

## Methodological note of the Synthesis of Real Estate Market Indicators

### I. PRICES AND COSTS

INDICATOR	SOURCE(S)	PERIODICITY	OBSERVATIONS
Housing Price index	Instituto Nacional de Estadística (INE)	Quarterly	<p><i>Basic Data:</i> Public notaries.</p> <p><i>Notes:</i></p> <ul style="list-style-type: none"> <li>— State-subsidised housing is excluded.</li> <li>— When it is the first transfer on the merchanting deed the dwelling is classified as new.</li> </ul>
Appraised value of unsubsidised housing (average price per m <sup>2</sup> )	Ministerio de Vivienda y Agenda Urbana	Quarterly	<p><i>Basic data:</i> Appraisals.</p> <p><i>Base on region:</i> East coast, south coast and island provinces.</p> <p><i>Notes:</i></p> <ul style="list-style-type: none"> <li>— Data have been estimated using provincial data published by the Ministerio de Vivienda y Agenda Urbana, taking as weights the number of houses in each province according to: <ul style="list-style-type: none"> <li>○ <u>Until the second quarter of 2011:</u> INE's 2001 Population and Housing Census.</li> <li>○ <u>Subsequently:</u> INE's 2011 Population and Housing Census.</li> </ul> </li> </ul>
Asking prices (average price per m <sup>2</sup> )	Sociedad de Tasación	Half-yearly	<i>Sociedad de Tasación:</i> Average price of new and second-hand housing on sale in all provincial capitals.
	Fotocasa	Monthly	<i>Fotocasa:</i> Average price of second-hand houses at national level.
	Idealista	Monthly	<i>Idealista:</i> Average price of second-hand houses at national level.
Rentals CPI	Instituto Nacional de Estadística (INE)	Monthly	<i>Note:</i> Rented housing sub-class of the CPI.
Index of residential building costs	Ministerio de Vivienda y Agenda Urbana	Monthly	<i>Note:</i> Includes labour and materials.
Housing investment deflator	Instituto Nacional de Estadística (INE)	Quarterly	<i>Basic data:</i> Quarterly National Accounts → Implicit Deflator of Gross Fixed Capital Formation in Housing.

## II. ACTIVITY

### Supply

INDICATOR	SOURCE(S)	PERIODICITY	OBSERVATIONS
Number of housing approvals in last twelve months	Ministerio de Transportes y Movilidad Sostenible	Monthly	<i>Basic data:</i> Construction approvals for housing starts.
Number of housing starts in last twelve months	Ministerio de Vivienda y Agenda Urbana	Monthly	<i>Note:</i> Geographical disaggregations are obtained by aggregating the provincial data.

### Demand

INDICATOR	SOURCE(S)	PERIODICITY	OBSERVATIONS
Number of house purchase transactions: — Signature notarized. — Registered.	Centro de Información Estadística del Notariado (CIEN) Ministerio de Vivienda y Agenda Urbana Colegio de Registradores e Instituto Nacional de Estadística (INE)	Monthly Quarterly Quarterly / Monthly	<i>Notes:</i> — Geographical disaggregations have been obtained by aggregating provincial data. — Regarding the number of registered home sale transactions: o <u>Until December 2006</u> : Quarterly data published by the Colegio de Registradores. o <u>Subsequently</u> : Property rights transfer statistics issued by the INE.
Residential investment	Instituto Nacional de Estadística (INE)	Quarterly	<i>Basic data:</i> Quarterly National Accounts → Volume Chain-linked Index, Reference year 2020=100 → Gross Fixed Capital Formation in Housing.

### III. DEMOGRAPHIC VARIABLES

INDICATOR	SOURCE(S)	PERIODICITY	OBSERVATIONS
Population aged 25 and over	Instituto Nacional de Estadística (INE)	Quarterly	<i>Basic data:</i> Labour Force Survey (EPA, in Spanish), methodology 2021.
Households	Instituto Nacional de Estadística (INE)	Quarterly	<i>Basic data:</i> Labour Force Survey (EPA, in Spanish), methodology 2021.

