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The cost of housing and indebtedness across European and OECD households

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Central Bank of Ireland

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Abstract

Challenges around housing affordability have been growing internationally in recent years. In that context, we compare how Ireland's experience has related to that of other European and OECD countries. Housing represents one of the largest single outlays for households as well as one of the largest sources of wealth for most owner occupiers. We show household debt burdens in Ireland are now closer to other European countries having been above average in the past. We highlight that mortgage and rental burdens in Ireland – although uneven across the household income distribution – are broadly comparable to those of other OECD countries. We find that house price valuations relative to incomes and to a lesser extent rents remain elevated relative to history, but nowhere near the levels preceding the housing crash and are slightly lower than two to three years ago. We also examine the relative affordability of acquiring home-ownership in a cross-country context, by constructing a series of national house price to income ratios and find that, on average, the current Irish level is in-line with many other developed economies. This is not to say that housing in Ireland is inexpensive on an absolute basis but in placing the Irish data in a broader international context we show that the housing affordability pressures appear to be part of a wider set of global challenging trends in housing markets. This note mainly focuses on averages and does not examine the issue of housing affordability of individuals where experiences are likely to vary widely depending on income and within country regional dynamics.

1 Introduction

The topic of housing affordability in mortgage and rental markets has attracted much attention (e.g. Allen-Coghlan et al 2019, Jose et al 2020, Vaidya 2021). Housing burdens within countries are often more onerous for certain groups of households than others, as documented by Corrigan et al (2019) and others. Housing affordability is often measured and discussed in public debate with reference to house price and rental indices, which measure the price levels on recent transactions, and do not provide a view of housing burdens across the population. Against a context where challenges around housing affordability have been growing internationally in recent years, we focus on the

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[1] Kelly: Behavioural Consumer Finance Unit. Kennedy and Lambert: Macro-Financial Division. All views expressed in this *Note* are those of the authors and do not represent the views of the Central Bank of Ireland or the ESCB. We thank Niamh Hallissey, Robert Kelly, Vasileios Madouros, Fergal McCann, Martin O'Brien and Conor O'Toole for helpful comments on an earlier draft. We also thank Stephen Doyle for excellent research assistance. Corresponding author: Derek.Lambert@centralbank.ie

relativity across countries, by comparing housing costs and debt burdens in Ireland to other European or OECD countries, as well as on both housing burdens across the population and the affordability of recent purchases.

In this Note, we concentrate on some key aspects of housing costs and affordability. First, we consider Irish household indebtedness - access to home ownership is conditional on mortgage debt for many households but mortgage debt burdens may vary significantly across countries.[2] Next we examine the regular monthly costs of servicing housing – specifically monthly mortgage or rent payments as a share of household income across countries. We then assess house price developments relative to fundamental determinants such as household incomes and rental yields across countries using standardised house price-to-income (HPI) and house price-to rent (HPR) indices respectively. Finally, we compare the relative cost of accessing home ownership by estimating the ratio of average house prices to average household incomes across a selection of OECD housing markets.

Our approach focuses on relative housing costs as opposed to absolute levels which undoubtedly vary substantially across households groups. Others have already documented the higher housing burdens among certain groups, such as low income and single adult households and those located within certain regions (Corrigan op cit). Here instead we place the Irish data into a broader international context given increasingly common global challenges around housing affordability and to do so we mainly focus on averages given the cross country data available. In addition, the volatility of Irish house prices following the financial crisis also led to a high dispersion in the relative cost of housing over time independent of incomes.

With those caveats in mind, our main findings are that Ireland does not appear to be out of step when compared to other countries in terms of housing costs. During the boom period, Ireland was an outlier compared to other European countries with housing costs and indebtedness at the upper end of the distribution. However, the data show this is no longer the case.

Household indebtedness has reduced markedly in Ireland at an aggregate level and measures of debt burdens in Ireland such as mortgage to income and debt to income are now closer to other European countries. These aggregate measures mask significant variation – a significant cohort of household groups face higher debt burdens such as those in long-term mortgage arrears (see Kelly et al. 2021).

At a national level, Ireland appears to be broadly comparable to other countries in terms of mortgage servicing or rental burdens relative to income, even among the bottom income quintile. Ireland does have a higher (and growing) share of subsidised renters however.[3] Mortgage and private market rental burdens are highest in absolute terms among the bottom income quintile but relative to other countries, based on the cross country data available, Ireland is not unusual in this regard – such challenges appear to be widespread internationally. One area where Ireland is among the top 5 countries is on the share of households in the middle income quintile in the private rental market with high housing burden levels– this has in fact been the case as far back as 2012 (i.e. when data begins).

Rental burdens are higher than mortgage servicing burdens in many countries. Mortgage servicing burdens have fallen in most countries over time including Ireland, coinciding with lower European interest rates and the introduction of the mortgage measures in Ireland, such as the LTI limit, which may have contributed to these lower mortgage service burdens in Ireland (Kelly and Mazza 2019).

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[2] Lajoie (2020) discusses the burden of non-mortgage debts for renters and low income households in Ireland.
[3] Subsidised renters herein refer to Tenant, rent at reduced price or free.

Household survey data suggest Irish mortgage servicing burdens were also lower among the subset of newer mortgaged owners in 2018 compared to newer mortgaged owners in 2013.

We find that – compared to history – house price valuations remain elevated in Ireland with respect to incomes and to a lesser extent rents – having risen from the lows of 2013. Current levels of misalignment however, are not as large as those witnessed in the run up to the housing crash, and have even fallen back slightly from the levels of two to three years ago. Considering how average actual house prices relate to average actual household incomes from country to country, Ireland appears similar to countries, such as Denmark, the UK, Spain, Belgium and France, with comparatively lower HPI ratios relative to other OECD countries - illustrating how stretched these ratios have become in some other countries in recent years.

2 Household Indebtedness

One aspect of housing affordability relates to the indebtedness of mortgage owners. This encompasses both new and older mortgages. In this section, we compare the indebtedness of Irish and other European mortgage owners. The share of mortgage owners varies across countries so we first contextualise Ireland's tenure structure to other European countries. A higher share of mortgaged owners may be linked with higher overall household indebtedness as mortgage debt constitutes the bulk of household debt in a majority of European countries (Horan et al. (2020)), whereas a higher share of public or subsidised renters may coincide with lower aggregate household indebtedness.

2.1 Context on tenure structure – owning vs renting

Tenure structures vary widely across European countries - Ireland lies somewhere in the middle of European countries in terms of the share of mortgaged owners. Based on cross country data from Eurostat for 2019, Ireland has a relatively small share of renters at market price but has a large (and growing) share of renters at subsided rates (Chart 1). Factors such as local regulations (e.g. rent controls) and fiscal treatment also influence the relative cost of housing and hence choice of tenure (ECB 2003).

