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POLICY PAPER

Household Wealth Inequality and Resilience: Evidence from the Household Finance and Consumption Survey

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Abstract: This paper uses data between 1987 and 2018 from three wealth surveys in Ireland to identify factors driving wealth dynamics in the short and long run. We show that ownership of housing is crucial. Changes in asset prices and mortgage debt also play a role. Inequality rose between 1987 and 2018 due to higher leverage for households in the middle of the wealth distribution and falling homeownership. Increased ownership of financial assets and businesses for wealthier households are also important. Between 2013 and 2018 rising house prices increased wealth particularly for households in negative equity after the financial crisis, contributing to falls in inequality in this period. Household leverage ratios declined substantially up to 2018. On the eve of the COVID-19 crisis households were more financially resilient when compared to their position a decade before at the onset of the financial crisis.

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I INTRODUCTION

Understanding the reasons for disparities in wealth, and developing policies to address them, are some of the largest challenges we face. Whilst cross-country data on wealth trends are available in several databases, such as the World Inequality Database for example, there is limited information for Ireland. This paper fills that gap, drawing on the results from the 2013 and 2018 Household Finance and Consumption Survey (HFCS).

The HFCS is a joint project of the national central banks of the Eurosystem, the central banks of three EU countries that have not yet adopted the euro, and national statistical institutes.[1] In Ireland, the Central Statistics Office (CSO) carried out the survey of around 5,000 households in each of the waves carried out in 2013 and 2018. Further background to the surveys including headline results, cross-country comparisons, survey and sample design, methodology and representativeness is provided in CSO (2015; 2020), Lawless *et al.* (2015), Horan *et al.* (2020), Fasianos *et al.* (2017) and Cussen *et al.* (2018).

Between 2013 and 2018, Irish households had the largest increase in wealth amongst Euro Area countries. This was driven, first, by strong house price growth, which increased asset values; second, by an increase in financial asset participation, in particular voluntary pensions, and financial asset prices; and, thirdly, by a reduction in household debt. Wealth inequality also fell, driven primarily by gains at the bottom, as rising house prices took many homeowners out of negative equity following the 2008-2012 housing bust.

We complement the 2013 to 2018 analysis with an exploration of longer-term changes in wealth, comparing household wealth in 1987 with 2018. Earlier data are taken from the 1987 *Survey of Income Distribution Poverty and Usage of State Services* ('SIDP', Nolan, 1991). Crucially, both this survey and the HFCS share common variables, which allow us to compare changes in the distribution of wealth, and, for certain asset types, changes in the composition of wealth across the distribution. We show that wealth inequality rose between 1987 and 2018, with the share of total wealth owned by the top 10 per cent of households increasing from 42 to 50 per cent. We suggest two reasons for this change. First is the increasing concentration of financial wealth amongst the very wealthiest households, specifically the top 1 per cent of households. Second is the long-run trend towards increasing leverage of households in the middle of the wealth distribution, mostly to purchase owner-occupied property, and notwithstanding the deleveraging that took place after the financial crisis. This is the first study to document such long-run changes in the distribution of wealth for Ireland.

[1] See the *Household Finance and Consumption Network* webpage on the ECB's website for further background on the survey, including research that uses the survey.

The picture that emerges from the analysis of all three cross-sections is the centrality of housing for understanding changing wealth patterns. This is particularly the case for households in the middle of the wealth distribution (i.e. excluding the top and bottom quintiles of net wealth). Outside periods of widespread negative equity, such as 2013, homeownership is almost non-existent amongst the bottom 20 per cent of households holding any assets. For example, in 2018, just one-in-a thousand households in the bottom quintile of wealth was a homeowner. For the top wealth quintile however, housing is just one part of an increasingly diversified asset portfolio that also tends to include more financial assets and business wealth. Wealthier households also tend to hold less debt relative to these assets, that is they are less leveraged.

More generally, this paper shows how leverage is a critical factor for households for two reasons. First, it determines how changes in asset prices impact wealth, the most obvious being house price changes. House price booms lead to large increases in wealth for leveraged households. The opposite happens in a house price bust, a familiar experience for many Irish households during the 2000s. Second, leverage is a key determinant of household financial resilience. Financial resilience metrics include debt-to-asset (or loan-to-value, LTV), debt-to-income (or loan-to-income, LTI) and debt-service (DSR) ratios. The more resilient households are, the better equipped they are to cope with asset price or income shocks. This is why strengthening resilience is one of the objectives of macro-prudential policy (see Cassidy and Hallissey, 2016). Our analysis shows that the wealth increases since 2013 have been accompanied by significant improvements in financial resilience. In fact, despite wealth levels in 2018 being at or even marginally above pre-financial crisis peaks, financial resilience metrics in 2018 were in a far stronger position than in 2008 because debt levels in general were much lower. Not only has the distribution of these resilience metrics moved to the left, i.e. a fall in the average and median, but the distribution has also narrowed considerably with far fewer households reporting very high leverage and debt ratios.

Using US data, Kuhn *et al.* (2020) show how leverage can introduce a 'wedge' between changes in the income and wealth distributions. This is not the case for Ireland between 2013 and 2018, which is more accurately viewed as an exceptional period of balance sheet repair after a housing bust. The HFCS data show that wealth increased more for less wealthy households during this period leading to a short-run fall in wealth inequality, with the Gini coefficient falling from 75 to 67. Results from the Survey of Income and Living Conditions (CSO, 2019) also show a fall in income inequality during this period, with the Gini coefficient declining from 32.1 to 28.8.

This does not imply that the higher income households are also *always* the wealthiest households, although there does tend to be a strong correlation between the two, particularly as we move up the wealth distribution. For example, in the 2018 HFCS cross-section, one-third of the top 10 per cent of households by wealth

are also in the top 10 per cent of incomes. In the top 1 per cent of wealthy households, *half* are also in the top 10 per cent of incomes. This overlap between income and wealth has remained remarkably stable over the last three decades, as we show in Section III on the distribution of wealth and income.

The rest of the paper falls into three parts. Section II looks at changes in the level, composition and distribution of wealth between 2013 and 2018. We focus on this period initially because the two HFCS surveys are directly comparable, with more in-depth information on the composition of wealth and characteristics of households than is available in the SIDP 1987 survey. Section III examines the changing distribution of wealth, both over the short term, from 2013 to 2018 and over the longer term, from 1987 to 2018. This section also presents some stylised facts relevant to the policy debate on wealth inequality. First, we show that wealth and income tend to be positively correlated, particularly higher up the wealth distribution. This is a pattern that has remained remarkably consistent over the last three decades. Second, drawing on the survey questions on inheritance, we highlight some intergenerational patterns of wealth. Wealthier households are far more likely to have received a substantial inheritance, whilst the type of inheritance afforded to wealthier households also tends to include a diversity of asset types, including businesses. Further, inheritances are correlated with the ability to purchase a home, showing strong correlations with house purchases and down payments. Section IV illustrates how household resilience metrics, as captured by a range of debt ratios, have changed over the last decade. Section V concludes.

