



Staff memo

Import prices, labour costs and profits – what role have they played in inflation dynamics?

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Staff Memo

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Summary

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What is the significance of rising prices on imported goods and services and what role have corporate profits and labour costs played in inflation dynamics? These are issues that have been widely discussed in the light of the recent rapid price increases. Using National Accounts statistics, price developments in the economy can be divided into contributions from imported and domestic inflation. The latter consists of labour costs and profits per unit of output. Recently, contributions to inflation from both imported and domestic inflation have been high, deviating from historical patterns. In the past, Swedish producers have contributed to smooth out variations in consumer prices through lower domestic inflation when import prices have risen rapidly.

Initially, the rise in domestic inflation after the pandemic mainly reflected rising profits per unit of output. The contribution of unit labour costs was low in 2021 but gradually increased in 2022 and was high in the first half of 2023. The higher unit labour costs have been mainly related to weaker productivity growth. Indeed, despite the deteriorating economic outlook and weak volume growth, hours worked continued to rise up to and including the first quarter of 2023. At the same time, unit profits have increased rapidly and the profit share has risen. The increase in unit profits is remarkable in itself and the fact that it has occurred in parallel with rapidly rising labour costs also stands out in a historical perspective.

There are differences in the development between different parts of the business sector. High domestic inflation partly reflects the fact that the energy sector has benefited from rising energy prices and the export industry has benefited from rising global prices. However, the increase in domestic inflation is broad and reflects developments in several sectors, including consumer-related sectors.

¹ Magnus Lindskog has left the Riksbank and now works at Handelsbanken. Thanks to Jesper Hansson, Anders Vredin, Mikael Apel and Mattias Erlandsson for valuable comments and special thanks to Jesper Hansson for calculating the import content of demand. The interpretation of data and opinions expressed in this Staff Memo are our own and should not be construed as the Riksbank's view in these issues.

1 Introduction

Inflation is high, both in Sweden and globally. Price increases have been driven in part by energy, commodities and shipping prices in the wake of global supply disruptions during the pandemic and Russia's full-scale invasion of Ukraine. Rapidly rising global demand exacerbated the imbalances in already strained value chains, further fuelling price increases. The dynamics behind the spread from global shocks to domestic prices are complex. Prices in different parts of the economy are not set independently of one another. The price of consumer goods is affected by import prices as well as costs and margins in all parts of the domestic production chain. The inflation target sets the bar for price and cost developments in all sectors of the economy.

In this Staff Memo, we first use the National Accounts to study the distribution of imported and domestic inflation.² We then go on to describe how domestic inflation is distributed between labour costs and profits and how the distribution varies in different parts of the business sector.³ Over the past year, similar analyses have been conducted for several countries, often focusing on the role of profits in recent inflation dynamics.⁴ For Sweden, the National Institute of Economic Research (NIER) has also published a special study focusing on the role of profits in inflation dynamics.⁵

² We use inflation synonymously with the rate of price increase when discussing the rate of change in imported and domestic prices.

³ The National Accounts are a source of comprehensive information for the whole economy under one roof, allowing a coherent analysis of demand, output, income, costs and prices. One disadvantage is that the most recent quarters in the National Accounts are based on preliminary statistics that are often revised, not least in terms of the development of different sectors. This calls for some caution in interpreting the most recent developments.

⁴ See for example Arce O, E Hahn and G Koester (2023), "How Tit-for-tat Inflation Can Make Everyone Poorer", ECB Blog, 30 March 2023, Bivens J. "Corporate profits have contributed disproportionately to inflation. How should policymakers respond?", Economics Policy Institute, Working Economics Blog, 21 April 2022, Dhingra S (2023) "A cost-of-living crisis: Inflation during an unprecedented terms of trade shock", Bank of England, speech at the Resolution Foundation 8 March 2023, Reserve Bank of Australia (2023) "Have Business Profits Contributed to Inflation?" Box B, Statement on Monetary Policy, May 2023, OECD (2023), "OECD Economic Outlook, Volume 2023, Box 1.2. The contribution of unit profits to domestic inflationary pressures" or Norges Bank "Inflation increasingly driven by wage costs and operating margins", article in the Monetary Policy Report, September 2023.

⁵ NIER (2022b), "Prissättning hos svenska företag under 2022", Special study, December 2022 (only available in Swedish).

2 High import prices but also high domestic inflation

This section illustrates the impact of imported and domestic inflation on recent price developments in consumption, investment and exports.⁶ The starting point for the analysis can be described by the following identity:

$$\Delta^4 \text{end price} = a * \Delta^4 \text{import price} + (1 - a) * \Delta^4 \text{domestic value added price}$$

Where a is the import share in the investigated demand component (will be reported both for total demand and for household consumption) and Δ^4 denotes annual percentage change. All prices are expressed in Swedish kronor and the end price is the price paid by the end user. The domestic value-added price can be broken down into labour costs and gross operating surplus per unit of output. Price changes due to changes in taxes on products (such as VAT, energy taxes and import duties) or production taxes/subsidies (such as support for short-time work during the pandemic) are also counted as domestic value-added.

This relationship does not mean that changes in import and/or domestic prices directly set end prices. Many companies are neither able nor willing to pass on all the temporary ups and downs in input and output costs to their customers. The relationship can thus equally well be described by domestic value-added prices as a function of end prices and import prices.

2.1 Export and import prices have increased particularly rapidly

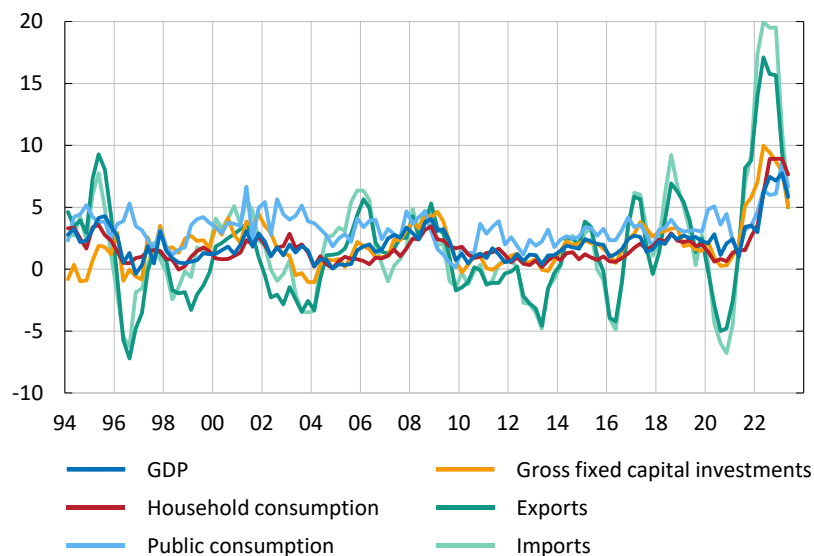
Prices in the Swedish economy have risen broadly across all demand components in the past two years. The rise in export and import prices stands out, partly reflecting the fact that they tend to be more volatile than consumption and investment prices (see figure 1). In 2022, the annual percentage change in import and export prices was around 20 and 15 per cent respectively. Import and export prices have historically been highly correlated, reflecting the need to relate the price of traded goods and services to a world market price in a common currency. Higher global inflation thus contributes to a parallel increase in import and export prices. Changes in the nominal exchange rate also influence the price of exports and imports in Swedish kronor in the same direction. In the first half of 2023, import and export prices continued to increase, but not as fast as before, with annual growth in the second quarter standing at around 5 per cent. In quarterly terms, the rate of price increase has clearly slowed down and was in the second quarter of 2023 close to a historical average. By contrast,

⁶ We use domestic inflation and domestic prices synonymously with the change in value-added prices, i.e. the sum of unit labour costs, unit profits and other production taxes/subsidies. To simplify our reasoning, we will ignore other taxes/subsidies on products in much of the discussion. Some of the prices included in the value-added deflator are set globally and are affected by the exchange rate, such as the goods exported by the manufacturing sector. These prices are thus not solely influenced by domestic factors and value-added prices therefore do not capture only 'domestic' inflation. Nevertheless, we will use domestic inflation synonymously with the change in value-added prices.

the annual rate of change in the price of household consumption, a measure that is very similar to the CPIF, has not declined to the same extent, reaching almost 8 per cent in the second quarter of 2023. But seasonally adjusted quarter-on-quarter growth has on the other hand started to show signs of slowing down, reaching an annual growth rate of around 5 per cent in the second quarter of 2023.

