

In the recent past, the consumer price index (CPI) has measured a higher rate of inflation than the CPI excluding housing (CPIXH), as is shown in Chart 1. In October, inflation measured 1.8% according to the CPI but was -0.5% according to the CPIXH, a difference of 2.3 percentage points. The CPI also rose more than the CPIXH during the years before the banking crisis in autumn 2008, as house prices soared during that period while other prices rose less steeply, owing in part to the appreciation of the króna. This reversed during the financial crisis, when the CPI rose less than the CPIXH, as the crisis caused house prices to fall while the depreciation of the króna caused other prices to rise.

Examining developments over a longer period reveals that house prices have generally risen more, on average, than prices of other goods and services. This is why the CPI has risen more, on average, than the CPIXH. Since the introduction of the inflation target in March 2001, twelve-month inflation has averaged 5% in terms of the CPI but 0.4 percentage points less according to the CPIXH, or 4.6%. The difference between the two has been greater in the last five years, as CPI inflation has averaged 3% while CPIXH inflation has averaged 2.2%. There could be various reasons why these two indices give differing inflation figures over the long term. One possible explanation is that productivity growth has been weaker in the construction industry than in other sectors, and another is that the location of housing has had an increasing effect on its price. The latter of these is particularly noticeable in large, densely populated communities.¹

The difference between inflation as measured by the CPI and the CPIXH has once again given rise to discussion of which index gives a more accurate measure of inflation in Iceland and whether it is appropriate to use the CPI as the reference for the Central Bank's inflation target. It has been rightly pointed out that many other central banks, including the European Central Bank (ECB) and the Bank of England (BoE), base their inflation targets on a price index that does not include homeowners' housing costs. This Box discusses the issues that are relevant in this context.

Housing expenditure as part of the consumer price index

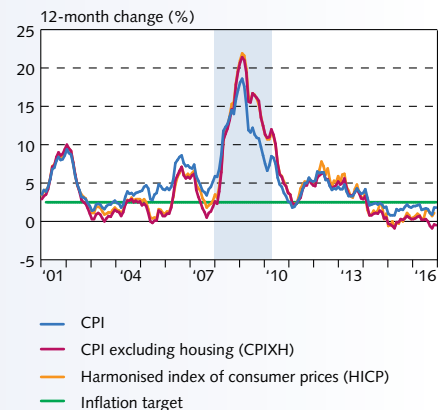
For those who live in rented housing, the rent is the price of housing services, whereas the cost of living in owner-occupied housing must be estimated somehow. In Iceland, this is done by calculating the so-called "user cost"; i.e., the yearly expense of living in one's own property.² The user cost covers maintenance costs, among other things, but the largest component is so-called "imputed rent", which attempts to estimate the cost of living in one's own home as if it were rented property. The basis for the calculation of imputed rent is the market price of housing and interest rates in all purchase agreements.³

1. It can be argued that the portion of house prices that is determined by the location of the property should not be included in calculations of the price of regular housing services in price indices because it is more related to changes in other costs, such as travel expense and time, than to the cost of housing.
2. Home ownership is more widespread in Iceland than in neighbouring countries. In the expenditure base for the CPI, which Statistics Iceland brought into use in March, the cost of owner-occupied housing accounted for 14.9% of all expenditures, whereas rent accounted for 5.5%. In the expenditure base for 2015, these ratios were 15.6% and 5.4%, respectively.
3. Further discussion of various methods for estimating the housing component of the CPI can be found in Appendix 1 of *Monetary Bulletin* 2004/2. See also the discussion in Box 1 of *Monetary Bulletin* 2003/4, Box 1 of *Monetary Bulletin* 2004/3, and Box 3 of *Monetary Bulletin* 2005/2. A detailed discussion of the CPI, including the housing component, can be found in Gudnason (2004).

Box 2

The housing component of the consumer price index

Chart 1
Various measures of inflation¹
January 2001 - October 2016



1. The shaded area indicates the financial crisis which represents a period of a near continuous contraction of GDP (based on seasonally adjusted figures from the Central Bank of Iceland) from Q1/2008 to Q1/2010.

Sources: Statistics Iceland, Central Bank of Iceland.

Which measure of inflation should be used for monetary policy?

Although it is appropriate that the CPI should reflect housing expenses, there could be other points to consider when selecting the price index on which monetary policy should be based. In general, a price index must be based on robust and continuous data, and it must be published promptly after price measurements have been carried out. Some consider it appropriate to use an index that ignores prices that are volatile and are scarcely affected by monetary policy; e.g., agricultural product prices, which can be strongly affected by weather conditions, or prices of imported goods that are determined by global market conditions; e.g., oil prices (see, for example, Pétursson, 2002). Therefore, most central banks also consider various measures of underlying inflation that exclude these and other similar components when formulating monetary policy.⁴

Today, most economists are of the view that central banks should base monetary policy on the price index that best reflects household expenditures. The main reason for omitting important expenditure items in calculating a price index used for monetary policy purposes would therefore be that it can prove difficult to collect reliable data on price developments for those items. This is true of housing in some countries, but not in Iceland. All information on real estate transactions is collected by Registers Iceland, which publishes data on developments in nationwide house prices. In some countries, it has proven difficult to collect such data in a single database. Because housing is a highly heterogeneous commodity, collecting information in order to calculate a price index that shows developments in these prices is unusually problematic.