II CHANGES IN HOUSEHOLD WEALTH FROM 2013 TO 2018

We build up the picture from the main components of net household wealth; that is: real assets (including housing) plus financial assets, minus debt. Table 1 shows summary statistics for each category, and their sub-components. For each of the survey waves 2013 and 2018, Table 1 shows total values (in billions), the percentage of households with this particular asset or debt ('participation rates'), and, conditional on participation, the median value. All 2013 values are adjusted for price changes to 2018 using the CSO's annual Consumer Price Index. The total value of household wealth in the survey increased by €308 billion (83 per cent) between 2013 and 2018, from €370 billion to €678 billion.[2] The €308 billion increase consists of a large increase in the value of real assets (+€238 billion) and financial wealth (+€66 billion), combined with a small fall in total debt (–€4 billion). The following subsections look at these trends in more detail.

[2] For comparison, aggregate household wealth in the *Quarterly Financial Accounts* increased by 75 per cent between 2013 and 2018.

Table 1: Components of Net Wealth: Total Value, Participation Rates and Conditional Medians

	Total value (€ billions)		*Participation (% households)*		*Median (€ '000s)*	
	2013	*2018*	*2013*	*2018*	*2013*	*2018*
1. HMR housing	229	401	70	69	152	250
2. Other property/land	154	200	23	21	202	285
3. Self-empl. business wealth	26	31	20	18	10	23
4. Other valuables (incl. vehicles)	21	36	92	93	8	13
A. All real assets	429	667	95	96	163	227
	Total value (€ billions)		*Participation (% households)*		*Median (€ '000s)*	
	2013	*2018*	*2013*	*2018*	*2013*	*2018*
5. Deposits	34	40	94	95	4	5
6. Mutual funds	4	10	3	3	20	46
7. Bonds	2	5	5	7	3	2
8. Business wealth	0	14	1	1	0	100
9. Shares	6	13	13	10	4	10
10. Managed accounts	1	5	0.4	2	22	45
11. Money owed to the hhld	1	1	5	3	1	3
12. Other financial assets	1	1	1	1	8	11
13. Voluntary pension assets	13	37	10	15	45	50
B. All financial assets	62	127	94	95	6	8
	Total value (€ billions)		*Participation (% households)*		*Median (€ '000s)*	
	2013	*2018*	*2013*	*2018*	*2013*	*2018*
14. HMR mortgage	87	83	34	26	130	125
15. Other mortgage	27	23	6	7	142	152
16. Overdraft/creditline	1	0	9	8	1	1
17. Credit card	1	0	17	13	1	1
18. Other consumer credit	6	11	30	30	5	6
C. All debts	121	117	57	52	64	46
	2013	*2018*			*2013*	*2018*
Net wealth = (A + B) – C	370	678			101	179

Source: HFCS 2013 and 2018.

Notes: 2013 values inflated to 2018 price levels using the CPI. Median values in the final two columns are conditional on participation (i.e. having the particular asset or debt).

2.1 The Value of Housing Assets and Net Wealth

The increased value of property – both the HMR and non-HMR property – accounts for much of the increase in real assets between 2013 and 2018 (€219 out of €238 billion, rows (1) and (2) in Table 1). As the homeownership rate has changed little during this period – actually falling by one and two percentage points for HMR and non-HMR property respectively – this suggests that the increase in wealth is driven by changes in house prices, which rose by 71 per cent on average between 2013 and 2018.[3] Horan *et al*. (2020) estimate a counterfactual value for household wealth in 2018, assuming no change in house prices. They show that changes in this 'counterfactual' level of wealth from 2013 to 2018 is in line with the rest of the Euro Area over the same period.

In line with the increase in house prices, the conditional median value of property in the survey has increased by almost €100,000, from €152,000 to €250,000. The median value of 'Other property' has increased by a similar amount. However, as this can cover multiple holdings, including land, the median value for a household, conditional on ownership, tends to be higher (€285,000 in 2018).[4] For the 18 per cent of households that have self-employment business wealth, the median value increased from around €10,000 to €23,000 (row (3), Table 1).

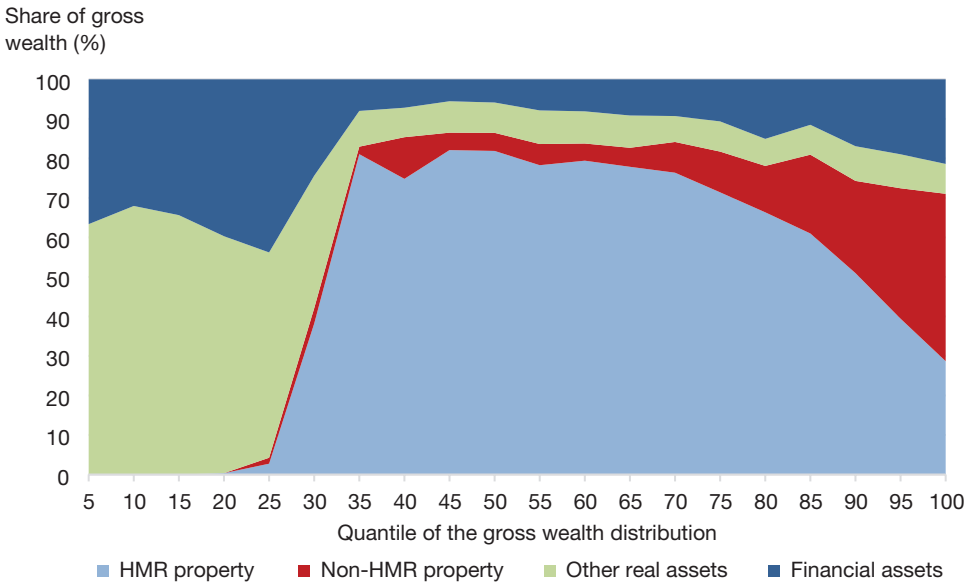
The composition of gross wealth varies significantly across the distribution, as Figure 1 shows for 2018.[5] One of the most notable features is the absence of housing in wealth for the bottom 25 per cent of households, where 'Other valuables' (which includes vehicles) and financial assets dominate. In the middle of the distribution, HMR property wealth is the main source of gross wealth. This is an important stylised fact as it means that house price changes affect certain groups more than others. For the top 25 per cent of (gross) wealthy households, it is both HMR *and* non-HMR property wealth that dominate. Financial assets also matter more, an observation we return to in the next subsection.

2.2 Financial Wealth

The value of financial assets more than doubled between 2013 and 2018, from €62 to €127 billion (row 14, Table 1). The increases are largest for non-deposit financial wealth, reflecting increases in asset prices amongst other things. This means that, despite rising in value, deposits' share of financial wealth has fallen from 55 per cent in 2013 to 32 per cent in 2018. It is important to acknowledge that whilst the HFCS aligns well to the aggregates for most assets and debts, deposits tend to be under-recorded in the survey, with a coverage ratio of around 30 per cent.

[3] This is the change in the CSO *Residential Property Price Index* (Table HPA13) between 2013 and 2018.
[4] On aggregate, just over half of other property wealth is accounted for by farm land, another third is accounted for by residential dwellings for rent with the remainder split between holiday homes and commercial property.
[5] Note that this is *gross* wealth, that is, before we take account of debt to get *net* wealth. When we discuss changes in the wealth distribution, and indicators of inequality below, our focus is *net* wealth.

Figure 1: Composition of Gross Wealth by Quantile of the Gross Wealth Distribution in 2018



Source: HFCS, 2018.