Figure 1. Price developments for GDP, demand and imports

Annual percentage change



Source: Statistics Sweden and own calculations.

The annual price change in total demand in the Swedish economy increased by around 6 per cent in the second quarter of 2023.⁷ This can be compared with an average of around 1.5 per cent over the period 1997–2019. The increase since 2021 has been driven by both domestic and imported inflation. The GDP deflator, which represents domestic (import-adjusted) inflation, contributed just over 4 percentage points to the annual growth in the price of total demand and import prices contributed 2 percentage points in the second quarter of 2023.⁸ The average contributions over the period 1997–2019 were just over 1 percentage point from domestic inflation and just under 0.5 percentage point from imported inflation.⁹

Price developments in the different components of demand can roughly be divided into contributions from imported and domestic inflation using Statistics Sweden’s input and output tables respectively.¹⁰ For household consumption, such a breakdown

⁷ Total demand consists of household and public sector consumption, gross fixed investment (including inventory) and exports.

⁸ The import share in final demand is around 1/3 and import prices rose by around 6 per cent in the second quarter.

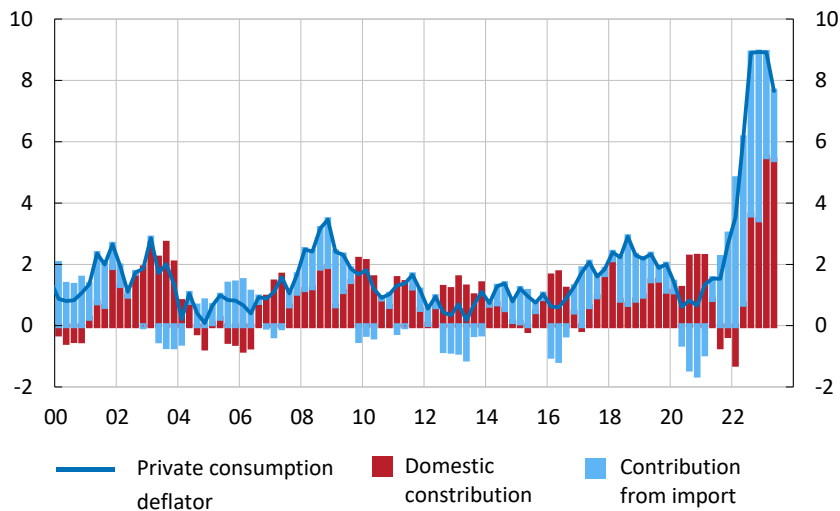
⁹ The averaging calculations are based on a constant import content in the different components of demand. The import content of GDP is thus only allowed to vary with the composition of demand.

¹⁰ The contribution made by import prices on consumer prices, for example, comes partly from the direct import content of consumption and partly from imported input goods in the production of consumer goods. The contribution of imported inflation to the annual change in the price of consumer goods is calculated as the weighted sum of the import contribution of 24 product groups: $\Delta^4 \text{import contribution} =$

suggests that it was mainly a rapid increase in import prices that initially drove the rapid price increase after the pandemic (see figure 2). Historically, the correlation between the contributions of imported and domestic inflation has been negative, so that low imported inflation has periodically provided scope for higher domestic inflation, and vice versa. Swedish producers thus tend to even out consumer prices via a lower value-added price when import prices are rising rapidly, and vice versa. Against this background, developments in 2021 and early 2022 can be interpreted as rising imported inflation limiting the scope for domestic consumer inflation. At this point, rapidly rising consumer prices were being driven solely by rapidly rising import prices. In 2022, however, the domestic contribution started to rise while import prices continued to increase at a rapid pace. In the first quarter of 2023, the contribution from domestic inflation increased further as growth in the consumption deflator rose to almost 9 per cent, despite the contribution from imported inflation falling back and, in the second quarter, the domestic contribution remained high.¹¹

Figure 2. Price of household consumption - contribution of imported and domestic prices

Annual change, per cent and percentage points respectively



Note. The contribution of imported inflation is calculated on the basis of import prices for 24 product groups according to the National Accounts, weighted by the import content of consumption based on input and output tables for 2019.

Source: Statistics Sweden and own calculations.

$\sum_{i=1}^{24} a_i * \Delta^4 impi_i$, where a_i is import of product i as a share of total consumption (the sum of direct imports in consumption and imported inputs in the production of consumer goods) and $\Delta^4 impi_i$ is the annual percentage change in the import price for the same product. The contribution from domestic inflation is then residualised as follows: $\Delta^4 domestic contribution = \Delta^4 end price - \Delta^4 import contribution$.

¹¹ By comparison, the consumption deflator has risen by around 1.5 per cent on average over the period 1997–2019, with average contributions from imported and domestic inflation of around 1 and 0.5 percentage points, respectively.

2.2 Cost compensation is contributing to price increases in many parts of the economy

Global inflation is high and has made a large contribution to the rapid price increases in the Swedish economy. The effect has also been reinforced by the depreciation of the krona. This is partly because the direct contribution via import prices accounts for a large part of the increases in the prices of consumption, investment and exports. For exports, it is also a question of global inflation spilling over into domestic inflation (value-added prices), as both export and import prices are, in principle, set globally. Domestic inflation in export prices is then determined by the difference between globally determined export prices (end price) and the contribution of globally determined import prices. The domestic component of inflation in export prices thus also normally follows developments in global export and import prices. For consumer goods, the covariance between imported and domestic inflation instead suggests that high import prices normally erode the scope for the development of domestic prices.

The recent development with parallel rising contributions from domestic and imported inflation to consumer prices may be due to the fact that the same factors drive domestic inflation both in Sweden and abroad. For example, rapid increases in the price of energy, shipping and commodities may have contributed to making it easier to justify price increases. Moreover, the rapid increase in demand after the pandemic may have facilitated the ability to pass on price increases without sacrificing volumes. But someone has to pay for higher prices. Higher import prices result in lower real income (value-added) for Swedish households and companies. When rising energy and import costs are passed on to the next stage of the domestic production chain, real incomes become lower in some other part of the economy. Even if prices are only increased on a krona-for-krona basis, this can set off a chain of demands for compensation.

A further aspect of the transmission of higher import and energy prices is that they can be driven by factors that tend to be volatile, such as commodity prices, the exchange rate, weather or operational disruptions. If rising costs for imported input goods or energy have been passed on krona-for-krona and import/energy prices then fall back, there will be room for either higher domestic prices or price reductions. For the price of household consumption, historical patterns suggest that the domestic contribution to inflation increases when imported inflation recedes, rather than the end price decreasing. This suggests that lower imported inflation has a limited impact on the price of household consumption. On the other hand, however, this pattern is partly related to the fact that, historically, companies have smoothed out price developments in end prices. After a period of rapidly rising import prices, there has thus been a need to make up for lost income (that is to say domestic inflation). If instead there is a fall in import prices following an upturn that has already been fully reflected in end prices, it is thereby not self-evident that higher domestic inflation will counteract a fall in import prices when it comes to consumer prices.¹²

¹² The NIER's special study showed that consumer prices had increased roughly krona-for-krona with increasing costs until the end of the second quarter of 2022, which was as long as the study extended (NIER, 2022b).

