



Economic Commentary

What does an increased share of products with low import content mean for inflation?

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What does an increased share of products with low import content mean for inflation?

In this commentary, I have created two price indices from the National Accounts and CPI statistics: One for product categories with a low import content and one for high import content. In recent decades, the share of products with a low import content has increased in Swedish consumption and as a result, their weight in inflation has risen. There is less global competition for these components of consumption and in addition, sticky wage costs make up a larger share of total business costs. In this commentary, I show that the increase in the rate of price increase in product categories with a low import content over the latest inflation cycle has come later and has so far remained at a high level for longer than it has for categories with a high import content. During other CPIF inflation upturns and declines during the inflation-targeting period, categories with a low import content have exhibited a stickiness in the rate of price increase both upwards and downwards. An increased share of the category with a low import content in the CPIF over time may thus have contributed to inflation remaining at a high level for longer than it would otherwise have done. Forecasts may therefore need to take more account of varying degrees of stickiness and lag in these components of inflation.¹

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An increased share of products with a low import content may affect Swedish inflation

In this study, I have created two price indices from the National Accounts and CPI statistics: One for product categories with a low import content called “Non-tradables” (NT) and one for product categories with a high import content called “Tradables” (T). This is based on the import content of the components in the CPIF. The parts with an

¹ Economic Commentaries are brief analyses of issues with relevance for the Riksbank. They may be written by individual members of the Executive Board or by Riksbank staff. Staff commentaries are approved by the relevant head of department, while Executive Board members are themselves responsible for the content of the commentaries they write.

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import share of over 20 per cent are classified as T and those with an import share of less than 20 per cent mainly as NT.³ The exception is the group Electricity, gas and other heating fuels, where the import content is somewhat less than 20 per cent, but where prices are increasingly influenced by international conditions.⁴ The T and NT price indices are then broken down into a total of seven different sub-indices. The product category with a low import content includes a number of services such as rents, repair and maintenance of cars, compulsory vehicle inspection, driving school training, car insurance, domestic travel, telecommunication services, restaurant services, accommodation, banking services and education. The product category with a higher import content includes a number of goods.

In Figure 1, we see that the average rate of price increase for products with a low import content (NT) is faster than for product categories with a high import content (T). The rate of price increase in T is more volatile than in NT, at least after 1995, and during the latest inflation cycle, the rate of price increase in NT peaks after that of T. The high rate of price increase in the early 1990s is mainly due to a tax reform, which raised VAT substantially for goods and for some services while broadening the tax base for VAT.⁵

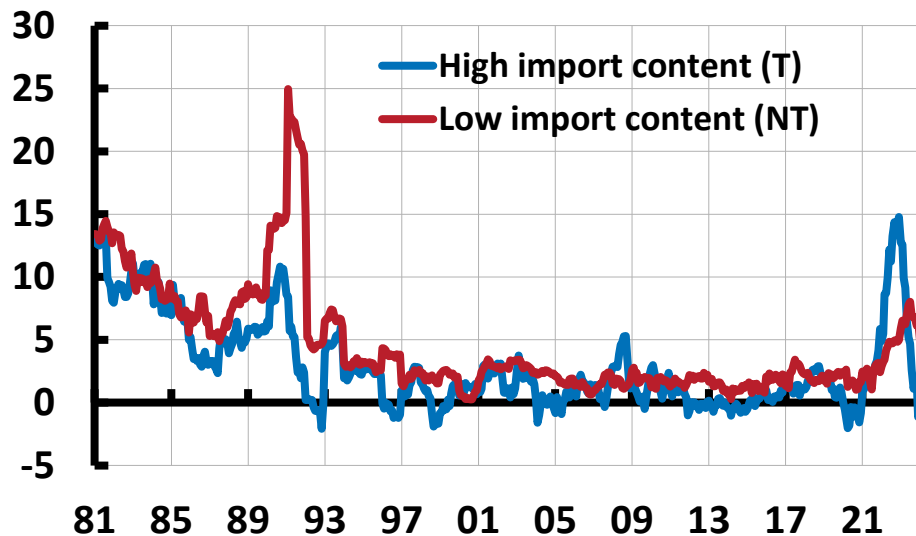
³ Data for the import content of the different components have been taken from the National Accounts and include both the direct and indirect import content with calculations from so-called input and output tables. These data have then been matched with the corresponding components of the CPIF. The results of this study in terms of the T and NT breakdown are partly dependent on whether the group Electricity, gas and other heating fuels is placed in T or NT. There is already an alternative index, UNDINH, which, in order to calculate alternative measures of core inflation, takes account of the import content. UNDINH excludes price growth of goods that are judged to be mainly imported goods without taking into account underlying data. The Riksbank took the view in 2007 that it had become increasingly difficult in the UNDINH to determine which goods are mainly imported and which should thereby be excluded. Statistics Sweden therefore stopped publishing this index. However, the difference between the development of UNDINH and the currently calculated index is relatively small.