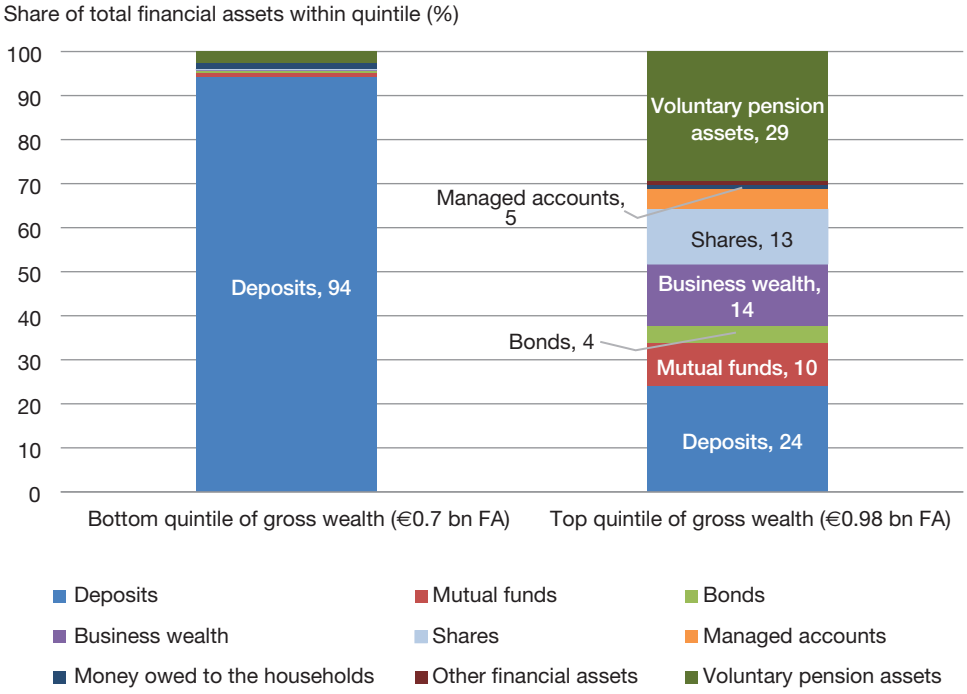
Cussen *et al*. (2018) show that under-reporting is broadly similar across characteristics such as age, region and type of deposit, and across the distribution. The latter is important because it indicates that the data are still informative about the distribution of deposit-based financial wealth in the population.

The composition of financial wealth differs markedly across the distribution of wealth, as Figure 2 shows. For the bottom 20 per cent of households by gross wealth, deposits account for almost all (94 per cent) of financial assets. In contrast, the top 20 per cent of (gross) wealthy households hold a more diverse range of financial assets, including voluntary pension assets (29 per cent), deposits (24 per cent), business wealth (14 per cent), publicly traded shares (13 per cent), mutual funds (10 per cent), managed accounts (5 per cent) and bonds (4 per cent).

There is a large increase in the value of 'business wealth' in financial assets between 2013 and 2018, from zero to €100,000 at the median, *conditional on ownership*.[6] The conditioning is important, because just 1 per cent of households have this kind of financial asset. Furthermore, ownership is highly concentrated towards the top of the wealth distribution: 96 per cent of this wealth is held by the top 5 per cent of wealthy households.

[6] Business wealth here refers to ownership of a business that is not publicly traded. An example would include 'silent partner' investments. It is different from self-employment business wealth, which is included in real assets.

Figure 2: Composition of Aggregate Financial Assets by Quintile of the Gross Wealth Distribution (2018)



Source: HFCS, 2018.

The change in the value of voluntary pension assets since 2013 is particularly notable, increasing from just over €13 billion to €37 billion in aggregate.[7] Indeed, this asset alone accounts for over a third of the overall increase in aggregate financial assets between 2013 and 2018. The increase reflects both increased participation – from 10 to 15 per cent of households – and higher asset prices, as we see in other financial assets like shares. The increase in participation is in line with other sources, such as CSO (2019b), which show that overall pension coverage amongst 20-69 year olds increased by 10 percentage points between 2015 and 2018. Both the CSO (2019b) and the HFCS show consistent increases across characteristics such as age. However, the depth of the HFCS data illustrates differences in pension holdings when we condition on income, as Table 2 shows: the increase in voluntary pension participation increases as we move up the income distribution. This is to be expected given the tax incentives to participate in these schemes *and* the progressive structure of Irish income taxation. It likely also reflects

[7] These are voluntary plans administered by pension funds or financial institutions (including insurance companies) acting as a pension provider, i.e. 'Pillar 3' pensions in the terminology. The survey does not collect or impute asset values for public ('Pillar 1') or occupational ('Pillar 2') pension plans.

age-income differences, i.e. participation in pensions is measured net of those already in receipt of pension benefits, who in turn tend to have lower incomes on average than those of working age.

Table 2: Participation in Voluntary Pensions by Quintile of Gross Household Income

	Quintile of the gross household income distribution				
	1	2	3	4	5
2013	4%	4%	8%	14%	20%
2018	3%	7%	14%	23%	29%
Change (ppt)	–1%	3%	6%	9%	9%

Source: HFCS 2013 and 2018.

2.3 Debt

In 2018, 52 per cent of households held some form of debt, down from 57 per cent in 2013. Aggregate household debt in the survey fell from €121 to €117 billion over the five years to 2018 (row 19, Table 1). The net change (–€4 billion) is a combination of falling mortgage debt (–€8 billion) and rising non-collateralised debt (+€ 4 billion, rows 14-15). The decline in debt, and mortgage debt in particular, combined with rising incomes – median gross household income rose by almost a fifth over the five years – means that the debt-to-income ratio fell sharply over the five years, as we highlight in the section on resilience.

The decline in collateralised debt is due to a combination of repayment of existing debt and fewer households taking on new mortgage debt. The latter is most apparent in the decline in the participation rate in HMR mortgages, which fell from 34 per cent to 26 per cent of households between the two HFCS waves. In contrast, more households are taking out 'other' consumer credit (non-collateralised debt), particularly amongst 30-to 50-year-olds, as Table 3 shows. This is not driven by an increase in overdrafts or credit card debt, which have actually fallen since 2013 (rows 16 and 17, Table 1), but an increase in other types of consumer credit, notably instalment credit related to car purchases, home improvement and to cover living expenses, in that order.[8] The increase in debt related to auto purchases is consistent with the increasing use of 'Personal Contract Plans', as shown in Central Bank financial statistics (Sherman *et al*. 2018).

2.4 Leverage and Changes in Net Wealth

Aggregate net wealth rose from €370 to €678 billion between 2013 and 2018 (final row of Table 1). From the statistics presented up to this point, it is clear that the main driver of this increase is rising property prices, followed by a rise in financial

[8] For non-collateralised loans, survey respondents are asked the purpose (variable HC050$x).

Table 3: Participation In Other 'Other' Consumer Credit, by Age of Head of Household

	25-29	30-34	35-39	40-44	45-49	50+
2013	37	36	35	35	34	24
2018	29	40	45	40	40	23
Percentage change	–8	4	10	5	6	0

Source: HFCS 2013 and 2018.

asset values and falling debt. Figure 3 shows the median value of net wealth across the distribution in each wave. The level changes are largest at the top of the distribution. For example, for the top 5 per cent of households by net wealth, the median increased by over €600,000 to just under €2 million, whereas for the middle group of households (50th percentile), the increase was around €75,000 to just under €90,000. However, the proportionate changes are significantly larger lower down the distribution, which will lead to a fall in inequality metrics, as we discuss in the next section.