3 The development of domestic inflation

Value-added prices are net of import prices and measure only domestic inflation.¹³ Rising value-added prices thus mean that the end price (product price) has increased more (krona-for-krona) than the cost increase due to more expensive imported input goods. Rising value added prices can be broken down into rising unit profits (capital costs) and rising unit labour costs.¹⁴ In turn, the latter may reflect lower productivity growth or higher growth in hourly labour costs. This section discusses the composition of domestic inflation based on the following identity:

$$\Delta^4 \text{value added price} = b * (\Delta^4 \text{labour cost} - \Delta^4 \text{productivity}) + (1 - b) * \Delta^4 \text{unit profit}$$

Where b is the proportion of labour costs and $(\Delta^4 \text{labour cost} - \Delta^4 \text{productivity})$ is annual growth in unit labour costs. The extent to which domestic inflation is distributed between rising unit profits and rising unit labour costs depends on a variety of factors of both a cyclical and structural nature. In the short term, it is often difficult to actively influence unit labour costs because neither wages nor the number of employees can be adjusted immediately when demand changes. From this perspective, unit labour costs become a buffer that dampens price fluctuations over the business cycle. You can also see it as rising unit labour costs tending to crowd out unit profits, for given input production costs and end prices.¹⁵

In addition to the dynamics of unit labour costs and profits per unit, this section uses the profit/labour cost share to illustrate how the current distribution of income between labour and profits compares with normal cyclical variations. There are also a number of structural factors that affect the long-term distribution of income between labour and capital. This is beyond the scope of this study and we are content to use the historical properties of the time series as a starting point for the discussion.

3.1 High domestic inflation during 2022 and 2023 has reflected high growth rates in both unit labour costs and unit profits

Economic developments in recent years have been strongly coloured by the pandemic. A sudden fall in demand tends to lead to a fall in productivity, which, in turn, has historically meant rapidly rising unit labour costs and falling unit profits. However, during the pandemic, extensive government support, such as the possibility of short-

¹³ Value added refers to the value of goods and services produced minus the value of the input goods/ services used in production. Value-added price refers to the ratio of value added at current price to fixed price. As imported goods are input goods/ services in production, they are not included in value added or the value-added price.

¹⁴ In addition to unit labour costs and unit profits, value added also consists of other product taxes/subsidies. These are deliberately excluded here to simplify the reasoning. The impact of changes in other product taxes/subsidies is typically limited, with the exception of developments since the pandemic, when large-scale support measures had significant effects (see figure 3).

¹⁵ According to the same reasoning, it is mainly unit profits that are affected by temporary fluctuations in import (and energy) prices if costs are not fully (krona-for-krona) passed on to the end price.

term work and paid sick leave, acted to soften the blow. This contributed to productivity not declining as much as in previous demand downturns, keeping unit labour costs down and unit profits up. The postponement of the industrial agreement in 2020 meant that centrally agreed wages were frozen, which also helped to curb labour costs.

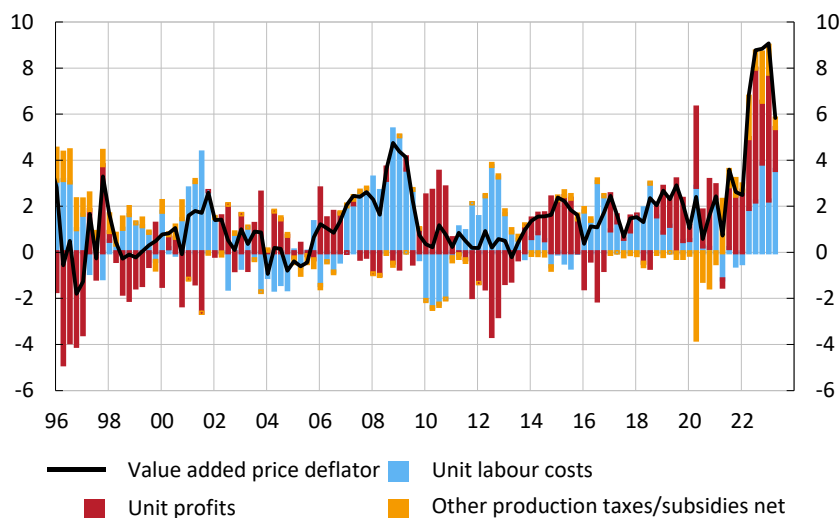
It is difficult to say how much pandemic support contributed to dampening unit labour costs, containing price increases or lifting profits. In figure 3, it appears that the pandemic support helped to keep prices down but it is uncertain whether there would have been room for larger price increases in the absence of such support. Instead, companies might have been forced to reduce their margins more or to make greater cuts in costs, for example through staff reductions, wage cuts or streamlining the production process. By the same reasoning, it is not certain that phasing out the support contributed to fuelling recent price increases, as it seems in figure 3.

In the first phase of the post-pandemic recovery, unit labour costs fell, allowing unit profits to rise despite moderate price increases. Since then, growth in unit labour costs has reversed, contributing an average of around 3 percentage points to annual price growth since the second quarter of 2022. At the same time, unit profits increased even faster and domestic inflation rose rapidly to a high level.

The parallel rapid increases in unit labour costs and unit profits stand out in a historical perspective. Value-added prices in the business sector did not fall during the pandemic, and the recent price increases cannot be explained by a normalisation from a low level; it is a shift upwards in the price level. Moreover, as shown in section two, rapidly rising domestic inflation has occurred in addition to firms passing on rapidly rising import prices to the end price.

Figure 3. Contribution to change in value added price in the business sector

Annual change, per cent and percentage points respectively



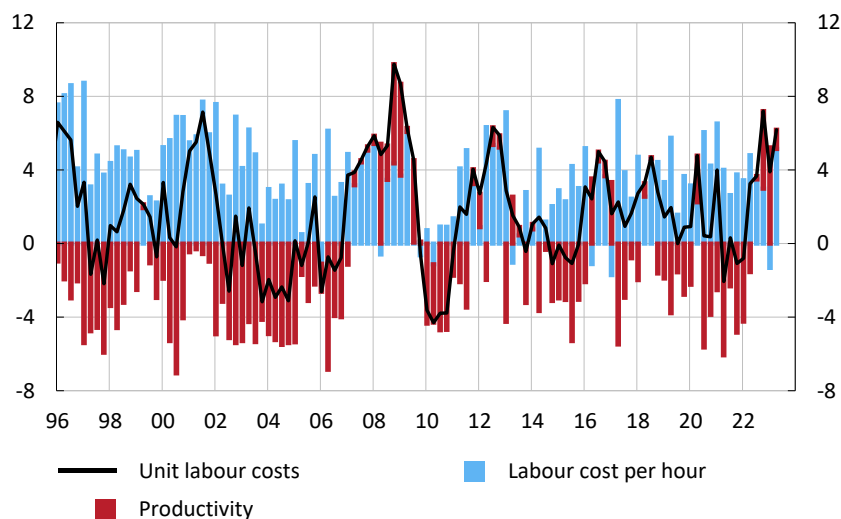
Source: Statistics Sweden and own calculations.

