

VI Inflation

Inflation has been at or below the Central Bank's inflation target for over three years. It measured 1.8% in Q1/2017, which is 0.1 percentage points below what was assumed in the February forecast. As before, house prices are the main driver of inflation and, together with large wage increases, the chief manifestation of domestic inflationary pressures. These factors are offset by the steep appreciation of the króna, while trading partners' export prices have begun to rise again as the global economic recovery firms up. Indicators imply strong productivity growth in 2016 and 2017, which also offsets pay increases. Underlying inflation has eased somewhat in recent months, and inflation expectations remain close to the target by most measures.

Recent developments in inflation

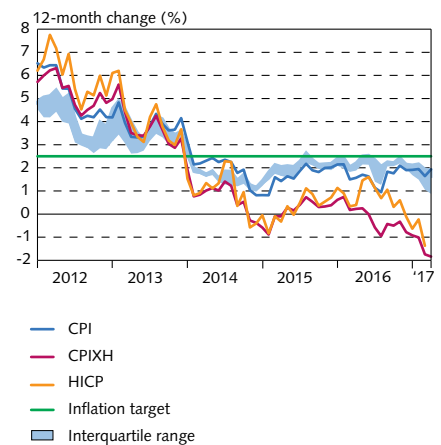
Inflation below target and unchanged since the last *Monetary Bulletin*

Inflation measured 1.8% in Q1, 0.1 percentage point below the forecast in the February *Monetary Bulletin*. It has remained broadly unchanged year-to-date, measuring 1.9% in the first two months of 2017 and falling to 1.6% in March. It rose back to 1.9% in April, after the consumer price index (CPI) rose by 0.5% month-on-month. The main driver of the April increase was rising house prices, as other components were broadly unchanged.

Inflation measures somewhat higher than in April 2016 but similar to the level seen in Q4/2016 (Chart VI-1). As is discussed in *Monetary Bulletin* 2016/4, inflation was underestimated in Statistics Iceland's figures for the period from March through August 2016, owing to an error in index calculation discovered in September. This error also means that twelve-month inflation will be overestimated for the same period in 2017, with the effects most pronounced in July and August, when inflation will be overestimated by 0.2-0.3 percentage points. The increase in excise taxes on items such as petrol, alcoholic beverages, and tobacco that took effect at the turn of the year will have a similar upward effect on measured inflation this year. As is discussed in Chapter I, planned changes to excise taxes at the start of 2018 and the changes in value-added tax planned for the next two years will also affect measured inflation (see also Chapter IV).

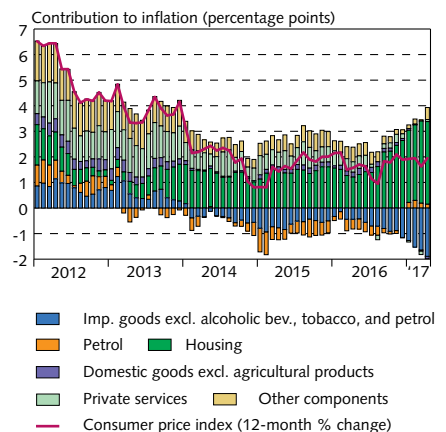
As before, inflation according to measures excluding housing costs was significantly lower than CPI inflation. The CPI excluding housing (CPIXH) fell by 1.8% year-on-year in April, and the difference between the CPI with and without the housing component is now more than six times the average since 2001. Inflation as measured by the Harmonised Index of Consumer Prices (HICP), which also excludes housing prices, was also considerably below CPI inflation. In March, the HICP fell by 1.4% year-on-year. The difference between inflation according to the CPIXH and the HICP was also unusually large for much of 2016, owing to differences in the weights assigned to expenditure items that weigh heavily in tourists' spending in Iceland (see Box 2).

