A Comprehensive Analysis of Households' Wealth in the EU

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Abstract

Eurostat and the ECB publish integrated non-financial and financial sector accounts. Available data have recently been complemented by non-financial statistics by sectors, which allows to estimate a comprehensive measure of income and wealth of all institutional sectors. In particular for households, a good housing estimate (primarily homes) is relevant for households' non-financial assets and therefore total wealth. Information on households' assets can be derived from sector accounts statistics. This data are compiled under the common ESA 2010 methodological framework, which is consistent, allowing for a national financial and non-financial statistical wide analysis, which is comparable.

This paper will provide a statistical representation of the economic condition for households in European countries in terms of the wealth they possess. All the series that will be shown in the paper are derived from sector accounts statistics. Specifically, the paper will focus on the structure of households' non-financial and financial wealth.

Countries will be grouped according to the statistical findings of the indicators on wealth composition. The paper will present cross-country analysis comparing the structure of net worth of the beginning of the century to the latest available data and their development in the time-frame analysed in order to convey the household specific perspectives.

1 Introduction

Analysis of households' economic conditions is significant when we examine all dimensions of wealth, income and savings jointly. This comprehensive analysis is made possible by the availability of the macroeconomic statistics from the national accounts framework, which consistently supply all the dimensions required to evaluate households' well-being.

In [7], the authors provided a statistical picture of economic conditions for the household sector in EU Member States in Eastern Europe (Bulgaria, Croatia, Czechia, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia and Slovenia). The cross-country analysis compared the time-series indicator values to European Union (EU) and euro area (EA) averages. They found that *per capita* income and consumption in real terms were rising faster in the eastern Member States than the European average for households. Their saving rates (particularly in absolute terms) were also increasing faster than the EU and EA averages, while the structure of their financial wealth was converging to the EU and EA portfolio composition.

In this paper, we extend the analysis of households' economic conditions to all Member States, by analysing wealth composition. We consider both financial and non-financial wealth and we examine the structure of household's wealth, while looking into two different periods; 2001-2004 and 2015-2018. Considering the two distinct periods, we can see how the structure of households' wealth has changed over time and after various socio-economic phenomena; enlargement of the EU, financial crisis, etc. Then, we use the structural breakdown of households' wealth in each country across financial and non-financial assets to examine similarities across EU countries and how households' investment behaviour has changed over time.

The paper is structured as follows. Section 2 presents information on non-financial and financial accounts by sector, and the accounting framework, while it also presents the household sector. The availability of national accounts data (specifically on housing wealth) is determined by the European system of accounts (ESA) transmission programme (ESA2010 TP)[1]. Section 3 discusses the net wealth of household and how it is broken down in non-financial and financial assets. Section 4 presents the methodology and the result of our analysis, while Section 5 sets out concluding remarks.

[1] ESA2010 TP is the programme of national accounts data delivery in the framework of the new European system of national and regional accounts (ESA2010), as set out in Annex B to Regulation (EU) No 549/2013 of the European Parliament and of the Council (OJ L 174, 26.6.2013, p. 1); https://ec.europa.eu/eurostat/web/products-manuals-and-guidelines/-/KS-01-13-429-3A-C

2 Institutional sector accounts

Eurostat and the ECB publish integrated EU and EA sectoral accounts covering financial and non-financial transactions. These 'European sector accounts' are the product of close collaboration with the European Central Bank (ECB), national statistical institutes and national central banks. The transactions are all compiled according to the ESA2010 methodological framework[2], thus ensuring the cross-country comparability of national financial and non-financial statistics produced by national statistical institutes and national central banks. In a few cases, country specificities and/or a lack of available data sources give rise to deviations from the ESA2010 methodology that may affect data comparability.

The accounts by institutional sector (sector accounts) provide comprehensive information on the economic activities of resident sectors and their interactions with the rest of the world. They describe the economic cycle from production and the generation of income, through its distribution and redistribution, to its use for final consumption or saving to provide for the accumulation of non-financial and financial assets. Many key economic indicators are derived from the accounts for all resident sectors and a number of analytical ratios can be derived to explain households' economic activities.

By combining analysis of financial and non-financial sector accounts, we can make an integrated study of households' non-financial economic activities and financial transactions. Evaluation of households in the national accounts framework provides consistent and coherent accounting data on income, consumption and wealth, which is very useful for analysing households' material well-being. Also, the consistency and coherence of the overall system makes it possible to study households' economic behaviour *vis-à-vis* other sectors.

Non-financial sector accounts describe economic transactions from production, through the distribution/redistribution of income, to consumption, savings and investment. Transactions are recorded in accounts, each of which leads to balancing items. The balancing items that are most relevant for the household sector are gross disposable income (from the 'secondary distribution of income' account) and gross saving (from the 'use of disposable income' account). The capital account (one of the accumulation accounts) closes the sequence of non-financial accounts determining net lending (+)/borrowing (-).

Financial accounts record the net acquisition (purchases minus sales) of financial assets and the net incurrence (issues minus redemptions) of liabilities. They make it possible to compute the financial stocks (assets and liabilities) and net financial worth of households and other sectors.

