Economic Commentary

Characteristics of subgroups in the CPIF

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This Economic Commentary documents some statistical properties of price developments in the sub-groups of the CPIF that the Riksbank usually analyses, i.e. food, other goods, services and energy.[1] Persistence is higher for changes in food and other goods prices compared with other CPIF sub-groups. The correlation with resource utilisation and the exchange rate is highest for food prices, while the correlation with wage developments is highest for service prices.

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Background

Concerns are sometimes expressed in the international monetary policy debate that services prices have risen faster recently. This is considered to be particularly worrying as these rates of price increase are considered to be more persistent and linked to high demand and rapidly rising wages.[3] Are these concerns justified when looking at Swedish data? As a basis for answering this question, this Economic Commentary presents some characteristics of price developments in the sub-groups of the CPIF that the Riksbank usually analyses, i.e. food, other goods, services and energy.[4]

The persistence of service price changes is relatively low

The concept of persistence refers to how long prices increase faster or slower than their mean values after a price change has occurred.[5] High persistence means that it takes a long time for price growth to return to its mean value. A common way of measuring the degree of persistence in inflation is to estimate equations, where the rate of price increase today is explained by the rate of price increase in earlier periods. The sum of the coefficients of past rates of price increase provides a measure of the degree of persistence that can be compared across different sub-groups of the CPIF.

To measure persistence, we have estimated equations for price developments, where the current rate of price increase is explained by the rate of price increase lagged in time from one month up to six months. As a measure of price developments, we use

[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 employees at the Riksbank. Employees' commentaries are approved by their head of department, while Executive Board members are themselves responsible for the content of the commentaries they write.

[2] Thanks to Caroline Jungner, David Vestin and Vesna Corbo for valuable comments.

[3] See, for instance, European inflation falls but sticky services costs raise doubts for ECB (ft.com).

[4] See Hansson et al. (2007) for information on what is included in the sub-groups.

[5] See Hansson et al. (2009).

seasonally adjusted monthly changes in energy prices, services prices, goods prices and food prices, in logarithmic form. The equations are estimated during periods with inflation targeting, i.e. during periods from 1995 onwards. We measure persistence as the sum of the six estimated parameters of price growth rates in the previous periods.[6]

In Table 1 we show the results. Among the sub-groups of the CPIF, persistence is highest for price changes in goods and food and lowest for price changes in energy. The persistence of service price changes is thus lower than that of goods and food prices. This result is robust regarding the period over which persistence is estimated.

Table 1. Persistence in subgroups of the CPIF estimated over different periods

	1995–	2000–	2005–	2010–	2015–
Services	0.39	0.48	0.47	0.53	0.52
Goods	0.59	0.64	0.68	0.71	0.72
Food	0.59	0.70	0.71	0.72	0.74
Energy	0.15	0.16	0.22	0.27	0.30
Core services	0.40	0.44	0.41	0.45	0.38

Note: Sum of the estimated coefficients for the first six own time lags estimated on monthly frequency data. Core services are service prices in the CPIF excluding rents, foreign travel, depreciation and administratively priced services. In all estimates the end period is March 2024.

Source: The Riksbank

Correlations with resource utilisation, wage growth and the exchange rate

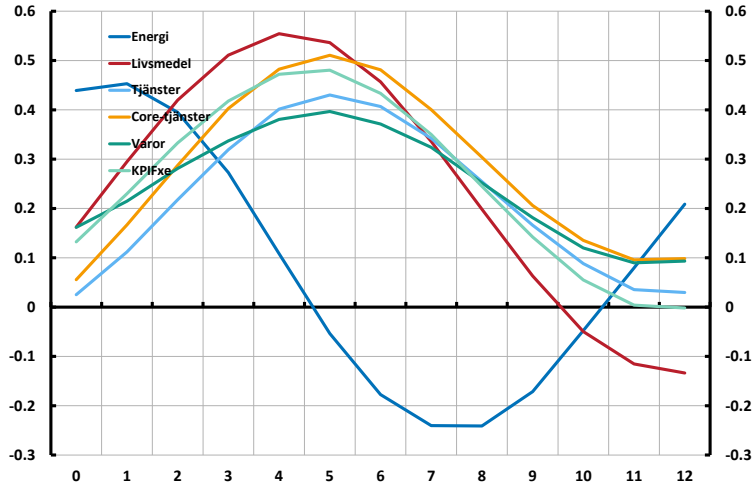
A reasonable hypothesis is that the prices of services, which are mainly produced in Sweden, are more closely linked to domestic factors such as resource utilisation and wage growth, while the prices of goods, which are imported to a greater extent, are more affected by the krona and international factors. In this section, we examine in more detail how different sub-indices of inflation correlate with three different explanatory factors behind inflationary pressures in the economy: resource utilisation, the exchange rate and wage developments.

Figure 1 shows how the annual rates of price increases in the sub-groups correlate with the RU indicator, which is a measure of resource utilisation. We can see that the correlation is highest between the RU indicator and food prices and lowest for energy prices. But the correlation is also relatively high for services and goods prices.