⁴ These conditions include cooperation within the EU where, in accordance with EU rules, Swedish electricity surpluses are exported via new cross-border cables to countries with a deficit.

⁵ The tax reform in the early 1990s led to significant price increases for some individual groups of goods, although services were also affected. The VAT base was broadened. Services became generally taxable and the previous reduced rates for construction and hotel and restaurant services were removed (see "Government Bill. 1997/98:1 ANNEX 6 1990-91 tax reform - an evaluation").

Figure 1. Rate of price increase for product categories with a high and low import content

Annual percentage change



Note. Monthly data. Latest outcome: April 2024

Sources: The Riksbank, Statistics Sweden, National Institute of Economic Research and author's own calculations

The share of consumed products with a low import content (NT) has increased steadily over the past decades, although the most rapid increase occurred up until the mid-1990s. Figure 2 shows that the share, which was 29 per cent in 1980, rose to 42 per cent in 1995 and to 47 per cent in 2023. NT is largely made up of services and an increase in the share of services is natural in an economy where welfare increases. The same trends can also be found in other developed economies.⁶

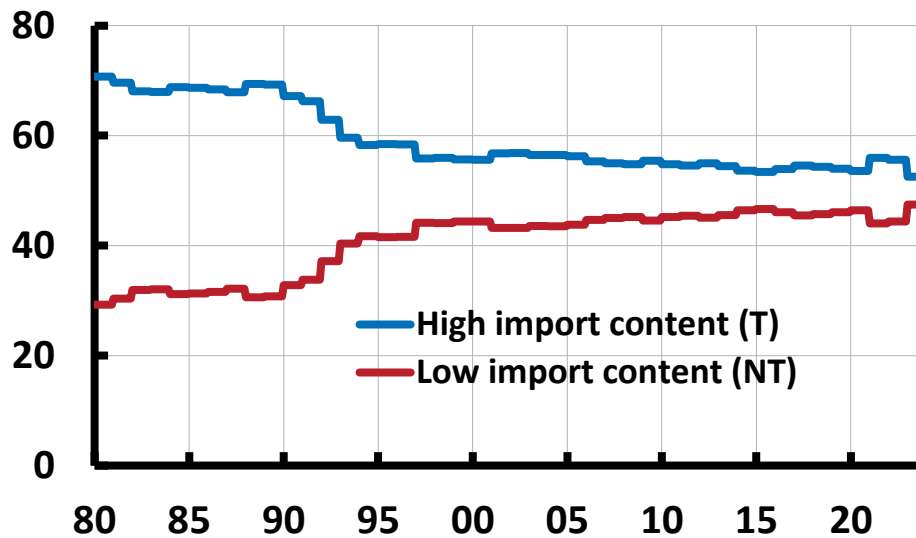
An important reason for the increase in the share of NT is that the productivity growth trend is weaker in service-producing sectors (which make up NT) than in goods-producing sectors in advanced economies. This has contributed to rising relative prices in the services sector and, as a result, households are spending less and less of their income on goods.⁷

⁶ For the euro area, see for example the speech in May 2019 "The rise of services and the transmission of monetary policy" by Benoit Cœuré, former member of the Monetary Policy Committee of the European Central Bank (ECB).