Low productivity growth lifts unit labour costs

From a labour market perspective, one interpretation of the rapid increase in both unit labour costs and unit profits over the past year is that rapidly rising demand has allowed unit labour costs to rise without sacrificing profit growth.¹⁶ Unit labour costs in the business sector gradually accelerated during 2022, but during the first half of 2023, the growth on average slowed down slightly (see figure 4). It is normal that a shift in productivity (from high to low) contributes to higher unit labour costs as the economy matures and slows down. In the maturity phase, this is because companies are catching up on the hiring they were not able to do when demand was increasing. In the slowdown phase, this is partly because it takes time for companies to adjust their workforces when demand falls. There are also reasons for companies to retain their staff even in periods of low demand, especially if the economy is expected to pick up again soon.

Figure 4. Contributions to unit labour costs in the business sector

Annual change, per cent and percentage points respectively



Note. Rising (falling) productivity makes a negative (positive) contribution to the unit labour cost.

Source: Statistics Sweden and own calculations.

The turnaround in productivity growth from positive to negative has been reflected in the sharp decrease in output growth while hours worked have continued to increase at a good pace (see figure 5).¹⁷ Many firms reported labour shortages when demand picked up after the pandemic and pent-up hiring needs may still help to sustain labour demand despite the deteriorating demand outlook. The difficulties faced by companies in finding staff may also be contributing to them retaining more employees than

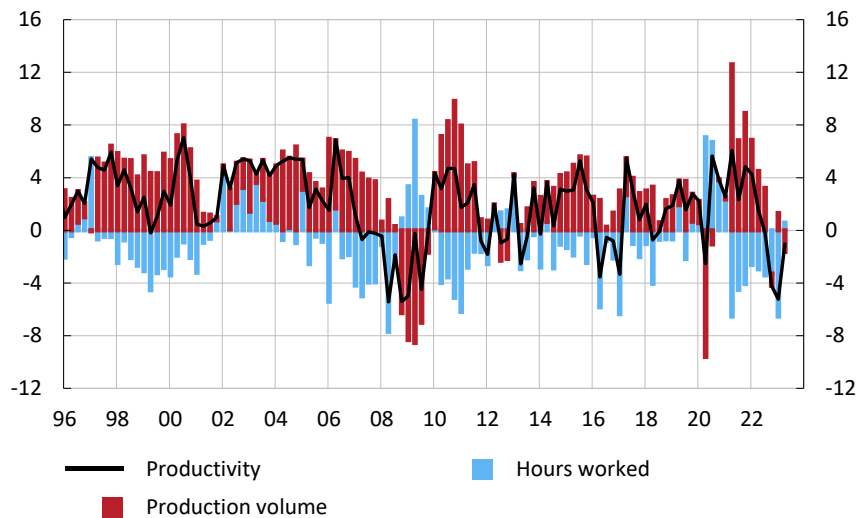
¹⁶ A more accurate description is that demand increased rapidly relative to supply, but a breakdown of imbalances due to supply and demand shocks is not central to the discussion here.

¹⁷ In the second quarter of 2023, the number of hours worked fell for the first time in just over a year, but productivity nevertheless continued to decline as production volumes fell even further.

usual to avoid encountering the same problems once again when demand picks up.¹⁸ This raises the question of the extent to which the cost of maintaining an oversized workforce can be passed on to higher prices or limits the scope for profits.¹⁹ An adjustment via hourly labour costs is unlikely, especially if companies are reluctant to make redundancies. Moreover, the recent industrial agreement has set the framework for wage increases over the next two years and most indications are that wages will increase faster rather than slower. The low productivity growth may also reflect the fact that demand has slowed down more than companies' expectations and that they have not yet had time to adjust their workforces. Given that lower demand limits the ability to pass on costs to consumers, this would suggest weaker labour market developments going forward, but higher unit labour costs can also contribute to higher prices or limit the scope for profits.

Figure 5. Contribution to productivity growth

Annual change, per cent and percentage points respectively



Source: Statistics Sweden and own calculations.

Rapidly rising unit profits

During the pandemic, companies were compensated, among other things, for retaining staff when economic activity was constrained, which helped maintain unit profits without major cuts or higher prices (see figure 3). In the early phase of the post-pandemic recovery, unit profits started to increase more rapidly, with one possible explanation for this being that rising demand combined with low growth in unit labour costs allowed for rising unit profits. Unit profits then continued to rise rapidly even as unit labour costs gradually began to increase faster, and annual growth has been at a

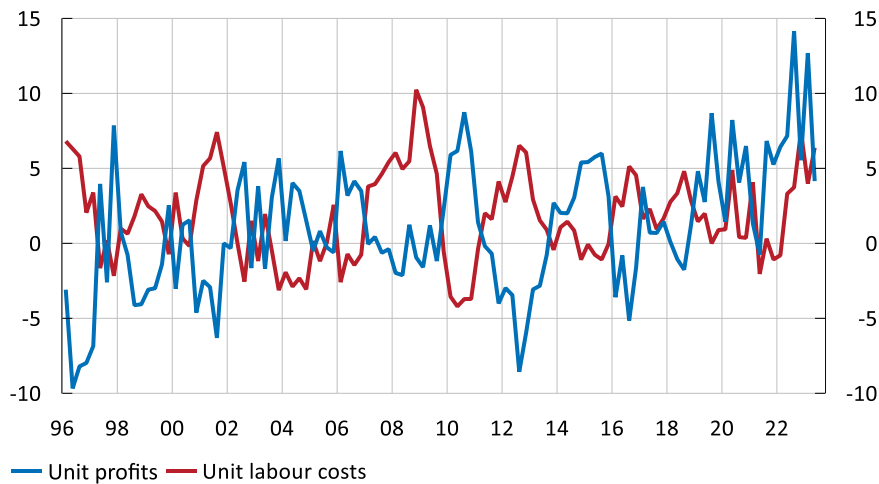
¹⁸ There are other factors that could explain why companies are retaining more staff than they usually do, including lower real wages; see Sveriges Riksbank (2023) for a more detailed discussion.

¹⁹ In industries operating in the domestic market, a decline in imported inflation and energy prices could leave more room for domestic inflation for a given development of end prices, thereby increasing the scope for parallel increases in unit labour costs and unit profits.

historically high level since mid-2022 (see figure 6). According to the same interpretation as for unit labour costs (see above), this may be related to the fact that rapidly rising demand has meant that companies have not had to make a trade-off between unit profits and unit labour costs, as it has been possible to raise prices.²⁰

Figure 6. Unit profits and unit labour costs in the business sector

Annual percentage change

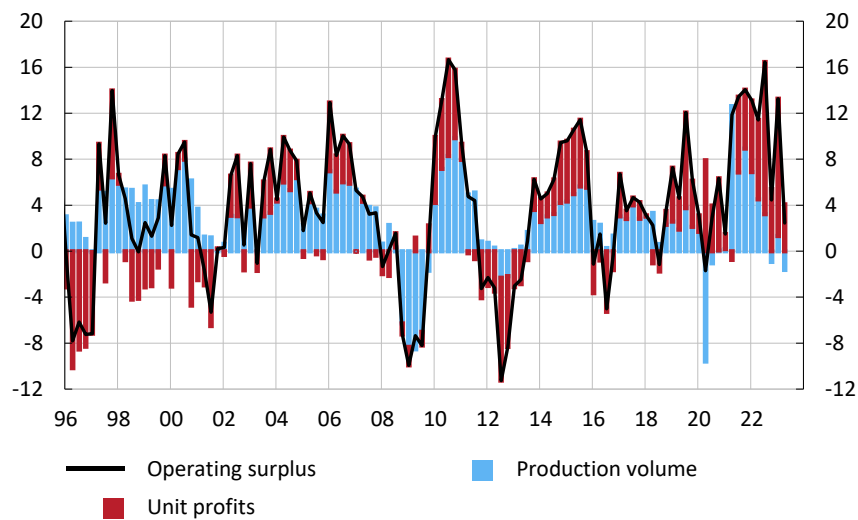


Source: Statistics Sweden and own calculations.