Another notable change since 2013 is the fall in the number of negative wealth households, as illustrated by the removal of the kink in the line below the tenth percentile between 2013 and 2018 in Figure 3. Households are in negative equity when the value of the property is less than the outstanding mortgage debt on the property. A small number of HMR borrowers (4 per cent) were still in negative equity in 2018, almost all of whom purchased between 2005 and 2008. However, this is far below the levels seen in 2013, when one-in-three HMR borrowers were in negative equity.

2.5 Changes in the Net Wealth Position for Different Types of Households

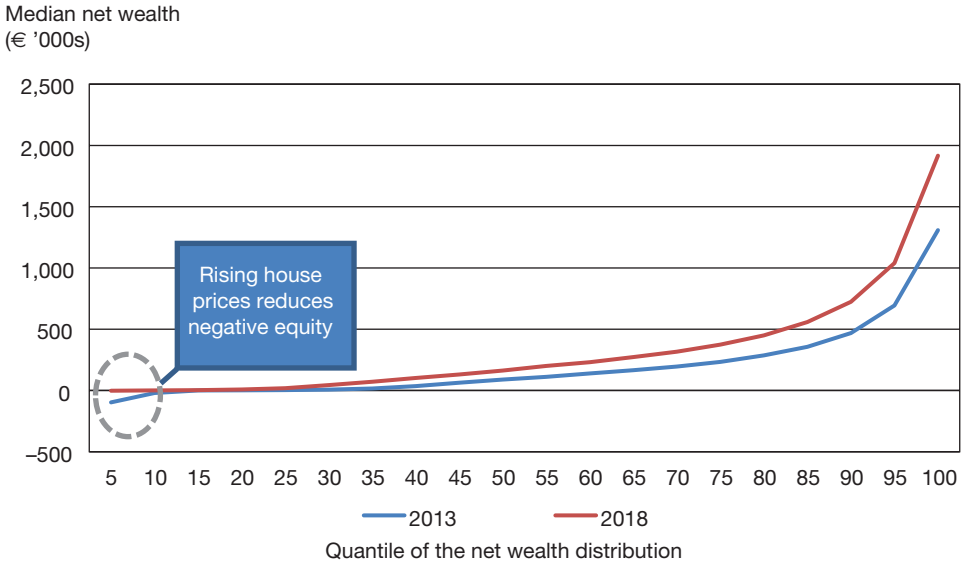
Understanding the extent to which wealth might or might not be concentrated amongst certain population groups is the first step in thinking about policies to address disparities. To understand this better, we stratify wealth by characteristics of the household reference person.[9]

Whilst at an aggregate level net wealth increased by just over €76,000 between 2013 and 2018, developments were not homogeneous across different types of households. Some saw their net wealth position improve sizeably, while others more modestly. Interestingly, all household types contained in the data experienced some improvement in wealth between 2013 and 2018 (Table 4).

Looking first at the evolution of net wealth across different age groups, we see that younger households experienced the largest proportionate increase between

[9] According to the background notes to the HFCS 2018 release (CSO, 2020), the household reference person is the person considered to be "most knowledgeable about the financial situation of the household and provides the financial information for the whole household".

Figure 3: Median Net Wealth (€ '000s) by Quantile of the Net Wealth Distribution



Source: HFCS 2013 and 2018.
Note: 2013 wealth values inflated to 2018 price levels using CPI.

Table 4: Net Wealth by Characteristic of Head of Household (€ '000s)

	Median			*Mean*		
	2013 € '000s	*2018 € '000s*	*Change € '000s*	*2013 € '000s*	*2018 € '000s*	*Change € '000s*
All households	102	179	77	219	365	146
Size of hhld (all persons)						
1	76	145	69	153	274	121
2	126	220	94	242	390	148
3	98	126	28	219	334	116
4	103	225	122	235	458	223
5+	108	206	98	279	429	150
Age						
<=20	3	11	8	14	78	65
21-30	4	17	13	35	180	145
31-40	27	91	64	120	248	128
41-50	162	235	74	285	424	140
51-60	202	288	86	356	540	183
61-70	211	282	71	380	453	72
70+	191	237	46	312	401	89

Table 4: Net Wealth by Characteristic of Head of Household (€ '000s) (Contd.)

	Median 2013 € '000s	*2018 € '000s*	*Change € '000s*	*Mean 2013 € '000s*	*2018 € '000s*	*Change € '000s*
Education						
Primary	125	150	25	252	269	18
Secondary	101	165	64	209	320	112
Post-secondary	82	221	138	228	442	214
Housing tenure status						
Outright owner	244	333	89	409	573	164
Mortgage owner	90	232	142	182	403	220
Renter or other	4	7	3	32	50	18
Work status						
Employee	59	152	93	155	300	145
Self-employed	399	520	121	631	958	328
Unemployed	4	6	2	52	162	111
Retired	192	261	69	303	408	104
Other not working	17	27	10	99	152	54
Percentile of income						
Less than 20	73	97	24	126	176	50
20-39.9	51	128	77	139	211	72
40-59.9	83	124	42	170	274	104
60-79.9	113	218	105	233	380	147
80-89.9	146	329	183	308	632	324
90-100	293	579	286	566	944	378
Percentile of net wealth						
Less than 20	–4	1	5	–39	–9	30
20-39.9	10	56	46	16	59	43
40-59.9	103	180	77	102	181	79
60-79.9	216	341	125	223	354	131
80-89.9	405	627	223	418	644	227
90-100	921	1,363	441	1,190	1,845	655

Source: HFCS 2013 and 2018.
Note: 2013 values inflated to 2018 price levels using CPI.

2013 and 2018. For example, households where the reference person was aged between 31 and 40 experienced a threefold increase in their net wealth, while those aged above 70 saw a more modest (albeit still significant) rise of 25 per cent.

This reflects the sizeable reduction in the number of younger households in negative equity between the two survey waves. Older households experienced a larger level increase in their net wealth between waves, with those aged between 51 and 60 seeing the largest increase of €86,000, at the median.

Turning to the education level of the head of the household, we see that higher levels of education are, in general, more closely aligned with higher levels of net wealth in 2018. This reflects a reversal in the ordering since 2013. A combination of tenure status and the presence of negative equity, particularly amongst younger, highly indebted and more educated households is behind this. Younger mortgaged households experienced the highest levels of negative equity in 2013, whilst younger households also typically have higher levels of education. Taken together, these two factors explain the reversal in net wealth by education between 2013 and 2018.

III WEALTH INEQUALITY, INCOMES AND INTERGENERATIONAL TRANSFERS

This section focuses on changes in net wealth inequality indicators over both the short term (2013-2018) and longer term (1987-2018). We also highlight the overlap between the distribution of income and wealth, which has remained remarkably consistent over the last three decades. Finally, we analyse some intergenerational wealth patterns, namely receipt of inheritances, and show how these have been important for younger households buying a home in recent years. This is an important aspect of wealth accumulation because, as all of the preceding analysis shows, ownership of property is one of the key determinants of wealth for many households.