⁷ See the arguments in Baumol W.J., Bowen W.G. "On the Performing Arts: The Anatomy of Their Economic Problems", The American Economic Review, Vol. 55, No 1/2 (March 1965), where wage increases in service sectors, the study emphasises the example of the arts, are significantly higher than productivity improvements. This leads to large cost increases in the service sector "Baumol's Cost Disease".

Figure 2. Weight in the CPIF for product categories with a high and low import content

Per cent



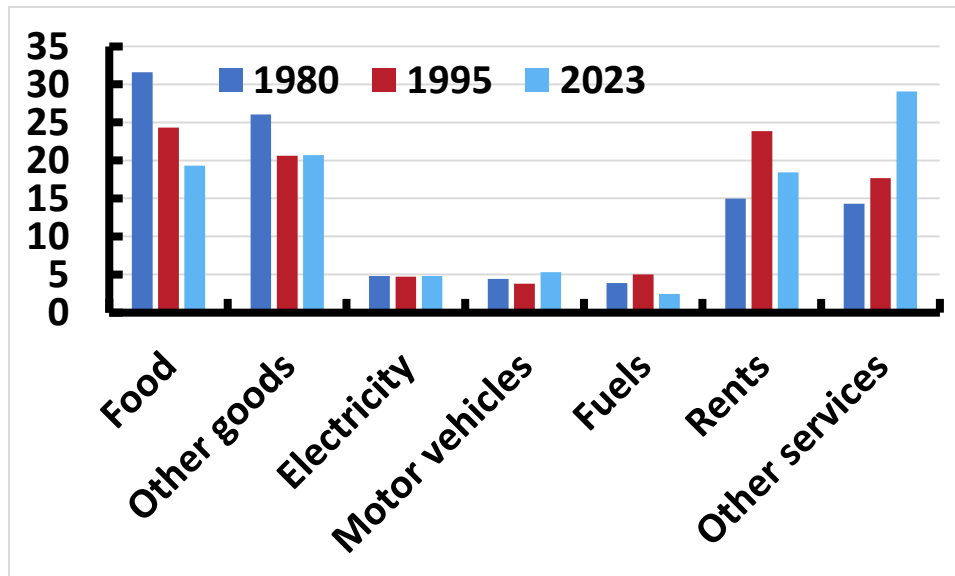
Note. Shares 1980–2023

Sources: The Riksbank, Statistics Sweden, National Institute of Economic Research and author's own calculations

Which parts of the product category with a low import content have increased in weight and by how much? In Figure 3, we see that it is above all the group “Other services” that has increased. It has more than doubled since 1980 and reached 29 per cent in 2023. This group includes car repair and maintenance, education, travel, dental fees, restaurant services, accommodation and banking services. The proportion of the basket spent on food by households in Sweden has decreased by almost as much.

Figure 3. Subgroup shares in the CPIX

Per cent



Note. Shares in the CPIX. "Food" includes beverages; "Other goods" includes shoes, tools, furniture, household appliances, medical products, bicycles, spare parts, telephones, electronic equipment, other durable equipment, pets, newspapers, books and other goods; "Rents" include the implicit cost of owning a dwelling, "Electricity" also includes gas and various types of heating and "Other services" include car repairs and maintenance, compulsory vehicle inspection, driving school training, car insurance, domestic travel, foreign travel, postal and telecommunication services, dental fees, personal hygiene services, restaurant services, accommodation, funeral expenses, home insurance, banking services, education and household services.