A further sign of high demand is that prices and volumes were able to increase simultaneously in 2021 and early 2022 (see figure 7). This was a period in which households were reducing their savings, thereby sustaining their consumption, while businesses were rebuilding their inventory and making up for delayed investments. Over the course of 2022 and early 2023, these consequences of the pandemic have gradually faded, while monetary policy has been tightened and inflation has eroded the purchasing power of households. This has contributed to the growth in production volume in the business sector gradually becoming lower and ultimately negative. This, in turn, indicates that lower demand can put a limit on price increases, and hence unit profits, for a given development of unit labour costs and prices of input goods such as raw materials, shipping and energy. In the most recent quarter, the second quarter of 2023, growth in unit profits (and hence the operating surplus) has also slowed down.

²⁰ A more accurate description is that demand increased rapidly relative to supply, but a breakdown of imbalances due to supply and demand shocks is not central to the discussion here.

Figure 7. Operating surplus broken down into unit profit and production volume
Annual change, per cent and percentage points respectively



Source: Statistics Sweden and own calculations.

3.2 The profit share has risen

The profit share is another National Accounts measure that has been employed in the discussion of the role of profits in inflation dynamics. The profit share is a measure of how value added is allocated between labour costs and profits (remuneration for capital) and thus contains no additional information compared to unit labour costs and unit profits. Variations in the profit share only reflect the relative rate of increase and do not indicate whether companies are charging higher or lower profits per unit. For example, a rapid increase in unit profits does not affect the profit share if unit labour costs increase at the same rate.²¹ Instead, the profit share mainly contributes to the discussion of inflation dynamics by providing a picture of the distribution of value added between profits and labour costs over time. Cyclical fluctuations and different types of temporary shocks affect different prices to different extents and it can take time to correct imbalances. The relative development of unit labour costs and unit profits can thus reflect normal cyclical variations or a return to balance from a non-equilibrium starting point, meaning a normalisation from a period of unusually low or high profit share.

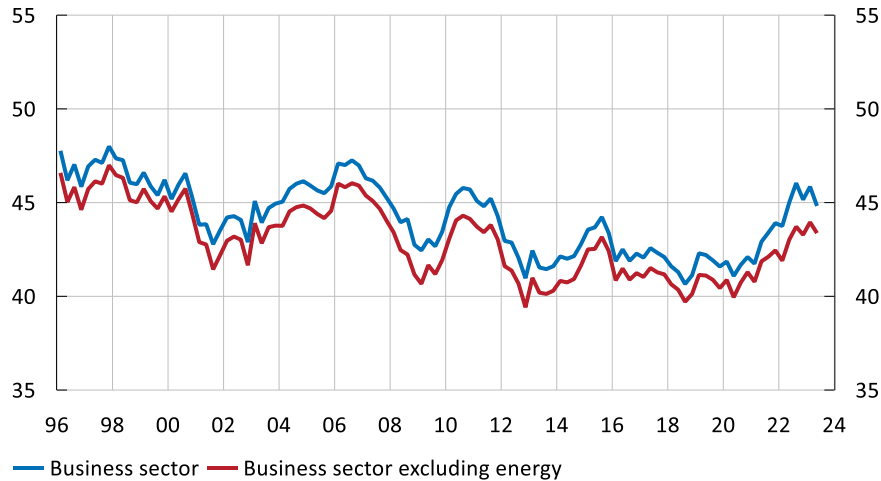
When the pandemic struck and output fell rapidly, the profit share was sustained by government support but the level was already low by historical standards. The profit share has since risen, supported by the recovery in economic activity, and, over the past year, the profit share has been at levels last seen during the recovery from the

²¹ This can be illustrated by a simple example where the value-added price is SEK 20 and is divided equally between labour costs and profits (10 + 10). The profit share is then $10/20 = 50\%$. If both unit labour costs and unit profits rise by 10 per cent, domestic inflation is 10 per cent (both unit labour costs and unit profits contribute 5 percentage points) but the profit share is unchanged ($11/22 = 50\%$).

financial crisis (see figure 8).²² During the end of 2021 and the beginning of 2022, electricity prices rose rapidly, which meant that the profit share in the energy industry increased particularly rapidly and the difference between the red and blue lines in figure 8 increased. But even when the energy sector is excluded, the profit share has clearly risen.

Figure 8. Profit share in the business sector

Percentage of value added, seasonally adjusted values



Note. Profit share for the business sector excluding energy refers to operating surplus as a share of value added at basic prices, that is without adjustment for other production taxes/subsidies and thus without large parts of the extensive support measures implemented during the pandemic. However, it is included in the profit share for the whole business sector.

Source: Statistics Sweden and own calculations.

The profit share tends to rise (fall) when economic activity strengthens (weakens). This is partly because it normally takes time for companies to adjust the number of hours worked and because short-term variations in demand can be met with higher/lower output per hour worked.²³ As wages do not normally change with short-term variations in productivity, this contributes to the cyclical nature of unit labour costs. Combined with the fact that prices are also sticky in the short term, the profit share therefore tends to fall (rise) when economic activity weakens (strengthens).²⁴ There are many ways to illustrate the cyclical variation in the profit share. Figure 9 illustrates an example in which the profit share (excluding energy) is shown together with a measure of cyclical variation in the business sector. Another example is that

²² Compared with historical patterns, the current dynamics of the profit share may partly be influenced by the shift from a long period of low interest rates to rapidly rising interest rates. The long-term level of the profit share can be influenced by structural factors such as demographics, technological developments and the relative bargaining power of labour and capital owners.

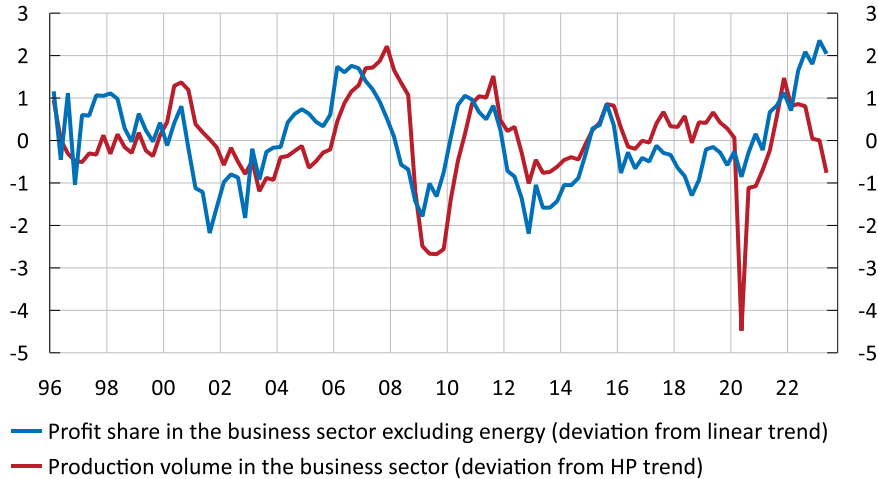
²³ Some components of hours worked (and therefore labour costs), such as administrative staff, are not directly linked to the volume of output and tend to be more or less unchanged over the economic cycle. This also contributes to the fact that output per hour (and thus unit labour costs) varies with the volume of output.

