OXFORD ECONOMICS

THE SKIPTON GROUP HOME AFFORDABILITY INDEX: METHODOLOGY

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Skipton Group

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To discuss the report further please contact:

Henry Worthington: hworthington@oxfordeconomics.com

Oxford Economics

4 Millbank, London SW1P 3JA, UK

Tel: +44 203 910 8000

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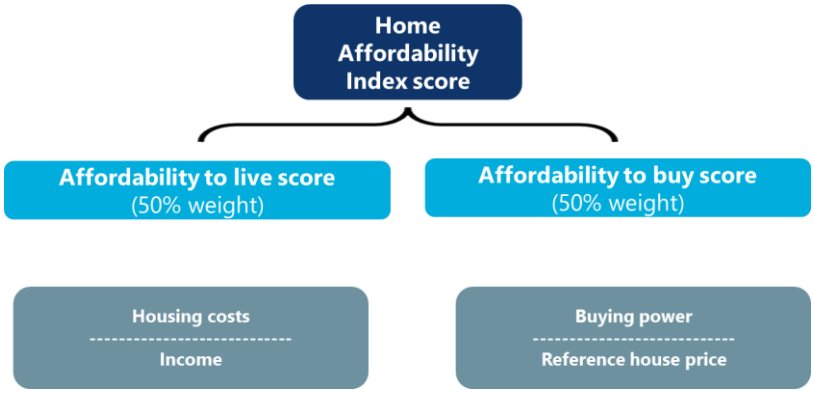
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1. INTRODUCTION

OVERVIEW—INDEX DESIGN

The *Skipton Group Home Affordability Index* combines household-level data on the affordability of buying a home and the affordability of running a home into a single housing affordability metric (see 0). The buying affordability score measures the ability of households across Great Britain to take the first, or next, step on the property ladder based on their buying power, local house prices, and other purchasing costs. The living affordability score is based on the proportion of income that households spend on housing costs, such as rent, mortgage payments, bills, and essential maintenance. This approach reflects the dual nature of the nation's housing challenge.

The Skipton Home Affordability Index—conceptual framework



In addition to providing insights into the evolution of housing affordability in Great Britain, the Index provides a forward look at how affordability is expected to evolve in the coming years. This forward-looking analysis is underpinned by forecasts from Oxford Economics' Global Economic Model (GEM).

This document sits alongside the *Skipton Group Home Affordability Index* and provides a detailed explanation of the methodology underpinning the results. It outlines how the core household dataset has been constructed, the development of the housing affordability indicators, and the approach to forecasting the future path of housing affordability.

OVERVIEW—DATA SOURCES, EXTRAPOLATION, AND FORECAST

The data underpinning the Index is a household panel dataset. This is a database of a representative sample of households which captures how socioeconomic characteristics vary across households in Great Britain and over time. It is constructed by combining data from several household surveys, most notably, the Wealth and Assets Survey (WAS) and the Living Costs and Food Survey (LCFS), both conducted by the Office for National Statistics (ONS).

The WAS is the most detailed financial survey in the UK with information on a wide range of aspects of households' finances. It also includes demographic data such as the age of household members, whether households own or rent their property, and household location.

Despite this detail, the WAS does not contain all the information we needed to develop the *Home Affordability Index*. For example, the WAS does not contain detailed insights on household expenditure patterns across different types of goods and services, which is crucial in determining essential housing costs. Such information was, however, available in the LCFS. Insights from other surveys, such as the Labour Force Survey (LFS) were also merged into our central household panel dataset. These datasets were combined by imputing the required additional variables using the correlation between these indicators and household characteristics evident in both sets of survey data.

The WAS is published with a long reporting lag meaning that the data are not timely. At the launch of the *Home Affordability Index,* the latest WAS dataset was based on interviews conducted between 2018 and 2020. To understand how housing affordability has changed over time and is projected to evolve over the coming years we have constructed a time series dimension to this dataset up to Q4 2026. This was undertaken using detailed historical data as well as macroeconomic forecasts from Oxford Economics' GEM. The forecast element of this dataset also allows us to evaluate the consequences on housing affordability of alternative macroeconomic projections via scenario analysis.