Sources: The Riksbank, Statistics Sweden, National Institute of Economic Research and author's own calculations

Effects on inflation dynamics

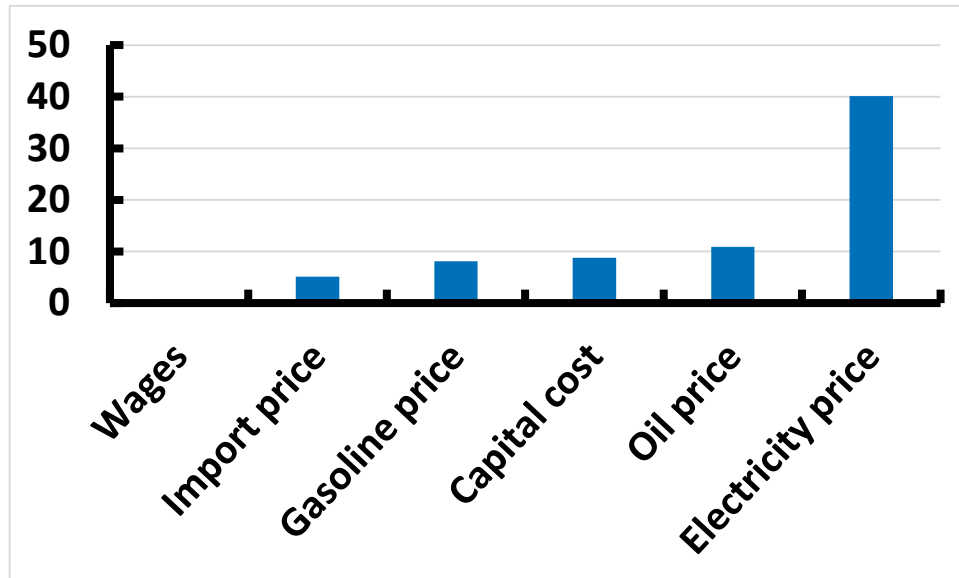
Within the group of products with a low import content (NT), wages represent a large share of total costs for companies. This is because they are mainly made up of service-producing companies, where the share of labour is higher than in the goods-producing sector, for example. An approximation for volatility can be deviations from historical averages in terms of standard deviations.

Figure 4 indicates that the volatility of wages is low compared to other business costs. Due to limited data availability, the figure includes spot prices for electricity and oil costs and does not take into account fixed contracts. However, the standard deviations of these components are so high that it can be assumed that the volatility including contracts is also relatively high. Given the stickiness of wage costs, there may be reason to assume that price growth in NT is also stickier than in T.⁸ If input costs in the NT component are stickier than in the T component, this may mean that inflation

⁸ See, for example, the May 2019 speech "The rise of services and the transmission of monetary policy" by Benoit Cœuré. The speech points out that wages account for around 40 per cent of input costs in the euro area services sector, compared with only 20 per cent in manufacturing. In the services sector, the figure shows that only 5.6 per cent of prices change each month, compared with 9.2 per cent for non-energy industrial goods and 28 per cent for non-processed food.

is also stickier. An increased share of NT in the CPIF over time may thus have contributed to the rate of price increase when inflation has risen remaining at a high level for longer than it would otherwise have done.

Figure 4. Volatility of business costs in Sweden in terms of standard deviations
Number of standard deviations from the historical average



Note. Data from August 2006 to April 2024 for all components except wages where data here include March 2024. For electricity prices from January 2010. For all series, the standard deviations are calculated based on the annual percentage change. These data have not taken into account the specific energy costs faced by companies, i.e. a weighted average of different contracts in terms of duration. The average cost of capital here is an average of interest rates at different durations for all contracts in the loan stock. Wages include variable add-ons and apply to the private sector. The gasoline price is for 95 octane including energy taxes at the pump, the oil price is for the spot price of Brent in Europe expressed in US dollars and the electricity price is also for the spot price.

Sources: Statistics Sweden, ECB, OK-Q8 AB, Energy Information Administration and Nord Pool.