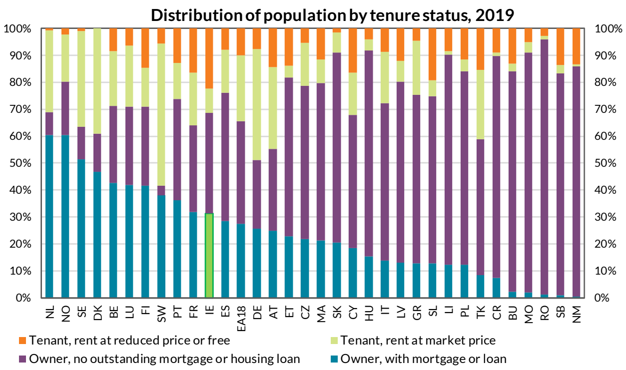
When using this cross country data there are a number of caveats. There is an important distinction between those in the private rental market and those renting at market prices. In 2016, 18.2 per cent of households rented from a private landlord in the Irish Census, and 13.4 per cent of tenants rented at market price according to Eurostat. It appears that schemes such as the housing assistance payments (HAP) can drive a wedge between the two.[4] Moreover, while the underlying data is standardised across countries it is based on survey responses from households so local issues could influence the data. For example in the Irish context, HAP recipients source their own property from a private landlord but because they receive a housing subsidy should be categorised as renting at a reduced price. However, some such households may mistakenly record their tenure as renting at market price. Given our focus here is on a cross country perspective, we will use the Eurostat definitions hereon and refer to tenants, renting at market price as private renters for simplicity.

[4] The overall percentage of renters (private and subsidised / free) in 2016 is much closer in the Census (29.3 per cent) and Eurostat (30.5 per cent). According to the Census the share of households renting from private landlords was relatively unchanged between 2011 (19 per cent) and 2016 (18 per cent), as was the share of those renting from a combination of Local Authority, a Voluntary Body or Occupied free of rent (10 per cent vs 11 per cent), while the mortgaged owner share fell from 35 per cent to 32 per cent. Corrigan and Watson 2018 provide an overview of social supports for housing from 2004 including the support for renting in the private sector e.g. the Rental Accommodation Scheme (RAS), the Housing Assistance Payment (HAP)) and the Rent Supplement scheme.

Reflecting European trends, Ireland's share of mortgaged owners is declining. Ireland's mortgaged owner share has fallen slightly since 2013 but this trend is also apparent since 2003 (and in overall homeownership since 1991) notwithstanding intra-year variation. In turn, Ireland's share of renters at a reduced price has increased since 2013, and the share of outright owners has increased, but remains lower than 2003 levels. In 2019, according to Eurostat data, Ireland had the 11th highest share of mortgaged owners (31 per cent) – closest to Portugal (36 per cent), France (32 per cent) and Spain (28 per cent) and just above the euro area average (27 per cent) while about half that of the Netherlands.[5]

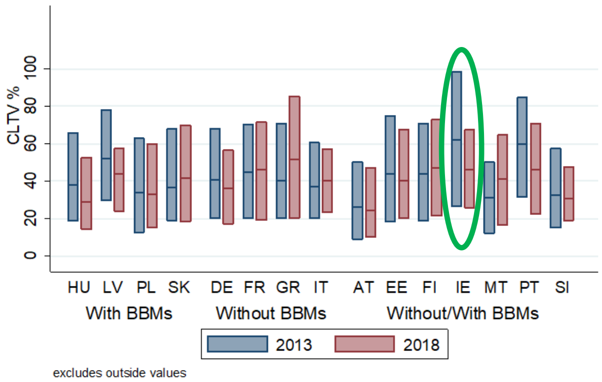
By 2019, Ireland's share of private renters was relatively small (9 per cent) and closest to Latvia, Malta and Slovakia while contrasting with large private rental markets in Switzerland (over 50 per cent) and in Germany and Denmark (close to 40 per cent).[6] The share of private renters has continued to increase over time in some other European countries (e.g. Italy, Spain and the UK). Private rental market regulations also vary significantly across countries (OECD 2021), as do the traditional features within these markets including for example lease length and security of tenure, with long term leases common in some European countries unlike Ireland.[7]

Chart 1 Distribution of Population by Tenure



Source: Eurostat SILC

Chart 2: Current LTV 2013 vs 2018 by country



Source: HFCS (All imputations).

Note: For HFCS HMR (household main residence) mortgage owners only. CLTV is as at the survey year. Each bar represents median, 25th and 75th percentiles. BBM groupings are done on a best efforts basis using ESRB Overview of Active Mortgage Measures in the EEA in Q4 2020. With and without BBMs refers to countries with or without at least one mortgage measure in both periods, without/with BBMs refers to countries without mortgage measures in period 1 and with at least one measure in period 2. BE, ES, LU, NL, HR, LT excluded from BBM groupings as did not report in both waves of the HFCS. Loans with CLTV>150 are excluded.

The share of subsidised renters in Ireland (whether in the public or private rental markets) has increased toward the upper end of European countries. Ireland's share of subsidised renters[8] was the highest in 2019 (22 per cent) followed by Slovenia, Cyprus and France and well above the Euro area average of 9.8 per cent. This share has been growing since 2014 – when Ireland was ranked ninth. This includes renters receiving a subsidy in the private rental market and may be reflective of affordability pressures for lower income groups in particular (Corrigan et al., 2018, Corrigan 2019).

[5] Eurostat data for the UK is only available up to 2018. At that point, Ireland's mortgaged owner share was lower (32.4 per cent vs 37.5 per cent) as was its private renter share (12.9 per cent vs 29.7 per cent).
[6] We cannot compare the Census share of households renting from a private landlord to the Eurostat share of private renters (i.e. tenants renting at market price) for 2019 as we did for 2016 as the last Census was 2016 and the next one is due to take place in April 2022.
[7] This would also matter for subsidised renters in the private rental market where security of tenure is an issue (see Hearne for example).
[8] Defined as "Tenant, rent at reduced price or free".

2.2 Current indebtedness of households

In this section, we focus on the relative indebtedness of Irish households compared to European peers and how that has evolved in recent years. There is already an extensive literature describing the increase in Irish household indebtedness during the Irish financial crisis (e.g. Kelly et al, 2019, Le Blanc and Lydon, 2019, Fasianos et al, 2017). More recently, the Quarterly Financial Accounts (Q1 2021) show that Irish household debt to disposable income ranks eight out of the Euro Area 19 countries compared to fifth in 2019 (Q1 2021 vs. Q1 2019). Over this period, Irish household debt to disposable income fell by 19 percentage points, from 120.4 per cent to 101.5 per cent of disposable income. At its peak, in Q4 2009, Irish household debt to disposable income stood at 210 per cent.