3.1 Net Wealth Inequality Indicators

Table 5 shows net wealth inequality indicators for Ireland and the Euro Area. In Ireland, the Gini coefficient for net wealth declined from 0.75 to 0.67 between 2013 and 2018. Negative values for wealth (i.e. because of negative equity) can distort comparisons of the Gini coefficient over time; see Chen *et al.* (1982). We therefore include a range of other indicators, which all show a more equal distribution of wealth in Ireland in 2018 compared to 2013. The increase in house prices is apparent in several indicators. For example, the ratio of middle-to-low net wealth (p50/p10) rises from a minus at -23.8 to a positive 142.8. This is a result of negative equity homeowners moving from the very bottom of net wealth in 2013 to the middle of the distribution in 2018. For the same reasons, the p90/p50 ratio falls. For most metrics in 2018, Ireland also tends to have a more equal distribution of wealth compared to the rest of the Euro Area, although it should be emphasised that the differences are small.

Looking at longer-term changes since 1987, wealth is more unequally distributed in 2018, despite the improvements since 2013. For example, the share of aggregate net wealth in the top 10 per cent of households increased from 42.3 per cent in 1987 to 53 per cent in 2013, before falling again to 50.4 per cent in 2018. The top one and five per cent shares also increased.

Table 5: Net Wealth Inequality Indicators

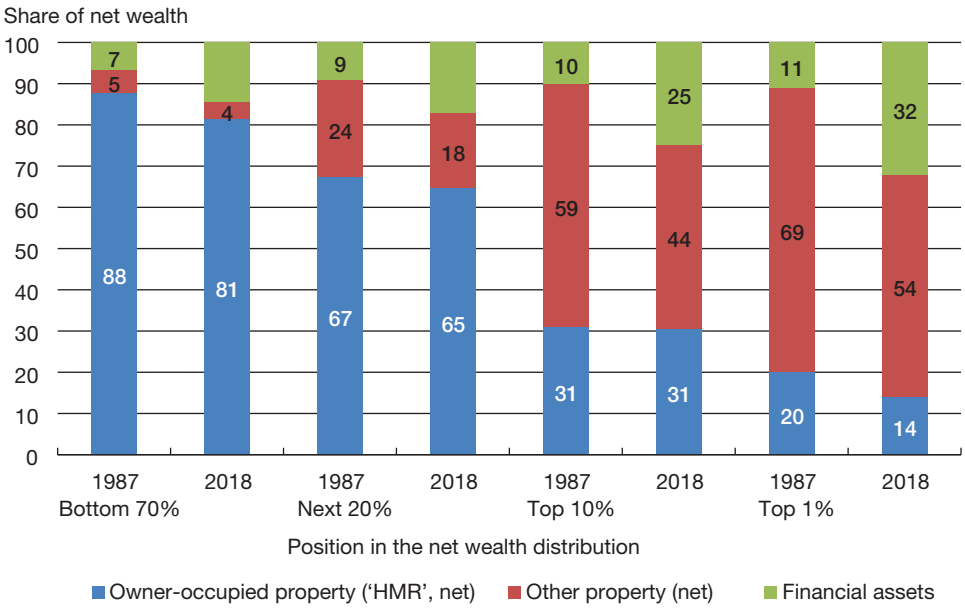
	Ireland			*Euro Area*		
	1987	*2013*	*2018*	*2010*	*2014*	*2017*
Gini coefficient	0.52	0.75	0.67	0.68	0.69	0.70
p80/p20	NA	170.5	42.3	39.5	43.3	42.4
p90/p50	NA	5.4	4.7	4.7	4.9	5.3
p50/p10	NA	–23.8	142.8	NA	NA	NA
Share of wealth in…						
Bottom 50	12.2	4.5	6.8	NA	NA	NA
Bottom 70	28.5	17.1	20.7	NA	NA	NA
50-90 % share	NA	48.3	43.0	43.3	42.4	42.8
Top 30	71.5	82.9	79.3	NA	NA	NA
Top 10	42.3	53.0	50.4	50.8	52.1	51.9
Top 5	29.0	36.0	35.5	37.6	38.7	38.1
Top 1	10.0	12.1	14.9	NA	NA	NA

Source: Irish data: 1987 from SIDP, 2013 and 2018 own calculations using HFCS. Euro Area data: from ECB statistical tables 2010-2017 HFCS waves, Table J4. See the ECB-HFCN website.
Note: 'NA' means the inequality indicator is not available in the published tables.

To understand the drivers of this longer-term pattern, we look at trends in asset composition across the distribution. Figure 4 shows the composition of net wealth across the distribution in both 1987 and 2018. Below the 90th percentile, the composition of assets is remarkably stable over time, with owner-occupied property dominating. At the top of the distribution, in both the top ten and top one per cent, financial assets make up an increasingly large share of wealth over time, trebling their share of net wealth to over 30 per cent in 2018 for the top one per cent.

The marked shift towards financial assets amongst wealthier households could help explain the greater concentration of wealth at the top of the distribution. Table 6 confirms this: between 1987 and 2018 the share of household sector financial assets increased for the top 1 per cent of households. At the same time however, the share of total financial assets held by the *bottom 70 per cent* has also increased significantly, from 4.1 per cent to 14.7 per cent. Thus the overall effect on the wealth distribution is not clear.

Figure 4: Composition of Net Wealth across the Distribution, 1987 versus 2018



Source: HFCS (2018) and Nolan (1991) for 1987 data.
Note: To ensure consistency with the 1987 data, non-collateralised debt and non-property real assets are excluded from the composition of net wealth.

Table 6: Share of Wealth by Quantile of the Net Wealth Distribution

		Bottom 70%	*Next 20%*	*Top 10%*	*Top 1%*
Net value of HMR property	1987	30.0	49.3	20.7	2.9
	2018	33.2	34.9	31.9	4.1
Financial assets	1987	4.1	33.2	62.7	20.3
	2018	14.0	21.9	63.4	23.2

Source: HFCS (2018) and Nolan (1991).
Note: Rows sum to 100 per cent, excluding top 1 per cent cells, which are included in the top 10 per cent cell.

There has, however, been a large increase in the share of *net* HMR property wealth at the very top of the distribution – both for the top 10 per cent and the top 1 per cent. Comparing the first two rows of Table 6, the main group to lose out are middle- to upper-wealth households, that is those between the 70th and 90th percentile, whose share of net HMR housing wealth has declined from

49.3 per cent to 34.9 per cent. Ruling out differential house price changes across the distribution, which seems an unlikely explanation, the only other explanations are changes in the rates of owner-occupier (HMR) homeownership, and/or greater leverage in certain parts of the distribution. The data suggest it is a mix of both. On the one hand, HMR homeownership is lower in 2018 (69 per cent of households) compared to 1987 (79 per cent), particularly amongst households under 55 years of age. On the other hand, leverage has also increased since 1987: the average loan-to-value ratio on HMR property (conditional on having mortgage debt) was 41 per cent in 2018, up from 29 per cent in 1987; loan-to-income ratios have also risen significantly, from 52 per cent to 142 per cent on average between 1987 and 2018.

3.2 Wealth and Income Closely Correlated Higher Up the Distribution

Income and wealth have the potential to be closely linked. For example, higher income households might be able to save and accumulate greater wealth, or the same households could face fewer borrowing constraints, which could also impact wealth accumulation over the life-cycle. Indeed, Jantti *et al*. (2013) find a positive correlation between wealth and income in a sample of European countries, although the correlation coefficient is typically less than one, with many examples of high/low income and low/high wealth households.