One way of measuring the degree of persistence in inflation is to estimate equations, where the current rate of price increase is explained by the rate of price increase in earlier periods. The sum of the coefficients for past rates of price increase provides a measure of the degree of persistence that can be compared across different subgroups of the CPIF.⁹ Figure 4 shows the sum of the estimated coefficients for the first six own lags for seasonally adjusted monthly changes.¹⁰ The purpose of these exercises is thus to get a sense of whether, on average over a long period of time, a price increase is followed by price declines or moderate increases, which in such cases indi-

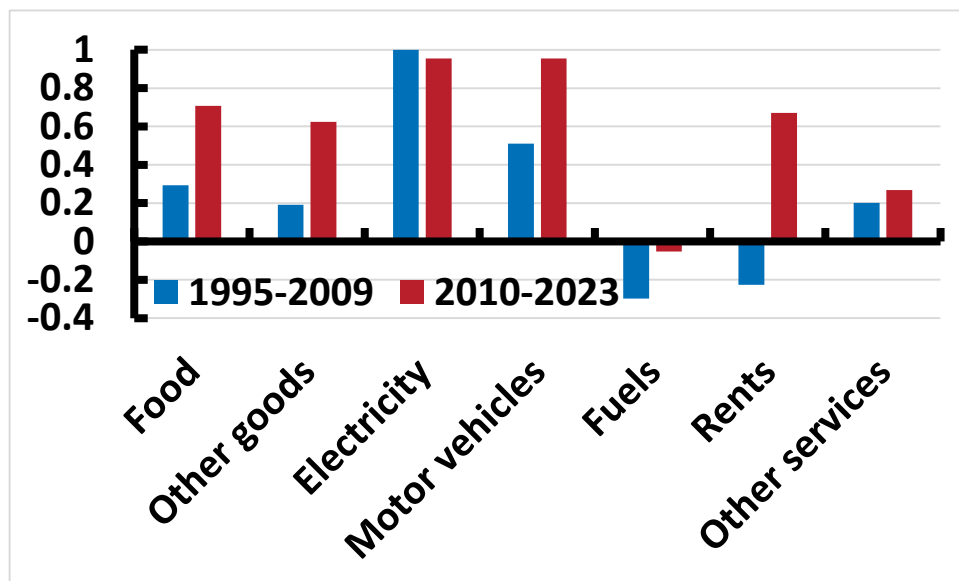
⁹ See Jesper Johansson and Oskar Tysklind "Characteristics of subgroups in the CPIF", Economic Commentaries no. 9, 2024, Sveriges Riksbank.

¹⁰ The seasonal adjustment method used is Census X-13 in Eviews. Own lags are monthly changes in the series.

icates a low persistence. The opposite case is if the price increase is followed by continued price increases or a continued high price, which in such cases indicates a high persistence.¹¹

The results in Figure 5 do not indicate that NT (“Rents” and “Other services”) has a higher persistence than most components of T (the other five groups). This is despite the persistence in particular of “Rents” when measured in this way appearing to have increased since 2010. The persistence of prices in the “Electricity” group is particularly high when measured in this way. The coefficients sum to close to 1, which according to this methodology indicates a high degree of persistence. An interesting aspect is that the persistence measured in this way increased for all components except for “Electricity” where it decreased marginally. However, it is difficult to explain why this clear broad change has occurred. One potential explanation could be that an increase in the share of services in the economy with a higher degree of wages in the cost base has increased the persistence. However, measured in this way, it indicates that “Rents” and “Other services” have, on the contrary, a relatively low persistence.

Figure 5. Estimated coefficients for own lags for different components of the CPIF
Sum of the first six estimated coefficients for own lags



Note. Seasonally adjusted monthly data. The higher the values, the higher the persistence. A value close to 1 indicates high persistence and close to 0 low persistence. For a description of what is included in the different components, see note in Figure 3.

Sources: The Riksbank, Statistics Sweden, National Institute of Economic Research and author's own calculations

The results of these exercises thus indicate that the NT components are not very persistent and that, for example, electricity and gas prices are. These exercises take into account all monthly changes over the entire periods in question and not for specific