Chart VI-1
Headline and underlying inflation¹
January 2012 - April 2017



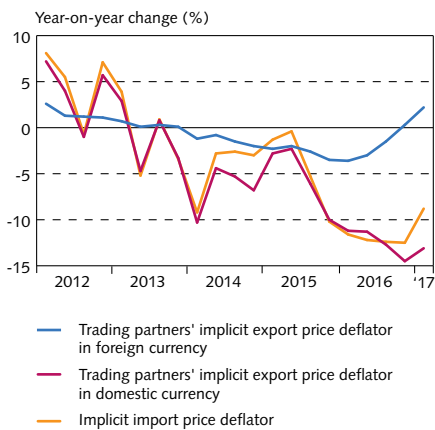
1. The shaded area includes the interquartile range of estimates of underlying inflation as measured using core indices that exclude the effects of indirect taxes, volatile food items, petrol, public services, and owner-equivalent rent; and using statistical measures such as the weighted median, the trimmed mean, and a dynamic factor model.
Sources: Statistics Iceland, Central Bank of Iceland.

Chart VI-2
Components of CPI inflation
January 2012 - April 2017



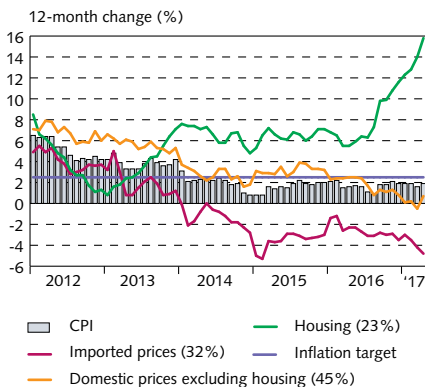
Source: Statistics Iceland.

Chart VI-3
Import prices and international export prices¹
Q1/2012 - Q1/2017



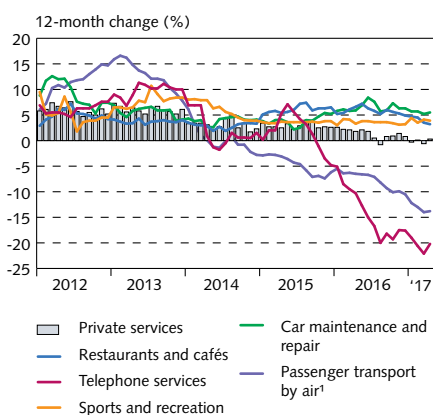
1. Central Bank baseline forecast Q1/2017.
Sources: Statistics Iceland, Macrobond, Central Bank of Iceland.

Chart VI-4
Imported and domestic inflation¹
January 2012 - April 2017



1. Imported inflation is estimated using imported food and beverages and the price of new motor vehicles and spare parts, petrol, and other imported goods. Domestic inflation is estimated using the price of domestic goods and the price of private and public services. The figures in parentheses show the current weight of these items in the CPI.
Sources: Statistics Iceland, Central Bank of Iceland.

Chart VI-5
Private services and selected subcomponents of the CPI
January 2012 - April 2017



1. Twelve-month moving average.
Source: Statistics Iceland.

Underlying inflation and other indications of inflationary pressures

Domestic inflationary pressures most clearly manifested in rising house prices ...

Underlying twelve-month inflation as measured by core index 3 excluding indirect tax effects (which also excludes the effects of volatile food items, petrol, public services, and real mortgage interest expense) measured 2% in April and had increased by 0.3 percentage points since the February *Monetary Bulletin*. Statistical measures suggest, however, that underlying inflation has fallen: most of them indicate that it lay in the 1-2% range in April, as opposed to 1½-2% in February (Chart VI-1).

In the recent term, rising house prices have been the main driver of domestic inflation (Chart VI-2). House prices rose by a fifth year-on-year in April, and their contribution to twelve-month inflation has increased markedly in the past year. As is discussed in Chapter III, house prices have hitherto risen broadly in line with the rise in wages and disposable income; however, in recent months they have risen more than can be explained by these factors (see also Chapter I).

... but are offset by higher króna

One reason that inflation has remained at or below target since the beginning of 2014 is the protracted decline in domestic prices of imported goods, which stems from low global inflation and the appreciation of the króna. Inflation in Iceland's main trading partner countries has picked up, pushing up their export prices. Trading partners' export prices are estimated to have risen by 2.2% year-on-year in Q1/2017, whereas they have fallen by an average of 2% per year over the past three years (Chart VI-3). The steep appreciation of the króna is therefore the main reason for the slightly less than 10% decline in local currency import prices in Q1/2017. If the forecasted appreciation of the króna materialises (see Chapter I), it is likely that import prices in króna terms will continue to counter inflationary pressures stemming from the real estate and labour markets for some time.

