Analysis

The contribution of profits and wages to Dutch inflation

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1. Introduction and conclusions

There is much focus on the contributions of profits and wages to inflation. In this analysis, we look at how profits and wages contributed to domestic price pressures in the period up to the end of 2022.[1] In doing so, for the overall economy, we look not only at gross profits (as, for example, this ECB blog does), but we also distinguish, within gross profits, the contributions from depreciation and amortisation, as well as firms' net profits and households' net profits (which includes income from self-employment). We also quantify the contributions of gross profits (defined as value added minus labour costs)[2] and labour costs to price growth by industry, to the extent the available data permit. Using the same data, we can also show the development in profit margins. These are statistical decompositions of the deflator of value added; without providing any indications the underlying economic dynamics.

Our conclusions are:

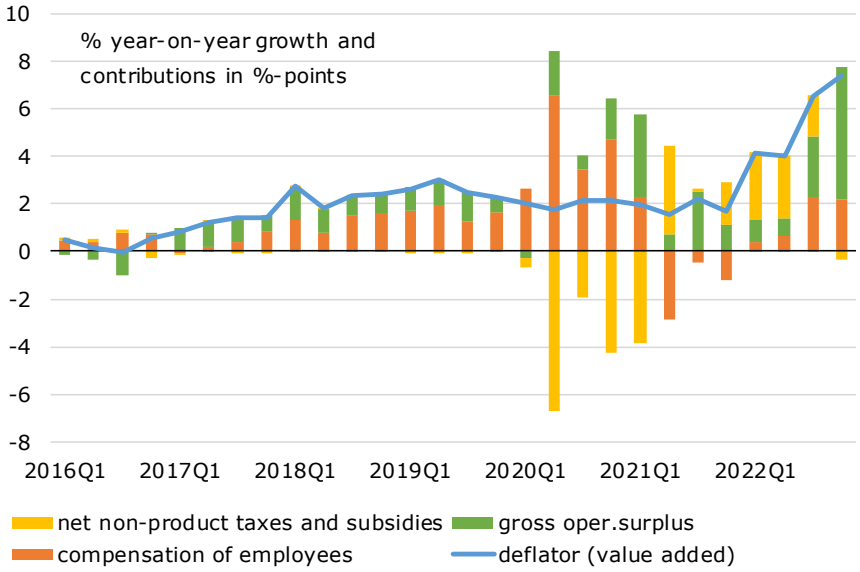
- The contribution of gross profits to domestic price pressure increased in the second half of 2022: it almost equalled the contribution from labour costs in the third quarter and it was more than double the contribution from labour costs in the fourth quarter.[3]
- The perception that gross profits are a major contributor to inflation is based mainly on the fourth quarter of 2022. There is significant heterogeneity between industries in this regard.
- In 2022Q4 the firms' net profits contribution equals about half the total gross profits contribution. The remainder are contributions from depreciation and amortisation, as well as net operating surplus of households. The latter includes self-employment income, which has both a wage and a profit component.
- At the level of industries, the contribution from gross profits (including net taxes) to domestic price pressures in 2022Q4 is concentrated in the mining and quarrying and energy supply industries.[4]
- Profit margins are a widely used indicator of the relevance of profits for domestic price pressures. In 2022Q4 and the preceding six quarters, profit margins grew, following an equally long period of contraction. Again, this indicates that gross profits growth outstripped labour costs growth.

[1] This analysis served as background material for DNB's contribution to the roundtable discussion about profits and wages with the Dutch House of Representative's Standing Committee on Social Affairs (24 May 2023). The source of all data used is CBS Statline.
[2] For the overall economy, gross profits equals gross operating surplus, i.e. it includes depreciation and amortisation, as well as net operating surplus of households (which includes mixed income from self-employment). As this breakdown is not available for each industry and for each quarter, we approximate gross profits *by industry* as value added minus compensation of employees. This measure includes the balance of non-product taxes and subsidies.
[3] As usual, *contributions* are *contributions per unit of product.* For readability, we do not spell this out.
[4] This includes water companies. These are contributions to the (changes in the) associated deflator, which is also lower without these industries.

2. The contributions of profits and wages to price increases

From a statistical perspective, inflation can be divided into components in several ways. In this analysis, we measure inflation through the deflator (i.e. price) of value added, which can be considered domestically created inflation. Consumer inflation, usually measured as HICP, may differ from this, mainly due to the inflation contribution from imported goods such as energy. Here, we break down domestic inflation into the contributions from (1) employee compensation, (2) gross profits, and (3) net non-product taxes and subsidies.[5] Figure 1 shows that the contribution from gross profits increased sharply in the fourth quarter of 2022 (year-on-year change). For this breakdown at the macroeconomic level, several caveats are in order that require explanation.