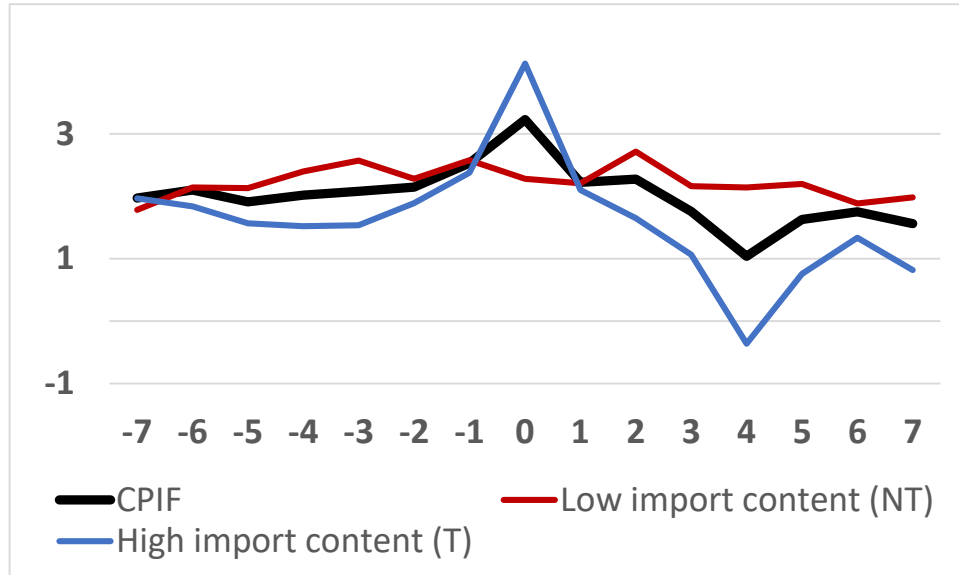
¹¹ For a review of the calculation procedure and the arguments behind it, see Jesper Hansson, Andreas Johnson and Sara Tägtström "How persistent is inflation in Sweden?", Economic Commentaries No. 5, 2009, Sveriges Riksbank.

inflation cycles. The persistence of electricity and gas prices may be somewhat surprising given the large fluctuations in energy-related prices in the CPIF in recent years. Another method of analysis is to look at the main upward and subsequent downward movements in inflation that have occurred and analyse which components fall first and which lag behind. The criterion for a rise in inflation here is that it peaks at just over 3 per cent, i.e. clearly above the Riksbank's inflation target of 2 per cent. Figure 6 shows the development of inflation in the CPIF, the product category with a low import content and the category with a high import content as an average of two inflation increases and declines during the time the Riksbank has had an inflation target. During these two inflation upturns and declines, CPIF inflation in terms of monthly data, in February 2003 and September 2008, peaked at around 3.5 per cent. These calculations can be compared with the latest cycle shown in Figure 7, where data are shown from the first quarter of 2021 up to and including the latest outcome, the first quarter of 2024.

There are three observations that can be made in Figures 6 and 7. The first is that the rise in inflation was much faster than normal in the latest cycle. It can also be observed that the rate of price increase in the product category with a high import content around 2003 and 2008 had relatively large and distinct upturns and declines on these occasions. At the same time, the rate of price increase in the low import content category did not change much, although the patterns are relatively similar for these cycles compared with the latest one. Four quarters after the peak observed in these two previous cycles, the rate of price increase in the category with low import content remained at a significantly higher level than for the category with high import content. The decline in the observed inflation for low import content is marginal and has occurred after cautious increases, indicating stickiness. In the latest inflation cycle, the picture is so far much clearer. The upturn and decline for the category with low import content is at least so far clearly visible. There is also a clear lag and a slower decline so far than for the high import content category.

Figure 6. Average of 2003 and 2008 inflation cycles for CPIF and product categories with high and low import content