[6] We have tested using more than 6 lags in the estimations. This does not change the ranking between the measures.

Figure 1. Correlations with the RU indicator

Percentage points



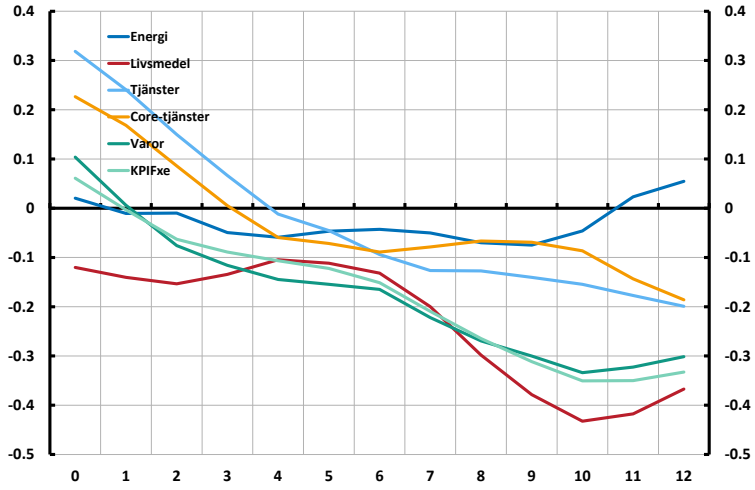
Note: Calculated using quarterly data from 1995 to 2023. Shows correlations between the annual percentage change in price measures and the RU indicator over different horizons. Zero means contemporaneous correlation, one means correlation between the price measures today and the RU indicator one quarter ago and so on.

Source: Statistics Sweden and the Riksbank

Figure 2 shows the correlation between the annual rates of price increase in the various sub-groups and the rate of wage growth according to the short-term wage statistics. The rate of wage growth is often linked to the rate of price growth for services, as these are generally relatively labour-intensive, and we can also see that the correlation is highest between the rate of wage growth and service prices. For price changes in the other sub-indices, the correlation with wage growth is low and even negative in the short term.

Figure 2. Correlations with wage growth rate

Percentage points



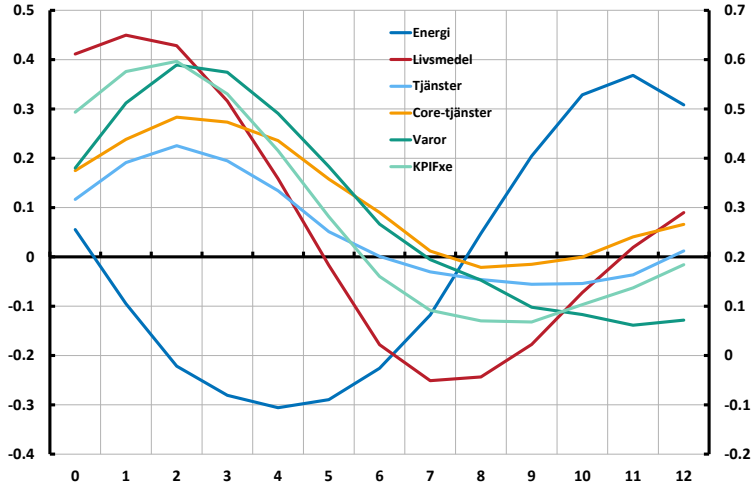
Note: Calculated using quarterly data from 1995 to 2023. Shows correlations between the annual percentage change in price measures and the rate of wage increase over different horizons. Zero means contemporaneous correlation, one means correlation between price measures today and wage growth a quarter ago, and so on.

Source: Statistics Sweden and the Riksbank

Figure 3 shows how price growth rates correlate with the KIX trade-weighted exchange rate index. As expected, the correlation is highest between the exchange rate and the sub-groups with the highest import content, i.e. food and other goods, and is lower for services prices.

Figure 3. Correlations with the exchange rate

Percentage points



Note: Calculated using quarterly data from 1995 to 2023. Shows correlations between the annual percentage change in price measures and the annual percentage change in KIX over different horizons. Zero means contemporaneous correlation, one means correlation between price measures today and KIX a quarter ago, and so on.

Source: Statistics Sweden and the Riksbank

Discussion

In this Economic Commentary we have shown that the persistence of services prices has not been particularly high compared with other sub-groups of the CPIF. Instead, it is highest for food and other goods. Food prices are most correlated with resource utilisation and the exchange rate, while service prices are most correlated with wage developments.

The fact that persistence is not very high for Swedish services prices indicates that we need not be concerned about inflation remaining at a higher level just because services prices have increased a little faster in recent months. They are judged to have done so because prices and fees that rarely change have increased unusually fast, such as rents and municipal fees. These increases are judged to be mainly due to earlier price and cost increases rather than strong demand or rising wage growth. While services prices appear to be more closely linked to wage developments than other sub-groups, the existence of central wage agreements for a large part of the Swedish labour market, which indicate that the fastest rates of wage growth are soon behind us, does not provide strong reason to believe that services prices will continue to increase more rapidly over the coming year.

References

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