In the HFCS, the correlation coefficient between the wealth and income (in logs) is 0.33 in 2013 and 0.41 in 2018. This is similar to the correlation observed for other European countries, which ranges from 0.30 to 0.60. CEE and Baltic countries tend to be clustered towards the bottom of this range, with countries such as France, Germany and Luxembourg towards the top of the range. The relatively weaker correlation between income and net wealth in the 2013 wave is driven by the large proportion of negative equity households at this time. Whilst these households tend to have higher incomes on average, they clustered in the bottom of the net wealth distribution in 2013.

There is far greater overlap between high-wealth and high-income households as we move further up the wealth distribution, a finding previously noted by Nolan (1991). Table 7 shows the position of high net wealth (top percentile) households in the income distribution (deciles). In 2018, more than half of the top 10 per cent of wealthy households are in the top two deciles of income. The concentration is even higher for the top 1 per cent of wealthy households, half of whom are in also in the top decile of income in both 1987 and 2018.

3.3 Intergenerational Wealth, Inheritances and Home Purchases

Inherited wealth has attracted much attention in the literature, including, for example, how it effects inequality over the long-run (Piketty, 2011), and the persistence of wealth across generations (Adermon *et al*., 2018). However, inheritances are not always inequality increasing. Using a long-run panel of

Table 7: Position of Wealthy Households in the Income Distribution

Decile of gross income	Top 10 % of households by net wealth			Top 1% of households by net wealth		
	1987	2013	2018	1987	2013	2018
Bottom	7	3	3	12	–	–
2	7	4	2	3	2	2
3	3	4	2	3	–	2
4	8	6	5	2	2	2
5	8	6	6	8	–	5
6	9	8	7	–	5	6
7	6	10	11	7	7	12
8	10	13	9	7	11	8
9	13	17	22	8	27	12
Top	28	30	33	51	47	50
All	100	100	100	100	100	100

Sources: Nolan (1991) for 1987 data, and HFCS 2013 and 2018.

Swedish data, Nekoei and Seim (2018) show that inheritances can actually reduce savings and labour supply such that lifetime wealth can be smaller.

For policymakers, understanding the complex role inherited wealth plays in inequality is important for policies that aim to promote equality of opportunity, and decisions about how to tax gifts and inheritances. In this section we present some stylised facts on inherited wealth in Ireland. We then look at the correlation between inheritances and home purchases in the data.

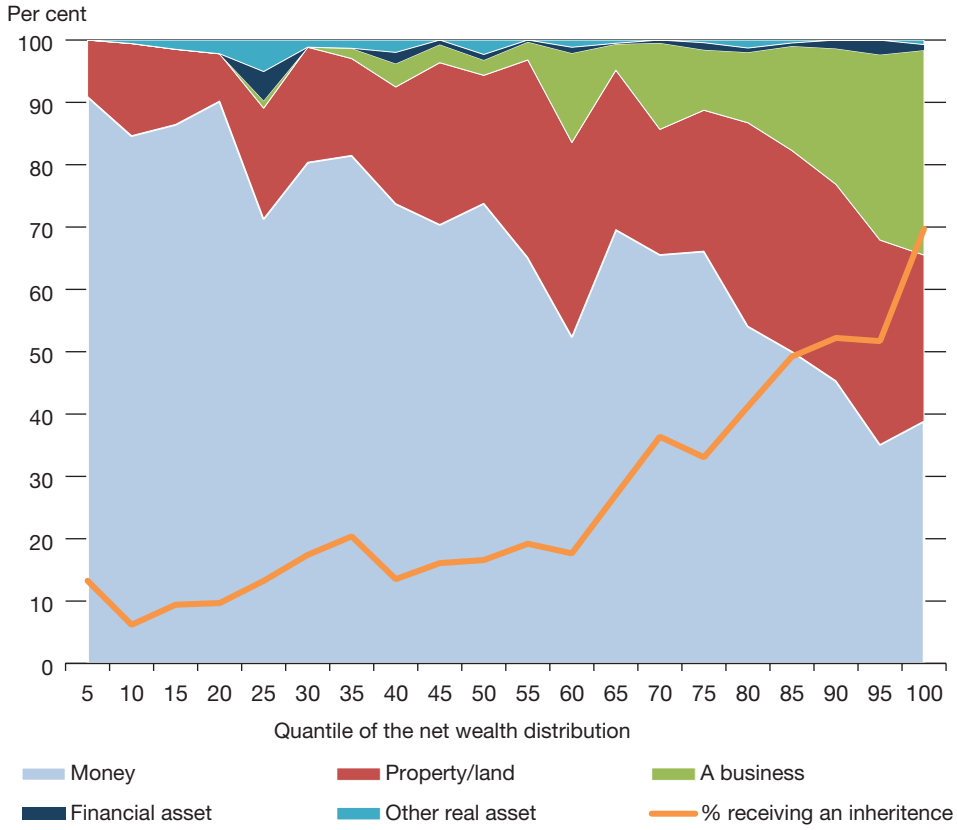
In the HFCS, households are asked if they have received an inheritance, the year it was received, from whom it was received, type of inheritance, and value. All information is self-reported. Regular gifts or inheritances are not included. An inheritance is defined as an asset that has made a significant impact on the financial situation of households.[10] Here we focus on the 2018 HFCS, however the statistics for 2013 are very similar. Around one-quarter of households report having received a substantial inheritance in the last three years (prior to the survey), similar to the figure for households in the rest of the Euro Area. Conditional on receipt, most households – 83 per cent – receive just one gift or inheritance. The conditional median (mean) nominal value is €24,000 (€213,000).

Patterns of inheritance – both the likelihood of receiving one, and the type of inheritance – differs significantly across the distribution of net wealth, as Figure 7 shows. Wealthier households are far more likely to have received an inheritance. For the top 5 per cent of wealthy households, around 70 per cent have received an inheritance, compared with a figure of just 10 per cent for the bottom 5 per cent of households. Turning to the *type* of inheritance, money dominates for less wealthy

[10] There is no information on inherited wealth in the 1987 SIDP.

households, whereas further up the wealth distribution, property and, in particular, businesses become much more prominent. Many of these inherited businesses are farms. Conditional on receiving it, the median value of a business inheritance is €74,000, compared to values of €20,000, €90,000, €26,000 and €9,000 for money, property, financial and other real assets respectively. It is important to remember, these are all nominal values at the time of the inheritance or gift.

Figure 5: Percentage of Households Receiving a Substantial Inheritance and Type of Inheritance by Position in the Net Wealth Distribution (2018)



Source: HFCS 2018.

The analysis thus far points to homeownership as a key factor in household wealth. One question, therefore, is what role does inheritance play in households becoming homeowners. There is no direct line of questioning in the survey that allows us to link inheritances and homeownership. However, there is clearly a correlation between the size and timing of some inheritances and home purchases. For example, restricting our attention to the 2018 wave, we find that amongst households who

bought a home in the five years prior to survey – i.e. between 2013 and 2018 – 36 per cent received an inheritance in the last five years. For those that did *not* purchase a home and remained renters, the figure is just 12 per cent. The difference is particularly large amongst younger age groups: for recent buyers under the age of 40, 47 per cent received an inheritance, compared to a figure of 13 per cent for renters under-40.