Once the dataset was developed, the final step in our analysis was to derive the affordability to live and affordability to buy scores (as illustrated in 0) and bring together the data in a single metric, the *Home Affordability Index*.

A key benefit of this household dataset is that it enables the research to go beyond the national picture and investigate the housing affordability challenges faced by different types of households. For example, the underlying data offers insight into how affordability differs across households based on their tenure status, location, age, income, and family type.

2. INDEX DESIGN

This chapter describes how the key housing affordability indicators were estimated and how they are transformed into our housing affordability Index.

HOUSING AFFORDABILITY INDICATORS

Essential housing costs

A list of spending categories were agreed upon that were deemed essential for running a home.[1] These costs underpin the housing costs used in the living affordability score and can be broadly grouped into six categories—mortgage/rent, council charges, utilities, insurance, maintenance and repairs, and household goods (see 0). For each household, their overall essential housing cost was given by the sum of these spending categories.

The value of mortgage and rent payments were taken directly from the WAS while all other housing spend categories were only available in the LCFS and were imputed based on common household characteristics.

Essential housing spending categories

Broad spending category	Cost description
Mortgage / rent	Rent payments (incl. housing benefit)
	Mortgage payments
Council charges	Council tax (incl. rebates)
	Refuse collection
Utilities	Water & sewerage
	Electricity
	Gas
	Other fuels
	Internet
	Landline
	TV licence (excl. satellite subscriptions)

[1] Capital investments in a property were not deemed an essential running cost for a home. In practice, capital investments may be split between those that may be deemed essential (such as replacing faulty fittings and fixtures) and those that may be deemed non-essential (such as a house extension). Given available data, it was not feasible to determine what proportion of capital investments could be accurately deemed as essential. We have therefore treated all capital investments in a property as non-essential spending.

Insurance	Buildings insurance[2]
	Contents insurance
Maintenance & repairs	Ground rent and service charge
	Central heating repairs
	Property maintenance
	Equipment hire
	Cleaning materials
	Domestic services
	Repair of furniture and furnishings
Household goods	Furniture (excl. garden furniture)
	Floor coverings
	Household appliances
	Household textiles
	Kitchenware
	Tools and equipment

Household income

Gross household income underpins the living affordability score. It was calculated as the sum of employment income, self-employed income, total benefits received, pension income, investment income, and other regular income minus housing benefit.[3]

Buying power

The maximum property value a household can afford to buy underpins the buying affordability score. It depends on a household's available deposit (after accounting for moving costs and leaving some savings aside for rainy day costs) and the maximum mortgage they could receive according to their household and financial characteristics.

Deposit

When purchasing a property, households need to set aside part of their savings to cover the moving costs associated with the property purchase. It is also reasonable to assume that households would

[2] Not relevant to renters

[3] Housing benefit is excluded from gross income because it is deducted from rent payments. Including housing benefit in gross income would therefore lead to double counting of housing benefit.

keep a proportion of their savings aside as an "rainy day fund" in case of unexpected changes to their financial situation. The value of the deposit that households could put towards a property therefore must subtract moving costs and rainy day funds from their total household savings.

Households' total savings are captured by the value of all assets they hold.[4,5] For owner-occupiers, this includes the equity they hold in their current property. We assume that households keep aside savings to the value of three months of essential spending as an "rainy day fund".

Our approach to estimating the moving costs associated with purchasing a property used insights from secondary data and from Connell's moving cost calculator. A summary of our approach is given in 0 below.

Move cost categories

Move cost category	Approach
Stamp duty	Calculated using the relevant stamp duty rates for the tenure status and reference house price of each household.
Conveyancing (purchase)	Calculated using a cost estimator provided by Connell's estate agents and varying according to the value of the households' reference house.
Conveyancing (sale)[6]	Calculated using a cost estimator provided by Connell's estate agents and varying according to the value of the households' current property.
Estate agent fees	Assumed equal to 1.75% plus VAT of the value of households' current property.[7]
Removals	Determined by the number of bedrooms in the households' current property.[8]
Home survey	Determined by the value of the households' reference house.[9,10]
Mortgage fee	Fixed arrangement fee and valuation fee[11,12]

