



# Multilateral ECM (Energy Cost Monitoring)

Nomura Lab at Keio Economic Observatory (KEO), Keio University, Tokyo

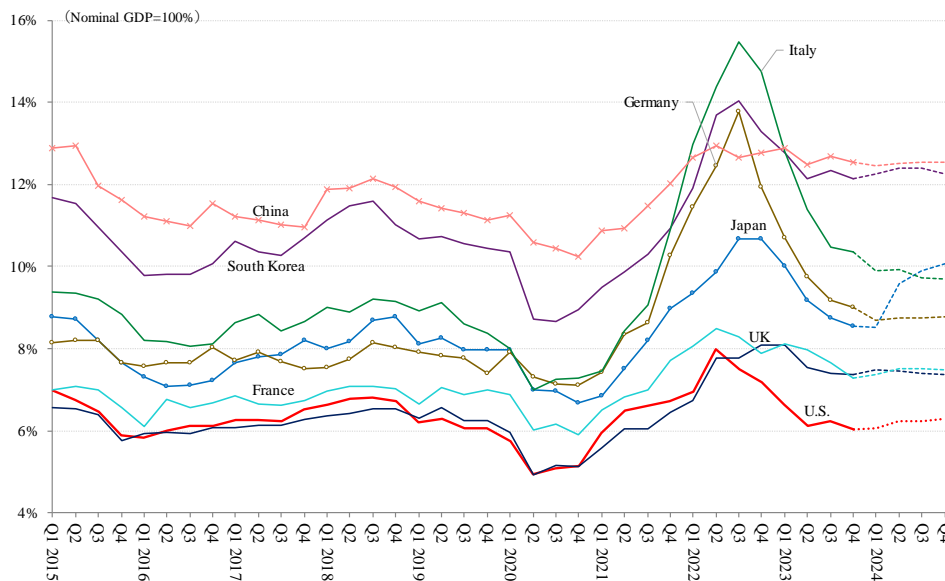
ECM\_202404<sup>1</sup>

May 4, 2024

Koji Nomura, Sho Inaba, and Mansaku Yoshida

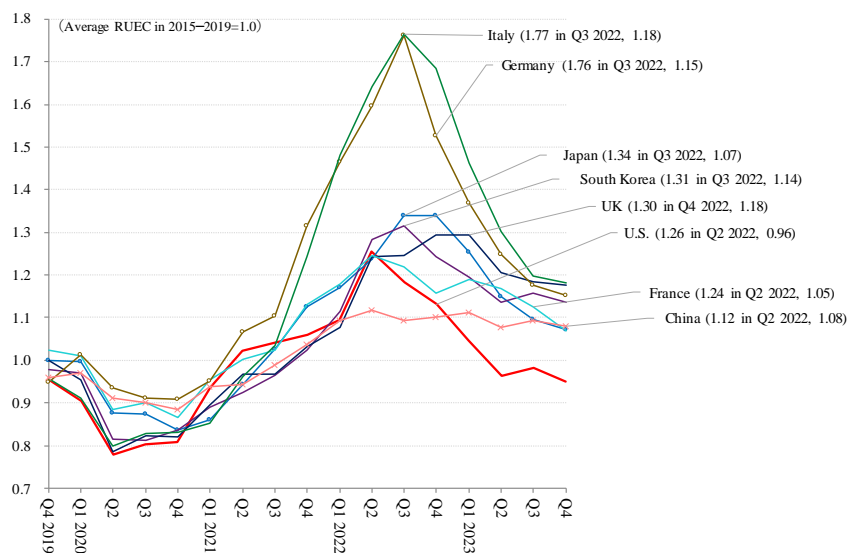
## 1 RUEC (Real Unit Energy Cost)

### 1.1 RUEC Levels



Unit: Share (GDP at current market prices in each period=100% in each country). Period: Q1 2015–Q4 2024. Notes: The dotted line represents forecasts for Q1–Q4 in 2024. The prices are seasonally adjusted and include taxes and subsidies. The volumes are seasonally adjusted.

