

ANALYSIS – Relationship between producer and consumer prices

Consumer prices for food and goods have risen rapidly in recent years. Producer prices have also risen and the relationship between these and consumer prices appears to have been stronger than it has been historically. One cause of this might be companies' sharply increased costs. With more normal cost changes, companies can choose to smooth these out and instead adjust consumer prices more gradually. When the cost increases are too large, the scope for this is reduced and they are passed on more rapidly to consumers.

Prices of food and other goods have risen rapidly in recent years at both the consumer and the producer stage and are now on a level that is much higher than a few years ago. The increased prices are due to imbalances in supply and demand during and after the pandemic, rapidly rising energy and commodity prices after Russia's invasion of Ukraine and a weak krona.

Many of the factors that drove up prices have declined in significance, and producer prices have ceased rising in many areas. They are also showing signs of starting to turn downwards again. This analysis discusses the relationship between producer prices and consumer prices for goods and food, what they have looked like in recent years, and whether this can say anything about the direction of consumer prices in the period ahead.

What are producer prices?

The Consumer Price Index (CPI) measures prices at the consumer stage, i.e. of goods and services that households consume. But prices are also measured at an early stage, at the producer stage, where producers' selling prices are measured. For imported products, the price the importer pays when the products come into Sweden is measured.²³

Unlike the CPI, in which services have a large weighting, producer price statistics measure almost exclusively prices of goods. Prices of intermediate and capital goods are also included. This means that the coverage and weighting distribution between the producer and the consumer stages differ quite considerably, making it difficult to analyse the relationship between them.

An essay from the Riksbank shows that the relationship seems to be quite strong when matching similar products in the producer and consumer stages using

²³ Imported products that are priced in foreign currencies are converted to SEK in the statistics. This means that there is a very strong covariation between import prices and the exchange rate.

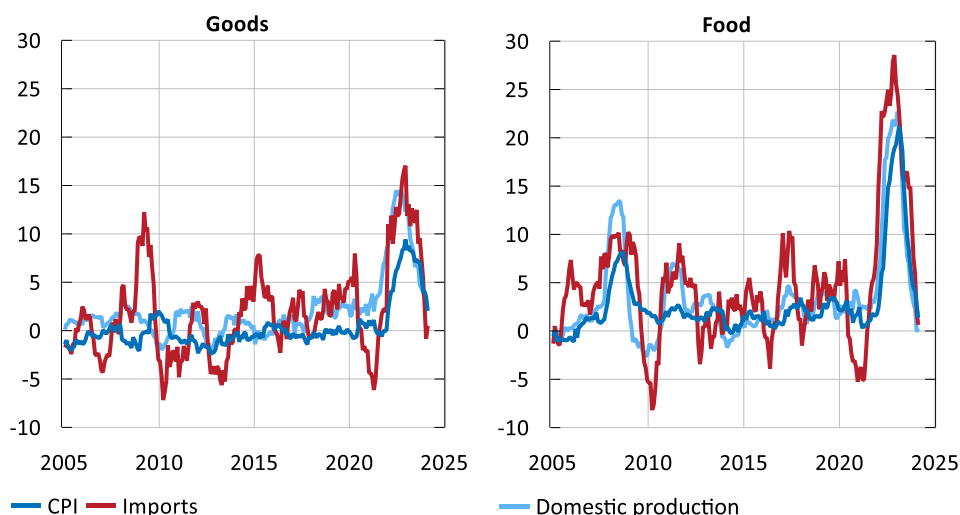
microdata.²⁴ This eliminates a large part of the composition problems in aggregate data. Another important conclusion from the study is that cost increases at the producer stage appear to have a rapid impact on consumer prices for goods whose prices are updated often, such as food, and more slowly for other goods.

Greater variation in producer prices

Figure 28 shows how domestic and imported producer prices have evolved compared with consumer prices for food and other goods. The figure shows that the correlation for goods has been relatively weak until recent years, while it has been somewhat stronger for food. However, in recent years the correlation for both goods and food has been much stronger. Import prices are generally the most volatile of the three measures, but domestic producer prices also move much more than consumer prices.

Figure 28. Prices for goods and food in consumer and producer stage

Annual percentage change



Sources: Statistics Sweden.

An important explanation is that the purchase of goods only constitutes one part of consumer companies' total costs. Other parts, such as wages and rents, are generally more stable. This means that consumer prices do not move as much as producer prices even if producers were to pass on all their cost changes directly.