The price index on which monetary policy is based varies from one country to another, as does the extent to which the index in question reflects developments in house prices (see, for example, Box 5 in *Monetary Bulletin* 2003/4 and Hammond, 2010). The US Federal Reserve Bank bases monetary policy on the personal consumption expenditure price index (PCE) rather than the CPI because the PCE is considered to be based on better information about the distribution of household expenditure. Both indices include the cost of owner-occupied housing, albeit calculated using different methods. The main difference between the indices, however, is that the PCE accounts more accurately for households' healthcare expenditures. Several other factors are also considered to give the PCE the advantage.

In the other Nordic countries that pursue independent monetary policy – Norway and Sweden – housing costs are included in the price index on which monetary policy is based; however, the methods used to estimate changes in the cost of owner-occupied housing differ. Sweden uses a method similar to that used in Iceland, while in Norway, changes in the cost of owner-occupied housing are based on changes in rent.

The ECB currently uses the harmonised index of consumer prices (HICP), which includes renters' housing expense but omits homeowners' housing expense. This index is also calculated for countries outside the eurozone, Iceland among them. The view of the ECB is that the HICP should be revised so as to include the cost of owner-occupied housing, as the bank states "the only significant area of consumption currently not covered is expenditure on housing by homeowners".⁵

4. Theoretical research further indicates that it is more appropriate to base monetary policy on domestic inflation (e.g., Clarida *et al.*, 2002) or measures of inflation that show the greatest price-stickiness (e.g., Aoki, 2001) or even wage inflation (e.g., Erceg *et al.*, 2000).

5. See <https://www.ecb.europa.eu/stats/prices/hicp/html/index.en.html> (under Concept).

The BoE uses the HICP and has done so since 2003, but before then it used the retail prices index (RPI). The RPI includes the cost of owner-occupied housing, which accounted for nearly 10% of the index. A report issued by HM Treasury in December 2003 explains several advantages of the HICP over the RPI and points out that “[a]lthough the MPC will target HICP inflation, house prices are – and will continue to be – an important indicator in assessing macro-economic developments for monetary policy. Furthermore, ... Eurostat is currently undertaking a pilot study ... to assess the preferred means of incorporating a measure of housing costs into the HICP.”

Should current criteria be changed in Iceland?

As is explained in Pétursson (2002), the CPI generally fluctuates less than the CPIXH. Furthermore, as a predictor of future inflation, the CPI appears to be more accurate than the CPIXH and therefore a more robust indicator of domestic inflationary pressures. This can be seen clearly in Chart 1, which shows that CPI inflation is lower than CPIXH inflation during a cyclical downturn and higher during an upswing. As the CPI reflects households' consumption spending more accurately than would an index excluding this important expenditure item, the authorities and the Central Bank decided to use it as a basis when they adopted the inflation target in March 2001.

In the wake of the global financial crisis, the idea that monetary policy should give greater consideration to possible asset price bubbles, such as housing and even stock price bubbles, has gained in popularity. In this context, the term “bubble” refers to a situation where, for instance, house and stock prices rise well in excess of economic fundamentals, merely because further price increases are expected in the future. Those who believe that monetary policy should act to curb such developments in asset prices recommend raising interest rates more than is needed to keep inflation in households' expenditures low. This policy is often referred to as leaning against the wind. Because monetary policy in Iceland is based on a price index that includes a housing component affected by the market price of housing, it can be said that such a countercyclical element is built into monetary policy formation to some extent.⁶

There are several arguments in favour of using the CPI rather than the CPIXH as a basis for monetary policy. As is discussed in Central Bank of Iceland (2010), such an arrangement also has its drawbacks, and there is nothing to prevent the Government from deciding to base the inflation target on a different inflation measure if it so chooses. It would be possible to use the CPIXH, but it could be more appropriate to use the HICP, as it is based on internationally harmonised methods that would facilitate comparison between countries. Just like the CPIXH, the HICP does not include the cost of owner-occupied housing. Other expense calculations are different, however, as they are based on differing methods. HICP inflation has also measured lower, on average, than CPI inflation, although the difference is smaller than that between the CPI and CPIXH (Chart 1).⁷ As is mentioned above, the EU aims to revise the HICP to include the cost of owner-occupied housing, and the ECB considers it important that this change should take place.

6. As is discussed in Central Bank of Iceland (2010), opinion is divided on this. Some economists are not convinced that it is appropriate to use central bank interest rates to combat asset price bubbles and consider it more appropriate to use other policy instruments.

7. If this is changed, it could be appropriate to change the inflation target as well if the new inflation reference systematically gives different results than the CPI. For example, in 2003, when the British authorities changed the inflation measure on which the BoE's monetary policy was based, the bank's inflation target was also lowered from 2.5% to 2%, as research had shown that HICP inflation was nearly ½ a percentage point lower, on average, than inflation according to the RPI.

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