HIA Housing Affordability Index Methodology

Housing affordability is a complex issue with diverse meanings for different parts of the community and the housing market. There are numerous different metrics which aim to measure the various aspects of housing affordability with differences in concept and estimation.

The HIA Housing Affordability Index is 'purchase affordability' metric which is most representative of an individual owner occupier purchasing a home with a mortgage, although it is also indicative of conditions for others transacting in the housing market. In order to correctly interpret the HIA Housing Affordability Index it is important to understand what it aims to measure.

For the purposes of the index, affordability is defined in accordance with the long standing premise that housing costs become excessive should they exceed more than 30 per cent of their income. The 30 per cent threshold is also used as a guide by lenders when assessing loan serviceability.

The first step in calculating the HIA Housing Affordability Index is estimating the value of a mortgage repayment representative of someone who purchased a home during the reference period. This requires a number of assumptions. A mortgage repayment is dependent on the size of the loan, the prevailing mortgage interest rate, and the mortgage term.

It is assumed that the mortgage size is equivalent to 90 per cent of the median home price. This is representative of a situation where the home buyer had a 10 per cent deposit and financed the remainder of the purchase price with a mortgage. A 25 year mortgage term is applied with the loan principal amortised over the lifetime of the loan (ie. a principal and interest loan). The interest rate is based on the discounted variable mortgage rate reported by the Reserve Bank of Australia. The monthly repayment is calculated using the standard annuity mortgage formula.

Once the value of mortgage repayments has been calculated, a qualifying income is calculated. Qualifying income is a notional amount at which mortgage repayments are equivalent to exactly 30 per cent of income (the lowest income level at which the mortgage repayment would be affordable):

$$\text{Qualifying Income} = \frac{\text{Mortgage Repayments}}{30\%}$$

The affordability index is calculated by dividing the actual level of earnings by the qualifying income:

$$\text{Affordability Index} = \frac{\text{Average Weekly Earnings x } 100}{\text{Qualifying Income}}$$

The Affordability Index values can be interpreted as follows:

Affordability Index value	**Meaning**
More than 100	**Favourable Affordability:** Mortgage repayments are less than 30 per cent of earnings
Exactly 100	**Affordable:** Mortgage repayments are exactly 30 per cent of earnings
Less than 100	**Unfavourable Affordability:** Mortgage repayments absorb more than 30 per cent of Earnings

Derived from the affordability index is the **affordability multiple.** The affordability multiple describes the multiple of average full-time earnings required to affordably service mortgage repayments under prevailing conditions. The affordability multiple is calculated as follows:

Methodology

$$\text{Affordability Multiple} = \frac{100}{\text{Affordability Index}}$$

Data Sources

There are three primary data inputs to the calculation of the Affordability Index. These are:

- Dwelling price
- Mortgage interest rate
- Earnings

The sources of these data are described below.

Dwelling Price

Prior to the June 2017 edition of the Affordability Report, CoreLogic's Simple Three Month Median (STMM) dwelling price series was used to calculate the HIA Affordability Index and all the capital city and regional sub-indexes. In the June 2017 edition of the HIA Housing Affordability Report the dwelling price used to calculate the affordability index for capital cities was changed slightly. The change was implemented to ensure that the dwelling price changes impacting the affordability index for capital cities reflect the changes in CoreLogic's Capital City Hedonic Price Indexes which are more commonly reported than changes in the STMM dwelling price.

The dwelling price series now used to calculate the affordability index for capital cities are now derived from Hedonic Price Indexes produced by CoreLogic. To convert the Hedonic Index values into monetary values, we take the average of the STMM dwelling prices recorded during the 2014 calendar year and consider this to represent the median dwelling price in the June quarter of 2014 (the base period). For each capital city, the growth rates of the hedonic price indexes are then applied to the estimated median dwelling prices in the base period.

The dwelling prices used to calculate the affordability index for regional areas are the simple median dwelling prices, as compiled by CoreLogic. The overall national results are calculated as a weighted average of each of the relevant geographic markets, with each market weighted according to its population.

Mortgage Interest Rate

The interest rate used in the calculation of the index is the discounted variable interest rate for housing loans from banks. This is published by the Reserve Bank of Australia on its website on a monthly basis. The rate applied is calculated as the geometric average of the rates reported in each of the three months during the reference quarter. At index points prior to September 2004 the index level is calculated using the standard variable mortgage rate.

Earnings

The series representing the average weekly earnings of an adult working fulltime is used as the indicator of income levels. This is reported by the Australian Bureau of Statistics in the Average Weekly Earnings publication which released twice each year. The ABS series are derived from data collected from the ATO based on PAYG tax receipts.

Average Weekly Earnings series is reported for the May and November quarters. HIA derive estimates of income levels in the quarters in-between the ABS publications. These are calculated as the geometric average of the data for the quarters immediately previous to and subsequent to the quarter for which the data are absent. In the case where the data for the subsequent quarter have not yet been published, the value for the missing quarter is estimated as based on the latest available annual growth rate of earnings.