Here we focus in more detail on the current indebtedness of mortgaged households, namely via current loan to value (CLTV), current loan to income (CLTI) and current debt to income (CDTI). Higher levels of these household debt metrics are commonly associated with higher non-performing loans (NPLs). A large literature shows the first-order impact on default from lending at higher income multiples or at larger loan to value multiples.[9] In the Irish context, O'Malley (2018) finds loans with higher current LTI ratios are more prevalent among long term arrears cases. These indicators also play a central role in the macroprudential policies of several European countries (ESRB (2020)) - albeit the policies typically focus on prevention and thus origination levels rather than current levels.

We use the Household Finance and Consumption (HFCS) survey to compute these ratios – the HFCS is a Eurosystem survey and was collected for Ireland in two periods - 2013 and 2018.[10] On current LTV, in the 2013 data, reflecting house price falls of over 50 percent from 2008, Ireland was an outlier in comparison to other European countries, with the median and 75th percentile significantly higher than most countries (Chart 2). By 2018, Ireland had moved more into line with other countries reflecting in part the recovery in house prices and lower originating LTVs.

Ireland introduced mortgage measures including a limit on LTVs of new loans in 2015, while many other European countries also introduced such measures in recent years (see Governors Blog, Mortgage Measures, 17 June 2021 and Financial Stability Review 2020 II and 2021 I). We group countries into those "with" or "without" mortgage measures (BBMs) in both periods and those without mortgage measures in period one but with mortgage measures in period two (hereafter "without/with") for sufficient observations.[11] There does not appear to be a noticeable difference in CLTV distributions in countries that have not introduced mortgage measures compared to those that have. About two thirds of the countries in our sample have seen a fall in CLTV distributions, whereas others have seen a slight rise irrespective of mortgage measure status.

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[9] For example, Igan and Kang (2011) and Wong et al. (2011) reports that property price appreciation appears to be reined in following LTV tightening, reducing mortgage default risk via property price shocks. Mian and Sufi (2011) find that a higher DTI level increases households' probability of default. Crowe et al. (2011) and IMF (2013) find a larger loan to collateral value weakens households' resilience.

[10] The HFCS collects household-level data on households' finances and consumption. The fieldwork took place for most countries in 2010 and 2011 for the first (2010) wave, between 2013 and the first half of 2015 for the second (2014) wave and in 2017 for the third (2017) wave. There are exceptions though including Ireland with only two waves in 2013 and 2018. Horan et al (2020) discuss the HFCS details and findings on wealth extensively.

[11] For countries with at least one active mortgage measure in 2013 - see Cerutti et al. (2015) Table A2. For countries with at least one active mortgage measure in place (as of end 2020) – see Table 1 of Governor Blog (ESRB Overview of Active Mortgage Measures in the EEA in Q4 2020) here. France is included in the without BBM grouping as its measures were introduced in 2019. Note we do not consider the timing of introduction for the without / with group i.e. measures may have been implemented between 2013 and 2018 to address lending standard slippage in the interim but we can only observe the data at two points in time.

On current LTI, Ireland was again relatively high in 2013 at the time of the first Irish HFCS survey, albeit below Portugal (Chart 3a). By the time of the second Irish HFCS survey in 2018, Ireland's CLTI distribution had moved more into line with other countries. CLTIs also moved lower between 2013 and 2018 in many other countries, but there are exceptions such as France and Malta for example. It is worth noting that incomes here are gross so debt levels to disposable income will vary.

Chart 3a: CLTI 2013 vs 2018 by country

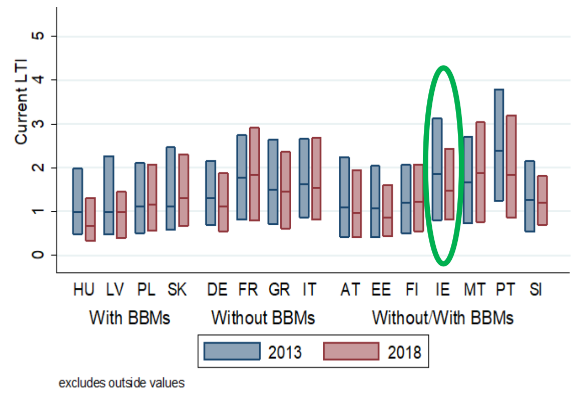
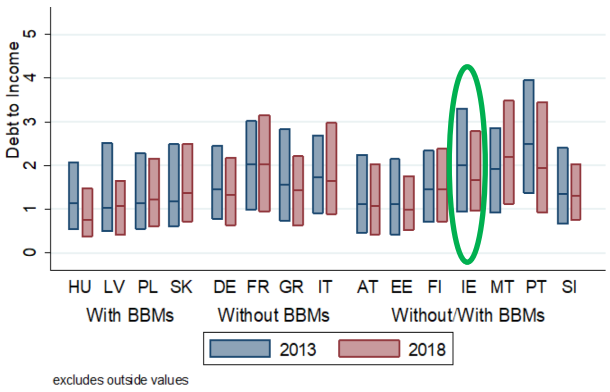


Chart 3b: CDTI (HMR mortgage holders only) by country



Source: HFCS, (All imputations).
Note: This is CDTI as at the survey year for HMR mortgage holders. Each bar represents median, 25th and 75th percentiles. BBM groupings are done on a best efforts basis using ESRB Overview of Active Mortgage Measures in the EEA in Q4 2020. With and without BBMs refers to countries with/without at least one mortgage measures in both periods, "without/with BBMs" refers to countries without mortgage measures in period 1 and with at least one measure in period 2. BE, ES, LU, NL, HR, LT excluded from BBM groupings as did not report in both waves of the HFCS. Borrowers with CLTI>7 or DTI>7 are excluded.

If we also consider additional debt among mortgaged holders such as consumer debts, buy-to-let mortgages, etc. then we can compare overall debt to income ratios at the time of the two Irish HFCS surveys. The Irish CDTI distribution (Chart 3b) has also shifted downwards between 2013 and 2018 and is only slightly higher than the Irish CLTI distribution. Again, the Irish CDTI distribution moved more into line with other countries in 2018, concurring with other sources such as the quarterly national accounts.[12] While many countries have reduced CDTI distributions over time (including Germany and Greece), they have shifted higher in a number of countries such as Italy, France and Malta.

Indebtedness is one aspect of housing costs, another is regular servicing costs – in Section 3 we place mortgage servicing and rental burdens in a European / OECD context to examine how unique are Ireland's challenges around housing affordability.

