using data from other micro surveys, such as the HBS and EU-SILC. For example, the percentage of households who own their main residence derived from the EFF data decreased from 82.6% in 2011 to 74% in 2020, and this drop is also present in EU-SILC and HBS data. This entails an increase in the percentage of renters (or households with other forms of house tenure) in recent years in the three surveys (EU-SILC, HBS and EFF). Furthermore, the differences in these percentages across the three surveys are small for all waves (less than 4 percentage points (pp)) and have been decreasing over the whole period.

The share of households that own a dwelling other than their main residence and use it for holidays or other private use has been increasing in the EFF since 2014 while the opposite is true according to the HBS results. According to the EFF, in 2020 16% of households had other dwellings, whereas 13% did according to the HBS. In this respect, it is important to note that the two surveys pose questions in different ways. In the EFF, households report the number of properties and then provide details about each one and how they are used, while in the HBS there is only one question that collects this information. An additional difference is that the HBS asks for dwellings that the household had at its disposal over the last 12 months, while the EFF asks about ownership at the time of the interview. However, this would mean that the ratio should be higher for the HBS, but this is not the case.

Focusing on those who rent their main residence, the average monthly rent payment is similar across the surveys (e.g. the EFF magnitude accounts for around 90%-100% of the corresponding EU-SILC amount) in all the waves, except in 2014. After the financial crisis of 2009, rental prices in Spain followed a downward path until the end of 2013 and beginning of 2014, when prices started to pick up again (López-Rodríguez and Matea Rosa, 2019). Those variations, together with the fact that the EFF data approximately refer to the end of the year while EU-SILC refers to the second quarter, may explain part of the differences for that year.

3.2 Financial assets

According to the ESA 2010, financial assets are divided into various categories: monetary gold and special drawing rights; currency and deposits; debt securities; loans; equity and

investment fund shares/units; insurance products, pensions and standardised guarantee schemes; financial derivatives and employee stock options; and, other accounts receivable. The ESA 2010 methodology also establishes that financial assets shall be valued at market price, i.e. at the price prevailing on the date to which the balance sheet relates. However, non-negotiable financial instruments are valued at nominal value. The application of this rule in practical terms turns out to be problematic for those instruments whose valuation cannot be calculated directly. Indeed, market prices can only be accurately measured for securities quoted on the public debt market (which represent the bulk of outstanding securities other than shares) and for quoted shares. Thus, for the remaining securities ESA 2010 relies on estimates.

Official aggregate data on the value of financial assets held by Spanish households are available in the FASE, produced by the Banco de España (Banco de España, 2017).¹⁰ The data used to calculate the FASE come from various sources, which are combined in a series of complex calculations to produce an integrated set of accounts following the ESA rules. In particular, the FASE contain a set of statistics on the aggregate balance sheet of the household sector and on its financial flows with the rest of the economy's institutional sectors. The household sector's financial assets and liabilities are partly derived as residuals because reports on the balance sheet activities of households are generally not available. For some categories, as for home mortgage debt and time deposits, this method seems reasonable because the household sector is the largest holder.

In the EFF, household financial wealth is the sum of the following items: accounts and deposits usable for payments, accounts not usable for payments and house-purchase savings accounts, listed shares, mutual funds, fixed-income securities, pension schemes and unit-linked or mixed life-insurance, unlisted shares and other equity, managed accounts (for which no comparable FASE data are available) and other loans and advances owed by third parties to households. In 2020, a new question about derivatives, such as options, futures and swaps, was included in the EFF, so that in 2020 financial wealth also included these assets.

Regarding how assets are valued, the EFF uses market value estimations made by households' respondents whereas the FASE use market values. In this respect, the only exceptions refer to securities other than shares (fixed-income securities and government and corporate bonds) and unlisted shares. For unlisted shares, the macro data estimate the market price based on the valuation of listed shares and accounting information on the unlisted shares.¹¹ For debt securities, the macro data use the market value, including the interest accrued during the period. Given the different set of assets included under this instrument, see Banco de España (2017) for more details.

¹⁰ In Spain, the FASE include in the household sector those individuals and groups of individuals who use as their tax identity number (NIF) their national identity card number (DNI) followed by a letter and those who use an NIF beginning with the letters E and H (owners' associations and jointly held property, respectively) in their dealings with credit institutions and the tax authorities.

¹¹ For more details, see Banco de España (2017).

Table 2

FINANCIAL ASSETS ACCORDING TO THE EFF AND OTHER COMPARABLE SOURCES

	2002	2005	2008	2011	2014	2017	2020
Pension funds and life insurance reserves (€m)							
EFF	51,696	92,549	105,150	152,974	152,276	173,384	141,222
FASE	158,296	207,945	237,154	256,358	319,289	344,964	375,925
EFF/FASE ratio (%)	32.66	44.51	44.34	59.67	47.69	50.26	37.57
Deposits (€m)							
EFF	122,563	197,910	290,481	334,485	354,560	358,562	498,271
FASE	407,414	497,012	699,789	726,681	773,355	790,901	931,296
EFF/FASE ratio (%)	30.08	39.82	41.51	46.03	45.85	45.34	53.50
Listed shares (€m)							
EFF	43,297	50,996	51,999	75,531	128,969	141,218	121,848
FASE	73,172	110,833	82,292	82,494	143,555	137,573	104,407
EFF/FASE ratio (%)	59.17	46.01	63.19	91.56	89.84	102.65	116.70
Unlisted shares (€m)							
EFF	126,299	361,845	326,925	370,897	458,387	446,176	536,820
FASE	209,464	386,746	367,848	376,237	447,371	592,441	602,315
EFF/FASE ratio (%)	60.30	93.56	88.87	98.58	102.46	75.31	89.13
Investment funds (€m)							
EFF	28,596	63,910	45,184	45,912	93,017	102,099	142,529
FASE	133,928	203,436	149,338	121,144	227,041	316,569	358,651
EFF/FASE ratio (%)	21.35	31.42	30.26	37.90	40.97	32.25	39.74
Securities (€m)							
EFF	6,664	8,749	10,889	14,623	5,937	2,920	3,467
FASE	27,038	32,092	36,113	82,773	36,529	15,965	12,539
EFF/FASE ratio (%)	24.65	27.26	30.15	17.67	16.25	18.29	27.65
Financial derivatives (€m)							
EFF							2,321
FASE							2,838
EFF/FASE ratio							81.77
Other loans and advances (assets) (€m)							
EFF	8,196	9,788	13,605	38,836	65,636	62,406	56,688
FASE	36,277	49,140	49,677	53,903	50,988	55,109	76,342
EFF/FASE ratio (%)	22.59	19.92	27.39	72.05	128.73	113.24	74.26
Managed accounts (€m)							
EFF	N.A.	N.A.	4,071	7,706	19,620	64,257	56,280
Total EFF Financial Assets (€m)	387,310	785,748	848,303	1,040,965	1,278,403	1,351,022	1,559,446
Total FASE Financial Assets (€m)	1,045,588	1,487,203	1,622,211	1,699,591	1,998,127	2,253,523	2,464,312
EFF/FASE ratio (%)	37.04	52.83	52.29	61.25	63.98	59.95	63.28

SOURCE: Banco de España (EFF and FASE (ESA 2010)).