[4] Assets include cash-based accounts, such as current and savings accounts, as well as share-holdings, bonds insurance produces and informal financial assets. Property and business investments have been excluded from households total savings.
[5] For first-time buyers, the value of lifetime ISAs are multiplied by 1.25 to capture the 25% government bonus paid for the purchase of their first property.
[6] Only relevant to existing owner-occupiers.
[7] Assumption sourced from Connell's moving cost estimator.
[8] Home Owners Alliance, "How much do removals cost in 2024?", accessed April 2024
[9] Home Owners Alliance, "How much does a house survey cost in 2024?", accessed April 2024
[10] Assume that all households purchase a RICS Home Survey Level 3
[11] Money Saving Expert, "What mortgage fees will you pay?", accessed April 2024
[12] Assumed fixed for all households.

Maximum available mortgage

The Skipton Building Society provided data regarding the effective disposable income that households have according to their gross household income and household composition.[13,14] This is scaled by a stress coefficient (which depends on the length of the mortgage term and changes over time) to determine the maximum mortgage that would be lent to a household in a given period.[15] This information was used to calculate the maximum obtainable mortgage value that households could expect to receive based on financial characteristics from the WAS.

The maximum property value that each household could afford is calculated as the sum of their deposit and the maximum obtainable mortgage. We assume that households must put down a deposit that is at least 5% of the value of their reference property. If households cannot put down a 5% deposit, then their obtainable mortgage is capped at 20 times the value of the deposit they have.

Reference house price

It is expected that the value of the property a household would be looking to purchase would differ depending on their characteristics. For example, first-time buyers would likely buy a cheaper property than a household already on the property ladder looking to upsize. To accurately assess buying affordability it is therefore important to consider the type of property that each household would likely be looking to buy rather than simply considering the national, or local, average property price.

A household's reference house price reflects the value of the property that it is most likely to purchase based on their characteristics. Our approach to estimating the reference house price differs depending on whether the household is a first-time buyer or existing owner-occupier.

For prospective first-time buyers, their reference house price is given by the average property price paid by first-time buyers in their NUTS2 level[16] where they live. These data are sourced from the ONS House Price Index. We therefore assume that households would purchase their first property in the same local authority as they currently live and at the average first-time buyer price point.

For owner-occupiers, it is assumed that they would be looking to move into a property with one additional bedroom to their current property and within the Government Office Region in which they currently reside. ONS data relating to the average house price, by region and number of bedrooms, are used to estimate the uplift in property price associated with an additional bedroom.[17,18] These uplift factors will vary depending on the current number of bedrooms a household has and the region

[13] Skipton exclude investment income from gross household income when estimating the maximum mortgage loan they would offer to households. Our analysis replicates this approach and removes investment income from gross household income when calculating households' buying power.
[14] Number of adults and dependents.
[15] When assessing mortgage applications, households are stress-tested to determine whether they would still be able to afford to repay their mortgage if interest rates were to rise.
[16] Local authority district data on first-time buyers were aggregated to the NUTS2 region based on the volume of total sales.
[17] Office for National Statistics, "Simple average house prices by number of bedrooms, 2015 to 2021", accessed April 2024
[18] Data are from the Regulated Mortgage Survey and therefore only reflect property transactions in which a mortgage was involved. Average property prices are simple averages and have not been mix-adjusted or weighted.

in which they live.[19] For each owner-occupier household, the current value of their main residence (based on the value stated in the WAS and house price inflation in their area since this value was stated) is multiplied by the additional bedroom uplift factor to estimate the price of their reference house.

CONCEPTUAL DESIGN

The *Home Affordability Index* has been designed to capture the dual nature of the nation's housing challenge by assessing buying affordability and living affordability. These two measures represent distinct sub-indices that are combined to produce an overall housing affordability score. The Index is scored from 0 to 100, with higher numbers representing better housing affordability. The Index enables comparisons of housing affordability to be made over time as well as between different cohorts of the British population.

Living affordability

Living affordability is measured by the proportion of gross household income that is spent on essential costs to maintain a home. The lower the proportion of household income that is spent on housing costs, the greater the living affordability.