3 The cost of servicing housing across countries

In this section, we compare affordability on the basis of proportion of income used to service a mortgage or rent. We focus on nominal costs and do not compare imputed rents (Coffey et al. 2020) or entry costs for example with the latter discussed in section 4.

The OECD define housing affordability as "the ability of households to buy or rent adequate housing, without impairing their ability to meet basic living costs" but acknowledge that the reality

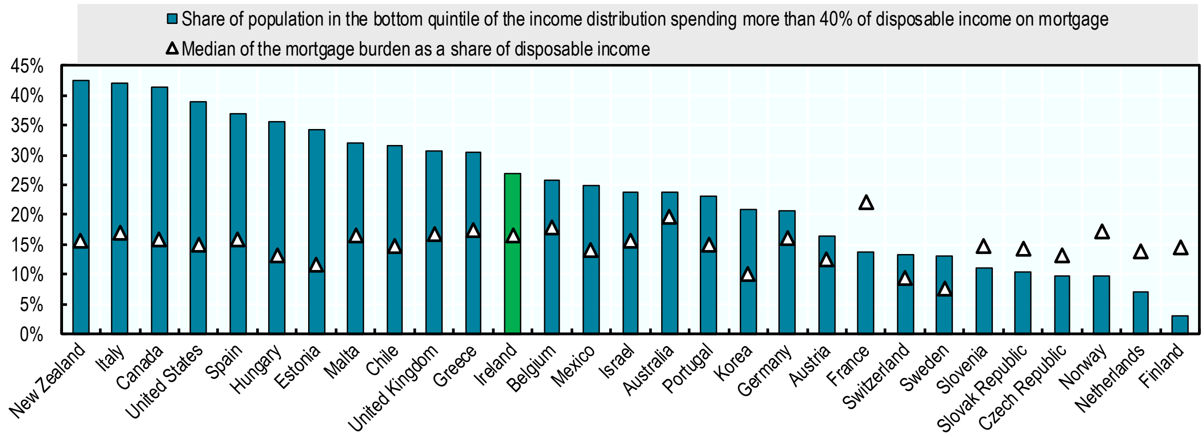
[12] If we instead consider the DTI of renters (not shown) DTI has increased slightly over the same period but is much lower than that for mortgaged households, i.e. c 0.08 at the median for renters compared to c1.8 for HMR mortgaged owners.

is more complex and discuss alternate affordability measures (OECD 2021 Box 1.1, Kelly & Mazza, 2019). Spending below a threshold share of income on housing services is the main measure used herein, with 30 per cent of gross monthly income one commonly cited criteria.[13]

3.1 Comparing servicing mortgage burdens across countries

We focus first on mortgage servicing burdens. OECD data suggests *median* mortgage burdens (as a share of disposable income) in Ireland are in the middle of the range in 2018/19 (Chart 4)[14]. Ireland is also broadly in line with OECD averages in terms of mortgage costs as a share of disposable income over time (OECD 2021).

Chart 4: Median mortgage burden and overburden shares of lower income households, % (2018/19)



Source: OECD Housing Affordability Statistics, HC1.2.1. and HC1.2.3.
Note: Median of the mortgage burden (principal repayment and interest payments) as a share of disposable income, in percent. Share of population in the bottom quintile of the income distribution spending more than 40 per cent of disposable income on mortgage, in percent. Data are 2019 or latest year available – 2018 in the case of Ireland for example – see footnote 14.

Mortgage servicing burdens are higher among lower income households – in Ireland, around 27 per cent of the population in the bottom quintile of the income distribution were spending more than 40 per cent of disposable income on their mortgage in 2018 compared to 6 per cent in the middle quintile and 1 per cent in the top quintile. However, Ireland is not an outlier relative to other OECD reporting countries, with shares in New Zealand, the US, Canada, Spain and Italy closer to 40 per cent (Chart 4).[15] Furthermore, this share was as high as 41 per cent in Ireland in 2012 according to this OECD data.

Another group where debt burdens could arguably be higher are for newer mortgages where the servicing costs could be quite different to older mortgages. We again use the HFCS to delve further

[13] Ideally income thresholds should differ across the income distribution as 10 per cent or 20 per cent spent on housing costs could leave little money left for other key consumption items among low-income households (OECD 2021).
[14] Data from 2019 for all countries except; Canada, Ireland, Italy, Mexico and the United Kingdom, for whom data are from 2018, Chile and New Zealand for whom data are from 2017, and Korea for whom data are from 2012. Mortgage is principal repayment and interest payments.
[15] Finland, France, Germany, Austria, Norway and the Netherlands have low shares of the population in the bottom income quintile with overburden rates (<20 per cent and 3 per cent in Finland). Lydon and McCann (2017) provide an overview of the evolution of groups from across the population income distribution in the Irish mortgage market.

into distributions for these newer mortgaged owners as the published data does not cover this group. We focus on the household main residence (HMR) and the subset of properties purchased in the five years prior to the survey as a proxy for newer mortgage owners. This analysis comes with important caveats. The sample sizes are smaller and the income is gross so net income burdens - either after tax or disposable income - will vary. However, comparisons over time can still add value (i.e. a focus on the trends rather than levels).

The Irish mortgage service to income (MSTI) distribution for the subset of properties purchased in the five years prior to the survey moves lower between 2013 and 2018 (Chart 5a).[16] In Ireland, the reduction is particularly evident at the upper end of the distribution (75th percentile), indicating that mortgage service became more affordable for those with the highest servicing burdens. Again, we group countries into those "with" or "without" mortgage measures (BBMs) in both periods and those without mortgage measures in period one but with mortgage measures in period two (hereafter "without/with") for sufficient observations. For properties purchased in the last five years, the upper end of Ireland's distribution was higher than the group with mortgage measures in 2013 and similar to the without mortgage measures group. In 2018, the upper end of all the distributions have moved lower – although only marginally for the without BBMs group.[17] The introduction of the LTI limit in Ireland may have contributed to these lower mortgage service burdens along with lower European interest rates (Kelly and Mazza 2019).

The HFCS data also allows us to look at broader debt service to income burdens. Irish debt service burdens (DSTI) are slightly higher than mortgage service burdens (MSTI) (an additional c. 4per cent of income) confirming the findings of Horan et al. (2020) that the household main residence mortgage is the main element of debt repayment for mortgaged owners (as well as the main debt outstanding). Again, debt service burdens across the distribution fell in Ireland from 2013 to 2018. If we focus on the subset of properties purchased in the five years prior to the survey, the upper end of the Irish distribution moved lower in 2018 and closer to the with group, albeit remaining marginally higher (Chart 5b).

An analysis of the drivers of the mortgage servicing burden trends is beyond the scope of the current paper but it is clear that mortgage interest rates have fallen since 2013 in most countries including Ireland, albeit Ireland remains among the highest in level terms (see for example Household Credit Market Report 2019, Figure 17 or Retail Interest Rates March 2021, Chart 2).