Differences in the exact timing of the collection of the micro and macro data might also contribute to the discrepancy between aggregates from both statistical sources, particularly for financial instruments that are valued at market prices. In this respect, the EFF is conducted over the period October-June (approximately 8-9 months), although by December half of the interviews have been completed. In addition, the estimates provided

Table 3

FINANCIAL ASSETS DISTRIBUTION ACCORDING TO THE EFF AND OTHER COMPARABLE SOURCES

(%)

	Insurance, pension funds and standardised guarantees	Deposits	Listed shares	Unlisted shares	Investment funds	Securities	Financial derivatives	Other loans and advances (assets)
2002								
EFF	13.35	31.64	11.18	32.61	7.38	1.72		2.12
FASE	15.14	38.96	7.00	20.03	12.81	2.59		3.47
2005								
EFF	11.78	25.19	6.49	46.05	8.13	1.11		1.25
FASE	13.98	33.42	7.45	26.00	13.68	2.16		3.30
2008								
EFF	12.40	34.24	6.13	38.54	5.33	1.28		1.60
FASE	14.62	43.14	5.07	22.68	9.21	2.23		3.06
2011								
EFF	14.70	32.13	7.26	35.63	4.41	1.40		3.73
FASE	15.08	42.76	4.85	22.14	7.13	4.87		3.17
2014								
EFF	11.91	27.73	10.09	35.86	7.28	0.46		5.13
FASE	15.98	38.70	7.18	22.39	11.36	1.83		2.55
2017								
EFF	12.83	26.54	10.45	33.03	7.56	0.22		4.62
FASE	15.31	35.10	6.10	26.29	14.05	0.71		2.45
2020								
EFF	9.07	32.00	7.83	34.48	9.15	0.22	0.15	3.64
FASE	15.27	37.83	4.24	24.47	14.57	0.51	0.12	3.10

SOURCE: Banco de España (EFF and FASE (ESA 2010)).

by households of the market value of their financial instruments generally correspond to the interview date. In light of this, the macro magnitudes used in the comparison are those of the fourth quarter of the corresponding year, i.e. EFF2017 would compare to the 2017 Q4 FASE aggregate magnitudes. In addition, all FASE series used in the comparison of financial assets include NPISHs.¹² Thus, by definition the aggregates obtained from the FASE should be larger than those obtained from the EFF data due to the different definition of the household sector.

Table 2 presents the results for the financial asset comparison. The EFF/FASE ratios have increased substantially since 2002 for all the comparable financial instruments:

¹² We undertake an internal evaluation with unpublished financial series that exclude NPISHs which are separate legal entities and the results are similar, except for listed shares where we see a change from those presented in this version.

in 2002 the EFF estimate for total household financial assets accounted for 37% of the FASE estimate, while in 2020 this percentage rose to 63.3%. However, there are certain financial instruments where the differences between the EFF and aggregate sources are still considerable in 2020. This is the case for securities, investment funds, deposits and pension funds and life insurance reserves. For those financial products, the ratio of the EFF aggregate to the FASE aggregate is between 30% and 50%, approximately. These estimates are lower because several of the financial assets are reported in the survey under households' managed accounts.¹³

As Table 3 shows, the relative weight of each class of financial asset with respect to total financial wealth – i.e. portfolio distribution – has remained quite stable over time for both sources. There are, however, some differences in the importance of investment funds and deposits between the two sources (on average 12% and 39% for the FASE and 7% and 29% for the EFF, respectively). Conversely, the relative weight of unlisted shares is larger according to the EFF (on average, 23% for the FASE and 38% for the EFF). A detailed comparison for each financial asset is provided below.

3.2.1 Pension funds and life insurance reserves

The macro data on pension funds and life insurance in the FASE are estimated from the quarterly information bulletins and annual statistical reports (which include the financial statements of insurance companies and pension funds) issued by the Directorate General of Insurance and Pension Funds (DGSFP by its Spanish acronym), and the reports of the Association of Collective Investment Institutions and Pension Funds (INVERCO by its Spanish acronym) and the Cooperative Research Association of Insurance Companies (ICEA by its Spanish acronym). The FASE concept includes all kind of insurance policies – we obtain the series by subtracting *Non-life insurance technical reserves* from *Insurance systems, pension funds and standardised guarantees*. The FASE series include financial claims of life insurance policy holders and beneficiaries of annuities against the corporations providing them and benefits received by beneficiaries (employees) when they retire.¹⁴ Regarding these types of assets, the EFF measures household investments in pension plans and mixed-life insurance policies but does not have a direct counterpart for the financial claims of life insurance policy holders. Thus, by definition, the resulting EFF aggregate is lower than the FASE one. In addition, a relevant distinction between the data sources is that household savings in pension plans which are partially recovered (because the household is receiving payments now or has been receiving them in the past) do not appear in the EFF survey until the 2020 edition.¹⁵

¹³ To our knowledge, there is no empirical evidence on the average composition of households' managed accounts. If we assume that managed accounts are mostly composed of investment funds, the share of investment funds in the FASE accounted for by the EFF in 2020 would be 55.4% rather than 39.8%.

¹⁴ For more details on the different concepts and their valuation in the FASE, please see Section 7.6 of Banco de España (2017).

¹⁵ Besides, in EFF2020 the revision of audio records allowed us to identify whether respondents made mistakes in the type of insurance policy reported. By these means, the revision team identified several misclassifications of insurance plans which were previously being incorrectly reported as having a valuation. This means that in EFF2020 the total valuation of these pension plans and life insurance reserves fell with respect to the 2017 wave, even if including the new information on savings of pension funds partially recovered.

In terms of the valuation method for pension entitlements, the FASE include actual contributions together with income earned from such investments, while in the EFF households report a measure of the present value of the investment in this asset at the time the interview is conducted. This might explain why the ratio between EFF and FASE figures for pension funds and life insurance reserves is around 45%-50% in almost all years,¹⁶ which is consistent with the conceptual and methodological differences between both aggregates.

Even so, the relative weight of this category in the financial asset portfolio is fairly close according the two sources. It is close to 15% for the FASE data and around 12% for the EFF data (see Table 3).

3.2.2 Deposits

Balance sheet information on deposits is provided as part of the quarterly supervisory statistical reporting by credit institutions to the Banco de España. However, the deposits series combines information from the household sector and NPISHs in the form of legal entities. Thus, part of the resulting quantitative difference between FASE and EFF data will be explained by the inclusion of NPISHs in the FASE series.

Total household and NPISH deposits in the FASE include transferable deposits (overnight deposits in euro and in other currencies and saving deposits) and other deposits (funding received in securitisation transactions, savings deposits (up to 2005), time accounts, structured deposits, MFIs' repos, special covered bonds and accounts held abroad). The EFF provides a pooled estimate for deposits, which include accounts usable for payments and accounts not usable for payments. As shown in Table 2, the FASE estimates of total deposits were substantially larger than the EFF figures for all years, but both sources present a similar trend.

The question on deposits is one of the most sensitive questions that households answer in the survey and there is some empirical evidence on households under-reporting this asset in survey data in other countries (Kavonius and Honkkila, 2013; Andreasch and Lindner, 2014). Further, the reference person has to report all household members' deposits, which may ultimately involve some under-reporting. Additionally, households that run a personal business may encounter some difficulty in reporting the personal business deposit, which would be accounted for in the FASE, insofar as it is a personal account. Another potential explanation for discrepancies is the different reference period in the FASE and the EFF, as mentioned above. As deposits are very liquid, their value can vary considerably over time. Nevertheless, the ratio of the EFF aggregate measure to the corresponding macro measure of deposits has increased over time.