As previously discussed, these costs cover not only mortgage / rent payments but also include council charges, utility bills, property maintenance and repairs and the purchase of household goods. This provides a more comprehensive picture of the overall cost associated with living in a home than simply looking at mortgage / rent payments in isolation. By doing so, we can identify housing affordability pressures that result from events such as the spike in energy prices in 2022, which would not be reflected in mortgage / rent payments.

There are two main approaches that could be taken when assessing housing costs relative to household income. The first is to calculate housing costs as a proportion of household income and the second is to calculate the "residual income" after housing costs have been deducted from household income. With the latter, this "residual income" can be compared to essential non-housing costs (such as food and transport) to determine whether a household has sufficient income to meet their essential needs after accounting for housing costs. We chose to measure living affordability as the ratio of housing costs to gross household income. The rationale for this was that this approach is easier to understand, and the "residual income" approach can misdiagnose the source of affordability challenges (e.g., as this metric also captures changes in wider costs that are not related to housing).

Buying affordability

Buying affordability is measured as the maximum affordable property a household could purchase relative to their reference property. The greater the maximum property value a household can afford relative to their reference house, the greater their buying affordability.

[19] The uplift associated with moving from a one-bed property to a two-bed property was based on the national average property price because there were significant reductions in average property prices associated with an additional bedroom in several regions.

A commonly used metric to assess buying affordability is the price-to-income ratio. This measure has several limitations which our approach seeks to overcome:

- The average property might not be an appropriate reference point for all households. For example, first-time buyers are more likely to move into cheaper properties than existing owners looking to upsize.
- The overall cost of purchasing a property is not limited to just the purchase price but also the associated moving costs, which are not captured in this approach.
- Buying power does not depend solely on household income but on the size of deposit and mortgage that could be granted. The latter will depend on household income but also other household characteristics (such as household size or applicant age) which could mean two households with the same income receive different mortgage loans.

Our assessment of buying affordability is undertaken relative to each individual household's reference property (including moving costs) rather than an average property. This, combined with an assessment of their buying power, provides a unique assessment of the affordability challenges faced by different types of households.

Cohort analysis

Index scores can be calculated based on household characteristics such as tenure, income, and average household age[20].

In addition, sub-national index scores have been estimated. In the publicly available WAS dataset, household locations are reported only at the level of Government Office Regions (e.g., South East of England). The dataset has been enhanced by including estimates of the likely NUTS2 region[21] each household belongs to. This allows the findings from the analysis to be calculated at a finer granularity than the Government Office Regions reported in the WAS.

The analysis classes all households in private rental accommodation as potential first-time buyers. The decision to take this broad definition reflects the fact that most renters would prefer to own, rather than rent, their home—a goal that has remained broadly stable over recent decades. It ensures that the analysis does not exclude households who want to take the first step on the property ladder simply because it is not possible given their current financial circumstances. The research also captures the ability of potential first-time buyers to get onto the property ladder through their own current financial means, rather than through loans or gifts from the Bank of Mum and Dad.

RESULTS

Index scores

Both housing affordability ratios (housing costs as a share of gross household income and buying power as a share of reference house price) are converted into z-scores by subtracting the mean and dividing by the standard deviation. For all quarters in the extrapolation period and forecast period, z-

[20] Average household age based on the adults in the household.
[21] There are 40 NUTS2 regions in Great Britain.

scores are calculated with reference to the mean and standard deviation from the initial period[22]. This enables comparisons over time to be made. Z-scores are then transformed into index scores on a 0-100 scale with a score of 50 equal to the national average for the initial period (Q1 2020) for both buying and living affordability.

Both sub-indices are weighted equally in the overall housing affordability Index score, meaning a score of 50 aligns with the national average score form Q2 2020. This ensures that neither sub-Index has undue influence over changes in the overall Index as they are given equal importance within our framework.

Index scores are also calculated for specific cohorts, such as by tenure status. The interpretation of such scores is the same. For example, a score below (above) 50 for prospective first-time buyers would mean housing is less (more) affordable for prospective first-time buyers than the national average in the initial period.

Affordability thresholds

The Index scores described above provide a means to compare affordability trends over time or the relative affordability position of different cohorts. An alternative way to analyse the data is to calculate the proportion of households who score above or below an affordability threshold from a buying or living perspective.