Households also own **non-financial assets**, primarily homes. Wealth, net of financial liabilities, is the value of all real and financial assets that guarantee an economic benefit to their owner in the form of the (actual or imputed) income flow they generate or the proceeds from their sale or liquidation.

[2] ESA2010 is the internationally compatible EU accounting framework for the systematic and detailed description of an economy.

Households are net lenders (lending their surplus savings) to the rest of the economy when the savings ratio is higher than the proportion of disposable income used for non-financial investment. A persistent net lending position may coincide with a low or negative share of external financing in households' available resources, and stable or decreasing levels of household indebtedness.

Conversely, households are net borrowers from the other sectors (to cover their savings deficit) when their non-financial investment as a proportion of their disposable income is larger than the savings ratio. A persistent net borrowing position often coincides with a large proportion of external financing and rising household indebtedness.

ESA2010 financial and non-financial assets are listed in the annex.

2.1 Households and non-profit institutions serving households

In the European accounts, non-profit institutions serving households (NPISHs), e.g. charities, churches, trade unions, are grouped with households. Their economic weight is relatively limited [ESA2010 2.118 to 2.130].

The breakdown by households and NPISHs does not exist for all data and for all countries. Some estimates of NPISHs' financial and non-financial assets are available for some EA countries, but these are not significant[3] and should have a negligible impact for the analysed countries, especially for indicators expressed as percentages. In addition, attempting to separate households (S14) from households and NPISHs (S14+S15) by estimation, without appropriate indicators to deduce the weight of the latter, would only introduce further uncertainty.

For practical reasons, NPISHs are therefore included together with households for all data shown in this paper.

2.2 The role of unincorporated enterprises in households

In the European accounts, the household sector includes employers and own-account workers. The latter consist of households for which the (mixed) incomes accruing to the owners of household unincorporated enterprises from their activity are the largest source of income [ESA2010 2.122].

'Quasi-corporations' are household unincorporated enterprises whose economic and financial behaviour is different from that of their owners and similar to that of corporations [ESA2010 2.13(f)]. Their inclusion in the household sector and the country-specific implementation rules affect the scope and comparability of the household sector accounts in the national accounts framework. A Eurostat investigation of countries' approaches to the delineation and measurement of quasi-corporations showed divergence both in the relevance of unincorporated units among EU Member States and in the criteria for classifying them in relevant institutional sectors[4].

[3] See Honkkila and Kavonius, 2013.
[4] See Infante, Kozina and Gregorini, 2016.

The value of (mixed) income for households may be influenced by the broad delimitation of the household sector in ESA2010 in EU Member States. It is essentially impossible to allocate unincorporated enterprises between households and corporations. Including unincorporated enterprises in the household sector may result in artificially inflated figures for (mixed) income as part of households' disposable income where they employ a high proportion of workers.

The impact of unincorporated enterprises on financial assets should not be very relevant, especially as regards owned assets, for the comparability of the analysed countries. Normally, the decision as to how to allocate savings in terms of financial assets is made so as to guarantee income or reserves of value for households' future consumption. Unincorporated enterprises may have a relevant impact on liabilities if they use loans to finance their activities.

The presence of unincorporated enterprises affects the level of non-financial wealth, since it includes fixed assets such as the enterprises' machinery and equipment. However, this study focuses on dwellings and land – the presence of agricultural enterprises in the household sector could just affect the value of the latter.

3 Household wealth

3.1 Household wealth from non-financial assets

Information on households' assets can be derived from ESA2010 TP Table 26 (balance sheets for non-financial assets by sector) which was introduced in 2014.

While the household sector also includes (small) unincorporated enterprises (see paragraph 2.2), most of its production is for own consumption rather than sale. In countries with complete data for non-financial assets, those relating to housing account for nearly 90% of total assets.

A good housing wealth estimate is key to assessing household non-financial assets (and household total assets). In national accounts, housing value is broken down by produced and non-produced assets: *dwellings* are included in produced assets, *land* in the non-produced ones. As a result, the total value for real estate is made up of *dwellings* and (part of) *land* (which includes land underlying dwellings and other buildings, and agricultural land). *Dwellings* account for around 85% of household total fixed assets.

The NPISH share of these estimates cannot be isolated, but it makes up a relatively small proportion of the joint aggregate for households and NPISHs[5].

For the household sector, ownership of *dwellings* is more relevant than that of *land*. Households own more than 50% of *dwellings* (75-100% of total economy) and *cultivate biological resources* and *land* (30-75%, most frequently above 60% of total economy). The proportion of *land* owned by households is

[5] According to questionnaire responses from the ECB expert group on 'linking micro and macro', the NPISH share of the total non-financial assets of households and NPISHs (S.14+S.15) is roughly 1-3%.

lower than that of *dwellings*, since land underlying other buildings and structures is mostly owned by other sectors, and agricultural land is not owned by households.

3.2 Data availability for non-financial assets

For recent years, the ESA guarantees the availability of at least some estimates for housing wealth. These are produced from available non-financial statistics that permit analysis of households' non-financial assets and their evolution over time. Unlike data on financial assets, national accounts statistics are not yet fully available for household balance-sheet items for non-financial assets. According to the Transmission programme, data have to be sent 24 months after the reference period, i.e. in December 2020 data up to 2018 were sent.