Figure 1. Inflation and contributions from compensation, gross profits and taxes



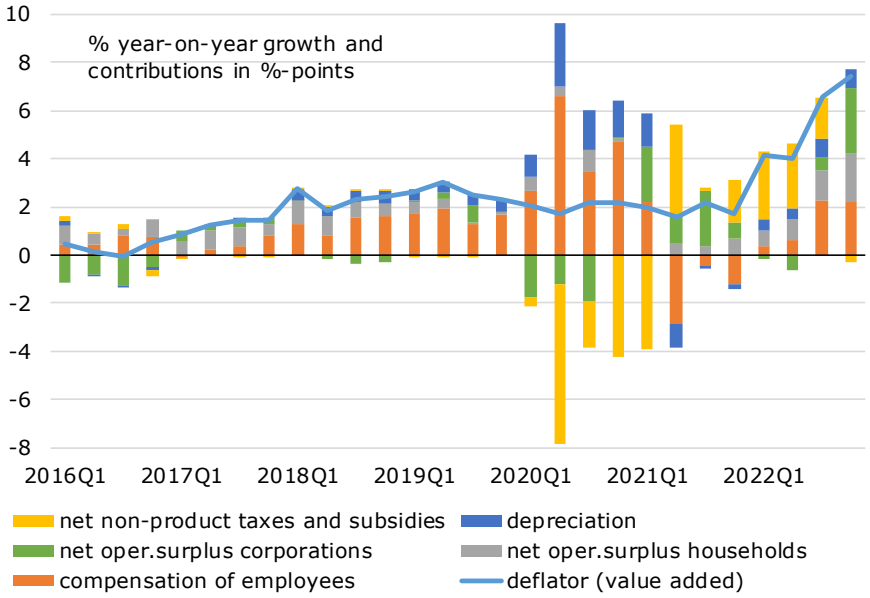
[5] All three components are measured per unit of product. Employee compensation includes social security contributions paid by employers. Gross profits are defined as the gross operating surplus. Non-product taxes and subsidies include such taxes as property tax and cleaning and sewerage charges paid by producers. It also includes agricultural subsidies. Contributions from this net amount were exceptionally large during and shortly after the COVID-19 period, both in a negative and in a positive sense, presumably due to tax deferrals and additional subsidies. Over the 2020-2022 period, the contributions virtually average out to nil.

2.1. Gross profits vs net profits

First, the concept of gross profits has a macroeconomic definition. For gross profits, we use gross operating surplus, i.e. production value minus employee compensation and intermediate consumption, including interest expenses.[6] Gross profits can be broken down into depreciation and amortisation, firms' net profits, and households' net profits, which includes net profits from self-employment.[7] The latter represents mixed income, containing both a wage and a profit component. The distribution between these is unknown. This means that part of gross profits in Figure 1 also includes a wage component. This applies to all self-employed workers, but has become more relevant with the flexibilisation of the Dutch labour market. A case in point are the incomes of ("insourced") self-employed workers in healthcare or construction.

Figure 2 builds on Figure 1, by further breaking down gross profits into firms' net profits, depreciation and amortisation, and households' net profits. (The blue line showing value-added deflator growth is the same as in Figure 1). This shows that in 2022Q4, the contribution from firms' net profits roughly equals half the gross profits contribution. The remainder consists of households' net profits, and depreciation and amortisation. The latter made a minor contribution to inflation in both 2021 and 2022.

Figure 2. Inflation and contributions in more detail



[6] The macroeconomic concept of interest does not necessarily correspond to the concept in business economics. The consumption of banking services falls under intermediate consumption in the national accounts, and the profit concept used in this analysis has therefore already been reduced by firms' interest expenses. As firms in actual reality pay a higher interest rate on invested capital (equity or debt), this reduces their net profit, just as dividend payments do, for example.

[7] Households' net profits is defined as net operating surplus of the household sector (including non-profit institutions serving households), which mainly consists of net profits from self-employment, which has both a wage and a profit component. Statistically, firms can be broken down into financial institutions and non-financial corporations, but this does not affect outcomes to any significant extent. The contribution of financial institutions' net profits to inflation has been small and slightly negative over the past three years.