In relative terms, the share of deposits in the total value of financial assets differs by about 10 pp between the two sources over time: while on average deposits account for

¹⁶ Additional results not included show that the ratio is larger for pension plans than life-insurance reserves.

39% of total financial assets according to the FASE, the comparable EFF figures amount to 29% (see Table 3).

3.2.3 Shares and other equity

In the case of listed shares, the EFF measures the market value that households own in publicly traded companies with a single question and there is no conceptual difference with respect to the FASE counterpart. In contrast, comparing estimates for unlisted shares and other equity from the EFF and the FASE requires some previous adjustments due to the conceptual differences between the two statistical sources. According to ESA rules, household businesses behaving economically and financially like corporations and whose legal personality is not a natural person are classified as “corporations and quasi-corporations”. However, in the EFF businesses are classified as a household business if some of the household members run, participate or work in the business. Otherwise, they are considered as *Unlisted shares and other holdings in companies* (Bonci, 2005; Cannari, 2007; Mankart and Rodano, 2007). Because of the different measurement, we calculate the micro aggregate by also taking into account the value of household businesses whose legal personality is not a natural person.

In addition, households’ shares and other equity are derived as residuals in the FASE (Banco de España, 2017). This means that the stocks held by households are obtained after subtracting from total outstanding shares the quantities attributed to the other sectors. In terms of valuation, the market value of shares and other equity in the FASE includes both the quoted shares and an estimate of the market value of unlisted shares (based on data from the Central Balance Sheet Data Office of the Banco de España).

As the results in Table 2 show, the discrepancies between the EFF and the macro estimates have decreased over the years for both listed and unlisted shares. In particular, the EFF/FASE ratio has evolved from 59% in 2002 to 117% in 2020 for listed shares and from 60% in 2002 to 89% in 2020 for unlisted shares. With respect to the relative share of each of these two concepts in the total value of financial assets, both sources present similar results for 2020, with a lower weight exhibited by listed shares (around 8% in the EFF vs. 4% in the FASE for listed shares and 34% vs 24%, respectively, for unlisted shares).

3.2.4 Investment funds

Regarding households’ holdings of investment funds, the FASE estimates are based on the information on shareholders supplied by fund managers to the National Securities Market Commission. These estimates are significantly higher than those obtained from the EFF data. In particular, the EFF aggregates account for around 40% of the macro statistics in 2020. However, it is worth mentioning that this ratio has increased substantially since 2002, when it barely exceeded 20%.

The relative weights of mutual funds to total financial assets on average according to both the EFF and the FASE (see Table 3) has been 7% and 12%, respectively. One reason

for this gap is the different timing of data collection across sources.¹⁷ Another reason for the discrepancy is that households holding mutual funds tend to own several funds and may forget to report some of them during the interview. In addition, it should be noted that in 2008 a new question about managed accounts was introduced in the EFF with the aim of capturing the value of all financial assets managed by a third person, some of which are investment funds. The introduction of this new question can explain part of the decrease in the relative weight of mutual funds to total financial assets in the survey between 2005 and 2008 (from 8.13% to 5.33%), as households could have spread their value over both items.

3.2.5 Debt securities

FASE estimates of debt securities are also higher than the EFF figures throughout the period of comparison (see Table 2). On average, over the period 2002-2020, the EFF captures around 23% of the macro estimate. Although this percentage has not evolved smoothly over time, it has increased from 24.7% in 2002 to 27.7% in 2020. The different valuation criterion applied by each statistical source (market value – including interest accrued during the period – in the FASE and an estimated value in the EFF) may explain part of this gap. In addition, macro data on household holdings of public fixed-income securities are partially estimated as a residual, which is computed as the total issued amount minus the holdings of the other sectors. As a result, FASE data on this asset category might also be subject to some biases, and therefore differences with respect to the EFF survey estimates should be considered with caution. Similar to public fixed-income securities, household holdings of corporate bonds (medium and long-term securities issued by firms, banks and other financial intermediaries) are also partially estimated as residuals in the FASE and subject to the same caveats. Additionally, the corresponding survey question asks about fixed-income securities, while the FASE series may also include other types of debt securities. Nevertheless, the FASE provides information related exclusively to the household sector, that is, excluding NPISHs that are separate legal entities, which makes the measures more comparable. The results in Table 3 show that debt securities account for the lowest share of households' financial portfolio during most of the period. On average, the relative weights of debt securities to total financial assets amounts to 0.9% according to the EFF and to 2.1% according to the FASE.

3.2.6 Financial derivatives

The FASE have included balance sheet data on financial derivatives since June 2005. However, in addition to including options and similar instruments (such as warrants, etc.) and futures and similar instruments, it includes employee stock options. The valuation criterion for these assets is market prices. The EFF has collected information on derivatives, such as options, futures and swaps, since 2020. However, the same question that asks about these also asks about the value of intellectual or industrial property rights. The conceptual comparability is, thus, limited. The valuation criterion in the EFF and the FASE is market

¹⁷ Between 2017 Q4 and 2018 Q1 the FASE value of investment funds rose 2.3% while between 2020 Q4 and 2021 Q1 it rose 6%. However, these changes cannot explain fully the differences between FASE and EFF aggregates.

valuation. The EFF/FASE ratio for this magnitude is 81.8% and the relative weight is 0.15% according to the EFF and 0.12% according to the FASE.

3.2.7 Other loans and advances (assets)

The FASE aggregate for other loans and advances is given by the sum of *Household and NPISH commercial loans and advances* and *Other accounts receivable or payable except trade receivables*. Commercial loans come from non-financial corporations and are calculated mainly from information from the Central Balance Sheet Data Office of the Banco de España. These data are enriched by comparing them with loans reported in bank statements. Meanwhile, while the FASE only considers loans owed to households by non-financial corporations, the EFF concept is broader and includes loans owed to households by any type of company, institution or individual not belonging to the household. As the survey collects this information in a single question we cannot adjust the survey aggregate to make both measurements closer. Thus, there is an empirical limitation that affects this comparison, since the FASE do not account for debts between households.

The percentage of the FASE captured by the EFF aggregates increased substantially between 2008 (27%) and 2011 (72%). In 2014 and 2017, this ratio exceeded the 100% threshold, accounting for around 129% and 113%, respectively. However, in 2020 it decreased again to 74%, when the survey made efforts to explain to interviewers to refrain from including loans that are unlikely to be recovered. The relative share of other loans and advances in total financial assets has decreased slightly from 3.5% in 2002 to 3.1% in 2020, with a small upturn in 2011 in the case of the FASE. For the EFF, a negative trend is in general also observed, but the rise after the beginning of the financial crisis period (captured in 2011) is larger in this case (1.60% in 2008, 3.73% in 2011 and 5.13% in 2014).

3.3 Liabilities

There are two alternative macroeconomic series for household debts at the Banco de España. First, there are estimates from the Statistical Bulletin (BE by its Spanish acronym) (*Other financing to households by type of spending*). This item is constructed using the information from the balance sheets that credit institutions provide directly to the Banco de España as part of their supervisory financial reporting. This account captures households' debts but does not include sole proprietors' debts. A second available measure comes from the statistical reports of the Banco de España published as the *Breakdown of assets and liabilities of other MFIs* in the BE, which allows us to measure household debts including debts arranged by sole proprietors since 2007. The residual approach is not applied in any of them. Table 4 presents the results. For the sake of the brevity, only the results using the first macro series will be discussed, but both sets of results are very similar. The results using the second alternative are presented in Table A.4.