Very few countries send complete data for the household sector. Households' non-financial assets, in particular *land* (AN.211), did not become an obligatory reporting item for EU countries until the end of 2017 and many countries had derogation until 2020. Despite derogation have expired, not all countries are compliant and some information is still missing. Moreover, the time span is not homogenous for all countries, since, for many items year prior to 2012 are sent only on voluntary base. Other countries have quality issues. The international comparability of transactions from Table 26 is therefore still imperfect. Among European countries, the total value of non-financial assets, both produced and non-produced is available only for Czechia, France, Hungary and Sweden. Total Fixed assets and inventories are available for almost all countries, but very few display data prior to 2012, while it is interesting to analyse the structure of wealth over a longer period of time, also prior the economic crisis of 2008 or the debt crisis in 2012, also to see if European households show any convergence in their choices of asset composition.

Focusing on the housing wealth not only allow to concentrate on the most relevant household assets, but also on those that are available with a longer time series. While *dwellings* are available for all countries, except Ireland (and Croatia only up to 2016), *land* is missing for Greece, Latvia, Portugal, Romania, Malta (and 2017-2018 for Croatia).

In the analysis of this paper, we are not interested in the exact value of each non-financial asset, but in the structure of the household wealth, so where data are missing we estimated some proxy.

Estimates have been based on the structure of economic activity in the country concerned (and in similar countries); price levels, trend of house price index[6], real estate market developments and reports, population and ownership rates. In addition, some findings on the relationship between the value of *land* and the value of *dwellings*, as underlined by the Eurostat-OECD Manual on land estimation (2015) were considered[7].

The value of *dwellings* and *land* reflects only the value of assets owned in the national territory. Where households own *dwellings* or *land* abroad, they are considered as a notional unit with residence in the

[6] According to the Eurostat-OECD Manual on land estimation, there is strong correlation between land price and the house price index.

[7] Estimated values do not intend to be exhaustive in terms of level, but representative in relation to disposable income and financial wealth.

country in which the asset is located. For this reason, when values are estimated for all countries, it is possible to compute the EU total as a simple sum of country.

The value of *dwellings* (AN.111) and *land* (AN.211) is taken as a proxy for households' **non-financial wealth**, since it represents the most relevant proportion. Since missing data meant that estimates had to be made for some countries (for some years or assets), estimating housing wealth entails a simplified hypothesis. To estimate total non-financial wealth, more information is needed on each country's economic structure, in particular the proportion of unincorporated enterprises in the household sector.

3.3 Household wealth from financial assets

Households' **financial wealth** is the value of all their financial assets, i.e. cash or a contractual right to receive cash or a financial instrument or to exchange financial instruments. Financial liabilities (for households, these consist mainly of loans received, but also delayed payments and trade credit) are not deducted.

According to ESA 2010, household wealth can be broken down in seven main categories: (1) currency and deposits, (2) debt securities, (3) loans, (4) equity and investment fund shares or units, (5) insurance, pension and standardised guarantee schemes, (6) financial derivatives and employee stock options and (7) other accounts receivable/payable. These are explained in Chapter 5 of the ESA 2010 manual.

Currency and deposits are currency in circulation and deposits, both in national currency and in foreign currencies; *debt securities* are negotiable financial instruments serving as evidence of debt; *loans* are created when creditors lend funds to debtors; *equity and investment fund shares or units* are residual claims on the assets of the institutional units that issued the shares or units; i*nsurance, pension and standardised guarantee schemes* comprise non-life insurance technical reserves, life insurance and annuity entitlements, pension entitlements, claims of pension funds on pension managers, entitlements to non-pension benefits and provisions for calls under standardised guarantees; *financial derivatives* are financial instruments linked to a specified financial instrument or indicator or commodity, through which specific financial risks can be traded in financial markets in their own right; *employee stock options* are agreements made on a given date under which an employee has the right to purchase a given number of shares of the employer's stock at a stated price either at a stated time or within a period of time immediately following the vesting date; *other accounts receivable/payable* are financial assets and liabilities created as counterparts to transactions where there is a timing difference between these transactions and the corresponding payments.

The **net worth (wealth)** of the household sector comprises its non-financial assets and net financial worth. It measures the surplus of households' financial and non-financial assets over their financial liabilities. Differences between the opening and closing balance sheets reflect changes in net worth (value asset holdings and/or debt), e.g. when more or fewer household transactions add to financial and non-financial assets, more or less than borrowing. Other changes may include revaluations of the financial and non-financial assets and debt.

4 Results

In this section, we present the results of the analysis we have conducted in relation to the wealth of households. For the analysis, we consider the total wealth of households comprising both financial and non-financial assets.

First, we focus on the structure of household's wealth, while looking into two different periods; 2001-2004 and 2015-2018. For the analysis, the average over these periods is considered. Considering the two distinct periods, we can see how the structure of households' wealth has changed over time and after various socio-economic phenomena; enlargement of the EU, financial crisis, etc.

Then, we use the structural breakdown of households' wealth in each country across financial and non-financial assets to examine similarities across EU countries and how households' investment behaviour has changed over time.