Where an affordability threshold is set will have a significant impact on the proportion of households that are classified as being in an unaffordable housing situation. An affordability threshold of 30% of household income on solely rent/mortgages payments are used by the ONS.[23] However, our measure of housing expenditure includes a much wider range of spending than simply mortgage or rent payments and therefore a 30% threshold would likely be too low. Instead, we calculated the proportion of households who faced unaffordable mortgage or rent payments (defined as greater than 30% of their gross household income). We then set the affordability threshold for overall housing costs at a level that resulted in a similar proportion of households facing unaffordable housing costs as seen in the ONS approach. Using this approach, we define housing costs to be unaffordable if they account for more than 45% of gross household income.

Setting a threshold with regard to buying affordability was more straightforward. A move onto, or up, the property ladder is only affordable if households' buying power exceeds their reference house price.

[22] The initial period is based on the period covered by the 7th Wave of the Wealth and Asset Survey – Q2 2018 to Q1 2020. To simplify the labelling in the main report, this whole period is labelled as Q1 2020.

[23] ONS, "Private rental affordability, England, Wales and Northern Ireland: 2022", accessed April 2024

3. CONSTRUCTING THE DATASET

The latest WAS dataset is based on interviews conducted between 2018 and 2020. We have extrapolated and forecast the variables from the WAS that underpin the Index for the period between Q1 2020 and Q4 2026 using a wide range of macroeconomic and survey data. The dataset is extrapolated up to Q4 2023 and, after this, macroeconomic forecasts from Oxford Economics' GEM are used to forecast the dataset to Q4 2026. This approach ensures that the extrapolation is consistent with macroeconomic trends and the forecast is consistent with the economic outlook from the GEM.

In this section, we outline the approach used to extrapolate and forecast the key housing affordability indicators that underpin the Index.

HOUSEHOLD INCOME

Household income has been extrapolated and forecast based on employee and self-employed earnings from work, benefits, investments, and other regular sources of income. Each component has been separately extrapolated and forecast while maintaining consistency with overall macroeconomic trends.

Extrapolation

The earnings from work extrapolation for each household is based on seasonally adjusted average weekly earnings[24] data from the ONS. The earnings of household members are extrapolated based on the industry in which they are employed[25]. To better reflect the realities of the labour market during the Covid-19 pandemic, our extrapolation approach also includes the likelihood that the individuals were placed on furlough[26,27] as well as trends in seasonally adjusted employment by industry to capture changes in work-based earnings attributed to job losses.[28]

Household benefits are extrapolated based on the announced changes to benefits that households receive and then constrained to ensure our estimate across all households aligns with the national figure. Benefits received by households who are not on Universal Credit or other work-related benefits are increased in line with CPI inflation.

Other regular household income and income from investments have been extrapolated using data from the GEM. The quarterly change of total personal disposable underpins other regular household income[29] while personal sector dividend receipts are used for income from investments.

Forecast

[24] Average weekly earnings (AWE) by 16 NACE industries published by the ONS and seasonally adjusted.
[25] Other household work-based earnings are extrapolated in line with the primary earner
[26] The probability of being placed on furlough depended is estimated using the LFS and based on industry, education, age, full time/part time status, and managerial status of the individual.
[27] Individuals placed on furlough were paid 80% of their wages.
[28] This adjustment to individuals' income is only applied while a particular industry's employment is below Q4 2019 levels.
[29] Other regular income covers a wide range of income not included in the GEM such as income from royalties and educational grant. Given this, it changes in line with the total disposable income.

In a similar approach to the extrapolation, household income has been forecast based on the individual sources of income using forecasts from the GEM. Earnings from work are underpinned by total wages and salaries while benefits change in line with personal sector transfers from the central government. Investment and other regular sources of income are forecast using the quarterly change of personal sector dividend receipts and total personal disposable respectively.

ESSENTIAL HOUSING COSTS

Each household's consumption is extrapolated and forecasted by COIOCP[30] category. The individual COICOP categories are then aggregated to calculate total essential housing costs for each household which underpins the living affordability sub-Index. Each category has been separately extrapolated and forecast while maintaining consistency with overall macroeconomic trends.