### IV. AFFORDABILITY

#### *Borrowing conditions*

INDICATOR	SOURCE(S)	PERIODICITY	OBSERVATIONS
Average new mortgage term	Colegio de Registradores	Quarterly	
Loan/value ratio (LTV) (new operations) Percentage of new loans with LTV > 80%	Colegio de Registradores y Banco de España (BdE)	Quarterly	<i>Notes:</i> <ul style="list-style-type: none"> <li>— The loan to value ratio is calculated as the quotient of the loan principal and the appraisal value for auction registered with the mortgage.</li> <li>— New operations.</li> </ul>
Interest rate for new unsubsidised loans	Banco de España (BdE)	Monthly	<i>Basic data:</i> Annual Percentage Rate (APR) on new loans to households for house purchase. <i>Notas:</i> <ul style="list-style-type: none"> <li>— <u>Until December 2002:</u> Rate reported by entities under BdE Circular 8/1990.</li> <li>— <u>Since January 2003:</u> Rates reported under BdE Circular 4/2002, subsequently consolidated in BdE Circular 1/2010.</li> </ul>

#### IV. AFFORDABILITY (cont...)

##### Labour market

INDICATOR	SOURCE(s)	PERIODICITY	OBSERVATIONS
Employment	Instituto Nacional de Estadística (INE)	Quarterly	<i>Basic data:</i> Labour Force Survey (EPA, in Spanish), methodology 2021.
Rate of youth unemployment (20-29 years old)	Instituto Nacional de Estadística (INE)	Quarterly	<i>Basic data:</i> Labour Force Survey (EPA, in Spanish), methodology 2021. <i>Notes:</i> <ul style="list-style-type: none"> <li>— The new definition of unemployment applies from 2001Q1 onwards.</li> <li>— In 2005Q1 there is a break in the series attributable to the new 2005 methodology [new compulsory variables introduced by Regulation (EC) 2257/2003, the establishment of a centralised procedure for telephone interviews and changes to the modifying questionnaire].</li> </ul>

## IV. AFFORDABILITY (cont...)

### Measures effort

INDICATOR	SOURCE(S)	PERIODICITY	OBSERVATIONS
House prices/Gross Household Income	Banco de España (BdE)	Quarterly	<p>Notes:</p> <ul style="list-style-type: none"> <li>— <u>Calculation method</u>: Average price of an unsubsidised dwelling with an average area divided by an estimated median gross household income.</li> <li>— The average price per m<sup>2</sup>: See Household Real-estate Wealth in this Note.</li> <li>— The average area of a typical dwelling: <ul style="list-style-type: none"> <li>○ <u>From 2004 until 2020</u>: Colegio de Registradores provides <i>annual</i> information on the size in m<sup>2</sup> of the dwelling that have participated in a sale and purchase operation.</li> <li>○ <u>From 2020Q3 onwards</u>: Colegio de Registradores provides <i>quarterly</i> information on the size in m<sup>2</sup> of the dwelling that have participated in a sale and purchase operation.</li> <li>○ To obtain the entire historical series, we link through a linear interpolation from 93.75 m<sup>2</sup> (previous estimate of the surface area of a typical dwelling in Spain from the former Ministerio de Vivienda y Agenda Urbana) and, as of 2004, the data for each quarter is a moving average of the last three years.</li> </ul> </li> <li>— Median Gross Household Income is calculated from the results of successive rounds of the Spanish Survey of Household Finances (EFF, in Spanish), interpolating and extrapolating these results based on changes in average Gross Household Income obtained from the National Accounts and from the number of households recorded in the Labour Force Survey (EPA, in Spanish).</li> </ul>
Annual theoretical effort	Banco de España (BdE)	Quarterly	<p>Notes:</p> <ul style="list-style-type: none"> <li>— <u>Calculation method</u>: Installments to be paid in the first year after the acquisition of a typical dwelling financed with a standard loan for 80% of the value of the flat, as a percentage of the annual disposable income of the median household (see the observations on Housing price/ Gross income per household in this same note for the calculation of the price of housing and rent).</li> <li>— To calculate the installment, a French amortization system is assumed, in which the interest rate applied is the quarterly average of the new credit operations to households for house purchase and the average term of the new mortgages is a 12-quarter moving average of the one published by the Colegio de Registradores.</li> <li>— The csv file includes the series with deduction for acquisition of first residence, valid until December 2012.</li> </ul>