Towards this end we first compute the Pearson correlation co-efficient between every pair of EU countries based on the breakdown of their wealth. The Pearson co-efficient is a measure of linear correlation between two sets of data and is computed as the ratio between the covariance of two variables and the product of their standard deviations. Therefore, it is a normalised measurement of the covariance, such that the result always has a value between −1 and 1, with −1 indicating full negative correlation, +1 full positive correlation and 0 the absence of any correlation. Consequently, countries where households have similar breakdown of their wealth will show values close to +1 for the coefficient

Having computed the Pearson correlation co-efficient between every pair of countries, we then build correlation matrix where the values of all pairs are shown in a square matrix; i.e. with the same variables shown in the rows and columns. The line of 1.00s going from the top left to the bottom right is the main diagonal, which shows that each country always perfectly correlates with itself. The correlation matrix is symmetrical, with the same correlation is shown above the main diagonal being a mirror image of those below the main diagonal. The matrix is then coloured, with red indicating low correlation and dark blue indicating strong correlation. In addition, the order of countries is re-arranged so that countries with strong correlation are placed next to each other, which allows us to see more easily patterns and clusters of countries where households have similar patterns in terms of the structured of their wealth.

Section 4.1 presents the structure of households' breakdown, while section 4.2 studies the similarities between EU countries and how these have evolved over the last 20 years.

4.1 Structural breakdown of households' wealth

Table 1 reports the wealth composition for households in EU countries over the 2015-2018 period. In the EU average, non-financial assets represent more than 60% of net worth of households, as only in Sweden, Denmark and the Netherlands the share is below 50%. On the opposite, non-

financial assets represent around 75% of households' net worth in Spain and Cyprus (with high share for *land*), Greece and Latvia (with high share of *dwellings*). In the EU, *land* and *dwellings* have more or less the same weight in household's net worth. Spain and Luxembourg are the countries where *land* has considerably higher share, while on the opposite, in Czechia, Croatia and especially Bulgaria, *dwellings* have the highest share.

Denmark is the country where households have the highest debt (*loans* are 30%), while households in Hungary have the lowest debt (6%).

If we concentrate only on assets (therefore not counting loans), there are only four countries where financial assets represents more than 50% of total assets: Denmark, Sweden, the Netherlands and Poland. In Denmark and the Netherland the most important asset is *insurance, pension and standardised guarantee schemes*, while in Sweden it is *equity and investment fund shares*. Poland instead has the highest share in *currency and deposits*.

It is interesting to analyse the evolution of the structure of wealth owned by the household sector. If we compare data for the period 2015-18, with the same structure computed for 2001-2004 we notice many differences.

We have to recall the many socio-economic changes have taken place in the meanwhile: the 2008 economic crisis, the 2012 sovereign debt crisis and, moreover, that 13 over the 27 EU countries joined the EU after the beginning of the analysed period. At EU level, we notice a slight shift in the importance of non-financial versus financial assets: they account for 50% of total net worth, with respect to 48.2% at the beginning of the period, driven mainly by the growth of importance of *insurance, pension and standardised guarantee schemes* (from 13 to 16.9%), even if the importance of *debt securities* has decreased. On the side of non-financial assets, it is *dwellings* whose importance has been decreasing.

The most noticeable changes are observed for Bulgaria, Estonia, Croatia, Lithuania, Malta, Poland, Romania, Slovakia that see the importance of financial assets growing in their portfolio. Conversely, the importance of non-financial asset is decreasing in the same countries, especially through the re-composition between *dwellings* and *land*, with *land* increasing its relative value. These countries joined the EU starting in 2004. Exceptions are observed for Cyprus that was and still remains close to EU average) and Latvia which is the country with the lowest share of financial assets in the 2015-18 average. Bulgaria and Estonia record the highest increase in the share of financial assets, which is explained in both cases by the growing share of *equity and investment fund shares*. The same countries recording a growth in financial assets, also show a growth in the financial liabilities, i.e. *loans*, again with the exception of Latvia: 16 percentage points for Slovakia (from -3 to -19% of net worth), 15 percentage points for Poland (from -10% to -25%). Only Greece shows a comparable growth of *loans* in the same period: 12 percentage points from -7% to -19%. On the other side, the relative importance of financial assets decreased for Germany, Belgium and Italy, mostly because of the lower importance of *debt securities*.

Table 1: Total wealth composition (financial and non-financial) for households in the EU, average 2015-2018