Extrapolation

Household consumption is based on household-specific saving ratios, national trends in consumer spending, and household-specific changes in mortgage repayments. Savings rates from Bank of England data are combined with household income to estimate total household consumption before being constrained to match the national consumption trends from the GEM.

Seasonally adjusted COICOP data released by the ONS are then used to extrapolate household consumption for each category of consumption excluding mortgage payments and rent. Spending on each element of housing costs, such as fuel bills, are therefore extrapolated individually from Q1 2020 to Q4 2023. For example, the spike in energy bills in Q2 2022 and its gradual decline during 2023 will be reflected in the extrapolation of the relevant variables.

Household-specific mortgage payments have been modelled based on Bank of England mortgage data and published mortgage interest rates. Until 2022, interest rates and mortgage payments remained at historical lows. However, with the Bank of England increasing interest rates, mortgage costs began to rise. For households on fixed mortgages, the change in interest rates does not impact them until they roll off their fixed rate. The analysis accounts for the estimated number of households refinancing their mortgage each quarter and those on a variable interest rate who will see their mortgage payment change. Mortgage payments will reflect the interest rate faced in the quarter they refinance their mortgage or the variable rate they need to pay.

Households who are renting, their rental payment increase is based on the average change in private rents within the government office region in which they live[31].

Forecast

The forecasts of consumption excluding mortgage and rents are underpinned by the forecast variables from the GEM. CPI trends in food, energy, fuel, and core inflation are combined with overall real consumption changes to provide specific consumption forecasts for all elements of housing costs (except for mortgage and rent payments) for each household.

[30] The Classification of Individual Consumption According to Purpose (COICOP) is the international reference classification of household expenditure.

[31] Office for National Statistics, "Index of Private Housing Rental Prices, UK Statistical bulletins", accessed May 2024

Consistent with the extrapolation model, mortgage payments are dependent on the refinancing period of the household and the repayment costs they are expected to face based on the GEM's forecast for interest rates.

Forecasts of rent growth (for newly agreed rentals only) provided by Hamptons were adjusted using ONS rental data[32]. This adjustment accounts for existing rentals, providing an estimate of overall rental growth. The forecast provided by Hamptons was split between London and the rest of Great Britain. This forecast was used to project rental payments for each household in our dataset.

BUYING POWER

Household buying power is determined by evaluating household savings and the maximum obtainable mortgage. The deposit amount depends on their savings and home equity. The maximum obtainable mortgage depends on household income, their deposit, and how much lenders are willing to offer based on their financial characteristics at a given point in time.

Households in the dataset accumulate or draw down on their assets based on their extrapolated income and consumption over time. As well as this, the current stock of household assets will have changed in value. To ensure consistency with aggregate household savings, household savings are constrained to match the trends in three asset groups: liquid assets, financial products, and bonds[33].

Personal sector liquid assets stock is used to constrain household's liquid assets. For financial products, which include all types of shareholdings,[34] personal sector holdings of companies' securities data are used. Both these projected macroeconomic series capture the expected change in value as well as the amount of assets held by the personal sector. Finally, government bonds and gilts are based on changes in personal sector stock of government debt as well as the interest rate earned on their current stock of bonds as measured by the 10-year gilt projections.

Extrapolation

In the extrapolation stage, the accumulation or drawing down of assets is based on the historical assets held by the household as well as changing trends in asset holdings identified in the Financial Lives Survey. Observed financial data are used to change the household's current stock of assets.

Forecast

Savings levels in the forecast are based on data from the GEM. The change in the value of liquid assets in the forecast is driven by expected future interest rates on bank deposits, while financial products are influenced by share price index projections. Government bonds and gilts are based on forecast changes in the personal sector's stock of government debt.

[32] Office for National Statistics, "Index of Private Housing Rental Prices, UK Statistical bulletins", accessed May 2024

[33] Insurance products and informal financial assets remain unchanged

[34] Share holdings include UK and overseas shares, investment and unknown ISA, unit investment trusts, and employee shares and options.