[16] Other countries are largely 2014 and 2017 or 2018 but there is some variation.
[17] These patterns also hold when we look at the full sample by BBM grouping i.e. not just the group who purchased 5 years prior to the survey.

Chart 5a: MSTI 2013 vs 2018 by Mortgage Measures grouping for properties subset purchased in previous 5 years

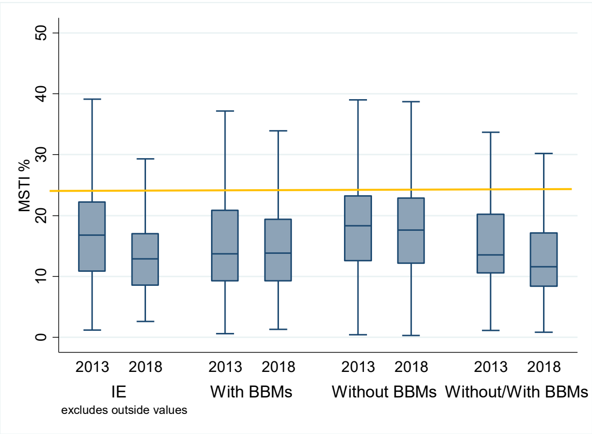
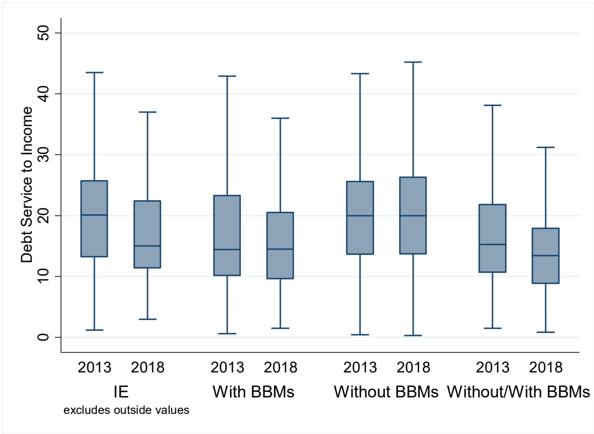


Chart 5b: DSTI 2013 vs 2018 by Mortgage Measures grouping for properties subset purchased in previous 5 years



Source: HFCS, All imputations.
Note: This is MSTI as at the survey year. BBM groupings are done on a best efforts basis using ESRB Overview of Active Mortgage Measures in the EEA in Q4 2020. With and without BBMs refers to countries with or without at least one mortgage measure in both periods, without/with BBMs refers to countries without mortgage measures in period 1 and with at least one measure in period 2 excluding IE. BE, ES, LU, NL, HR, LT excluded as did not report in both waves of the HFCS. Loans with MSTI>50 or DSTI>50 are excluded.

3.2 Rental Burdens in Ireland

Next we focus on rental servicing burdens. According to published OECD data, Ireland is not out of line on median rent burdens. Although median rent burdens in Ireland rose between 2010 and 2018 – from 14 per cent to 16 per cent of disposable income, this is true for many OECD countries contained in the data and Ireland remains below the OECD average in 2018. This data suggests rent burdens exceed mortgage burdens in most countries. In Ireland the difference is minimal between median rent and mortgage burdens based on this data but the rent data combines tenants renting at market price and subsidised rents. Previous research suggests that private rent burdens have been higher in Ireland than mortgage service burdens since at least 2006 (Corrigan et al, 2019).[18]

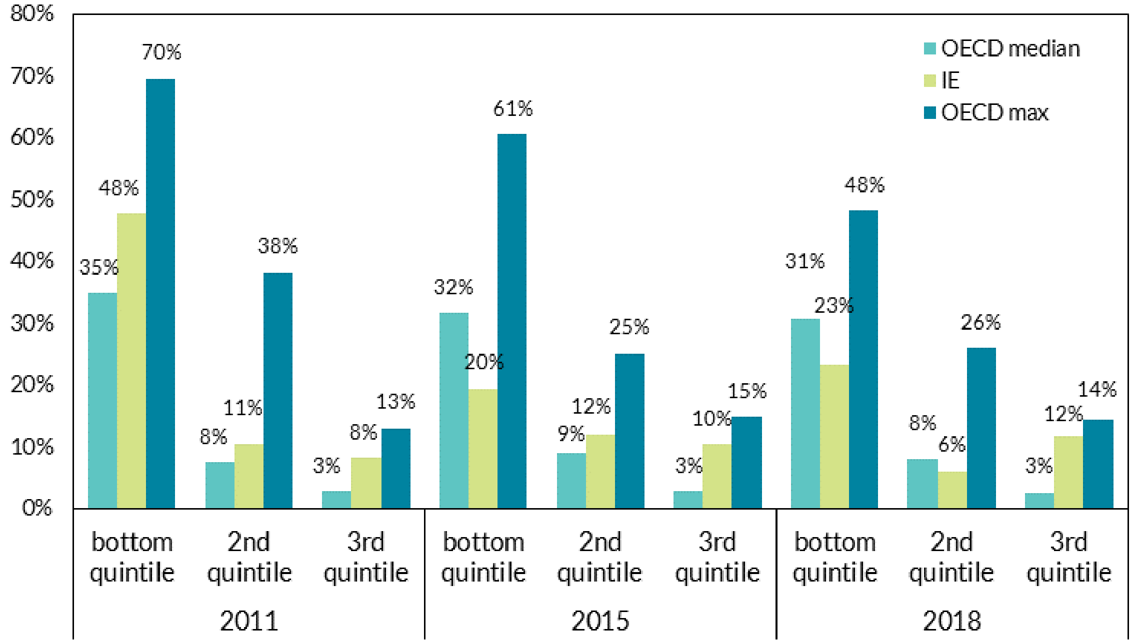
El Fayoumi et al, 2021 show that among the subset of tenants renting at market price, the median share of disposable income spent is around one quarter in 2017, broadly in line with advanced European economies at the time.

High housing burden levels ('housing overburden costs') are defined (by EuroStat and the OECD) as the share of households spending at least 40 per cent of household disposable income on housing (net of housing allowances). The shares are higher for subsidised and private renters than mortgaged owners in Ireland but remain below the euro area average (9.4 per cent vs 11 per cent for subsidised and 17.8 per cent vs 24 per cent for private renters) and are not among the top 10 countries on either subsidised or private market rents.[19] In 2019, Ireland had the 8th lowest

[18] Coffey et al. (2020) discuss the likely difference in housing structure of homeowners and renters and also differences in new market vs stock rents in a consumer price inflation context. They find a difference of about €80 in average monthly rents for renewal properties (€806) vs. new properties (€887) in Ireland during the period August 2012 to December 2016.
[19] Eurostat data 2019 - Housing cost overburden rate by tenure status - EU-SILC survey. This data also suggests Ireland is well below the euro area average for mortgaged owners (1.2 per cent vs 4.1 per cent).

overburden rate among private renters, reflecting in part the extreme pressures facing other countries with Greece at the top (over 80 per cent) and Spain at 37 per cent for example (Eurostat).