The BE provides the detail on the total credit granted to households and the total credit granted to households specifically for house purchase under the heading *Other financing to households by type of spending*. The comparison with the EFF data is shown

Table 4

LIABILITIES ACCORDING TO THE EFF AND OTHER COMPARABLE SOURCES

	2002	2005	2008	2011	2014	2017	2020
Housing debt (€m)							
EFF	150,912	305,408	441,934	502,854	543,201	501,088	520,718
BE	224,830	426,954	626,620	626,550	557,973	503,027	487,855
EFF/BE ratio (%)	67.12	71.53	70.53	80.26	97.35	99.61	106.74
Total debt (€m)							
EFF	183,426	379,992	519,521	579,981	613,669	576,792	604,541
BE	320,053	576,253	819,412	793,430	689,962	646,734	637,516
EFF/BE ratio (%)	57.31	65.94	63.40	73.10	88.94	89.19	94.83
Total household debt for house purchase as a percentage of total household debt (%)							
EFF	82.27	80.37	85.07	86.70	88.52	86.88	86.13
BE	70.25	74.09	76.47	78.97	80.87	77.78	76.52
Total debt payment (€m)							
EFF	32,072	48,003	70,042	62,780	63,548	62,793	67,667
Banco de España Financial Department	59,547	84,035	129,742	105,268	84,270	81,730	86,115
EFF/Financial Department ratio (%)	53.86	57.12	53.99	59.64	75.41	76.83	78.58
Percentage of households that have outstanding debt for the purchase of their main residence (%)							
EFF	20.65	24.87	25.38	25.72	27.69	27.15	27.42
EU-SILC	N.A.	26.60	31.44	29.08	28.39	25.52	26.71
Percentage of households that have outstanding debt unrelated to the purchase of their main residence (%)							
EFF	28.25	34.45	35.20	32.95	32.74	39.71	45.09
EU-SILC	N.A.	23.80	26.53	18.25	16.78	14.64	26.29
Median of the ratio of debt payments for the purchase of the main residence to gross household income (%)							
EFF	14.12	15.43	19.45	17.55	17.07	13.54	13.05
EU-SILC	N.A.	N.A.	17.85	16.85	16.78	14.36	13.02

SOURCES: Banco de España (EFF, Financial Department and Statistical Bulletin (BE)) and INE (EU-SILC).

in Table 4. The EFF collects information on debts outstanding with any kind of institution. However, for comparability with the BE series, we only compare debts arranged with financial institutions. The EFF measurement of total household debt as compared with the BE has increased over time: it started in 2002 with a share close to 60%, while in 2020 this share was 95%. Another relevant comparison is the measurement of total debt for house purchase. In this case, the EFF started with a ratio of 67% in 2002 and reached 107% in 2020. The relative weight of debt for house purchase with respect to total debt is also very similar across the two data sources: 70.3% in 2002 and 76.5% in 2020 according to the BE, and 82.3% in 2002 and 86.1% in 2020 for the EFF. This weight is higher in the EFF across all the waves, which is consistent with the finding that the EFF captures mortgage debt more accurately than other types of debt (Bover, Crespo and García-Urbe, 2022).

Regarding households' debt payments (which include repayment of capital and interest), the aggregate magnitude computed from the EFF accounted for 54% of the magnitude computed from the balance sheets of credit institutions in 2002 and improved up to 79% in 2020.

Next, we compare the share of households with outstanding debt from the purchase of the main residence to that resulting from using EU-SILC micro data. Both surveys show similar results: approximately 27% of households hold debts associated with the purchase of their main residence. In addition, both surveys provide information on other debts not related to the purchase of the main residence, in this case the share of households holding other types of debts is higher according to the EFF for all the waves (45.1% in the EFF versus 26.3% in EU-SILC in 2020). One potential explanation for this difference could be the questions' different wording. Whereas in EU-SILC there is only one question which tries to capture the monetary burden of households ("Disbursements for instalment purchases or for repayment of loans not related to the main home are for the household"), in the EFF information on debts is collected on a case-by-case basis at different points of the survey. Thus, in the EFF households have more opportunities to think about and report their different types of debts. In this respect, the literature on survey questionnaire design has documented that retrieval cues such as asking about specific subcategories instead of an overall category help respondents to recall (Browning, Crossley and Weber, 2003; Groves, Fowler Jr., Couper, Lepkowski, Singer and Tourangeau, 2004; De Leeuw, Hox and Dillman, 2012).

In addition, we can compare the ratio of debt payments for the purchase of the main residence to gross household income in the EFF and EU-SILC. The results show that the median household ratio has decreased since 2008 in both sources, reaching 13% in 2020. The concept is similarly collected in both surveys, which is consistent with the small differences in the estimates.

3.4 Income

Income data is collected in the EFF in gross terms (meaning that taxes and social security contributions are included) and in annual terms referring to the previous calendar year of the corresponding wave. The SNA and EU-SILC provide income sources that can be compared with the EFF. As detailed in Section 2.1, since 2013 income variables in EU-SILC have been retrieved by mixing administrative data and survey data. In addition, data for the period 2008-2012 (base 2013) were recompiled using the same methodology as the one applied to the 2013 survey. Hence, 2005 is the only year when income does not incorporate administrative data. This makes EU-SILC a good benchmark to compare with in terms of income, given that a substantial part of its information comes from administrative records. The comparable SNA income series can be constructed by adding *Gross disposable income*, *Current taxes on income, net wealth, etc.*, *Effective social contributions payable by households* and *Supplementary social contributions payable by households* (and which excludes *Imputed rents of the corresponding year*). SNA data refer exclusively to the household sector, not including NPISHs.

Table 5

INCOME ACCORDING TO THE EFF AND OTHER COMPARABLE SOURCES

	2002	2005	2008	2011	2014	2017	2020
Total income (€m)							
EFF	416,470	472,181	567,382	596,137	565,323	635,208	695,999
SNA	503,311	600,441	695,789	728,861	667,661	731,305	815,076
EU-SILC	N.A.	400,567	577,299	613,993	568,732	615,312	692,931
EFF/SNA ratio (%)	82.75	78.64	81.55	81.79	84.67	86.86	85.39
EFF/EU-SILC ratio (%)	N.A.	117.88	98.28	97.09	99.40	103.23	100.44
Mean income (€)							
EFF	28,258	29,535	32,877	33,077	30,786	34,268	36,979
EU-SILC	N.A.	25,789	34,116	34,489	31,135	33,260	36,909
EFF/EU-SILC ratio (%)	N.A.	114.52	96.37	95.90	98.88	103.03	100.19
Median income (€)							
EFF	21,238	21,446	25,143	24,040	22,926	25,091	28,642
EU-SILC	N.A.	20,751	27,430	26,872	24,099	26,024	29,915
EFF/EU-SILC ratio (%)	N.A.	103.35	91.66	89.46	95.13	96.41	95.74
Total monthly income (€)							
EFF	36,785	42,867	55,074	56,340	52,685	55,848	63,895
SNA	46,990	56,328	65,277	68,696	62,863	68,696	73,175
EFF/SNA ratio (%)	78.28	76.10	84.37	82.01	83.81	81.30	87.32

SOURCES: Banco de España (EFF) and INE (SNA and EU-SILC).