Financial indicators used to extrapolate asset values

Asset group	Asset	Linked financial variable
Liquid assets	Household value of current assets	Interest rate on bank deposits, GEM
	Household value of savings accounts	Interest rate on bank deposits, GEM
	Household value of cash ISAs	Interest rate on bank deposits, GEM
	Household value of National Savings certificates and bonds	Direct Saver interest rate
Financial products	Household value of stocks and shares ISAs	MSCI World TR
	Household value of UK shares	FTSE All-Share Index TR
	Household value of fixed-term bonds	10-year gilt, GEM
	Household value of employee shares and share options	FTSE All-Share Index TR
	Household value of Unit/Investment trusts	MSCI World TR
	Household value of overseas shares	MSCI World ex UK TR
Bonds	Household value of UK bonds/gilts	10-year gilt, GEM
	Household value of overseas bonds/gilts	Barclays Aggregate Global Bond Index
Other	Household value of insurance products	No change
	Household value of informal financial assets	No change

Home equity

Extrapolation

For homeowners, the value of their house is extrapolated based on the value of their house as stated in the WAS and the UK House Price Index published by the Land Registry[35]. The house price of the main residence is extrapolated based on the Government Office Region and type of property.[36]

The outstanding value of the mortgage held by each household is extrapolated based on the trend in the national average mortgage value from Q1 2020 to Q4 2023.[37] For each household, the equity they hold in their main residence has been estimated by calculating the difference between the value of their main residence and their outstanding mortgage loan during the reported quarter. Equity held in second homes is excluded from the total buying power estimate.

[35] https://landregistry.data.gov.uk/app/ukhpi

[36] The WAS includes information on house type including; detached, semi-detached, and terraced.

[37] The average has been calculated based on the total number of mortgages outstanding and the total mortgage liabilities from the GEM

Forecast

Regional house price forecasts were provided by Hamptons. Oxford Economics calibrated the NUTS2 house price forecasts used in the Index based on the regional forecast from Hamptons. The calibrated NUTS2 house price forecasts were used to forecast the value of homes for existing homeowners. The outstanding value of the mortgage held by each household is forecast based on the projected mortgage liabilities of the household sector. Equity in a household's main residence has been estimated by combining these two metrics.

Moving costs

Extrapolation

To estimate the moving costs associated with purchasing a property, we utilised insights from Connell's moving cost calculator and secondary data. The data on conveyancing, removals, home survey costs, and mortgage fees related to Q1 2024 and were therefore deflated using consumer price inflation (CPI). Specific components—such as legal fees—of conveyancing costs vary according to the sale or purchase price. For these components, we calculate cost as a share of property price and assume these remain constant over time. These shares are multiplied by the relevant property price (current property value for selling costs or reference price for buying costs) in our household dataset to estimate the value of this component of conveyancing cost.[38]

Stamp duty is calculated by applying the relevant stamp duty rates that were in place in each quarter to the extrapolated reference house price. This approach therefore takes account of the stamp duty holiday during the pandemic and the subsequent staggered return to normal rates.

Forecast

Stamp duty rates and thresholds were assumed to remain constant over the forecast horizon. All other categories of moving costs were forecast to grow in line with CPI forecast from the GEM.

Maximum available mortgage

Extrapolation

The Skipton Building Society provided historical data regarding the maximum mortgage loan that would be provided to households before the pandemic according to their gross household income, mortgage term, the number of adults and dependents in the household, and a stress coefficient. This information was used to calculate the maximum mortgage that every household in the WAS dataset could have expected to have received.

The relationships between those characteristics and the maximum available mortgage have changed at certain points in time to capture economic developments, such as the rise in mortgage rates in 2022 which led to changes in the stress coefficient. For each quarter in the extrapolation period, we use the relationships that were applied by the Skipton Building Society during that period.

[38] Current property value for sale conveyancing and reference house price for purchase conveyancing.

Forecast

We assume that the relationship between household characteristics (income and composition) and implied effective disposable income as provided by Skipton Building Society remains constant over the forecast horizon. This means that, for each household, their implied disposable income as a proportion of their gross household income remains constant.

A stress coefficient is then applied to convert effective disposable income into the maximum mortgage that could be provided to each household. Analysis of historic trends in this stress coefficient identified a relationship with the Bank of England base rate. This relationship was applied to forecasts of the Bank of England base rate to derive projections for the stress coefficient over the forecast horizon.

