

Forecasting inflation using input-output model. Sources of errors.

Topic: IO Theory: Input-Output Price Model

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(1) the research question

The presented considerations are an attempt to verify the possibility of using input-output tables for modeling and, as a consequence, forecasting inflation. The conclusions help to understand the price formation mechanisms, especially exchange rate pass-through.

(2) the method used

The study consists in an attempt to reproduce the historical values of the commonly used HICP index by on the input-output price model. The procedure involves ex post solution of input-output price model for an open economy, and then applying appropriate weights to calculate a macroeconomic deflator of household consumption. In the experiment it was assumed, that the exogenous variables of the price model (unit value added and prices of imports) have been perfectly foreseen, and the parameters of the model were adopted at the level of the base year. Forecasts errors were decomposed into three components. These are:

- 1) change in parameters of the price model
- 2) the specificity of household expenses
- 3) differences in the HICP estimation method and household consumption deflator.

(3) the data used

The procedure was described, sources of errors were also indicated and their scale was assessed using the data for the Danish economy. Statistics Denmark provides input-output tables distinguishing 117 sectors of the economy and covering the years 1966 - 2014, expressed separately in current and previous year prices.

(4) the novelty of the research.

The proposed procedure is significantly different from the most frequently used methods of forecasting inflation, which describe the macroeconomic price indicators (with higher than annual frequency) using stochastic models. A precise description of the price formation process is crucial for decisions made by central banks, which is why the most intense work is mainly focused on studying the pass-through mechanisms of exchange rate fluctuations on domestic prices. Input-output models create more opportunities to conduct analyzes taking into account price changes in individual markets. Their advantages are: clearly defined cost formula, high detail and simple construction. That's why i-o price models also serve as tools for investigating price transmission mechanisms. This time these mechanisms are analysed as forecast errors.