At the same time as local currency import prices have been falling, the rise in domestic prices excluding housing has lost pace (Chart VI-4), measuring 0.7% in April, as opposed to 2.5% a year earlier. The main cause of this turnaround is the private services component, which rose by only 0.3% year-on-year in April. In comparison with previous years, the contribution of private services to twelve-month inflation has been very small. This is due mainly to a sizeable decline in two service-related CPI components: telephone services and international airfares (Chart VI-5). These items have fallen on average by about 15% in the past twelve months, reflecting rapid advances in internet technology, on the one hand, and falling oil prices, more cost-effective aircraft, and increased competition in international airfares to and from Iceland, on the other. The price of other labour-intensive products included in service-related components of the CPI, such as maintenance services, has risen markedly. The contribution of private services to twelve-month inflation would therefore be much greater, and more in line with the sizeable wage increases in the recent term, if

telephone service prices and international airfares had not fallen (Chart VI-6).

Domestic inflation is modest ...

According to Gallup's spring survey among Iceland's 400 largest firms, one-third of companies – somewhat below the historical average – consider it necessary to raise their output prices in the next six months (Chart VI-7). A similar share of firms expect their input prices to rise. Presumably, these responses are affected by the recent appreciation of the króna, but firms that rely heavily on imports stand out from the others (for example, executives at about 40% of companies in retail and wholesale trade expect to lower their prices in the next six months). Furthermore, increased competition from foreign online merchants and international retail giants entering the domestic market could be a factor.

Other indicators also imply that domestic inflation is relatively moderate (Chart VI-8). They are affected by the appreciation of the króna and low global inflation, however, as imported intermediate goods are important for the production of many domestic goods and services. Producer prices of goods sold domestically have declined markedly year-on-year, for instance, owing largely to favourable exchange rate movements. In addition, the GDP price deflator rose by only 1.3% year-on-year in Q4/2016 and by 2% over the year as a whole, even though wages and related expenses rose by 9½% between years (see below).¹

... in spite of large pay rises in the recent term

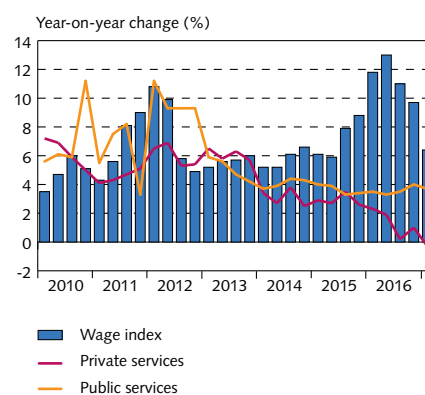
Statistics Iceland has revised its 2015 figures on wages and related expenses upwards and now estimates that wages per hour rose by 6.5% instead of the previous 5.5%. Nevertheless, this is less than the 7.2% increase in the wage index over the same period and a similar rise provided for in the Bank's baseline forecast. It is also below the estimated increase according to pay-as-you-earn (PAYE) data.²

In March, Statistics Iceland published its first estimate of year-2016 increases in wages and related expenses. According to the estimate, wages per hour rose by 9.4% during the year, which is broadly in line with the 9.9% forecast in the February *Monetary Bulletin*. Although the increase is less than the year-on-year rise in the wage index, it is well in line with indications from PAYE data; therefore, the Bank's previous estimate of 2016 pay rises has been revised to 9.4%. According to the baseline forecast, the wage share therefore rose by 0.4 percentage points in 2015 and by an additional 1.6 percentage

1. This large difference between developments in the GDP price deflator and wage costs could indicate that the price deflator has been underestimated and that year-2016 GDP was overestimated in Statistics Iceland's preliminary figures. This could also explain in part the strong productivity growth shown in Statistics Iceland's figures for 2016 (see below and Chapter V).

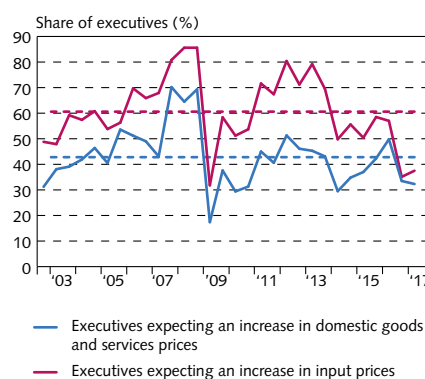
2. As is discussed in Box 2 in *Monetary Bulletin* 2016/2, there are several reasons not to rely solely on Statistics Iceland's figures concerning wage developments in 2015 according to the national accounts until final information is available. The preliminary figures show somewhat smaller pay increases than the wage index and PAYE data imply. Furthermore, Statistics Iceland data suggest that the wage share declined in 2015, which seems somewhat unlikely in view of the sizeable pay rises negotiated during the year.