As mentioned, it is not possible to link the receipt of an inheritance *directly* with home-purchase. These two are strongly correlated in the data however, as some basic regression results in Table 8 show. The first two columns in the table show the coefficient on inheritances – both receipt and value – in regressions where the dependent variable equals 1 if a household purchased a home between 2013 and 2018. Homeowners prior to 2013 are excluded. Households that remained renters during this period are zero in the dependent variable. The sample is restricted to households under the age of 40. Just over one-fifth of households in the sub-sample purchased a home during this period. The mean value for those that received an inheritance is 33 per cent, a difference that remains after controlling for income, age, gender and marital status. The coefficient on inheritance value suggests that an inheritance of €10,000 increases the likelihood of buying during this period by 5 percentage points.

The second, third and fourth columns in Table 8 correlate the size of the deposit (in logs) with the size of the inheritance. The idea is to try and understand how much an inheritance assists with the purchase. Further limiting the regression analysis to those who bought between 2013 and 2018 (including all-cash buyers) results in a smaller sub-sample. Nonetheless, there is a strong correlation: for those who received an inheritance, the deposit is 35 per cent higher; the elasticity (in the final column) is estimated to be 0.20.

IV RESILIENCE

Apart from the large increase in wealth, the other major development in household balance sheets since 2013 is a marked improvement in the resilience of indebted households. Arguably, rebuilding and safeguarding household resilience is one of the main lessons from the financial crisis. Macro-prudential policy, which has been in place since 2015, seeks to mitigate the risk of a disruption to the provision of financial services, caused by an impairment of all or parts of the financial system, and to avoid negative consequences for the real economy. In Ireland, credit-related tools such as loan-to-value and loan-to-income limits aim to prevent such excessive credit growth and leverage (see Cassidy and Hallissey, 2016).

This section summarises the balance sheet repair that took place between 2013 and 2018, followed by an assessment of household resilience in 2018 in the face of the COVID-19 shock. The latter is particularly important as the COVID-19 shock

Table 8: Correlation Between Inheritances, Home Purchases and Deposits (2013-2018)

	Pr(purchase)	*Pr(purchase)*	*Ln(deposit)***	*Ln(deposit)***
Log (income)	0.17	0.16	0.78	0.75
	(18.14)	(17.27)	(12.27)	(8.14)
Inheritance=1	0.13		0.35	
	(8.06)		(4.56)	
Inheritance value		0.05[a]		0.20[b]
		(5.00)		(9.95)
Other controls	Age (+)	Age (+)	Age (+)	Age (+)
	Married(+)	Married (+)	Married (+)	Married (–)
Mean of dependent variable	0.23	0.23	10.8	10.8
R-squared	0.17	0.16	0.41	0.31
N	672	672	110	110

Source: Own calculations using HFCS 2018.
Note: Sample is all households where head is under 40 years of age in 2018, renters or recent purchasers only. 'Pr(purchase)'=1 if purchased between 2013 and 2018. **Ln(deposit) is the log of the difference between house purchase price and HMR mortgage at origination. Cash buyers (24 per cent of buyers) excluded. (a) For a €10,000 increase in inheritance value; (b) coefficient from regression in levels (as inheritance can take a value of zero) multiplied by ratio of mean values of inheritance-to-deposit.

arguably represents the first serious test of household resilience since the financial crisis.

4.1 Balance Sheet Repair 2013-2018

The median debt-to-asset ratio fell by 16 percentage points, from 39 per cent to 23 per cent, in the five years to 2018, as shown in the final row of Table 9. The largest drops are for households between the ages of 30 and 60. As outlined earlier, whilst rising house prices and incomes are the main driver, lower debt levels – because of both debt repayment and less debt being taken on – play a role, particularly for certain age groups. For example, within the 30-49 age group, debt for the median household has fallen by over €22,000, or 18 per cent.

The evolution of the debt-to-(gross) income ratio follows a similar pattern, as the third and fourth columns of Table 9 show. The median ratio has fallen by 35 percentage points, from 102 per cent to 67 per cent. The almost 20 per cent rise in household incomes, alongside reducing debt levels, is a key factor. The debt-service burden measures the ratio of debt servicing costs, both principal and interest repayments, to income. This has fallen by two percentage points, from 13 per cent

Table 9: Leverage and Debt Ratios 2013-2018, all Debt (Median, Conditional on having Debt)

Age of household head	*Debt-to-asset*		*Debt-to-income*		*Debt-service*		*Debt-service > 40 pp (%)*	
	2013	*2018*	*2013*	*2018*	*2013*	*2018*	*2013*	*2018*
20-24	50	30	5	9	5	6	0	7
25-29	46	42	13	8	6	7	4	2
30-34	96	47	216	54	14	10	7	6
35-39	77	42	223	143	16	13	10	10
40-44	58	42	195	158	17	13	12	6
45-49	40	27	133	118	14	14	9	4
50-54	20	16	74	67	12	11	9	7
55-59	13	7	54	35	11	9	9	5
60-64	6	7	35	25	11	9	13	7
65-69	3	2	14	13	7	5	15	10
All ages	39	23	102	67	13	11	9	7

Source: HFCS 2013-2018.
Note: Income is gross household income. Debt is conditional on having any debt (52 per cent of households).

to 11 per cent of gross income. Once again, the changes are most significant for 30- to 49-year-olds. Focusing on the right tail of the distribution, the percentage of households with very high gross debt-service burdens – in this case, greater than 40 per cent of gross income (right-most column in Table 9) – has also fallen, but more so amongst older indebted households aged 40-plus.

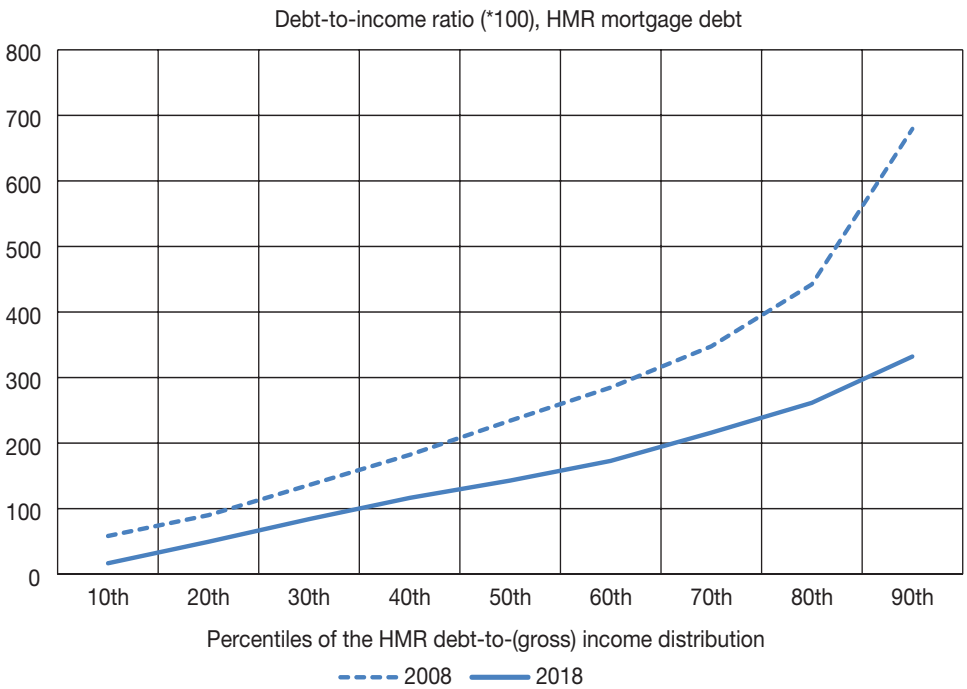
4.2 Comparisons of Household Resilience at the onset of Two Shocks: 2008 versus 2018

The debt ratios in Table 9 give a sense of how resilient households were before the onset of the COVID-19 crisis. However, comparisons with 2013 are not directly relevant in trying to understand whether households are more resilient to this crisis versus, say, at the onset of the financial crisis. This is because incomes had *already* fallen significantly by 2013, as a result of the previous recession. A more appropriate comparison, for thinking about household resilience 'now-versus-then', is how the position of households in 2018 compares with that of households *just before* the last recession, that is, in 2008.