	Financial assets					Non-financial assets	
	Currency and deposits	*Debt securities+ Financial derivatives and employee stock options+ Other accounts*	*Loans*	*Equity and investment fund shares*	*Insurance, pension and standardised guarantee schemes*	*Land*	*Dwellings*
BE	16.1	2.4	-10.4	21.8	12.1	36.6	21.3
BG	14.5	2.1	-6.7	19.9	4.2	12.0	54.1
CZ	27.2	0.9	-14.5	22.0	6.7	14.9	42.8
DK	12.7	1.2	-30.5	29.8	41.2	19.4	26.1
DE	20.3	1.5	-14.8	10.7	18.7	25.5	38.2
EE	15.3	0.8	-18.3	31.2	7.8	20.3	43.0
IE	23.0	-0.2	-23.5	8.1	28.6	43.9	20.1
EL	29.1	0.3	-18.5	11.7	1.9	27.4	48.1
ES	13.9	0.4	-11.6	15.2	5.7	58.2	18.2
FR	13.4	1.0	-11.9	13.2	17.9	32.9	33.6
HR	25.7	1.0	-14.2	10.3	12.1	16.6	48.5
IT	14.7	3.0	-7.6	15.8	10.2	35.4	28.5
CY	34.1	-1.5	-24.7	11.2	5.9	40.8	34.1
LV	12.3	0.6	-7.2	12.0	5.2	30.8	46.3
LT	18.6	3.7	-12.0	20.4	5.0	25.7	38.6
LU	19.8	2.0	-16.8	15.2	6.3	58.8	14.7
HU	13.2	8.3	-5.7	20.2	3.9	23.6	36.4
MT	22.8	4.5	-7.7	12.0	4.6	44.2	19.5
NL	12.9	0.8	-24.9	11.4	50.4	27.4	21.9
AT	20.0	3.1	-13.5	15.9	10.2	32.5	31.8
PL	35.2	6.5	-25.2	19.7	10.9	29.7	23.2
PT	27.9	-0.2	-18.2	16.9	10.9	23.2	39.6
RO	18.6	10.5	-11.5	11.7	4.1	38.5	28.1
SI	21.2	1.1	-9.5	12.8	6.5	32.5	35.3
SK	24.6	2.6	-19.2	9.9	8.1	22.8	51.3
FI	17.4	-1.3	-25.6	27.4	10.3	21.3	50.5
SE	11.1	1.3	-23.3	37.7	30.0	23.7	19.6
EU	16.4	1.6	-13.9	15.2	16.9	33.5	30.3

(online data code: nasa_10_f_bs, nama_10_nfa_bs), author computation

Table 2: Total wealth composition (financial and non-financial) for households in the EU, average 2001-2004

	Financial assets					Non-financial assets	
	Currency and deposits	*Debt securities+ Financial derivatives and employee stock options+ Other accounts*	*Loans*	*Equity and investment fund shares*	*Insurance, pension and standardised guarantee schemes*	*Land*	*Dwellings*
BE	14.7	10.5	-8.4	21.2	9.5	29.9	22.5
BG	5.9	0.5	-1.7	4.0	0.4	7.1	83.7
CZ	20.9	0.4	-5.6	23.8	4.1	12.6	43.8
DK	16.1	2.6	-40.6	19.3	35.0	28.7	39.0
DE	20.4	4.8	-23.3	13.5	17.3	25.4	41.8
EE	7.3	1.0	-6.8	16.3	0.8	27.4	54.0
IE	16.8	-0.2	-18.4	11.7	17.1	56.6	16.3
EL	20.0	1.4	-6.6	11.2	1.1	28.6	44.5
ES	12.1	0.3	-11.0	12.6	4.7	58.1	23.2
FR	15.7	-0.1	-10.0	15.5	14.7	28.6	35.6
HR	16.6	0.9	-8.4	6.2	1.7	18.2	64.8
IT	12.1	9.0	-5.4	18.5	6.7	34.8	24.4
CY	27.7	-0.8	-17.9	15.6	6.9	41.2	27.3
LV	13.1	2.0	-7.3	15.5	0.7	11.8	64.3
LT	11.7	5.1	-3.1	14.1	0.7	10.8	60.7
LU	16.0	2.3	-11.4	14.0	3.1	58.9	17.1
HU	16.2	3.3	-5.8	14.6	5.2	12.6	54.0
MT	18.2	2.4	-3.2	5.5	1.5	56.0	19.6
NL	13.7	1.9	-26.4	15.7	34.5	33.0	27.5
AT	21.9	3.4	-14.0	12.0	9.6	35.1	32.0
PL	29.0	3.3	-10.4	16.8	7.1	17.4	36.8
PT	20.2	0.4	-16.7	13.8	8.2	35.8	38.3
RO	7.8	2.0	-2.2	10.5	0.3	25.1	56.5
SI	14.4	2.0	-4.3	8.3	2.1	42.9	34.6
SK	18.0	-4.1	-3.0	6.7	2.0	16.8	63.6
FI	17.0	1.3	-18.1	21.7	10.2	17.6	50.3
SE	11.7	1.0	-25.5	30.9	35.5	17.5	28.9
EU	**15.7**	**3.8**	**-13.9**	**15.7**	**13.0**	**33.4**	**32.2**