## V. WEALTH

INDICATOR	SOURCE(S)	PERIODICITY	OBSERVATIONS
Net Household Financial Wealth	Banco de España (BdE)	Quarterly	<i>Note:</i> Total financial assets less total liabilities. Includes households and Non-Profit Institutions for the Service of Households (NPISH).
Household Real-estate Wealth	Banco de España (BdE)	Quarterly	<p><i>Notes:</i></p> <ul style="list-style-type: none"> <li>— <u>Calculation method:</u> Based on the estimated change in the stock of housing (see Memorandum items at end of Note), in average surface area thereof (lineal interpolation of censal data and keeping the same value since 2021) and in price per m<sup>2</sup>.</li> <li>— Average Price per m<sup>2</sup> is calculated from a variety of sources. <ul style="list-style-type: none"> <li>○ Is set from historical statistics of appraised housing average values published by the Ministerio de Fomento from 1987 to 2004Q4, extended until 1980 by Banco de España (using Tecnigrama information).</li> <li>○ Since 2007, the annual rates in House Price Index (HPI) published by the INE are applied.</li> <li>○ For the period 2005-2006, the corresponding rates of the general housing price index of Tinsa (IMIE) are applied. For the final real-estate calculation the linked and non-seasonal adjusted housing price series is used.</li> </ul> </li> <li>— Given the substantial underlying assumptions and the fact that it has been necessary to link two conceptually different price series, these results should be interpreted with all due caution.</li> </ul>
Total Household Wealth	Banco de España (BdE)	Quarterly	<i>Note:</i> Net Household Financial Wealth plus Household Real-estate Wealth.

## VI. CREDIT (INCLUDING SECURITISATION)

INDICATOR	SOURCE(S)	PERIODICITY	OBSERVATIONS
Total credit to non-financial private sector	Banco de España (BdE)	Monthly	Notes: — Credit to other resident sectors. — Includes on-balance-sheet and securitised credits.
Credit for home purchase with real estate guarantee.	Banco de España (BdE)	Monthly	Notes: — Includes credit granted to other resident sectors by deposit institutions for the purchase of housing with real estate guarantees.
Credit for construction and real estate activities with mortgage guarantee.	Banco de España (BdE)	Monthly	Notes: — Credit with real estate guarantee granted by deposit institutions for the construction and real estate sectors.
Credit to households for house purchase	Banco de España (BdE)	Monthly	Notes: — Credit for purchase and refurbishment of housing. — Includes on-balance-sheet and securitised credits.
Number of new real estate loans	Banco de España (BdE)	Monthly	Notes: — Number of new loans with real estate mortgages for the Spanish credit system (banks, savings banks and credit cooperatives).
Amount of new real estate loans	Banco de España (BdE)	Monthly	Notes: — Principal amount of new loans with a real estate mortgage for the Spanish credit system (banks, savings banks and credit cooperatives).
Doubtful loans to households for house purchase and renovation. Doubtful loans ratio	Banco de España (BdE)	Quarterly	Notes: — Ratio of doubtful loans and advances to households for house purchase and refurbishment to total loans and advances to households for house purchase and refurbishment. — Includes only on-balance-sheet credit.
Residential real estate loans to gross loans	Banco de España (BdE)	Quarterly	Notes: — Included in the Financial Soundness Indicators (FSI) of the International Monetary Fund (IMF). It provides a metric to gauge the Deposit Takers' exposure to the residential real estate market. More information on section 5.97 / 5.41 - 5.43 of the <a href="#">IMF 2019 Financial Soundness Indicators Compilation Guide</a> .

INDICATOR	SOURCE(S)	PERIODICITY	OBSERVATIONS
Commercial real estate loans to total gross loans	Banco de España (BdE)	Quarterly	<p>Notes:</p> <ul style="list-style-type: none"> <li>— Included in the Financial Soundness Indicators (FSI) of the International Monetary Fund (IMF). It provides a metric to gauge the Deposit Takers' exposure to the commercial real estate market. More information on section 5.97 / 5.41 - 5.43 of the <a href="#">IMF 2019 Financial Soundness Indicators Compilation Guide</a>.</li> </ul>



## VII. RETURN ON ALTERNATIVES INVESTMENTS

INDICATOR	SOURCE(S)	PERIODICITY	OBSERVATIONS
Housing	Banco de España (BdE)	Quarterly	<i>Note:</i> In the case of housing, the total gross return is calculated as the estimated gross return based on rental plus increase in value.
Gross return on rental	Banco de España (BdE)	Quarterly	<i>Notes:</i> <ul style="list-style-type: none"> <li>— It is calculated by dividing the annual average rental per m<sup>2</sup> by the average price per m<sup>2</sup> of the previous 12 months. <ul style="list-style-type: none"> <li>○ The first one, it is estimated on the basis of the 2006 figure drawn from the “Encuesta sobre la vivienda en alquiler de los hogares en España 2006” of the Ministerio de Fomento, and it is calculated retrospectively and prospectively using the rental housing index provided by the Consumer Price Index elaborated by the National Institute of Statistics.</li> <li>○ The second one, the average price per m<sup>2</sup> constructed is calculated as explained in the observations to Household Real-estate Wealth in this Note.</li> </ul> </li> </ul>
10 year government bonds	Bolsas y Mercados Españoles (BME)	Monthly	<i>Note:</i> Profitability on the Secondary Market.
Deposits from households and NPISH	Banco de España (BdE)	Monthly	<i>Notes:</i> <ul style="list-style-type: none"> <li>— The average rate of the new deposits of households and NPISH made with credit institutions with an agreed maturity over one year and up to two years.</li> <li>— Interest rates (NDER) on new transactions. <ul style="list-style-type: none"> <li>○ NDER: Narrowly Defined Effective Rate which is equivalent to APR excluding commissions.</li> </ul> </li> </ul>
Stock market (IBEX-35)	Bolsas y Mercados Españoles (BME)	Monthly	<i>Note:</i> Annual change rate of the Index.