With normal fluctuations in producer prices, companies can also use their profit margins to smooth out fluctuations in purchasing costs instead of directly passing them on to customers. If purchasing prices rise faster than normal, they can allow margins to fall and then increase them again when costs rise more slowly or fall by not fully reducing prices. One motive for acting in this way can be that for competitive reasons one does not want to adjust prices too often and that it will entail a cost to change prices often.

²⁴ See E. Ahlander, M. Carlsson and M. Klein (2023), "Price Pass-Through Along the Supply Chain: Evidence from PPI and CPI Microdata", Working paper No. 426, Sveriges Riksbank.

There is also a difference between sectors in how large a share of the costs consist of purchasing costs. In the food sector, where purchasing is a very large proportion of total costs, gross margins are low while they are higher in other sectors. All else being equal, a larger covariation between producer and consumer prices can be expected in sectors where purchasing makes up a large proportion of the costs and where gross margins are low.

Low net margins also provide less scope for absorbing increased costs into the profit margin without making a loss. If the costs rise a great deal, as in recent years, the scope of companies to smooth out the increase in consumer prices within a normal variation in the profit margin is exhausted. Companies must then choose to either reduce their margins even more or make a loss or to a greater extent directly pass on the costs to consumers.

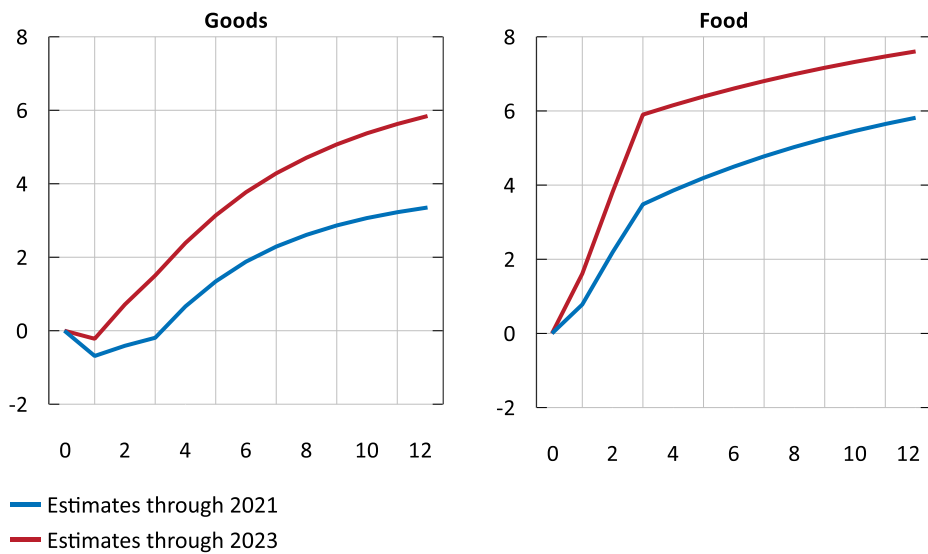
Larger pass-through for goods prices in recent years

To capture the long-term relationship between producer and consumer prices, so-called error correction models can be estimated. These models not only take into account the rate of change, but also the relative level of the series. In other words, if the consumer prices have previously been raised less than the increase in producer prices, the models indicate that there is a pent-up need to increase consumer prices unless the gap is instead closed by lower producer prices.

Figure 29 shows the estimated pass-through from producer prices to consumer prices from these models in the event of a permanent upturn in producer prices of 10 per cent. The pass-through is estimated on data both up to the end of 2021 and up to and including December 2023. For food, both estimations show a relatively rapid and large pass-through, but for other goods prices, the pass-through seems to be significantly faster if recent years are taken into account.

Figure 29. The effect on consumer prices of higher producer prices

Percentage change



Note. Shows effect of producer prices being raised by 10 per cent in period 0

Source: The Riksbank

That companies have in recent years chosen to more rapidly pass on costs to consumers may be due to a combination of factors as mentioned above. The relatively good demand situation and acceptance for price increases, together with the fact that almost all companies raised their prices at the same time has probably also helped make this possible.

It is too early to say whether there has been a lasting change in companies' pricing behaviour and whether this will be a possible strategy going forward. The size of the effect of a changed pass-through from producer prices to consumer prices is mostly down to how producer prices themselves will develop. The Riksbank's inflation forecast is based on the assumption that producer prices will increase at an approximately normal pace going forward. If this assumption is correct, the size of the impact from producer prices will have less significance for developments in consumer prices.