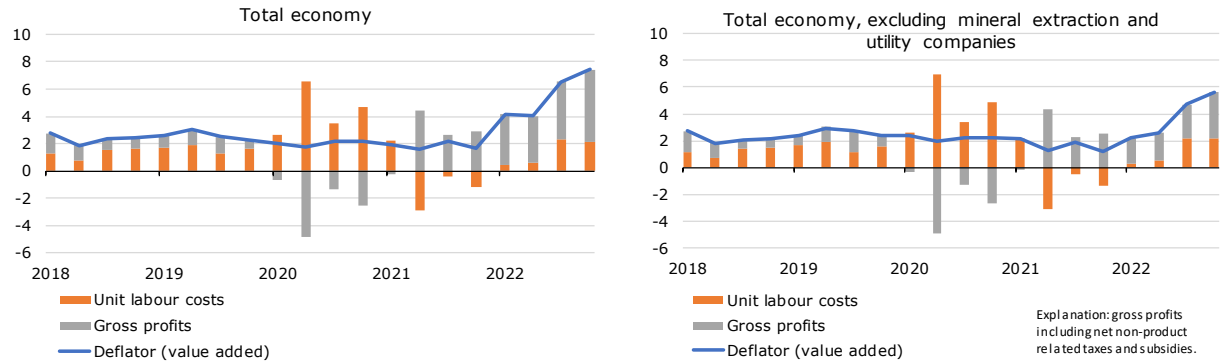
2.2. Deflator and unit contributions – differences between industries

Second, macro analysis masks differences between industries. This becomes apparent if we make similar decompositions as the one shown above for the individual industries for which this data is available. Due to data limitations, these decompositions are less detailed than Figure 1, given that the contribution from net non-product taxes and subsidies cannot be separated from that from gross profits.

First, we examine the mining and quarrying and energy supply industries, for which the recent energy price hike has been significant. To do so, we create the above-mentioned decomposition into gross profits and wages, both for the total economy and for the total economy excluding these industries (which include the water management industry).[8] The difference between Figures 3a and 3b below shows that mining and quarrying, energy supply and water management had an upward effect on overall inflation, particularly in the last four quarters. The contribution from wages (ULC, or unit labour costs) is almost identical in both figures, whereas the contribution from gross profits (including net taxes) decreases sharply if the industries referred to are excluded. Excluding these industries, the contribution from gross profits (including net taxes) in the fourth quarter of 2022 does remain positive and slightly larger than the contribution from labour costs.[9]