Chart 6: Share of population living in households spending >40 per cent of income on private rent (net of housing allowances) by income quintile, Ireland vs OECD



Source: OECD Housing Affordability Statistics, HC12_A3.[20]
Note: Private renters herein are tenants, renting at market price. Overburden shares for tenants in the 4th and 5th income quintile are low in all available years (below 3 per cent in 2010-18) and are excluded from the chart for ease of viewing.

Corrigan et al. (2019) highlight the higher housing cost burdens of lower income households in both the mortgage and rental markets and those living in Dublin and commuter counties, as well as single adult households. They note that low income households in the private rental market have always faced high housing payments, suggesting this is a structural affordability issue. At a European level, El Fayoumi et al. (2021) show that a large and rising share of low-income renters, the young, and those living in cities are overburdened and that middle-income groups in several locations also increasingly face rental affordability pressures amid slow income growth and rising rents.

Against this context, El Fayoumi op cit. show that, in Ireland in 2017, private renter burdens among those in the first and third income quintiles are broadly in line with other European economies, when measured as a share of disposable income.[21] OECD data for 2018/19 confirm the higher overburden shares among lower income households in Ireland but that this is also the case in many other countries given widespread affordability pressures in recent years (Chart 6).

Ireland is not among the top 10 countries for the share of households with high overburden rates in the bottom income quintile (Chart 6). Ireland is however among the top 5 countries in terms of this share in the middle income quintile – in fact this has been the case for data available since 2012.[22]

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[20] As mentioned previously, it should be noted that when looking at cross country rent price to income data, schemes such as the housing assistance payments (HAP) can drive a wedge between private rents and subsidised rents. HAP recipients may rent from a private landlord, however, as they receive a housing subsidy they should be categorised as renting at a reduced price. Any HAP recipients recorded as private renters would therefore lower the rent to income ratio for private renters (no subsidies).
[21] They also provide this statistic for the fifth income quintile for other countries but not for Ireland so a comparison is not possible.
[22] Ireland is below the OECD maximum on overburden shares for private rents for all years on all income quintiles. It is below the OECD median for the bottom income quintile since 2013 but is above the OECD median on the second and third income quintile in certain years for example.

The OECD cross country data does not cover regional variation. Corrigan et al. (2019) found that private rent burdens were between 30-33 per cent in Dublin in 2015/16. El Fayoumi et al. (2021) show a higher share of overburdened tenants renting at market price in cities compared to towns and suburbs in Ireland but again Ireland is around the middle of the group of countries. Due to sample size limitations, Ireland is not included in their analysis of the share of overburdened tenants renting at market price in the bottom income quintile split by urbanisation status and so it is not possible to compare Ireland on this basis.

Another complication to note when comparing across countries is the differing levels of private rental market regulations. In the next section, we therefore consider another measure of affordability, namely HPI and HPR ratios.

4 Examining relative house price developments and the burden of homeownership

Having examined the issues of household indebtedness and the monthly affordability of housing services, the relationship between residential property prices and fundamentals, such as incomes and rents, is examined in this section. Common statistical methods for the assessment of house price valuations, namely house price to income (HPI) & house price to rent (HPR) indices, are used. A subsequent subsection broadens the analysis to consider how average actual house prices relate to average household incomes, across a selection of countries for which data has been gathered from supplementary sources by Central Bank staff.

Again, given rising housing affordability pressures internationally, our approach here is to compare Ireland's experience to other countries using the average income across all household as opposed to income for certain groups such as First Time Buyers for example. This of course means that we are not forming judgements about absolute affordability levels or how onerous it is to acquire a residential property here, rather focusing on Ireland's experience relative to global trends.

4.1 Deviation of house price-to-income and house price-to-rent indices from long-run historical average

Statistical indicators, such as the HPI and HPR ratios, are common methods of assessing house price developments across countries.[23] The OECD maintains long-run house price, HPI and HPR indices, dating back to the 1970's in many instances, for 44 countries, 37 of which, including Ireland, are members.[24] Analysis of these series shows how a boom in residential real estate prices in the mid-2000s was not unique to Ireland. Countries such as Denmark, Spain, France, New Zealand and the UK also witnessed robust nominal house price growth in the early years of the 21st century,[25] which

[23] While useful in the fact that they take account of two major drivers of house prices, namely incomes and rents, one of the drawbacks associated with these simple indicators is that they do not take other relevant factors such as interest rates or structural factors into account.

[24] See OECD Analytical House Price database. According to the OECD, its house price to income indices are calculated as nominal house prices divided by nominal disposable income per head, while its house price to rent index is calculated as the nominal house price index divided by the residential rent price index.

[25] These countries recorded persistent double digit growth in annual nominal house price growth during the 2003 to 2006 period – ranging from an average of about 11 per cent per annum in the UK to an average annual growth rate of 17 per cent in Spain.

for many was accompanied by significant deviations of HPI (Chart 7) and HPR (Chart 8) indices from their respective long-run average values.[26]

Following the collapse of property markets in countries such as Ireland and Spain during the global financial crisis (GFC), which saw cumulative respective house price falls of more than 50 and 35 per cent in each market, HPI indices in both countries reverted towards, and even for a time below, their long term average values.[27] In Ireland, the HPI index began to rise once more in 2014, a trend that continued until about 2018, when it stood 36 per cent above its long-run average – putting Ireland back among the top quartile of countries studied in terms of the deviation of the HPI index from long run average value (Chart 7), with the likes of Canada, New Zealand, Australia and Sweden. In contrast, Germany, Italy and the USA were significantly below historical HPI index values at this time. The moderation in Irish house price growth evident since then[28], coupled with an increase in household incomes, at a time of rising pressures in some other countries, has seen the Irish figure fall back towards the values seen in countries located in the lower quartile of the sample under review; for instance 25.1 per cent for Ireland vs. a 25th percentile value of 23.2 per cent at the end of 2020 (Chart 7).