Chart VI-6
Wages and services prices
Q1/2010 - Q1/2017



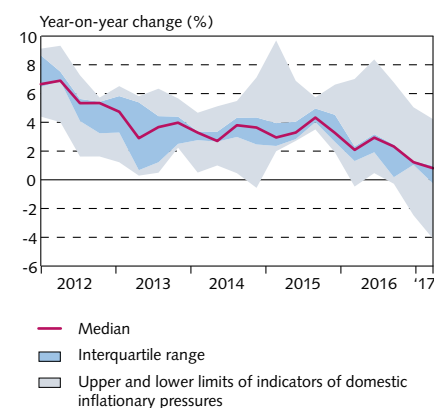
Source: Statistics Iceland.

Chart VI-7
Corporate expectations of input and product prices 6 months ahead 2002-2017¹



1. Broken lines show averages from 2002.
Source: Gallup.

Chart VI-8
Domestic inflationary pressures¹
Q1/2012 - Q1/2017



1. The shaded area includes five indicators of domestic inflationary pressures: The indicators are unit labour costs (moving average), the GDP price deflator, prices of private services and domestic goods, and producer prices of goods sold domestically. Central Bank baseline forecast Q1/2017 for the GDP price deflator and 2015-2017 for unit labour costs.

Sources: Statistics Iceland, Central Bank of Iceland.

Chart VI-9
Wage share and output gap 2005-2016

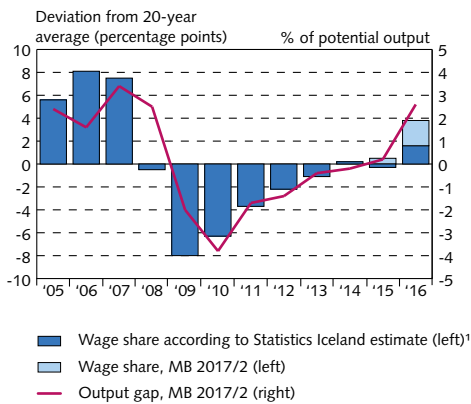


Chart VI-10
Unit labour costs and contribution of underlying components 2008-2017¹

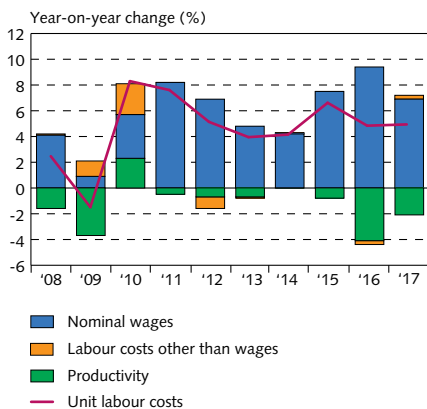
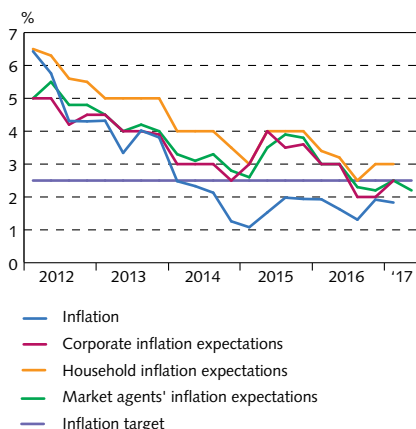


Chart VI-11
Inflation and inflation expectations one year ahead
Q1/2012 - Q2/2017



points in 2016, to about 2 percentage points above its historical average (Chart VI-9).

Upcoming wage settlements assumed to be compatible with the SALEK agreement ...