Annual percentage change

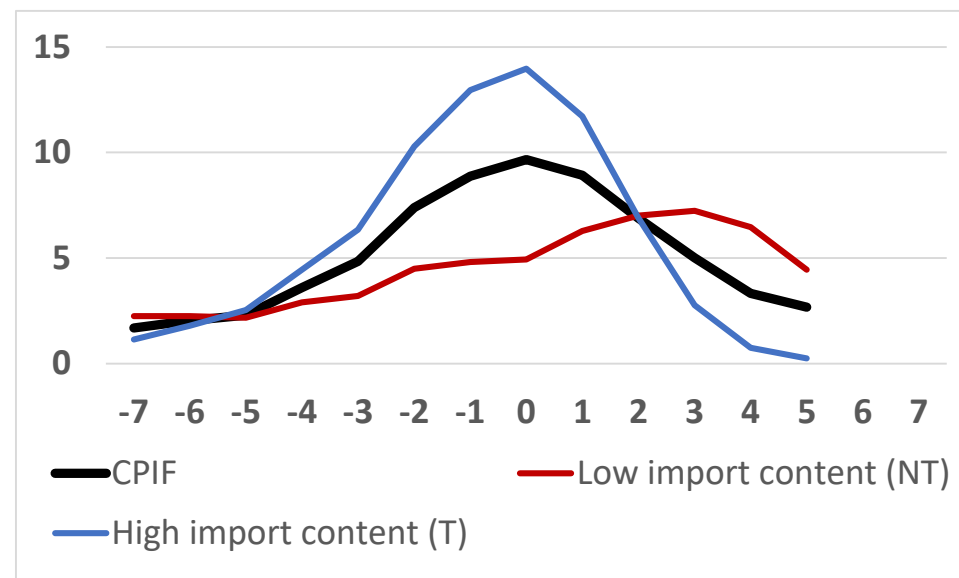


Note. Quarterly data. Zero on the x-axis is the quarter in which CPIF inflation peaked. The cycles in which CPIF inflation peaked are the first quarter of 2003 and the third quarter of 2008.

Sources: The Riksbank, Statistics Sweden, National Institute of Economic Research and author's own calculations

Figure 7. The latest inflation cycle, here from 2021Q1 onwards, for CPIF and product categories with high and low import content

Annual percentage change



Note. Zero on the x-axis is the quarter in which CPIF inflation peaked. CPIF inflation peaked in the fourth quarter of 2022 and there are only quarterly outcomes until the first quarter of 2024 (quarter "+5" on the x-axis).

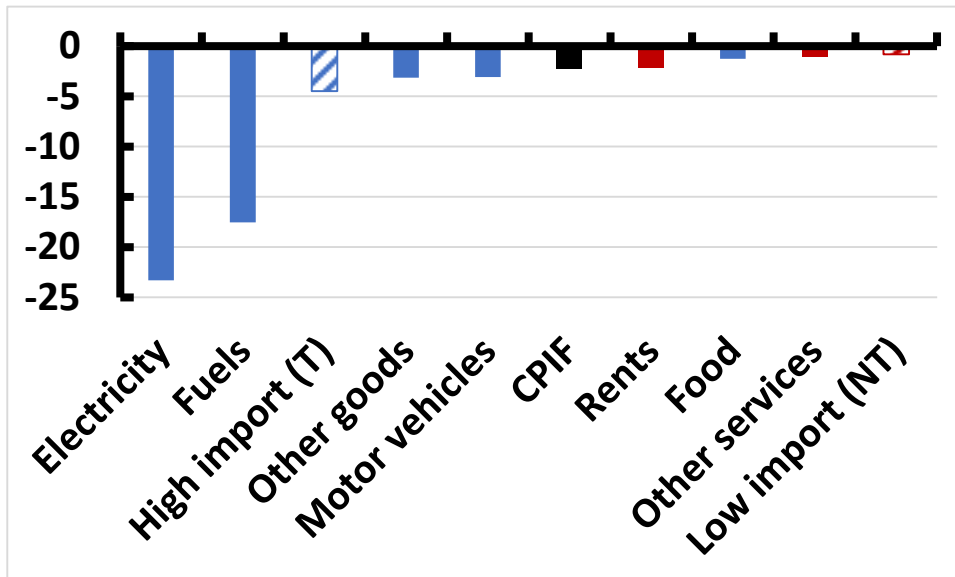
Sources: The Riksbank, Statistics Sweden, National Institute of Economic Research and author's own calculations

How much faster does inflation normally fall according to this calculation method for the categories with high import content compared to those with low import content and the CPI? Figure 8 shows how fast these components in the CPI decline on average after four quarters from the peaks of the various indices during the 2003 and 2008 cycles. Again, the declines in categories with low import content are followed by increases that are also marginal.