Chart 7: Deviation of OECD house price-to-income index from long-run average value (Ireland, OECD & select countries)

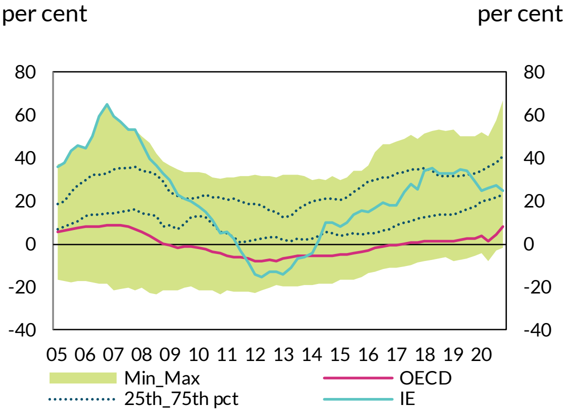
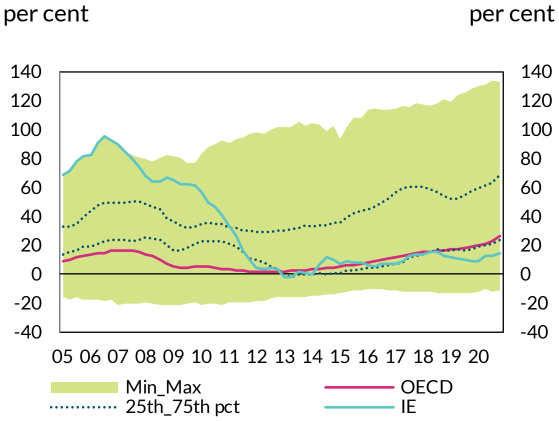


Chart 8: Deviation of OECD house price-to-rent index from long-run average value (Ireland, OECD & select countries)



Source: OECD & CSO & Central Bank of Ireland calculations.
Note: Latest observations Q4 2020. Charts are based on data from a list of 15 OECD countries, comprised of Australia, Austria, Belgium, Canada, Denmark, Germany, France, Ireland, Italy, Netherlands, New Zealand, Spain, Sweden, UK, and USA. OECD series presented in the charts is based on data from wider OECD membership as per "OECD Analytical House Price Database".

The dynamics of Ireland's HPR index, and its substantial deviation from historical values, were very similar to that of the HPI index over 2003-2007, as residential rental inflation tracked below that of house prices during this period. There has however, been a notable difference in this relationship since. Over the period end-2014 to end-2020, the growth in Irish residential rents has been broadly

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[26] In 2006 for example, the HPR indices for Austria, Spain, Denmark, the Netherlands and the UK reached a maximum of 84, 66, 57, 42 and 39 per cent above their respective long-run average values, (calculated over the period 1980 to 2020 for all countries in our sample, except for Austria, where data are available from 2000).
[27] For instance, in mid-2012 Ireland's HPI index value was 15 per cent lower than its long-run average. Similarly, in early 2015 Spain's HPI index value was 3 per cent lower than its long-run average.
[28] Analysis covers period up to end 2020, prior to the re-emergence of robust house price growth during 2021.

in-line with house price increases[29] – keeping the HPR index and the degree of deviation from its long-run average stable. This has left Ireland much closer to, and eventually below, the aggregate OECD figure, and amongst the bottom quartile of the sample of countries considered here (Chart 8). Similarly to the latest observations from the HPI indicator, current HPR index values are well in excess (133, 111, 100 and 72 per cent respectively) of their long-run average values for countries such as Austria, New Zealand, Canada and Sweden.

Taking both indicators together, it is clear that house price valuations remain elevated in Ireland with respect to incomes – and to a lesser extent rents. Current levels of misalignment are nowhere near as large as those witnessed in the run up to the housing crash however, and have even fallen back a little from the levels of two to three years ago. Depending on the indicator used, this places Ireland towards the middle of the pack, or amongst the cohort with relatively lower levels of misalignment vis-à-vis the long-run average values of these indices across the sample of 15 OECD countries examined.

4.2 Central Bank of Ireland - ratio of average house prices (€) to average income per household (€)

Having looked at how HPI and HPR indices compare to historic averages in different countries, the analysis is broadened to consider how average house prices relate to average household incomes across countries. While direct international comparisons of this sort need to be interpreted with a degree of caution, due to differences in national income tax policies for example, or due to the distortionary impact that a large MNC sector, in countries such as Ireland, may have on household earnings, our aim is to provide a sense of the relative average costs of acquiring home ownership, across countries.

As there are few, regularly updated national sources of non-index, nominal house price data, it is necessary to construct such a time series for most countries.[30] This is done by supplementing ad-hoc or once-off information on average house price values, at a particular point in time, in a given country, sourced from numerous national sources, with data from the OECD house price index for that country, so as to construct individual national house price time series.

Despite the greater general availability of data pertaining to household earnings, the compilation of this dataset is also not without its challenges. There are a number of definitions that could be used, and elements included/excluded (for instance the choice between gross vs. net incomes). Similarly, there are different bases on which to calculate a household income series (for example one may choose between median vs. average incomes). The approach adopted here to arrive at an average household income figure for the countries examined, is to take the "gross disposable income of households" series[31] (available from the ECBs Statistical Data Warehouse for the

[29] Between 2014Q4 and 2020Q4, nominal Irish house prices increased by 42 per cumulatively. This compares to an equivalent cumulative increase in nominal residential rents of 38 per cent.

[30] For instance, data for Ireland are based the average national house price values series from the "PTSB/ESRI House Price Index " up to 2005. After 2005 the average national house price value series is updated by applying growth rates from the CSO's Residential Property Price Index. According to our dataset the estimated average national house price at the end of 2020 is approximately €280,000. This compares to the CSO's mean and median sales price figures of the residential property transactions that occurred in 2020 of about €260,000 and €298,500 respectively. There are also official average house price series available for Sweden (Statistics Sweden), the UK (Gov.UK), Canada (Canadian Real Estate Assoc.) and the USA (St. Louis Fed).

[31] According to the CSO, the "*gross disposable income of households*" series is calculated as the sum of: (1. "Net income of households" + 2. "Income & wealth taxes" + 3. "Pension and other social contributions paid" + 4. "Pension and other social benefits received" + 5. "Pension and other social benefits received", which gives), 6. "Net disposable income of households", to which, 7. "Consumption of fixed capital" is

European countries), and divide the total for each country by the number of its households (sourced from Eurostat for European countries). [32] To this end, the choice of a standardised definition of household income, for which data are available on a historical basis, facilitates the creation of reasonably comparable HPI estimates, for 14 countries[33] in this instance, over the period 2005 to 2020. The results for Ireland, as well as the minimum, maximum, median, 25th and 75th percentile values are presented in Chart 9.