The pay increases provided for in the most recent wage agreements have shown in the Statistics Iceland wage index, in line with last forecast's assumptions, but wage drift has been marginally stronger than projected. The wage index rose by 0.8% quarter-on-quarter in Q1/2017. It rose by 6.4% from the same quarter in 2016, and the twelve-month increase in wages has slowed considerably compared to the past year, as the effects of two private sector wage increases dropped out of the twelve-month index figures in February. The pace will quicken again, however, later in the spring, when the next contractual pay rises take effect.

Because no further pay increases were negotiated in connection with the wage settlement review in February, no changes have been made to projections concerning wage developments this year and through the forecast horizon. As before, it is assumed that agreements made this year will be accommodated within the scope provided for under the SALEK agreement and will not trigger a review of private sector wage settlements in 2018.

... but unit labour costs are expected to rise more than is consistent with the inflation target

Even though the assessment of wage developments in 2017 is unchanged, the year-on-year rise in wages will be about 1 percentage point more than was assumed in February, owing to base effects from the aforementioned review of last year's increases. On the other hand, it is assumed that labour productivity will increase by just above 2% this year, broadly as was forecast in February. This robust productivity growth comes on the heels of more than 4% growth in 2016, which was about 1 percentage point above the February forecast. As is mentioned above and in Chapter V, there is reason to believe that productivity growth has been overestimated, but based on these figures, unit labour costs rose by 4.9% in 2016 instead of the 6.5% assumed in February (Chart VI-10). A similar increase is expected this year and on average over the forecast horizon. If this materialises, strong inflationary pressures from the labour market will remain, and the wage share will continue to rise, to about 7 percentage points above its long-term average by 2019.

Inflation expectations

Short-term inflation expectations at target by most measures ...

One- and two-year inflation expectations are more or less unchanged since the last *Monetary Bulletin* and are low in historical context (Chart V-11). Households' one-year expectations measured 3% in the Gallup survey conducted in February and were unchanged from the December survey. Their two-year expectations were likewise unchanged, at 3.5%. Corporate executives expect inflation to measure 2.5% in one

year, an increase of $\frac{1}{2}$ a percentage point from the December survey. Their two-year inflation expectations are unchanged, however, at 3%.

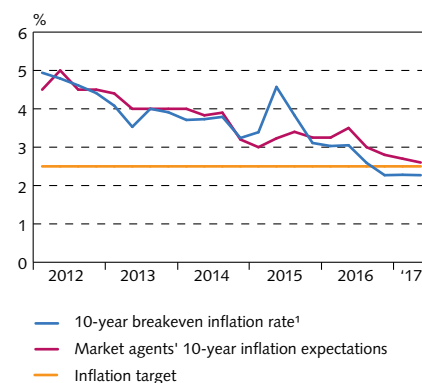
According to the survey carried out by the Central Bank in early May, market agents expect inflation to measure 2.2% in one year, which is a decline of 0.3 percentage points since the February survey. Their two-year inflation expectations measure 2.6%, down from 2.8% in February. The short-term breakeven inflation rate in the bond market, calculated in terms of the spread between interest on indexed and non-indexed bonds, declined markedly after the publication of the CPI in March. That decline partly reversed with the publication of the CPI in April, when the breakeven rate rose by more than 0.2 percentage points. The average one-year breakeven rate was 1.7% in Q2 to date and had declined by 0.2 since the beginning of the year.³

... and long-term inflation expectations appear more firmly anchored

Market agents' long-term inflation expectations have fallen significantly in the recent past and are now at target. According to the Bank's May survey, market agents expect inflation to average 2.6% over the next ten years, a decline of almost 1 percentage point from a comparable survey conducted a year earlier (Chart VI-12). The breakeven inflation rate in the bond market has also fallen in the recent past, with the ten-year breakeven rate down to 2.3% thus far in Q2.

It appears, then, that inflation expectations are more firmly anchored to the target than they have been for some time. As is discussed in Box 3, it also appears that unexpected changes in short-term inflation have less impact on long-term inflation expectations than they used to. The inflation process itself seems to have changed as well, owing to smaller deviations from target, reduced volatility, and diminishing uncertainty about future inflation.

Chart VI-12
Long-term inflation expectations
Q1/2012 - Q2/2017



1. The value for Q2/2017 is the Q2 average to date.
Source: Central Bank of Iceland.

3. Breakeven rates should be interpreted with caution, however, as they also include a liquidity risk premium and an inflation risk premium. See Box 1 in *Monetary Bulletin* 2015/2.