Figures 3 a/b. Contributions to inflation: mining & quarrying and energy

% year-on-year growth and contributions in percentage points



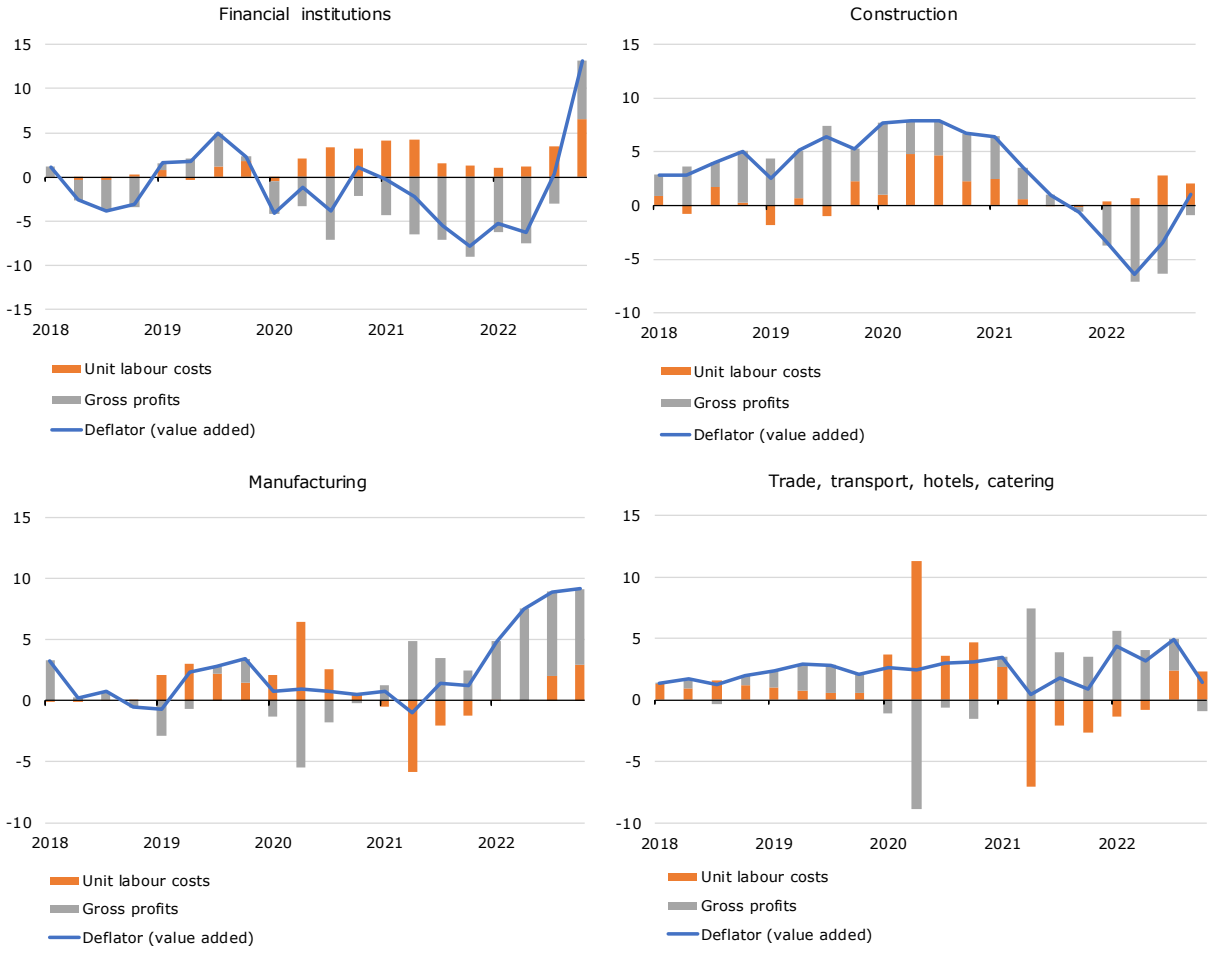
[8] The data required are unavailable for these industries. We therefore subtract industries B to E (for which only sum totals are available) from the total, and add industry C (manufacturing industry) to the outcome. The difference then comprises industries B (mining and quarrying), D (energy supply) and E (water companies and waste management).

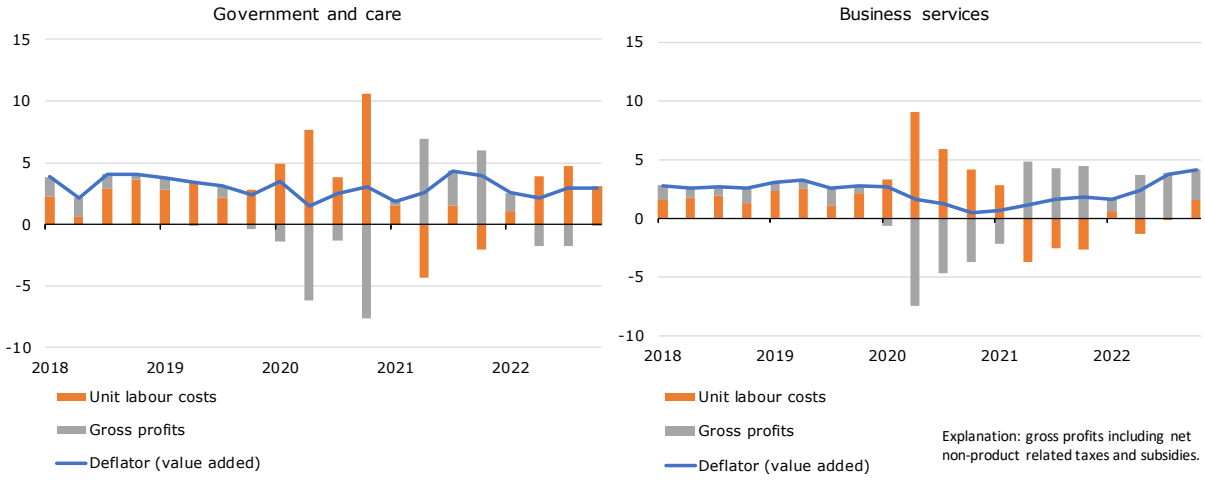
[9] The contribution made by non-product taxes and subsidies, which, as mentioned, is included in gross profits in the industry-level calculations, became rather small at the macro level in the last quarter, following several quarters that showed sharp outliers (Figure 2). Therefore, it is plausible that their effects have also become smaller at the industry level and that the contribution from gross profits and taxes shown in the last quarter consists largely of gross profits.