Again, it appears from this indicator that Ireland's actual HPI ratio was much higher in the years leading up to housing crash. With average house prices of 5.6 times the average household income figure in 2006, Ireland was slightly above the median level, but well below the group of countries (Germany, Netherlands, Australia and the USA) where the acquisition of homeownership was most challenging relative to elsewhere. The collapse of Irish house prices during the property crash saw Ireland's HPI ratio decrease markedly, and for three consecutive years (2011-13), the country was bottom of the countries in this sample in terms of the multiple house prices exceeded incomes in the country by. With the introduction of the mortgage measures, which tied mortgage lending to incomes in 2015, the relationship between house prices and household incomes in Ireland has remained remarkably steady (Chart 9), with more recent data for 2020 showing Ireland placed amongst countries, such as the Denmark, the UK, Spain, Belgium and France, with comparatively lower HPI ratios of less than 5 (Chart 10).

Chart 9: Estimated house price-to-income ratios (Ireland vs. international selection)

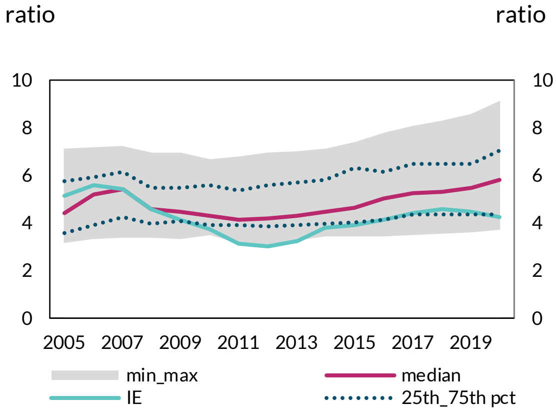
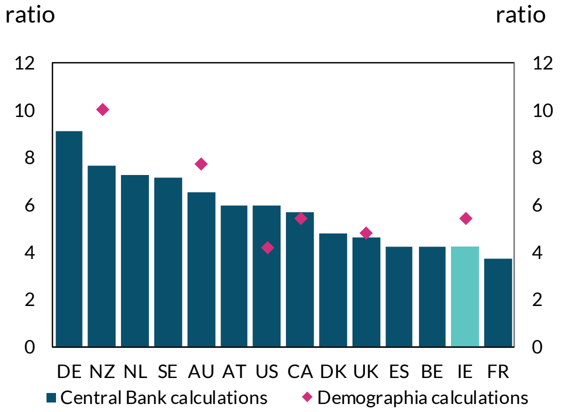


Chart 10: Estimated cross-country house price to income ratios 2020



Source: SDW, a range of national sources, OECD and Central Bank of Ireland calculations. Demographia data are also used in Chart 10. For more information on Demographia data, see footnote 34.
Note: The list of countries analysed in consists of Austria, Australia, Belgium, Canada, Denmark, France, Germany, Ireland, Netherlands, New Zealand, Spain, Sweden, UK, and USA.

The patterns which emerge in the Central Bank's calculations are also evident in a similar indicator, compiled annually by Demographia, across a much smaller sample of countries.[34] According to this

added, to give 8. "Gross disposable income of households". As this is an aggregate figure for the whole economy, one divides it by the number of households in the State to get the annual average gross disposable income per household figure that is used in the paper, which amounted to approximately €67,000 at the end of 2020.

[32] Disposable income data for the non-European countries in our sample – Australia, Canada, New Zealand and the US - are sourced from national statistical agencies (Australian Bureau of Statistics, Statistics Canada, Stats NZ and United States Census Bureau, respectively).

[33] See note attached to Charts 9 and 10 for list of countries involved in this analysis.

[34] For more see: Demographia International Housing Affordability Survey, which rates middle-income housing affordability in 92 major cities/housing markets (with a population of 1,000,000 or more) in 8 countries (Australia, Canada, China [Hong Kong only], Ireland, New Zealand, Singapore, the United Kingdom and the United States). The Demographia indicator uses the "median multiple" to rate middle-income housing affordability. The Median multiple is a price-to-income ratio of the median house price divided by the gross median household income.

source, which uses median house prices and gross median incomes in its calculations, New Zealand and Australia are similarly among the locations where homeownership appears more difficult to obtain, given prevailing incomes, relative to countries such as the Canada, Ireland, the UK and the USA (Chart 10).

Finally, while the analysis conducted here indicates that Ireland is not an outlier relative to the other places examined - in terms of how onerous it is to acquire a residential property here, given average income levels – that is not to say housing in Ireland is cheap or inexpensive. It should also be noted, that as the findings of this paper are based on median or average household incomes, we make no observations concerning the undoubtedly very different experiences of potential home buyers, who may find themselves situated on very different parts of the income distribution or indeed, located in very different parts of the same country facing a particular set of market dynamics.

Conclusion

Housing affordability remains a key challenge for policymakers internationally – housing costs are the largest single expenditure item on average among OECD households and have risen as a share of spending over time (OECD 2021). Numerous government initiatives are underway to try to address these issues (e.g. Housing for All policy).

In this Note, we focus on placing Irish household indebtedness related to housing and housing costs in an international perspective. We do not focus on absolute levels or consider affordability for individual household groups. Our analysis suggests that during the boom period Ireland was out of step compared to other European countries on household indebtedness indicators such as current LTV, LTI and DTI, but this no longer appears to be the case.

Our research confirms that Ireland does not stand out relative to other countries on mortgage service burdens, even for newer mortgage owners. Debt service burdens are only slightly higher than mortgage service burdens for Irish mortgaged owners and have also fallen over time. It instead suggests that affordability issues are a common issue faced across many developed economies. Moreover, aggregate figures can mask distributional aspects and there are cohorts of households in society that are disproportionately affected by high housing costs and debt burdens. However, on aggregate at a national level Ireland is similar to the rest of Europe.

Rent burdens vary across different subsets of the population (e.g. bottom income quintile, Dublin vs national) but there is no evidence that nationally Ireland is an outlier relative to other OECD countries – instead there has been an intensification of rent affordability challenges internationally in recent years. Against this context, Ireland is not among the top 10 countries for the share of households with high overburden rates among private renters in the bottom income quintile. However, Ireland is among the top 5 countries on this share among the middle income quintile, which has been the case as far back as 2012 (i.e. when data begins). Moreover, the share of subsidised renters has grown in recent years.

House price valuations remain elevated in Ireland with respect to incomes – and to a lesser extent rents – having risen from the lows of 2013. Current levels of misalignment however, are not as large as those witnessed in the run up to the housing crash, and have even fallen back slightly from the levels of two to three years ago. Depending on the indicator used, this places Ireland towards the average or lower end of the 15 OECD countries examined, in terms of the extent of current deviations from historical average values. Turning to how average actual house prices relate to average actual incomes from country to country, Ireland is now amongst the countries in our sample, such as Denmark, the UK, Spain, Belgium and France, with comparatively lower HPI ratios relative to other OECD countries – illustrating how increasingly stretched valuations relative to incomes have become in some countries.

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