

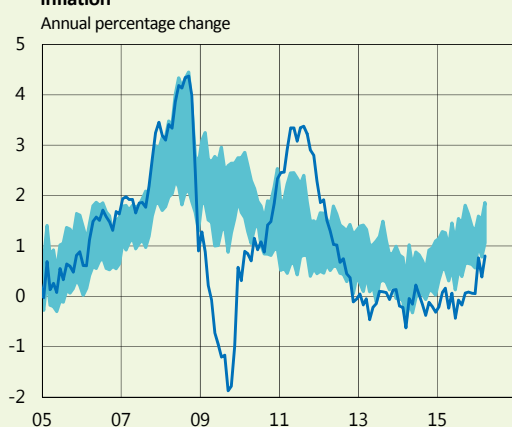
ARTICLE – A broader picture of price development in Sweden

The Riksbank's target is an inflation rate measured in terms of the Consumer Price Index (CPI) of 2 per cent. This article provides a broader perspective on price developments in Sweden. CPI inflation is still low, but a faster rate of price increase can be seen in underlying inflation, among CPI sub-groups and in prices in the distribution chain earlier than at the consumer stage. This is deemed to be partly linked to the depreciation of the Swedish krona in recent years. But a faster rate of increase in more domestically determined prices is an indication of the fact that rising resource utilisation has begun to affect the rate of price increase.

Underlying inflation rising

CPI inflation has been low in recent years and amounted to 0.8 per cent in March. Adjusted for the effect of falling mortgage rates, however, inflation is higher and the rate of increase in the CPI with a fixed interest rate (CPIF) amounted to 1.5 per cent. The rate of increase in many consumer prices has shown a rising trend over the past two years. This is visible in, for instance, developments in various measures of so-called underlying inflation (see Figure 3:13). The weakening of the krona since the beginning of 2014 gives one important explanation for this, but the rising resource utilisation is also thought to have some significance.

Figure 3:13. The CPI and different measures of underlying inflation



Note. The field shows the highest and lowest outcomes among different measures of underlying inflation. The measures included are the CPIF, the CPIF excluding energy, the CPIF with constant tax, UND24, Trim85, HICP excluding energy and unprocessed food, persistence-weighted inflation, factors from principal component analysis and weighted mean inflation.

Sources: Statistics Sweden and the Riksbank

Underlying inflation is not a uniform concept and can be calculated in different ways. One common method is to exclude certain predetermined components from CPI inflation that are considered to reflect more temporary and short-term price changes. The CPIF excluding energy is an example of such a measure. Another way of

measuring underlying inflation is to use statistical methods to systematically exclude or lessen the significance of groups of goods and services whose prices fluctuate sharply.¹⁷

In the past year, all the measures of underlying inflation have indicated higher inflation than the rate of increase in the CPI. It is primarily falling mortgage costs for households that have contributed to this. Households' interest costs are included in the CPI but have not affected underlying inflation to the same degree over the past 12 months.¹⁸

Among the CPI sub-groups, the clearest rise can be seen in the rate of price increase in goods and food. These increased significantly faster in 2015 than in 2014 (see Figure 3:14). The depreciation of the Swedish krona during 2014 and up until mid-2015 is considered an important cause of the increase as many of these goods have a relatively high import content. Since mid-2015, however, the krona has appreciated and the rate of price increase has therefore slowed somewhat regarding the prices of both goods and food.

There has, however, been a gradual rise in more domestically determined service prices. This is particularly clear if we look at a measure that has been adjusted for rents, foreign travel and the effects of tax changes.¹⁹ This

¹⁷ In UND24, the CPI is weighed together using weights in relation to the standard deviation in the respective sub-group's rate of increase over the last 24 months. The higher the standard deviation, the lower the weight. In Trim85 and weighted median inflation, 15 and 99 per cent, respectively, of the highest and lowest price changes are excluded. Persistence-weighted inflation is weighed together using weights from estimated autoregressive parameters for the various CPI sub-groups. The higher the persistence, the greater the weight. In principal component analysis, the first principal component is estimated from the annual rate of increase in the various sub-groups.

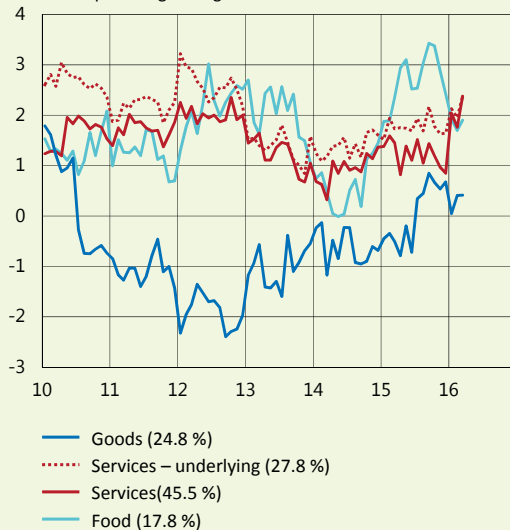
¹⁸ Changes in households' interest expenses are not included in the CPIF, the CPIFXE or the HICP and have not been included in the aggregate for Trim85 or the weighted median in the past year. Interest expenses are included in UND24, the factor from the principal component analysis and the persistence-weighted measure but with a lower weight than in the CPI.