(online data code: nasa_10_f_bs, nama_10_nfa_bs), author computation

4.2 Cross-country similarities of households' wealth

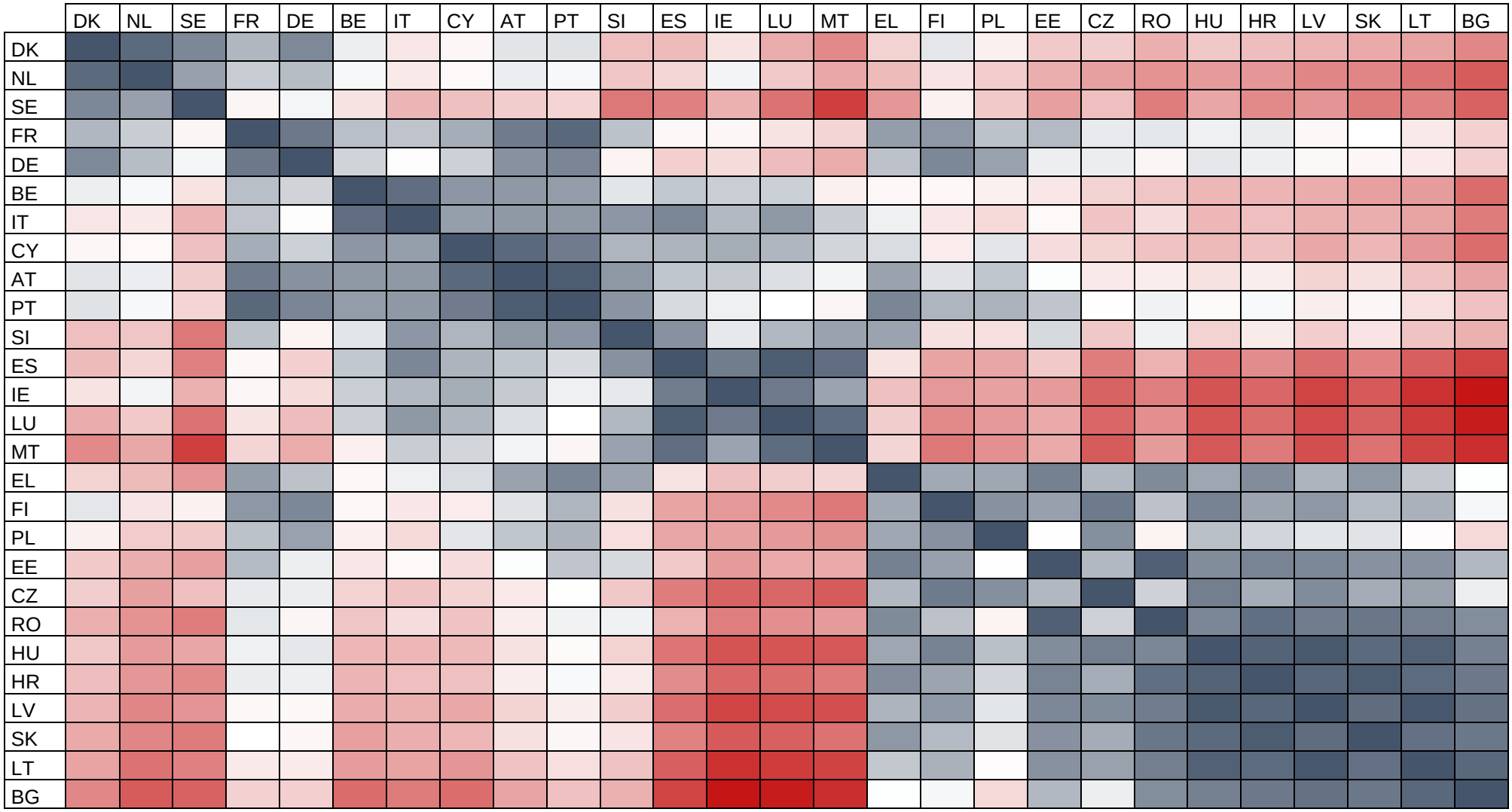
The correlation matrix computed over the structure of wealth composition can show similarities between EU countries and how these have evolved over time. Table 3 shows the correlation matrix for the period 2001-2004 and table 4 the correlation matrix for the period 2015-2018. In our analysis, the amount of correlation is not important as its cardinal value, but as a relative magnitude. This is why we are not showing the values, but rather we display the colours representing the intensity of the correlation between countries in relation the structure of total wealth. As mentioned before, dark blue cells represent strongly correlated countries, with the intensity of blue is decreasing when the correlation is lower. Red cells instead show those countries which have the lowest correlation.

When data have been rearranged it is easier to see which countries have the strongest correlation and how the situation has evolved over time.

It is interesting to note that at the beginning of the analysed period there are more distinct and distant blocks of countries, as shown in Table 3.

- Group A: Denmark, the Netherlands and Sweden: they exhibit strong correlation among each other and also relatively high correlation with France and Germany, but their correlation is rather weak with all other countries. This group of countries has a high share of wealth in *insurance, pension and standardised guarantee schemes*.
- Group B: Greece, Finland, Poland, Estonia, Czechia, Romania, Hungary, Croatia, Latvia, Slovakia, Lithuania and Bulgaria are strongly correlated with each other and weakly correlated or not correlated at all with the other countries. They are characterized by the highest share of *dwellings*, low level of *insurance, pension and standardised guarantee schemes*, but also relatively low share of *dwellings* (with exception of Greece and Poland) and *loans* (with exception of Finland).
- Group C: Slovenia, Malta, Spain, Ireland and Luxembourg. Slovenia and Malta, which were not in the EU in the period 2001-2004, can be placed in the same group with Spain, Ireland and Luxembourg, the countries with the highest share in *land* and among the lowest in *dwellings*. This group shows the lowest correlation with the group B, and some correlation with group D.
- Group D: Portugal, Austria, Italy, Belgium, Germany, France and Cyprus. Cyprus is the only country in this group entered in 2004 in the EU. This group is characterized by a balanced structure of assets and liabilities, closest to the EU average. Germany and especially France are the countries showing some degree of correlation with all other countries (almost no red coloured cells). Belgium, Italy, Cyprus, Austria and Portugal also display high level of *land* and low share of *dwellings*, but to a lower degree than group C