The results show a positive trend in capturing total annual income in the EFF. For example, in 2020 the EFF/EU-SILC ratio for total/aggregate household income is 100% (see Table 5). The comparison to EU-SILC provides closer results, with an EFF/EU-SILC ratio of close to 100% for all waves except for 2005, which can be explained by the aforementioned methodological difference in EU-SILC. However, the comparison to SNA also generates ratios of around 85%, which are also stable over time.

In addition, we provide a comparison of the mean and median of the annual income with respect to EU-SILC. The ratios of the EFF mean and median incomes to those computed with EU-SILC data are close to 100% for all waves. These results show that the EFF does pretty well when measuring the household income distribution, given that some of the EU-SILC data come from administrative records. It is important to note that EU-SILC might undervalue income in particular cases such as the self-employed who use *Personal Income Tax objective estimation* for tax filings, whereby amounts exceeding a quantitative limit are exempt from taxes and there is no need to report them. This means that, in practice, EU-SILC amount may undervalue total income. In fact, in a robustness check, we calculated these statistics separately for households with self-employed members and for households without them and we observed that the total, mean and median incomes of households with at least one self-employed member are lower in EU-SILC than in the EFF. A similar conclusion is made by INE (2014). A full comparison of the income distribution is provided in García-Miralles, Guner and Ramos (2019) for the 2013 income data from EFF2014 with respect to administrative records and similar conclusions were drawn.

Finally, we also compare total monthly income, which in the EFF is a measure of total household income received in the month of the year in which the interview is conducted. This includes income from work, unemployment benefits, welfare or private insurance, retirement, inactivity or permanent incapacity to work pensions, income not related to work activity and returns on assets. The ratio of the EFF to the corresponding SNA measurement has increased across the waves, reaching 87% in 2020.

3.5 Expenditure

The EFF includes questions on households' expenditure on food, other non-durable goods (such as utilities and holidays), vehicles and other means of transport, and other durables (such as household appliances and equipment). For these concepts, the obvious benchmarks to compare with are the HBS and some series of the SNA. However, when performing this comparison exercise, it is important to be aware of three particularities regarding the micro data:

1. While in the HBS households keep a diary of the different expenses they incur when they buy goods and services, the EFF collects data on expenditures for broad concepts of expenditure by means of a single question. This methodological difference might explain potential downward biases in the magnitudes obtained from the EFF with respect to those obtained from the HBS, in line with Browning, Crossley and Weber (2003), Groves, Fowler Jr., Couper, Lepkowski, Singer and Tourangeau (2004) and De Leeuw, Hox and Dillman (2012). However, these biases may vary depending on the kind of good or service (Battistin, 2003; Battistin, Miniaci and Weber, 2003).¹⁸
2. In the HBS, whenever households do not know the breakdown of an expenditure concept into items, the INE assigns quantities to the expenditure items by means of an imputation method that uses information on the breakdown of the corresponding expenditure concept that is available in the rest of the data.¹⁹
3. The EFF asks for average spending on non-durables. This means that unusual expenditure, e.g. spending on ceremonies, is not collected.
4. In the EFF, expenditure questions, except for those on spending on appliances, equipment and vehicles, are asked at the end of the interview when interviewees are more prone to speed up the interview.

¹⁸ These studies found that the diary method performed better than the interview method for measuring spending on food but not for that on transport services, utilities or clothing.

¹⁹ See "Desglose de determinados gastos" in INE (2020). For example, transportation expenditure includes not only the purchase of vehicles but also gas and transport services. We observe a non-negligible share of households with very small values for cars and other means of transport. In order to provide a closer comparison to what might be the distribution of this consumption concept, we apply lower bounds to the HBS data. For cars and other vehicles, we assume the following lower bounds: new vehicles (€1,000), second-hand vehicles (€100), motorcycles (€40) and bicycles (€10).

Table 6

TOTAL EXPENDITURE ACCORDING TO THE EFF AND OTHER COMPARABLE SOURCES

	2002	2005	2008	2011	2014	2017	2020
On food (€m)							
EFF	78,209	90,221	109,563	105,784	97,181	102,355	108,079
HBS	78,766	94,161	126,830	118,415	113,220	125,870	118,136
SNA	136,566	160,088	178,649	171,729	167,347	189,036	162,728
EFF/HBS ratio (%)	99.3	95.8	86.4	89.3	85.8	81.3	91.5
EFF/SNA ratio (%)	57.3	56.4	61.3	61.6	58.1	54.1	66.4
On cars and other means of transport (€m)							
EFF	23,442	34,227	28,690	22,584	21,273	32,139	28,029
HBS	13,450	18,367	26,513	15,773	14,077	20,847	18,384
SNA	18,233	23,289	22,258	14,369	15,479	23,253	18,052
EFF/HBS ratio (%)	174.3	186.3	108.2	143.2	151.1	154.2	152.5
EFF/SNA ratio (%)	128.6	147.0	128.9	157.2	137.4	138.2	155.3
% of households spending on the purchase of vehicles or other means of transport							
EFF	12.7	15.0	11.5	10.1	10.1	15.4	13.5
HBS	6.0	7.5	17.7	13.9	12.5	13.8	11.6
% of households owning a vehicle or other means of transport							
EFF	71.4	73.1	75.9	77.0	76.4	75.5	77.1
EU-SILC	N.A.	73.0	75.0	75.9	75.7	77.2	77.0
HBS	80.5	80.3	67.8	67.0	62.4	62.3	51.4
On equipment (€m)							
EFF	9,049	16,865	15,269	16,140	9,125	15,179	16,552
HBS	10,465	13,277	21,802	17,177	13,049	16,643	15,316
SNA	26,814	32,791	35,447	31,177	26,169	32,132	28,230
EFF/HBS ratio (%)	86.5	127.0	70.0	94.0	69.9	91.2	108.1
EFF/SNA ratio (%)	33.7	51.4	43.1	51.8	34.9	47.2	58.6
On non-durable goods (restricted definition) (€m)							
EFF	147,089	178,616	212,807	212,812	227,383	226,792	232,702
HBS	129,614	158,363	228,548	226,870	217,602	246,145	218,038
SNA	223,009	260,137	295,529	295,469	291,101	325,600	273,862
EFF/HBS ratio (%)	113.5	112.8	93.1	93.8	104.5	92.1	106.7
EFF/SNA ratio (%)	66.0	68.7	72.0	72.0	78.1	69.7	85.0
On non-durable goods (broad definition) (€m)							
EFF	147,089	178,616	212,807	212,812	227,383	226,792	232,702
HBS	189,936	234,921	346,283	332,824	317,356	349,195	305,508
SNA	306,817	368,977	430,299	426,517	417,037	458,159	407,999
EFF/HBS ratio (%)	77.4	76.0	61.5	63.9	71.6	64.9	76.2
EFF/SNA ratio (%)	47.9	48.4	49.5	49.9	54.5	49.5	57.0
On holidays (€m)							
EFF	N.A.	N.A.	N.A.	N.A.	N.A.	20,193	7,702
HBS						13,884	6,017
SNA						21,003	9,947
EFF/HBS ratio (%)						145.4	128.0
EFF/SNA ratio (%)						96.1	77.4
On utilities (€m)							
EFF	N.A.	N.A.	N.A.	N.A.	45,623	47,494	50,095
HBS					47,859	50,475	52,759
SNA					51,820	54,694	55,683
EFF/HBS ratio (%)					95.3	94.1	95.0
EFF/SNA ratio (%)					88.0	86.8	90.0

SOURCES: Banco de España (EFF) and INE (EU-SILC, SNA and HBS).