Using a mix of administrative data on incomes and survey data, Lydon and McIndoe-Calder (2018) estimate debt-ratios in 2008, focusing on HMR mortgage debt. Figure 6 compares the percentiles of the HMR mortgage debt-to-income ratio in 2008 and 2018. The median loan-to-income ratio is significantly lower in 2018, with debt at around 1.5 times income, compared to 2.5 times income in 2008. The gap widens considerably as we move up the HMR mortgage debt-to-income

distribution. In 2008, just before households experienced one of the largest income shocks on record, 20 per cent of borrowers had a loan-to-income ratio in excess of four times their income. In contrast, the cut-off for the top 20 per cent in 2018 is less than 2.5.

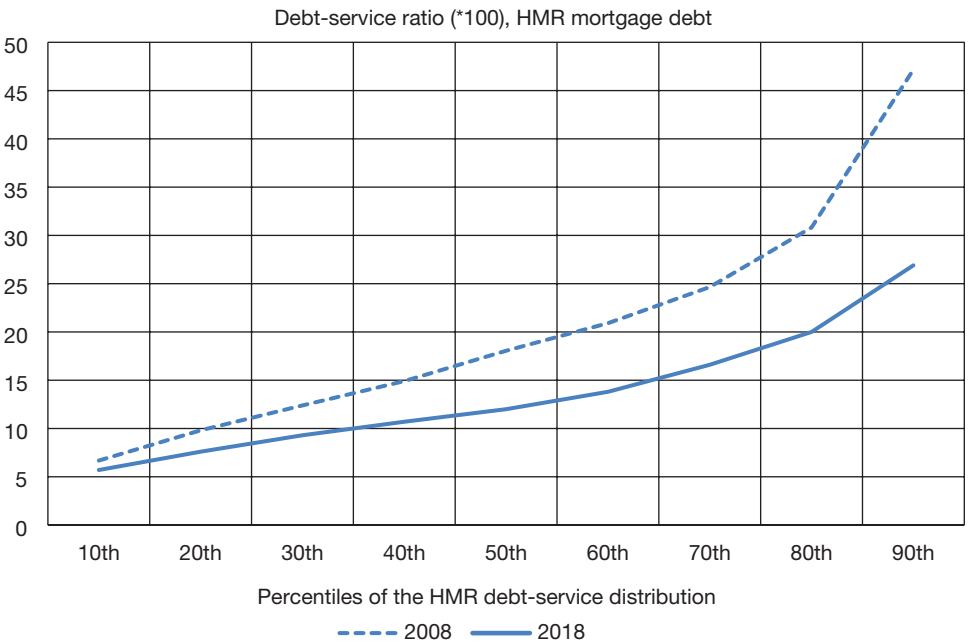
Figure 6: HMR Debt-to-Income Ratio for Households With Debt, 2008 versus 2018



Source: HFCS (2018) and Lydon and McIndoe-Calder (2018) for 2008 data.

For the debt service burden, we see a similar pattern in Figure 7. Compared to 2008, households in 2018 generally diverted far less of their income towards servicing mortgage debt. At the median, and conditional on having HMR mortgage debt, debt servicing constituted 12 per cent of gross income in 2018, compared to 17 per cent in 2008. It is in the upper tails however, where we observe the largest differences. At the 90th percentile, the debt-service ratio in 2018 was 27 per cent, compared to almost 47 per cent in 2008. It is important to re-emphasise that the 2008 data pre-date the large income falls that occurred during the last recession. Therefore, whilst there remains much uncertainty about the depth and breadth of the COVID-19 downturn, these comparisons paint a picture of a more resilient household sector than was the case going into the last recession.

Figure 7: HMR Debt-Service Ratio for Households With Debt, 2008 versus 2018



Source: HFCS 2018 and Lydon and McIndoe-Calder (2018) for 2008 data.

V CONCLUSIONS

This paper contributes to our understanding of both short- and long-run changes in wealth levels and wealth inequality in Ireland. The analysis points to housing as a key driver of wealth inequality trends. Since 2013, large increases in house prices boosted the wealth of the most highly leveraged households. In 2013, these were mainly households that found themselves in deep negative equity at the end of the financial crisis. This effectively meant that many households that were at the bottom of the wealth distribution in 2013 moved up the wealth distribution by 2018. Thus, by 2018 wealth inequality fell sharply. We also see a reversion to a long-run pattern: very low levels of homeownership at the bottom of the net wealth distribution.

Whilst leverage was important for developments in recent years, and debt levels have declined since 2013, there is also a *long-run* (1987-2018) pattern of increasing leverage for house purchases, particularly for households in the middle- to third-quartiles of the wealth distribution. We identify this higher leverage as one of the reasons for a greater concentration of wealth at the top of the distribution in 2018, when compared with 1987. Lower homeownership in 2018 is also a factor. We also show that the share of financial assets in net wealth has increased since 1987.

This is apparent right across the distribution, but particularly at the very top of the wealth distribution. The wealthiest households tend to hold a more diverse portfolio, consisting of housing wealth, but also a diverse range of financial assets and business wealth. This suggests that policies to reduce wealth inequality should not be solely focused on property.

In the cross-sectional data, the distribution of wealth and income are positively, but not perfectly, correlated. For example, it is not uncommon to observe higher-leveraged recent home-buyers lower down the wealth distribution, but towards the top of the income distribution. However, the higher up the wealth distribution we go, the more correlated income and wealth become. For example, amongst the top 10 per cent of wealthy households, more than half are also in the top 20 per cent of incomes. Importantly, this is a pattern that has changed little over time. It suggests that certain policies that aim to reduce income inequality over the longer-run could also have positive externalities for reducing wealth inequality, and vice versa.

Access to owner-occupied housing, and leverage related to that housing, is one of the main determinants of wealth accumulation for Irish households. We present novel stylised facts relating to *intergenerational* wealth transfers which suggest inheritances are a key channel whereby Irish households are able to acquire owner-occupied housing. Inheritances also tend to influence leverage via down payments on housing.

Finally, we show that household resilience metrics, as captured by debt-to-income and debt-service ratios have improved significantly after 2013, following a long period of balance sheet repair after the financial crisis. Unlike the previous house price boom, increases in house prices between 2013 and 2018 were not accompanied by large increases in indebtedness. In fact, a combination of deleveraging by existing debt-holders and less debt being taken out by non-owner-occupiers saw household indebtedness fall. We show that, compared to the period just prior to the financial crisis in 2008, debt ratios were at much lower levels in 2018. This is particularly the case in the right tail of the distribution, for example the 90th percentile, where debt ratios are as much as 50 per cent lower in 2018 compared to 2008. This suggests that the scope for income or asset price shocks to give rise to financial instability, with negative spillovers for households, financial institutions and the real economy, is lower than was the case in the past.

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