²⁴ The profit share falls if the percentage increase in unit labour costs is higher than the percentage increase in value-added prices. However, as long as unit labour costs are passed on to prices on a krona-for-krona basis, unit profits do not fall.

the change in the profit share is highly correlated with growth in the volume of output. According to both measures, the recent development of the profit share stands out compared to normal cyclical patterns. This, in turn, suggests that profits have increased relatively quickly compared to unit labour costs, even taking economic activity into account.

Figure 9. Profit share in relation to economic activity

Standard deviation



Note. Note that the profit share is expressed as a deviation from a linear trend and thus the level cannot be compared over time. The purpose of the chart is only to illustrate the correlation with economic activity. The profit share is shown in figure 8.

Source: Statistics Sweden and own calculations.

Different measures provide a mixed picture of the significance of profits for inflation

Profit margins and operating margins according to companies' financial reports are key metrics that are also mentioned in the discussion of the role that costs and profits have played in inflation dynamics. The profit margin measures the unit profit in relation to the end price (which is the sum of input costs, labour costs and profits per unit).²⁵ Variations in the profit margin may thus reflect variations in unit profits, unit labour costs or input costs. For example, rising input prices mean that the profit margin will fall unless prices increase more than on a krona-for-krona basis.²⁶ A constant

²⁵ The profit margin and the operating margin are similar to the profit share, which measures profits in relation to the value-added price, i.e. the sum of labour costs and profits per unit. The difference between the operating margin and the profit margin is that the profit margin only captures the unit profit in relation to the end price, while the operating margin also includes financial items such as taxes and interest in addition to the unit profit. Figure 10 shows an indicator based on operating margins.

²⁶ This also applies to the operating margin, the difference being that the profit must also cover taxes and interest. This can be illustrated by a simple example where a product costs SEK 30 and the price is divided equally between input costs, labour costs and profits (10 + 10 + 10). The profit margin is then $10/30 \approx 33\%$. If input costs increase by SEK 10 and the price is raised krona-for-krona to SEK 40, the unit profit is unchanged (SEK 10) but the profit margin falls to $10/40 = 25\%$. For the profit margin to remain constant, the profit needs to increase to SEK 15 ($15/(20 + 10 + 15) \approx 33\%$).

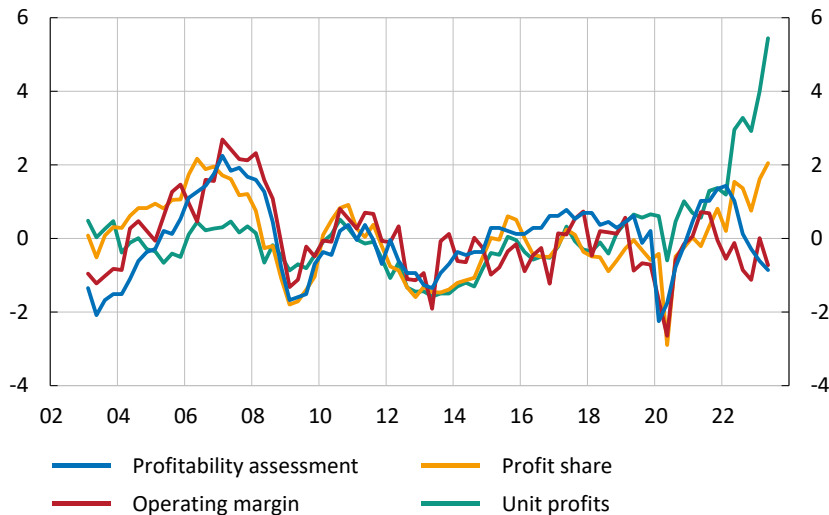
profit margin therefore means higher profits per unit if the price of input goods increases.

Another indicator used to illustrate the role of profits in inflation dynamics is the profitability assessment of companies in the Economic Tendency Survey.²⁷ Profitability is a broad concept and can reflect everything from unit profits to operating margin or operating result. A higher profitability assessment may thus reflect higher profits per unit but also lower production costs or rising volumes.

A rough comparison of the various indicators of profits and profitability used in the debate shows that, despite their differences, they normally provide a consistent picture of profit growth (see figure 10). At present, however, the picture differs depending on the measure used and it is therefore necessary to recognise the differences.

Figure 10. Correlation between indicators of profit and profitability

Standard deviations



Note. The scale is normalised so that the mean value is 0 and the standard deviation is 1. Profit share, unit profit and profitability assessment refer to an average for the manufacturing sector, trade sector, hotels and restaurants, transport, and professional, scientific, technical and administrative services. The unit profit and profitability assessment have been weighted using value added and the profit share is calculated by aggregating labour costs and value added at current prices. Operating margin is a rough measure that shows the proportion of companies reporting an operating margin that is higher than the historical median. The proportion is based on company reports for 30 companies in the manufacturing sector, services and trade. All series are seasonally adjusted and all but the profitability assessment are expressed as deviation from a linear trend.

Sources: National Institute of Economic Research, Macrobond, Statistics Sweden and own calculations.

The indicator with operating margins started to fall at the end of 2021, while unit profits continued to increase at a rapid pace. This suggests that it was rapidly rising production costs (input prices or unit labour costs) that started to contribute to lower

²⁷ See, for example, NIER (2022a).

profits in relation to turnover (unit profits in relation to end price).²⁸ The profitability assessment moderated from a high level in the second half of 2022. One possible reason why the profitability assessment moderated later than the operating margins is that sales volumes remained at a high level. The decline in the profitability assessment in recent quarters may reflect both higher production costs and lower sales volumes as demand has slowed down. However, the profit share has not moderated. While unit labour costs have risen faster in the wake of declining volumes and lower productivity growth (see discussion above), unit profits have also risen rapidly.

It is not obvious which measure of profit growth is most appropriate as a starting point for a discussion of the significance of profits for inflation. However, it can be noted that a constant operating margin would currently imply that firms are passing on the costs of rising import and energy prices on a more than krona-for-krona basis, which risks causing prices to continue to rise on a broad front. The profit share basically contains the same information as unit profits in combination with unit labour costs. However, a constant profit share may mask a wage-price spiral in which both unit labour costs and unit profits are increasing faster than what is consistent with the inflation target. From that perspective, it is better to look at the actual growth in both unit labour costs and unit profits, and use the profit share as a starting point to identify long-term trends and any deviations from them. Whichever measure is used, it is important to take into account cyclical variations and other temporary effects.

A further aspect to be taken into account in the discussion of the significance of costs and profits for the development of inflation is that the National Accounts provide a narrow picture of costs and a broad definition of profits. Operating surplus is not a measure of pure profits but also includes the cost of capital assets which, like labour, are used in the production process. One of the implications of this is that the operating surplus should also cover companies' interest costs. The breakdown between costs and profits also needs to consider that profits do not necessarily occur in the same period as costs. High unit profits may thus reflect pure profits, expected future production costs or actual costs of capital assets used in the production process.

3.3 Developments differ from sector to sector

The composition of domestic inflation varies between different parts of the business sector. Given the sometimes dramatic development of electricity prices, the difference between the energy sector (which includes Svenska Kraftnät) and other sectors is particularly clear. For the energy sector, higher electricity prices basically only mean higher unit profits. For other parts of the business sector, higher electricity prices contribute to higher input costs and lower value added, meaning less to allocate between labour costs and profits if costs are not passed on krona-for-krona.