Table 7

MEAN EXPENDITURE ACCORDING TO THE EFF AND OTHER COMPARABLE SOURCES

	2002	2005	2008	2011	2014	2017	2020
On food (€)							
EFF	5,307	5,647	6,356	5,885	5,297	5,522	5,746
HBS	5,698	6,331	7,444	6,630	6,202	6,814	6,339
EFF/HBS ratio (%)	93.13	89.20	85.39	88.76	85.41	81.04	90.64
On cars and other means of transport (€)							
EFF	12,534	14,281	14,454	12,351	11,430	11,273	11,015
HBS	16,085	16,517	8,765	6,318	6,150	8,151	8,418
EFF/HBS ratio (%)	77.92	86.47	164.91	195.49	185.85	138.31	130.85
On equipment (€)							
EFF	1,759	2,165	2,194	2,210	1,416	1,726	1,571
HBS	890	1,039	1,480	1,137	911	1,115	1,049
EFF/HBS ratio (%)	197.75	208.30	148.28	194.45	155.32	154.85	149.81
On non-durable goods (restricted definition) (€)							
EFF	9,980	11,172	12,331	11,808	12,383	12,235	12,364
HBS	9,364	10,630	13,391	12,676	11,889	13,296	11,571
EFF/HBS ratio (%)	106.58	105.10	92.09	93.15	104.16	92.02	106.85
On non-durable goods (broad definition) (€)							
EFF	9,980	11,172	12,331	11,808	12,383	12,235	12,364
HBS	13,722	15,769	20,289	18,596	17,339	18,863	16,213
EFF/HBS ratio (%)	72.73	70.85	60.78	63.50	71.42	64.86	76.26
On holidays (€)							
EFF	N.A.	N.A.	N.A.	N.A.	N.A.	2,012	1,217
HBS						1,530	867
EFF/HBS ratio (%)						131.54	140.44
On utilities (€)							
EFF	N.A.	N.A.	N.A.	N.A.	2,485	2,567	2,670
HBS					2,389	2,509	2,561
EFF/HBS ratio (%)					104.01	102.30	104.25

SOURCES: Banco de España (EFF) and INE (HBS).

Table 6 presents aggregate annual household expenditure according to these three sources. SNA data refer exclusively to the household sector, not including NPISHs. The results show that the EFF underestimates all expenditure measurements except for the purchase of transport goods. In Tables 7 and 8, we also provide a comparison of distributional features by presenting a comparison of mean and median expenditure between the EFF and the HBS.

Regarding aggregate food expenditure, the EFF accounts for more than 91.5% of the HBS concept and for around 66% of the corresponding SNA item. The comparison of the distributional features, mean and median, of this concept provides similar results (ratios of approximately 80% and 90%, respectively). These results confirm that the EFF captures quite well the distribution of food expenditure. In addition, we compare the ratio of food

Table 8

MEDIAN EXPENDITURE ACCORDING TO THE EFF AND OTHER COMPARABLE SOURCES

	2002	2005	2008	2011	2014	2017	2020
On food (€)							
EFF	4,800	4,800	5,674	4,906	4,800	4,800	4,800
HBS	5,139	5,751	6,343	5,623	5,217	5,687	5,316
EFF/HBS ratio (%)	93.41	83.46	89.45	87.24	92.00	84.41	90.30
On cars and other means of transport (€)							
EFF	12,000	12,773	13,000	9,000	9,800	8,000	8,000
HBS	11,007	8,120	3,600	1,534	1,650	3,500	3,783
EFF/HBS ratio (%)	109.03	157.30	361.11	586.85	593.94	228.57	211.48
On equipment (€)							
EFF	900	1,000	1,000	1,000	700	800	800
HBS	322	429	803	619	499	606	583
EFF/HBS ratio (%)	279.53	233.12	124.51	161.44	140.28	131.99	137.29
On non-durable goods (restricted definition) (€)							
EFF	8,400	9,600	10,800	9,701	10,570	10,706	10,800
HBS	8,503	9,817	11,651	10,972	10,256	11,385	9,799
EFF/HBS ratio (%)	98.79	97.79	92.70	88.41	103.06	94.04	110.21
On non-durable goods (broad definition) (€)							
EFF	8,400	9,600	10,800	9,701	10,570	10,706	10,800
HBS	12,266	14,320	17,191	15,675	14,570	15,864	13,481
EFF/HBS ratio (%)	68.48	67.04	62.83	61.89	72.55	67.49	80.11
On holidays (€)							
EFF	N.A.	N.A.	N.A.	N.A.	N.A.	1,200	700
HBS						806	356
EFF/HBS ratio (%)						148.96	196.69
On utilities (€)							
EFF	N.A.	N.A.	N.A.	N.A.	2,280	2,398	2,400
HBS					2,389	2,509	2,561
EFF/HBS ratio (%)					95.44	95.55	93.73

SOURCES: Banco de España (EFF) and INE (HBS).

expenditure to income²⁰ and we find it is 4.62% in the EFF and 4.23% in EU-SILC. This result confirms that the EFF captures fairly well this important ratio for policy analysis.

For the consumption of cars and other means of transport, the numbers obtained with the EFF are larger for the total, the mean and the median. The valuation of these goods in the HBS includes registration fees and VAT, whereas these are not included in the EFF, which would lead one to expect the opposite results. By contrast, the results are consistent with the fact that the EFF over-samples wealthy households in order to obtain detailed financial information about the top of the wealth distribution, while the HBS does not. One conceptual difference that would also explain higher estimates from the EFF is that the HBS does not include the purchase of recreational vehicles such as boats, campervans and airplanes,

²⁰ This comparison is only available for 2020 because EU-SILC has only included expenditure information since 2020.

whereas the EFF does. Finally, the second particularity listed above may also explain part of the results. To construct the comparable concept in the HBS one has to add up different expenditure sub-items, which introduces more measurement error in the HBS figures.

Tables 6 to 8 show that the EFF total, mean and median expenditure for cars and other means of transport is higher than according to the HBS or the SNA. We observe that from 2017, the EFF presents a larger percentage of households spending on the purchase of vehicles and other means of transport. Nevertheless, the difference between the two sources has been smaller since 2011. We also compare the percentage of households that own vehicles or other means of transport, which for the HBS is computed as the number of households spending on fuel. Since 2008 this percentage has also been higher in the EFF than in EU-SILC or the HBS, with EU-SILC being closer to the EFF. We find that approximately 77% of households own a vehicle according to the EFF or EU-SILC in 2020, while it is 51.43% according to the HBS.

Meanwhile, the EFF also provides a larger mean and median estimate for equipment expenditure (furniture, textiles, appliances, etc.), which is consistent with the fact that the EFF over-samples wealthy households. In addition, it is consistent with the first particularity listed above. However, the EFF is fairly consistent with total expenditure on this item in the HBS, accounting for around 90% in some waves. The HBS data on equipment might therefore be less affected by the second particularity listed above. By contrast, comparing this item with the SNA provides a ratio of around 50%. This low percentage could once more be because this item is collected in a single question in the EFF, while in the SNA it is computed as the sum of eight different detailed items.