The timing of the various individual peaks has, as mentioned above, been taken into account here. A comparison is made with the latest cycle in Figure 9, where the calculation is for two quarters as data are only available for two quarters after the peak for a number of sub-indices, namely until the first quarter of 2024.

Figure 8. Decline in post-peak inflation for the CPIF and product categories with high (blue bars) and low import content (red bars), average of 2003 and 2008 cycles

Number of percentage points

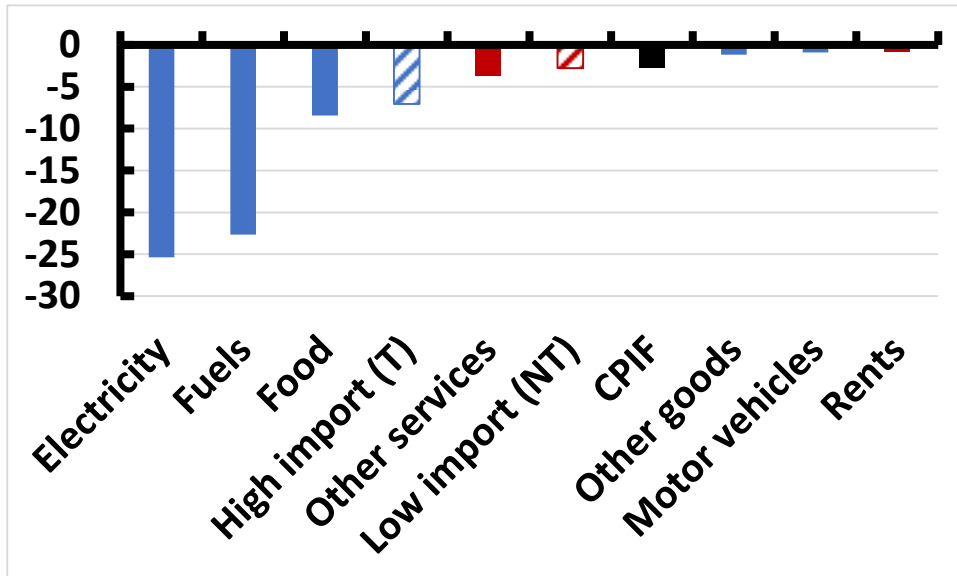


Note. The comparison is for four quarters after the peak

Sources: The Riksbank, Statistics Sweden, National Institute of Economic Research and author's own calculations

Figure 9. The latest inflation cycle. Decline in post-peak inflation after 2022Q4 for the CPIF and product categories with high (blue bars) and low import content (red bars)

Number of percentage points



Note. The comparison is for two quarters after the peak due to data limitations

Sources: The Riksbank, Statistics Sweden, National Institute of Economic Research and author's own calculations

According to this comparison, the decline in energy-related sub-indices such as “Electricity” and “Fuels” appears to be significantly faster than in other components. The result for “Electricity” is at odds with the result in Figure 5. The “Rents” and “Other services” sub-indices, according to this method, seem to be normally more persistent in terms of the rate of price increase than other components, although for “Other services”, it has fallen faster than normal over the latest cycle.

Discussion

In this commentary, I compare two indices that I have constructed based on the relative import content of the components in the CPIF. One for product categories with a low import content and one for categories with a high import content. The two indices exhibit different effects on inflation in terms of timing of turning points. The rate of price increase in product categories with a low import content has over the past three inflation cycles remained at a high level for longer than the rate of price increase in products with a high import content. This indicates a low volatility and a lower volatility compared to the product categories with a high import content. This is probably due to sticky labour costs representing a much larger share of business costs in product categories with a low import content than in categories with a high import content and as competition can be assumed to be stronger for companies selling products with a higher import content. Forecasts may need to take more account of varying degrees of stickiness and lags in these components of inflation.

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References



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