Table 3: Correlation Matrix over the period 2001-2004



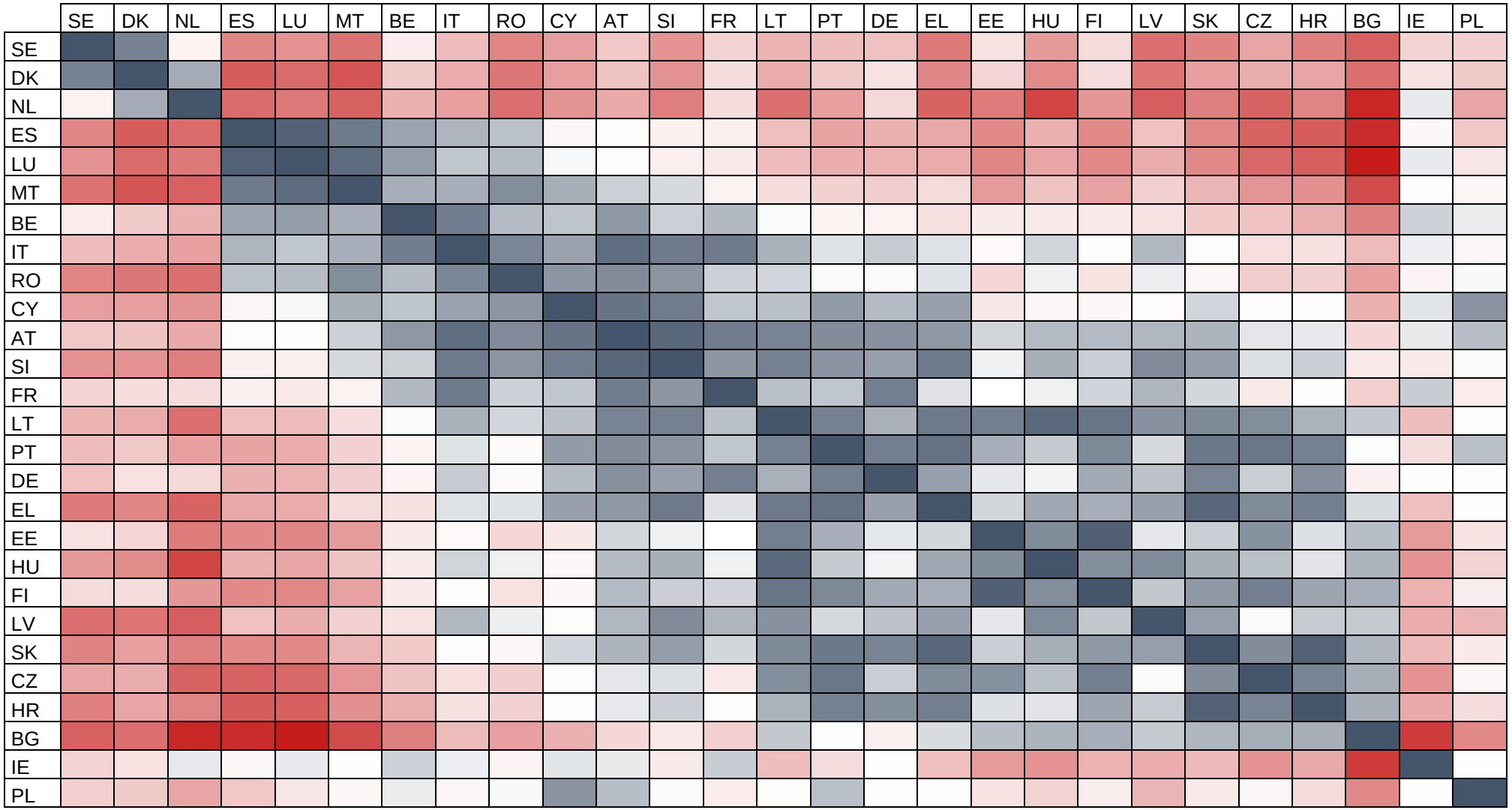
The situation is different when analysing the matrix referred to 2015-18 data in table 4. In this case, the majority of countries show a generally higher degree of correlation with each other, but we can still find some distinct groups:

- Group A: Denmark, Sweden and the Netherlands still standing together and alone, even more distant from all other countries than in the beginning of the first decade. These three countries have the highest share in financial assets and in particular in *insurance, pension and standardised guarantee schemes*, as the beginning of the analysed period.
- Group B: Spain Luxembourg and Malta, which are still the countries with the highest share in *land*. They show a good degree of correlation with group C, but weaker with group D. At the beginning of the period, group C showed similar characteristics, It included also Slovenia, where the weight of *land* decreased and Ireland, where financial assets gained importance and changed structure.
- Group C: Belgium, Italy, Romania, Cyprus, Austria, Slovenia and France: they have a relatively high share of *land*, but not as much as group B. They also show relatively low share in *Equity and investment fund shares* (with exception of Belgium) and low share of *loans* (with the exception of Cyprus)
- Group D: Lithuania, Portugal, Germany, Greece, Estonia, Hungary, Finland, Latvia, Slovakia Czechia, Croatia and Bulgaria that can be grouped together since they are the countries with the highest share in *dwellings* and the lowest in *land*.