Given the wording of the EFF question about non-durable goods,²¹ we implement two comparison approaches. First, a restricted approach which focuses on the items of the HBS and SNA exactly mentioned in the EFF question. Tables 6, 7 and 8 show that spending on non-durables as accounted for by this restricted definition is captured fairly well by the EFF: the mean and median of the EFF is around 90% to 100% of those of the HBS, a larger share than for the comparison of the aggregates. Second, the broad approach establishes spending on non-durables in the HBS and SNA as the difference between total expenditure and durable goods expenditure, whereas the EFF measure is the same. Under this approach, the ratios reach around 60% to 70% for all the comparable measures (total, mean and median), confirming that households respond better when the question's wording features a list of items.

The measurement of household expenditure on holidays was included in the 2017 edition of the EFF. Comparing total holiday expenditure to its SNA and HBS counterparts, we observe that the EFF captures a higher amount than the HBS and a closer but lower one than

21 The question that captures the non-durable goods is: "What is your household's total average spending on consumer goods in a month including food? Consider all household expenses such as electricity, water, mobile phones, condominium services, leisure, school/university, travel, etc. This excludes spending on durable goods, such as automobiles, domestic appliances and furniture, as well as rent, insurance, mortgage payments, etc."

the SNA. The main explanations for these differences with respect to the HBS are similar to those for the consumption of cars and vehicles, i.e. over-sampling of wealthy households and the second particularity listed above. Nevertheless, the three sources show the same trend since 2017 and reflect a steep drop in holiday spending in 2020. The analysis for 2020 cannot disregard the complexity of the socio-economic context due to the COVID-19 pandemic, when the mobility of individuals in Spain was restricted for a long period of time.²²

Finally, a similar matter affects utilities: the EFF has collected this information since 2014. We show that the EFF accounts for 90% of total expenditure on this item relative to the SNA and for 95% compared to the HBS, while comparing the mean and median also provides similar results.

²² In the HBS the total holiday expenditure in 2021 amounted to €8.275 billion, the mean became €1,560 and the median €788.

4 Conclusions

In this paper we provide a comprehensive and detailed comparison of the more relevant EFF economic measurements to other available statistical sources that provide comparable economic information on Spanish households. In this respect, we assess how the survey approximates national aggregates or some distributional characteristics obtained from reliable benchmarks, which constitutes an evaluation of the EFF survey data since 2002. Additionally, the results also contribute to the literature on distributional wealth accounts, where the linkage between micro and macro data is essential to provide accurate estimates.

We review the conceptual differences between the measures of housing wealth in the EFF and the SI and generate two broadly comparable measures. In particular, we document that the ratio of the EFF magnitude to the SI is around 65% both in 2002 and in 2020. Similarly, we describe the conceptual and methodological differences between the FASE and the EFF in the measurement of financial assets. There is a first group of assets where aggregate magnitudes from both sources are closer, i.e. listed and unlisted shares, where the ratios of the EFF to the FASE magnitudes were 60% in 2002 and 100% in 2020. A second group of assets (these include securities, investment funds, deposits and pension funds and life insurance reserves) are conceptually less comparable, due mostly to valuation differences, and aggregates from the EFF represent 25% to 50% of the respective FASE aggregate. Among the second group, there are also financial assets which are less relevant to the total amount of financial assets. As a result, differences in the portfolio distribution of assets between the EFF and the FASE are small and concentrated in investment and pension funds. Furthermore, the fact that the EFF has a measure of managed accounts offsets differences in terms of aggregate financial wealth. The EFF/FASE ratio for the total aggregate value of financial assets was 38% in 2002 and 60% in 2020.

For debts with financial institutions, the conceptual comparison has minor differences and, as a result, the ratios in 2002 were around 70% and around 100% in 2020. Household income in the EFF is also fairly conceptually comparable to that of EU-SILC and the SNA and the ratios are around 80% throughout the time series. Finally, some differences are also observed in the comparison of household expenditure, due mostly to conceptual and methodological differences, yet the ratios are around 80% and 90% in general. Managed accounts, cash and non-financial business wealth are not included in the analysis because of the lack of comparable data on those assets.

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Annex

Table A.1

WEALTH AND FINANCIAL ASSET AGGREGATES. DEFINITIONS

	Micro aggregate	Macro aggregate
Housing wealth	<p>All real estate assets: np2_5 (p2_5 before 2008): Value of the main residence (€) considering the % of the dwelling that belongs to the household + p2_39: Value of other real estate properties (€) different from the main residence considering the % of the real estate that belongs to the household Only housing: np2_5 (p2_5 before 2008): Value of the main residence (€) considering the % of the dwelling that belongs to the household + p2_39: Value of other real estate properties (€) different from the main residence considering the % of the real estate that belongs to the household (only houses, flats and blocks of flats)</p>	<p>SI_1_5.49: Household real estate wealth (€m)</p>
Pension funds and life insurance reserves	<p>p5_7: Present value (€) of pension funds excluding mutualities + p5_14: Present value (€) of life insurance policies, considering only those subscribed by own decision + For EFF>2020: p5_27: Present value (€) of pension funds partially rescued in the past but from which not currently receiving any income + p6_49c: Present value (€) of insurance or pension funds currently being collected</p>	<p>CF_2_21A.16: Insurance systems, pension funds and standardised guarantees (Thousands of euro) - CF_2_21A.17: Non-life insurance technical reserves (Thousands of euro)</p>
Deposits	<p>p4_7: Money in bank deposits (€) considering the sum of the transferable deposits, non-transferable deposits and special saving accounts to buy the main residence.</p>	<p>CF_2_21A.4: Transferable deposits (Thousands of euro) + CF_2_21A.5: Other deposits (Thousands of euro)</p>
Listed shares	<p>p4_15: Portfolio value (€) in listed shares at market value</p>	<p>CF_2_21A.12: Listed shares valued at market value (Thousands of euro)</p>
Unlisted shares	<p>p4_24: Portfolio value (€) in unlisted shares at estimated realisable value + For EFF<2008: (p6_40: Value (€) of the home business when the legal personality is NOT a natural person - p6_40_2: Value (€) of the vehicules included in the business value For EFF>=2008: p4_111: Value (€) of the home business when the legal personality is NOT a natural person</p>	<p>CF_2_21A.13: Unlisted shares valued using estimation methods (Thousands of euro) + CF_2_21A.14: Other ownership interests (Thousands of euro)</p>
Investment funds	<p>p4_31: Valuation (€) of the 10 most important investment funds of the household or p4_28a: Valuation (€) of all the investmnet funds when the household owns more than 10</p>	<p>CF_2_21A.15: Investment fund units and shares in investment companies (Thousands of euro)</p>
Securities	<p>p4_35: Public fixed-income securities and private fixed-income securities</p>	<p>CF_2_21C.3: Household debt securities (Thousands of euro)</p>
Financial derivatives	<p>p4_39a: Value of options, futures, swaps and industrial or intellectual property rights</p>	<p>CF_2_21A_21 : Financial derivatives (Thousands of euro)</p>
Other loans and advances (assets)	<p>p4_38: Amount (€) owed by third parties to the household</p>	<p>CF_2_21A_20: Household and NPISH other assets/liabilities (Thousands of euro) - CF_2_21A_21: Household and NPISH financial derivatives (Thousands of euro) = CF_2_21A.22: Household and NPISH commercial loans and advances (Thousands of euro) + CF_2_21A_23: Household and NPISH Other accounts receivable or payable except trade receivables (Thousands of euro)</p>
Managed accounts	<p>p4_43: Valuation (€) of managed accounts</p>	<p>—</p>

SOURCE: Banco de España (EFF, SI and FASE (ESA 2010)).

