

Documentation Note

Pass-through from factor costs to consumer prices

About the publication

Documentation Notes provide concise documentation of analyses or calculations featured in the Monetary Policy Report, speeches, and other publications where opportunities for further elaboration are constrained. An important goal of the Documentation Notes is to make the analyses more accessible to a broader audience, thereby contributing to verifiability and transparency. In some cases, related code and datasets will also be included.

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Pass-through from factor costs to consumer prices

This analytical note outlines the methodology used to compute the impulse-response functions presented in Charts C and D of the box on factor cost pass-through in *Monetary Policy Report 2/25*.

We apply a local projection (LP) framework to examine how changes in labour costs and intermediate input prices are transmitted to the consumer price index (CPI) for goods and services, respectively. For goods, consumer price changes are related to factor costs in two key industries: “retail and wholesale trade”, which reflects the services component embedded in goods prices, and “food products, beverages and tobacco”, which captures price pressures stemming from domestic goods production. Given that a substantial share of consumer goods in Norway are imported, we also account for imported consumer goods prices, measured “at the dock”.

For services, CPI changes are linked to a composite measure of factor costs across the services sector, excluding the industries “retail and wholesale trade”, “electricity production”, “real estate services”, and “financial services”.

For both the goods and services subindices, we estimate the following specification:

$$\ln P_{i,t+h} - \ln P_{i,t-1} = \theta_{i,h} + \alpha_{i,h} \Delta \ln(W_{j,t}) + \beta_{i,h} \Delta \ln(P_{j,t}^V) + \varphi'_{i,h} X_{i,t-1} + \epsilon_t, \quad h = 1, \dots, 16 \quad (1)$$

Here, $P_{i,t}$ denotes the consumer price subindex for consumption category i (goods and services, respectively), $W_{j,t}$ represents labour costs per hour worked in the relevant production sector aggregate j , as specified above, while $P_{j,t}^V$ refers to the price of intermediate inputs, measured as the ratio of intermediate input values at current prices to fixed prices.

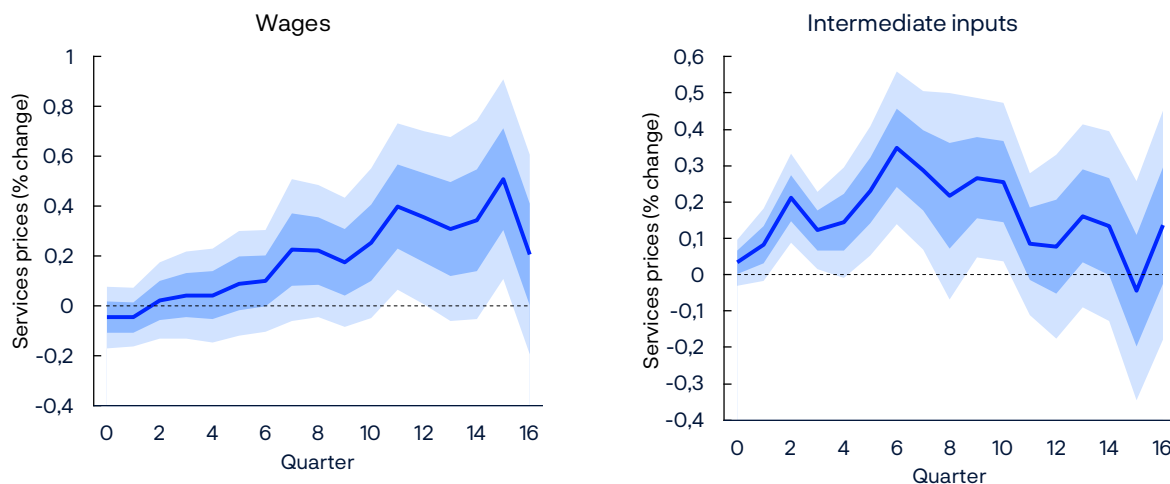
The vector X_{t-1} includes control variables: the lagged four-quarter growth rates of consumer prices, labour costs, and intermediate input prices, in addition to labour productivity and seasonal dummies. For the regressions concerning goods prices, we also include changes in the prices of imported consumer goods. All data are sourced from the quarterly national and international accounts (Statistics Norway).

For each horizon h and for both consumer price subindices, we estimate the parameters in equation (1) using ordinary least squares (OLS). The coefficients α_h and β_h capture the cumulative impact on the price level after h quarters from a one-time quarterly change in wages per hour and intermediate input prices, respectively. Based on these estimated

coefficients, we derive the impulse-response functions for consumer prices in services and goods, as illustrated in Charts C and D.

C Impulse from factor prices to consumer services prices

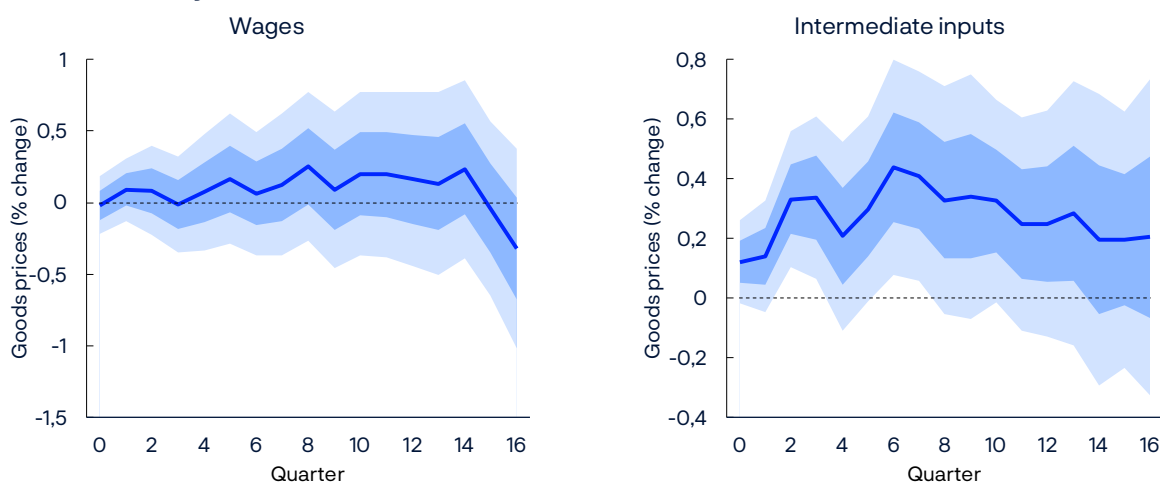
Response to a 1% change in the factor price in services



Source: Norges Bank

D Impulse from factor prices to consumer goods prices

Response to a 1% change in the factor price in retail trade and the food, beverage and tobacco industry



Source: Norges Bank