Poland and especially Ireland stand alone, exhibiting weak correlation with all other countries. Poland is the country with the highest share in *currency and deposits*, Ireland is among the countries with high share in *land*, but the other assets have a totally different composition compared to the other country with high share in *land* and the share of *loans* and *insurance, pension and standardised guarantee schemes* closer to Group A.

Overall, the colours are more faded, implying that differences are less pronounced and there is actually some convergence and the behaviour of households in terms of choices of asset composition is becoming more similar among EU countries, letting aside the amount of total wealth in each country.

Table 4: Correlation Matrix over the period 2015-2018



5 Conclusions

Analysis of households' economic conditions is significant when we examine all dimensions of wealth; financial and non-financial. In this paper, we have provided a statistical representation of the economic condition for households in European Union countries based on households' wealth. All data that has bene shown and used in the paper are derived from sector accounts statistics. We have focused on the structure of households' wealth comprising financial and non-financial assets and we have examined how the structure of their wealth has evolved over the last 20 years. Moreover, we have performed a cross-country analysis of similarities in households' wealth structure.

We have found that households possess different type of assets across EU countries, even if non-financial assets (dwellings and land) represent on average the main assets that households invest in. By examining the evolution of the structure of households' wealth over time, we have seen that there has been a convergence among EU countries in terms of how households' total wealth is structured, even if for some countries households exhibit a distinctively different behaviour in terms of how their wealth is composed.

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6 Annex: List of ESA 2010 financial and non-financial assets

Non-financial assets

AN.1 Produced non-financial assets
AN.11 Fixed assets by type of asset
AN.111 Dwellings
AN.112 Other buildings and structures
AN.1121 Buildings other than dwellings
AN.1122 Other structures
AN.1123 Land improvements
AN.113 Machinery and equipment
AN.1131 Transport equipment
AN.1132 ICT equipment
AN.1139 Other machinery and equipment
AN.114 Weapons systems
AN.115 Cultivated biological resources
AN.1151 Animal resources yielding repeat products
AN.1152 Tree, crop and plant resources yielding repeat products
AN.117 Intellectual property products
AN.1171 Research and development
AN.1172 Mineral exploration and evaluation
AN.1173 Computer software and databases
AN.11731 Computer software
AN.11732 Databases
AN.1174 Entertainment, literary or artistic originals
AN.1179 Other intellectual property products
AN.12 Inventories
AN.121 Materials and supplies
AN.122 Work-in-progress
AN.1221 Work-in-progress on cultivated biological assets
AN.1222 Other work-in-progress
AN.123 Finished goods
AN.124 Military inventories
AN.125 Goods for resale
AN.13 Valuables
AN.131 Precious metals and stones
AN.132 Antiques and other art objects
AN.133 Other valuables
AN.2 Non-produced non-financial assets
AN.21 Natural resources

AN.211 Land
AN.2111 Land underlying buildings and structures
AN.2112 Land under cultivation
AN.2113 Recreational land and associated surface water
AN.2119 Other land and associated surface water
AN.212 Mineral and energy reserves
AN.213 Non-cultivated biological resources
AN.214 Water resources
AN.215 Other natural resources
AN.2151 Radio spectra
AN.2159 Other
AN.22 Contracts, leases and licenses
AN.221 Marketable operating leases
AN.222 Permits to use natural resources
AN.223 Permits to undertake specific activities
AN.224 Entitlement to future goods and services on an exclusive basis
AN.23 Purchases less sales of goodwill and marketing assets

Financial Assets

AF.1 Monetary gold and special drawing rights (SDRs)
AF.11 Monetary gold
AF.12 Special drawing rights (SDRs)
AF.2 Currency and deposits
AF.21 Currency
AF.22 Transferable deposits
AF.29 Other deposits
AF.3 Debt securities
AF.31 Short-term
AF.32 Long-term
AF.4 Loans
AF.41 Short-term
AF.42 Long-term
AF.5 Equity and investment fund shares or units
AF.51 Equity
AF.511 Listed shares
AF.512 Unlisted shares
AF.519 Other equity
AF.52 Investment fund shares or units
AF.521 MMF shares/units
AF.522 Non-MMF investment fund shares/units
AF.6 Insurance, pension and standardised guarantee schemes

AF.61 Non-life insurance technical reserves
AF.62 Life insurance and annuity entitlements
AF.63 Pension entitlements
AF.64 Claims of pension funds on pension managers
AF.65 Entitlements to non-pension benefits
AF.66 Provisions for calls under standardised guarantees
AF.7 Financial derivatives and employee stock options
AF.71 Financial derivatives
AF.72 Employee stock options
AF.8 Other accounts receivable/payable
AF.81 Trade credits and advances
AF.89 Other accounts receivable/payable, excluding trade credit and advances