NOTE: Macro aggregates beginning with SI refer to the Summary Indicators and those beginning with CF refer to the Financial Accounts of the Spanish Economy (ESA 2010).

Table A.2

LIABILITY AGGREGATES. DEFINITIONS

	Micro aggregate	Macro aggregate (a)
Housing debt	<p>Option 1: p2_12: Outstanding amount (€) if the loan to buy the main house was granted by an MFI. Excluding family loans and loans from non-financial corporations. + p2_55: Outstanding amount (€) if the loan to buy other dwellings (p2.35a=1 or p2.35a=9) not intended for professional use (p2_42!=3) was granted by an MFI.</p>	<p>Option 1: BE_4_13.5: Other financing to households for house purchase (Thousands of euro)</p>
	<p>Option 2 (Annex): p2_12: Outstanding amount (€) if the loan to buy the main house was granted by an MFI. Excluding family loans and loans from non-financial corporations. + p2_55: Outstanding amount (€) if the loan to buy other dwellings (p2.35a=1 or p2.35a=9) was granted by an MFI.</p>	<p>Option 2 (Annex): BE_8_19.2: OMFI. Loans and Credits to households. By purpose. House purchase. Total</p>
Total debt	<p>Option 1: Housing and other real estate loans, other mortgage loans, personal loans and other loans including those related to credit cards. We exclude loans from family and friends, loans from non-financial corporations and others. We also exclude loans for the purchase of housing intended for professional use. *In 2002 there was no question on card loans.</p>	<p>Option 1: BE_4_13.3: Loans granted to households (Thousands of euro)</p>
	<p>Option 2 (Annex): Housing and other real estate loans, other mortgage loans, personal loans and other loans including those related to credit cards. We exclude loans from family and friends, loans from non-financial corporations and others. *In 2002 there was no question on card loans.</p>	<p>Option 2 (Annex): BE_8_18.7: OMFI. Loans and Credits to households. By purpose. House purchase and renovation. BE_8_18.8: OMFI. Loans and Credits to households. By purpose. Consumer credit. BE_8_18.9: OMFI. Loans and Credits to households. By purpose. Other excluding sole proprietors.</p>
Total debt payment	<p>Housing and other real estate loans, other loans, and card loan payments. Excludes payment of debt to family members, non-financial corporations and others.</p>	Household financial burden (b)

SOURCE: Banco de España (EFF, Financial Department and Statistical Bulletin (BE)).

a Macro aggregates beginning with BE refer to the Statistical Bulletin.

b Requested from the Banco de España's Financial Department (not published).

Table A.3

INCOME AND EXPENDITURE AGGREGATES. DEFINITIONS

	Micro aggregate	Macro aggregate (a)
Total income	Renthog: Income earned by the household in the year prior to the survey	Gross disposable household income, direct taxes included and imputed rents excluded: Current taxes on income, wealth, etc. + Gross disposable income + Effective social security contributions payable by households + Supplementary social security contributions payable by households - Imputed rents for the corresponding year
Total monthly income	Mrenthog: Total household income, received in the month of the interview, including: 1. Regular gross monthly income and remuneration in kind of employees. 2. Monthly income received by unemployed workers from contributory benefits, welfare benefits and private insurance. 3. Income from self-employment. 4. Monthly income from pensions of retirement, inactivity or permanent incapacity to work pensions. 5. Income currently received by the household and not related to work activity 6. Returns on assets	Gross disposable income + Current taxes on income, wealth, etc. + Net social contributions + Imputed housing rents
Household expenditure on food at or out of home	p9_2 x 52 if p9_2b=1 p9_2 x 12 if p9_2b=2 p9_2: Total household expenditure on food at or out of home (in a week or a month)	1. Food and non-alcoholic beverages 2.1. Alcoholic beverages 11.1. Restaurants and cafes
Household expenditure on cars and other means of transport	p2_74: Household expenditure on cars in the last year + p2_78: Household expenditure on other means of transport in the last year	7.1. Purchase of vehicles
Household expenditure on equipment	p2_70: Household expenditure on home equipment in the last year	5.1 Furniture, furnishing items, carpets and other floor coverings and their repairs 5.2 Household textiles 5.3 Household electrical appliances 5.4 Glassware, tableware and household utensils 5.5 Household and garden tools 9.1 Audio-visual, photographic and information processing equipment and accessories 9.2 Audio-visual, photographic and information processing equipment and accessories 9.3 Audio-visual and photographic equipment and accessories
Household expenditure on non-durable goods	p9_1 x 12 p9_1: Mean monthly household expenditure on non-durable goods including food (electricity, water, cell phone, owners' association, leisure, school/university, trips, etc.)	Restricted definition: 1. Food and non-alcoholic beverages 2. Alcoholic beverages, tobacco and narcotics 4.4 Water supply and miscellaneous housing services 4.5 Electricity, gas and other fuels 7.3 Transport services 8.1 Postal services 8.3 Telephone and fax services 9.4 Recreational and cultural services 10. Education 11 Hotels, cafes and restaurants Broad definition: (7.1 Purchase of vehicles +Equipment (as calculated above) +4.1 Actual rentals of the dwelling + 4.2 Imputed rentals of the dwelling + 4.3 Maintenance and repair of the dwelling + 8.2 Telephone and fax equipment + 12.3 Personal effects not previously reported + 12.5 Insurance services + 12.6 Financial services not elsewhere declared
Household expenditure on holidays	p9_23: Household expenditure on holidays in the last 12 months	9.6 Holidays, all inclusive 11.2 Accommodation services
Household expenditure on utilities (annual)	p9_22 ÷ p9_22b x 12 p9_22: Monthly household expenditure on utilities p9_22b: Number of months referred to in p9_22	4.4 Water supply and miscellaneous housing services 4.5 Electricity, gas and other fuels 8.3 Telephone and fax services

SOURCE: Banco de España (EFF) and INE (SNA and HBS).

NOTE: The macro aggregates used in income and expenditure are Spanish National Accounts, INE. "Non-financial accounts of the institutional sectors. Detailed current and accumulation account" and "Classification of individual consumption by purpose (COICOP)".

Table A.4

LIABILITIES ACCORDING TO THE EFF AND OTHER COMPARABLE SOURCES INCLUDING LOANS RELATED TO HOUSEHOLD BUSINESSES

	2002	2005	2008	2011	2014	2017	2020
Housing debt (€m)							
EFF	153,194	309,035	445,277	505,380	546,038	504,595	521,645
BE	224,830	426,954	626,620	626,550	557,973	503,027	487,855
EFF/BE ratio (%)	68.14	72.38	71.06	80.66	97.86	100.31	106.93
Total debt (€m)							
EFF	207,128	410,336	555,290	616,724	640,514	609,615	635,943
BE	N.A.	N.A.	874,329	850,049	736,482	691,869	680,151
EFF/BE ratio (%)	N.A.	N.A.	63.51	72.55	86.97	88.11	93.50
Total household debt for house purchase as a percentage of total household debt (%)							
EFF	73.96	75.31	80.19	81.95	85.25	82.77	82.03
BE	N.A.	N.A.	71.67	73.71	75.76	72.71	71.73

SOURCE: Banco de España (EFF, Financial Department and Statistical Bulletin (BE)).

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