¹⁹ The reason why rents have been excluded is that the rental market is regulated and a change in demand probably only has a marginal effect on changes in the rent. Foreign travel is not only affected by domestic factors but also, to a large extent, by the development of the exchange rate. In addition to rents, foreign travel and tax changes, property tax and telecom prices have also been excluded from service prices. The prices of both telecom services and telephones were included in the

measure indicates more of a trend upturn in the rate of price increase in recent years (see Figure 3:14). This upturn is considered to be due to rising resource utilisation in the Swedish economy.

Figure 3:14. Goods, services and food in the CPI

Annual percentage change



Note. The sub-groups in the figure together constitute around 88 per cent of the CPI. The figures in brackets give the weight of the respective sub-groups in the CPI. Also included are energy prices and household interest expenditure. The measure services – underlying refers to prices of services excluding rents, foreign travel, property tax and telecommunications. The measure is also adjusted for the effects of changes in indirect taxes.

Sources: Statistics Sweden and the Riksbank

Faster rate of price increase in early stages of distribution

Developments in consumer prices are affected by, among other factors, the way prices of imports and domestic output develop.

In recent years an upturn in the rate of price increase in the business sector and the entire domestic output has been visible (see Figure 3:15). These rates of price increase are calculated from implicit price indices (deflators) that can be obtained by dividing statistics from the National Accounts in current prices by statistics in fixed prices.

Among the components of GDP, it is primarily the implicit price indices for exports and investment that have increased at a faster pace. In the business sector, the fastest rate of price increase has been in the manufacturing industry and in retail. The rate of price increase in the business sector and overall GDP has been higher over the past year than its historical average and higher than the rate of increase in the CPIF.

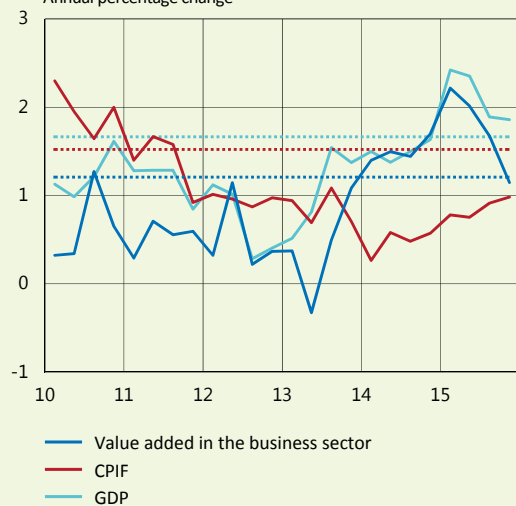
A faster rate of price increase can also be seen in producer prices over the past two years. Import prices for consumer goods increased at a faster pace than their historical averages during 2014 and 2015 (see Figure

3:16). Prices on the domestic market, that is prices of goods produced and sold in Sweden, have increased more slowly than their historical average since 2013 although a certain upturn in the rate of price increase has occurred in the last six months.

The depreciation of the krona from 2014 to the middle of 2015 is assessed as an important explanation for the increasingly rapid increase in prices at an earlier stage than the consumer channel in recent years.²⁰ A downturn has accordingly been seen in the rate of price increase during the autumn of 2015, when the krona stopped depreciating and instead began to strengthen. However, the increase in domestic resource utilisation is also assessed to have contributed to a rise in the rate of price increase over the past year.

Figure 3:15. The CPIF and deflators

Annual percentage change



Note. Broken lines refer to average rate of increase since the year 2000.

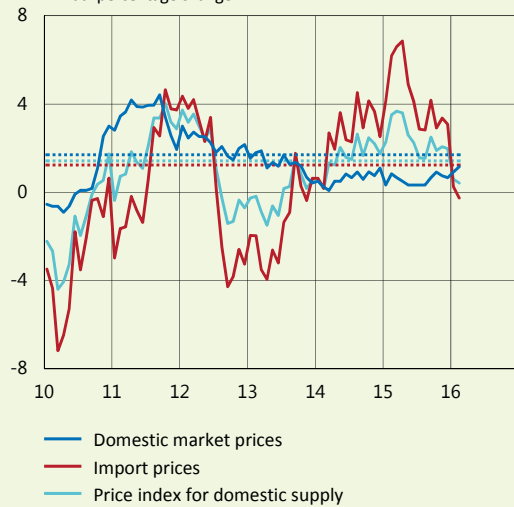
Sources: Statistics Sweden and the Riksbank

service price aggregate until the end of December 2015, but as from January 2016, telephones have been included in the goods price aggregate. This complicates the picture.

²⁰ Import prices are not included in the implicit price indices for the business sector and GDP as these aim to measure prices for domestic output. Export prices are included, however, and these are directly affected by a change in the krona's exchange rate. Export prices are measured in Swedish kronor and as the price of exports is often set on an international market, a depreciation of the krona gives scope for higher prices measured in kronor.

Figure 3:16. Producer prices for consumer goods

Annual percentage change



Note. Broken lines refer to average rate of increase since the year 2000.

Sources: Statistics Sweden and the Riksbank