## VIII. INTERNATIONAL COMPARISON

INDICATOR	SOURCE(S)	PERIODICITY	OBSERVATIONS
Real price Indices	Eurostat Bank for International Settlements (BIS)	Quarterly	<i>Basic data:</i> <ul style="list-style-type: none"> <li>— Eurostat: Spain, Germany, France, Italy, Netherlands and EMU.</li> <li>— BIS: United Kingdom, United States and Japan.</li> </ul>

## IX. COMMERCIAL REAL ESTATE PRICES

INDICATOR	SOURCE(S)	PERIODICITY	OBSERVATIONS
Commercial Real Estate Price Index	Banco de España (BdE)	Quarterly	<p><i>Basic data:</i> Own estimate of BdE with data from Colegio de Registradores.</p> <p><i>Notes:</i></p> <ul style="list-style-type: none"> <li>— For the construction of the commercial property price index and its sub-indices (commercial premises, offices, industrial warehouses and <i>prime</i>), the market is divided into cells or strata in which commercial establishments with identical attributes are located. Subsequently, regressions are estimated in each quarter to find out the relationship between these attributes and the price of real estate, which allows prices to be imputed to the cells defined in the previous step. The resulting hedonic index or indices make it possible to monitor the prices of homogeneous real estate.</li> <li>— <i>Prime</i> real estate identifies operations on premises located in the central neighborhoods of several large urban cities (Barcelona, Bilbao, Madrid, Malaga, Palma de Mallorca and Valencia) which, according to the criteria used by different specialized real estate consultants, <i>das</i>, have a particularly dynamic commercial sector.</li> <li>— For further information on methodological issues, see Occasional Paper No. 2203 “Elaboración de un índice de precios para el mercado inmobiliario comercial de España”, available <a href="#">here</a>.</li> </ul>

## MEMORANDUM ITEM: HOUSING STOCKS

INDICATOR	SOURCE(S)	PERIODICITY	OBSERVATIONS
Number of dwellings	Instituto Nacional de Estadística (INE) Banco de España (BdE)	Ten-yearly Monthly	<p><i>Basic data:</i> Housing Census. The figure from each Census corresponds to a specific month (not always the same one) in the year in which the Census is conducted.</p> <p><i>Notes:</i></p> <ul style="list-style-type: none"> <li>— Intercensal estimation: <ul style="list-style-type: none"> <li>○ Since 2001 census (assigned to October 2001) it is calculated by taking the figure of the last month plus the number of private-market and subsidised finished dwellings minus an estimated depreciation. The number of finished dwellings are obtained by adding the finished private and social dwellings according to the statistics "Vivienda Libre" y "Vivienda Protegida" of the Ministerio de Transportes, Movilidad y Agenda Urbana.</li> <li>○ The applied depreciation rate is the implied in the data of finished dwelling and Census 2001 and 2011. That is to say, applying this depreciation rate, month by month, from census 2001, we get the number of dwelling according to the census 2011 (a 0,02851615% respect to the previous month, that is a demolition rate of 0.34% per annum).</li> <li>○ Until October 2001 it is calculated by backward extrapolation of the same procedure but the number of total finished dwellings is adjusted in order to reach the figures of the Census 1991 and 1981.</li> </ul> </li> </ul>
Number of dwellings per household	Banco de España (BdE)	Quarterly	<i>Note:</i> Estimated total number of houses (set out in the section above) divided by the number of households according to the Labour Force Survey (EPA, in Spanish).
Percentage of dwellings that are primary/secondary/unoccupied and other	Instituto Nacional de Estadística (INE)	Ten-yearly	<i>Basic data:</i> Housing Census.
Percentage of main dwellings that are owner-occupied/rented/free let and other	Instituto Nacional de Estadística (INE)	Annual	<p><i>Note:</i></p> <ul style="list-style-type: none"> <li>— <u>Up to 2004:</u> Household Budget Continuous Survey (ECPF, in Spanish)</li> <li>— <u>From 2005 onwards:</u> Living Conditions Survey (ECV, in Spanish).</li> </ul>