Another distinction is between the export-oriented manufacturing sector and sectors that sell their products to a greater extent on the domestic market, such as consumer-related sectors. For companies in the export industry, higher global prices (and a

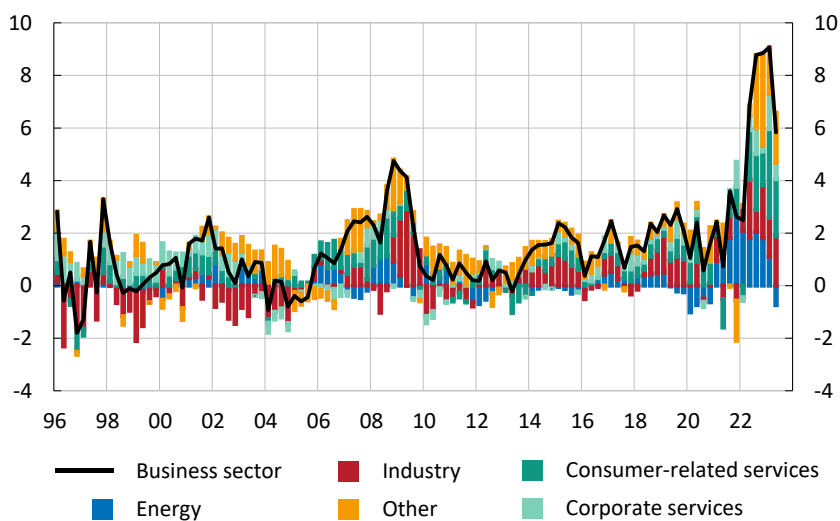
²⁸ The decline in operating margins followed a period of rapidly rising producer prices as measured by the producer price index.

weaker krona) generally mean that export prices (in Swedish kronor) increase more than the costs of more expensive imports and that there is more to allocate (per unit) between labour costs and profits.²⁹ However, for sectors that sell their goods and services on the domestic market, there is generally no room for price increases when import prices rise. Thus, in contrast to the export industry, higher import prices normally limit the overall scope for labour costs and profits (per unit).

The steep increase in domestic inflation in the Swedish economy was initially largely linked to high contributions from the energy sector and the manufacturing sector (see figure 11). Gradually, however, other parts of the business sector have accounted for an increasing share of the price upturn. In the second quarter of 2023, other parts of the business sector accounted for around 4/5 of the contribution to domestic business sector inflation, with significant contributions from consumer-related services and “other sectors”. The contributions from construction and financial and insurance services have been particularly important in driving price increases in “other sectors” in the recent year.

Figure 11. Contribution to value-added prices in the business sector

Annual change, per cent and percentage points respectively



Note. Contributions are calculated as $\Delta^4 price_t^i * weight_{t-4}^i$. Consumer-related services refers to trade, transport, hospitality, arts, recreation, entertainment and other services. Corporate services refers to professional, scientific, technical and administrative services and information and communication. Others include construction, real estate services, finance and insurance, agriculture and statistical discrepancies.

Sources: Eurostat, Statistics Sweden and own calculations.

The distribution of labour income and profits varies between sectors

Value-added prices in consumer-related services have been rising rapidly recently (see figure 12). Developments since the pandemic have been characterised by large swings in both labour costs and unit profits. In the second quarter of 2020, unit labour costs

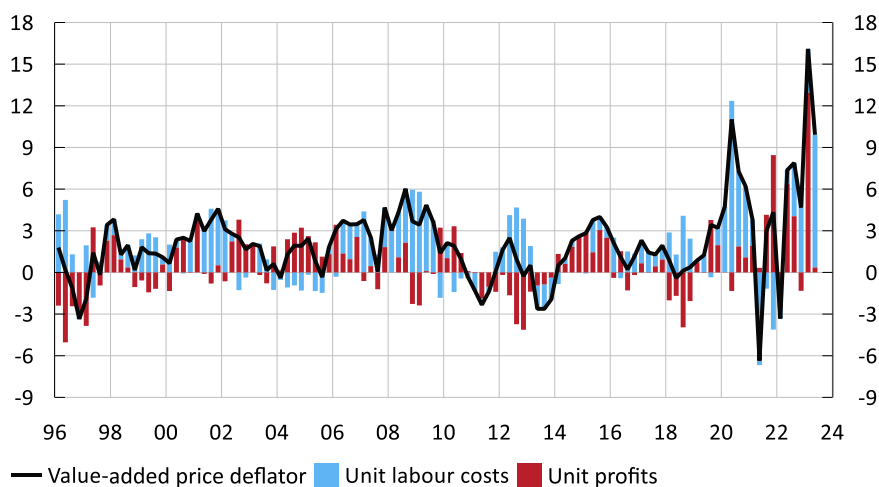
²⁹ To the extent that this does not involve a deterioration in the Swedish terms of trade, for example through higher oil prices.

rose suddenly as large parts of the economy shut down and productivity fell. The rise in unit labour costs was partly temporary and, one year later, the level had fallen back almost as much. Annual growth in value-added prices in consumer-related services has been high since the second quarter of 2022, shooting up to 16 per cent in the first quarter of 2023, but then declining to just under 10 per cent in the second quarter. The price increases in 2022 partly reflected the fact that unit labour costs started to rise as productivity growth shifted from high growth in 2021 to fall in the second half of 2022. This, in turn, can be linked to the fact that growth in production volumes stalled while the number of hours worked continued to increase. Only in the second quarter of 2023 did the number of hours worked also start to fall, but the decline in production volume was still larger and productivity thus continued to decrease.

The overall picture of weak volume growth, a continued increase in the number of hours worked and rapidly rising profits and value added has been difficult to interpret. One possible partial explanation for rapidly increasing value-added prices is that falling input prices have provided more room for manoeuvre in the context of given end prices. This hypothesis finds some support in the fact that the contribution of domestic inflation to consumer prices rose sharply in the first half of 2023, while imported inflation fell back (see figure 2).

Figure 12. Price developments in consumer-related services

Annual change, per cent and percentage points respectively



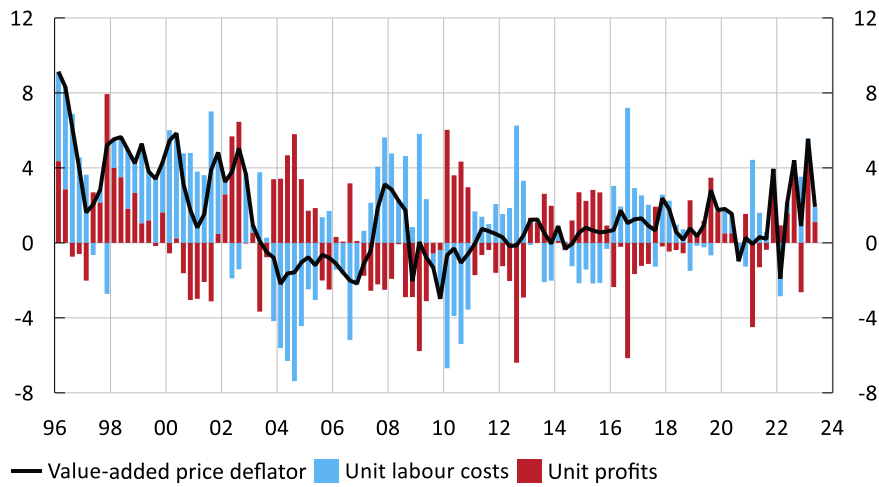
Note. Consumer-related services refers to trade, transport, hospitality, art, recreation, entertainment and other services.

Source: Statistics Sweden and own calculations.

In contrast to developments in consumer-related sectors, post-pandemic growth in profits and labour costs has been less pronounced in corporate service sectors (see figure 13). The sector's value-added prices have thus contributed less to the high domestic inflation in the business sector as a whole. However, rising value-added prices mean that any cost increases resulting from rising input prices have been passed on to the next stage.