In each quarter in the forecast, the implied effective disposable income was calculated as a proportion of gross household income and then scaled by the relevant stress coefficient to estimate the maximum mortgage that each household might be expected to receive over the forecast period.

Reference house price

Extrapolation

The reference house price for prospective first-time buyers is extrapolated using the average property price paid by first-time buyers in each quarter in the NUTS2 area where they live[39]. These data are sourced from the ONS House Price Index.

The reference house price for owner-occupiers is estimated by multiplying the extrapolated value of their existing property by the additional bedroom uplift factor. This uplift factor was calculated using regional data from the ONS to estimate the increase in property price associated with an additional bedroom. These uplift factors are assumed to remain constant over time.

Forecast

The price of households' reference house is forecast to grow using the same methodology applied to forecast the value of homeowners' existing property discussed in this chapter.

PREDICTING GRANULAR REGIONAL DATA

The WAS dataset that is publicly available only reports the location of the households at the Government Office region[40] (e.g. North East of England and West Midlands). To derive housing affordability scores for NUTS2 regions and house prices based on NUTS2 data, we estimated the probability of each household in the dataset being in a specific NUTS2 regions. For instance, for households in the East of England, we estimated the probability of residing in East Anglia, Bedford & Hertfordshire, or Essex. The probability of being in any other NUTS2 region was set to zero, as these are the only relevant NUTS2 regions for the East of England. A random forest classifier model for each NUTS1 region was trained on 2020 FLS data to assign probabilities of a household being located in a

[39] Local authority district data on first-time buyers was aggregated to the NUTS2 region based on the volume of total sales.
[40] These regions are in-line with the NUTS1 / ITL1 geographic definition.

given NUTS2 which included variables such as household composition, employment status, gross household income and household financial information[41].

When categorising homeownership by income quartile, age groups, and household composition, the models are adjusted due to sample size limitations. Instead of splitting households by Government Office region, they are grouped into larger regions to enhance the sample size. For example, the summary statistics for renters in the fourth income quartile in East Anglia will be based on the income distribution of the enlarged regional group before ensuring it aligns with the East Anglian overall average. Additionally, a cap on extreme values has been included[42].

OXFORD ECONOMICS GLOBAL ECONOMIC MODEL (GEM)

Oxford Economics' Global Economic Model provides a rigorous and consistent structure for forecasting and testing scenarios. The GEM is a globally integrated economic model covering 85 countries, it can be used to address questions on a wide range of economic topics such as the impact of oil price changes, or the effects of slower economic growth. Furthermore, individual country models are fully linked through global assumptions about trade volume and prices, competitiveness, capital flows, interest and exchange rates, and commodity prices. It provides all the key macroeconomic variables needed for the Index's forecasts and scenarios.

[41] The model included the following variables: the average age of adults in the household; the number of adults and children in the household; the household's employment status and education level; gross household income; whether the household receives income from each of work, a pension, investments, benefits or other sources; whether anyone in the household is a manager; whether the house is rented, owned with a mortgage, or owned outright; whether the household is in arrears or finds debt a burden; the value of the house and the value of any outstanding mortgage; and the household's stock of liquid assets and investments

[42] This is impacting the proportion who can purchase their reference home which has been capped at 95% for a NUTS2 region and the affordability to by score that is been capped at 95 for a NUTS 2 region.



OXFORD
ECONOMICS

Global headquarters
Oxford Economics Ltd
Abbey House
121 St Aldates
Oxford, OX1 1HB
UK
Tel: +44 (0)1865 268900

London
4 Millbank
London, SW1P 3JA
UK
Tel: +44 (0)203 910 8000

Frankfurt
Marienstr. 15
60329 Frankfurt am Main
Germany
Tel: +49 69 96 758 658

New York
5 Hanover Square, 8th Floor
New York, NY 10004
USA
Tel: +1 (646) 786 1879

Singapore
6 Battery Road
#38-05
Singapore 049909
Tel: +65 6850 0110

Europe, Middle East and Africa

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New York
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Toronto
Mexico City

Asia Pacific

Singapore
Hong Kong
Tokyo
Sydney

Email:
mailbox@oxfordeconomics.com

Website:
www.oxfordeconomics.com

Further contact details:
www.oxfordeconomics.com/about-us/worldwide-offices