Sufficient information is also available for a number of other industries to calculate the contributions to inflation in those industries from gross profits (including net taxes) and wages. Figure 4 breaks down the deflator of value added into the contribution from gross profits (including net taxes) and wages (ULC) for the six largest Dutch industries. The industries shown are manufacturing, construction, trade, transport & hospitality, financial services, business services, and government & healthcare. This shows that the contributions from both gross profits and labour costs to inflation have been rising recently in most industries. In manufacturing and business services, the contribution from labour costs is relatively small. Zooming in on the fourth quarter of 2022, we can see that the contribution to inflation from gross profits in construction and in trade, transport and hospitality was negative.

Figures 4a to 4f. Contributions to inflation for largest Dutch industries

% year-on-year growth and contributions in percentage points





Explanation: gross profits including net non-product related taxes and subsidies.

3. Profit margins as an indicator of the role of profits in price pressure

An alternative way of examining the importance of profits for domestic price pressures, based on the same data, is looking at the macroeconomic profit margin. This is the ratio of the deflator of value added to unit labour costs. Its change shows the extent to which prices charged by producers for their value added, on average, are rising faster than their labour costs. This is thus an indicator of how much gross profits growth outstrips or lags behind labour cost growth. It is important to note that profit margins calculated in this way provide no indication of the actual market power or competitiveness of firms (and of the self-employed). Furthermore, several caveats also apply to the profit concept used for this indicator. Nevertheless, it is a widely used measure to indicate the macroeconomic relationship between profit growth and wage growth.

Figure 5. Developments in profit margins (overall Dutch economy 2018-2022)

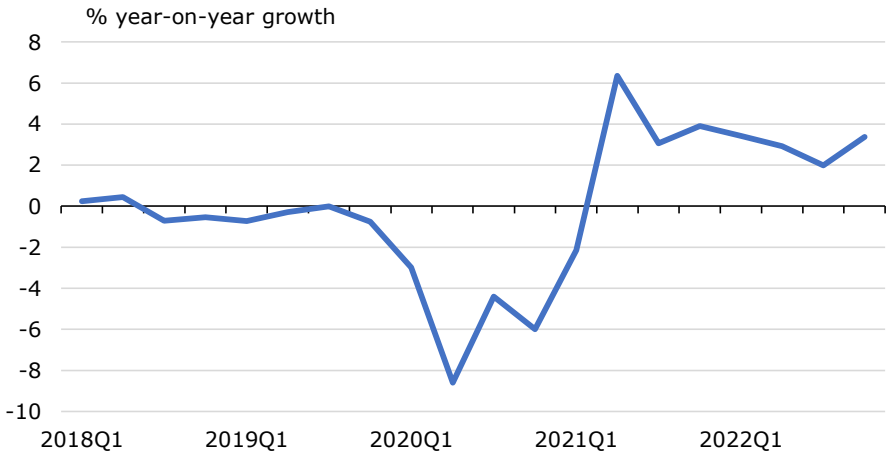


Figure 5 shows the developments in this macroeconomic profit margin. Its sharp fluctuation in 2021-22 is related to the introduction and reversal of COVID-19-related subsidies and tax exemptions, which are included in the profit margin in this calculation. Their effect roughly levels out in the last quarter of 2022. The figure shows that the price of value added rose faster than labour costs starting in the second quarter of 2022. This means that since then, unit gross profits grew faster than unit labour costs.

One of the underlying factors seems to be the soaring energy prices. Viewed at the macroeconomic level, output prices, including prices of intermediate products, have in recent years developed as a more or less fixed mark-up on total costs of labour and intermediate consumption combined, including energy. This appears from the development of total production value (output) relative to total input value (employee compensation plus intermediate consumption), in current prices. However, growth in costs of intermediate consumption has recently outstripped growth in labour costs. If output prices change at more or less the same rate as costs, this may have contributed to the increasing profit margins (price of value added relative to labour costs) as shown in Figure 5. This would also explain the increasing contribution of gross profits to inflation as shown in Figure 1.[10]

[10] Also see: Banca d'Italia, Occasional Paper No. 770, The profit share and firm mark-up: how to interpret them.