Figure 13. Price developments in corporate services

Annual change, per cent and percentage points respectively



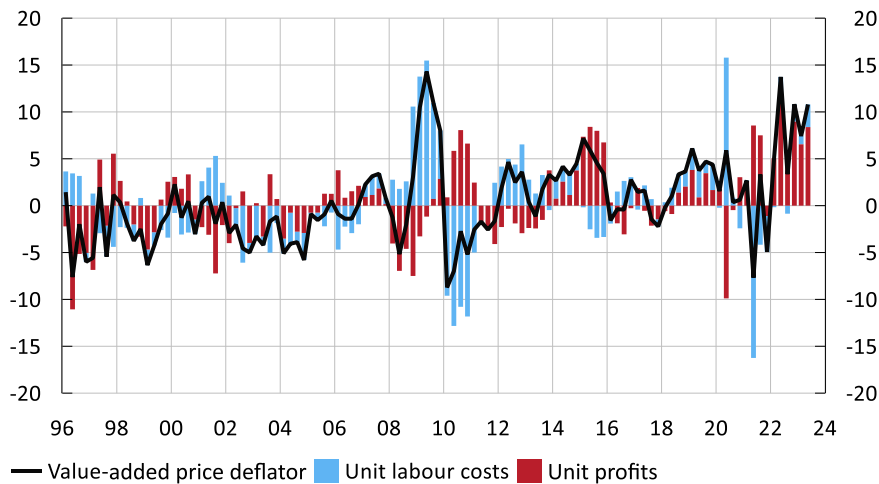
Note. Corporate services include professional, scientific, technical and administrative services and information and communication.

Source: Statistics Sweden and own calculations.

Rapidly rising value-added prices in the manufacturing sector after the pandemic essentially reflect only fast rising unit profits (see figure 14). Unit labour costs surged during the pandemic lockdowns but the effect was largely temporary, as evidenced by the negative rebound in growth one year later. An overall interpretation of price, cost and profit developments in the manufacturing sector is that rapidly rising global export prices combined with a weak krona has created scope for rapidly rising unit profits on top of unit labour cost increases in line with the average since the financial crisis.

Figure 14. Price developments in the manufacturing industry

Annual change, per cent and percentage points respectively

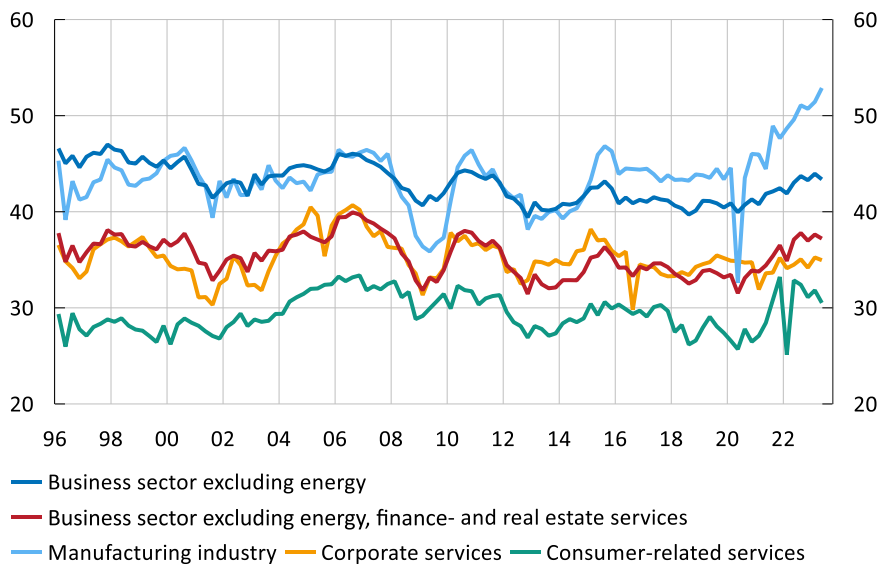


Source: Statistics Sweden and own calculations.

Relatively rapid increases in unit profits relative to unit labour costs since the pandemic are reflected in rising profit shares in several sectors of the business sector. The increase is particularly prominent in the manufacturing sector (see figure 15). The profit share in the manufacturing sector is high in a historical perspective and thus the increase is not related to a correction from a low level following the pandemic. Although the profit share has also risen slightly in consumer-related services and in the business sector as a whole (excluding energy), it has remained close to historical averages. The profit share in corporate service sectors is also in line with the historical average. Based on the analysis above, which breaks down the profit share into its components, it is clear that the profit share in the manufacturing sector reflects rapidly rising unit profits, while the profit share in consumer-related services reflects both rapidly rising unit labour costs and unit profits. At the same time, the profit share in corporate service sectors reflects a development in which neither prices, unit labour costs nor unit profits stand out as much compared to historical patterns.

Figure 15. Profit share in the business sector

Percentage of value added, seasonally adjusted values



Note. Profit share refers to operating surplus as a proportion of value added. Consumer-related services include trade, transport, hospitality, art, recreation, entertainment and other services. Corporate services include professional, scientific, technical and administrative services and information and communication. Forestry, agriculture, fishing, construction, health and education are not included.

Source: Statistics Sweden and own calculations.

4 Concluding discussion

This study uses the National Accounts to describe and analyse price developments in the Swedish economy since the pandemic. The statistics allow a coherent breakdown between imported and domestic inflation, a breakdown of domestic inflation between labour costs and unit profits, and a decomposition of labour costs into productivity and hourly labour costs. The analysis shows that imported inflation has played a

significant role in price developments in the Swedish economy. At the same time, domestic inflation has also increased rapidly and, in the first half of 2023, the domestic contribution to price increases in household consumption was for example greater than the imported contribution. Rising domestic inflation, in turn, initially reflected increasing unit profits to a greater extent than increasing unit labour costs. However, as production volumes declined and hours worked continued to increase, productivity growth stalled, contributing to higher unit labour costs. High domestic inflation thus reflects a combination of rapidly rising labour costs and profits.

The analysis allows for interpretations and hypotheses based on the correlation between prices, labour costs and profits. For example, the high domestic inflation in several parts of the business sector suggests that it has been possible to increase prices by more than on a krona-for-krona basis due to imported inflation and rising energy prices. This poses a risk of a chain of compensation demands that could contribute to keeping inflation elevated for a longer period. So far, however, rising unit labour costs are mainly the result of firms continuing to increase the number of hours worked despite the slowdown in production volume growth. By being able to raise prices, companies seem, so far, to have been able to avoid a strict trade-off between high unit profits and maintaining/expanding their workforce. This has helped maintain resource utilisation in the labour market and support demand for consumption and investment, which, in turn, may affect the development of inflation. At the same time, declining production volumes may be a sign that demand has become weaker and that companies cannot continue to raise prices without losing volumes. This, in turn, may point to both lower unit profits and a weaker development of the labour market going forward. The analysis indicates that a return to price developments in line with the inflation target, both in Sweden and abroad, implies an adjustment of growth in both unit labour costs and unit profits in the business sector.

However, the analysis does not establish causality. For example, it remains open to interpretation to what extent the high domestic inflation is caused by strong demand and a high acceptance of rising prices, which in turn has created room for increasing unit profits and unit labour costs (retaining employees and raising wages). An alternative interpretation of unit profits, for example, could be that weaker competition or the environment with global supply disruptions has provided companies with greater opportunities to increase their margins. The increase in unit labour costs may, for example, be driven by low underlying productivity growth or by a temporary adjustment of the workforce after a period of labour shortages.

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