### 1.2 Post-Pandemic RUEC Surges

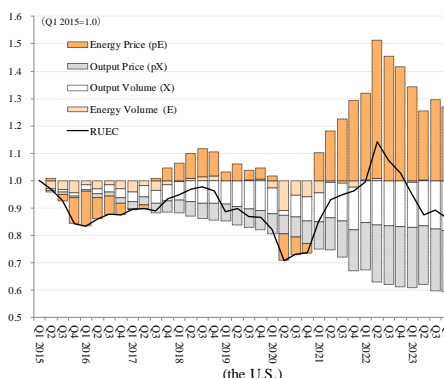
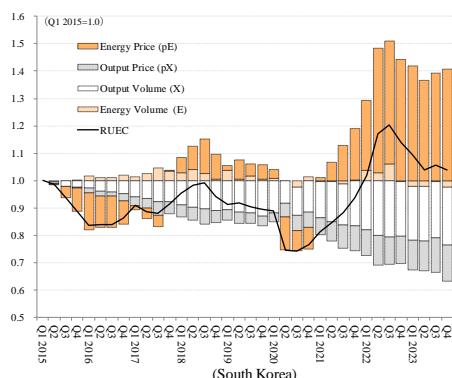
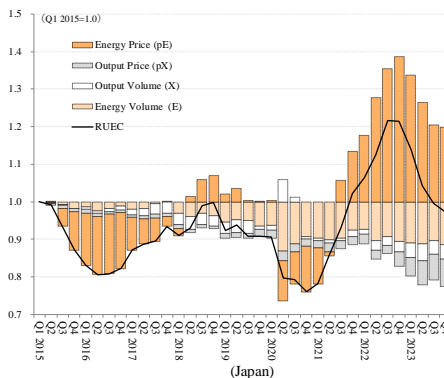
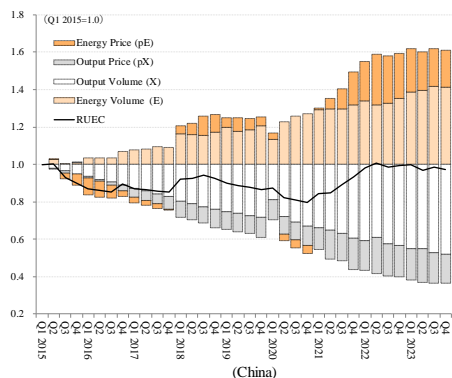


Unit: Index (average RUEC in 2015–2019=1.0 in each country). Period: Q4 2019–Q4 2023. Notes: The counts after the country name indicate the peaks in RUEC surges and the recovered level as of Q4 2023 relative to the pre-pandemic level. The prices are seasonally adjusted and include taxes and subsidies. The volumes are seasonally adjusted.

<sup>1</sup> For the details on the measurement framework and primary data sources, see Nomura, Koji and Sho Inaba (2024) "Post-Pandemic Surges of Real Unit Energy Costs in Eight Industrialized Countries," RCGW Discussion Paper No.70, Research Center on Global Warming, Development Bank of Japan, March. The framework and data will continue to be revised as needed. Further information, please contact us at multilateralecm@gmail.com.

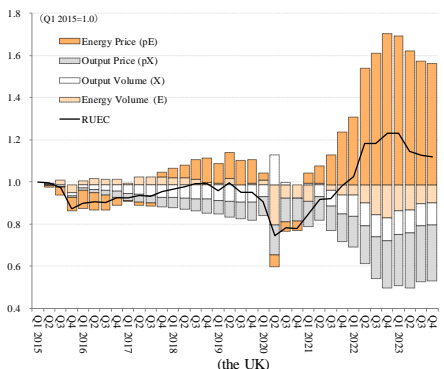
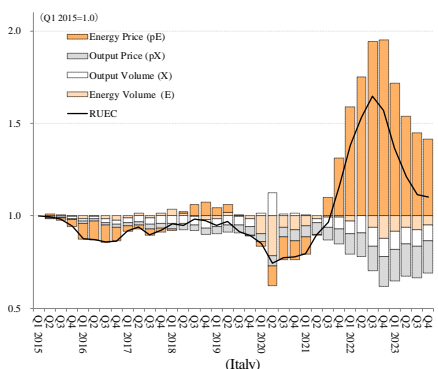
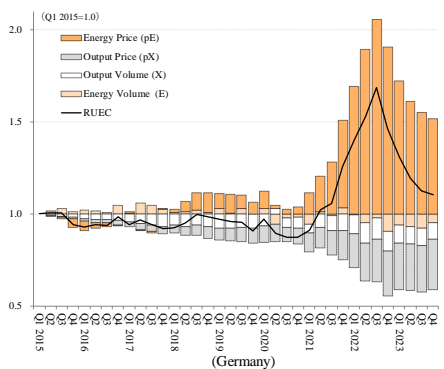
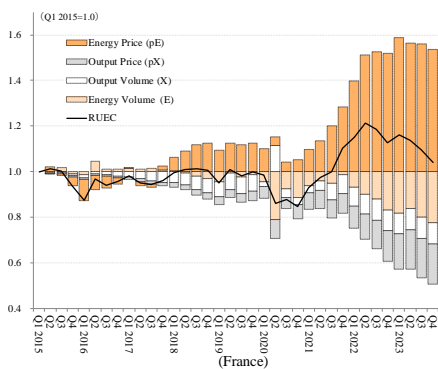
### 1.3 RUEC Decomposition

• Asia (China, Japan, and South Korea) and the U.S.



Unit: Index (RUEC in Q1 2015=1.0). Period: Q1 2015–Q4 2023. Notes: The prices are seasonally adjusted and include taxes and subsidies. The volumes are seasonally adjusted.

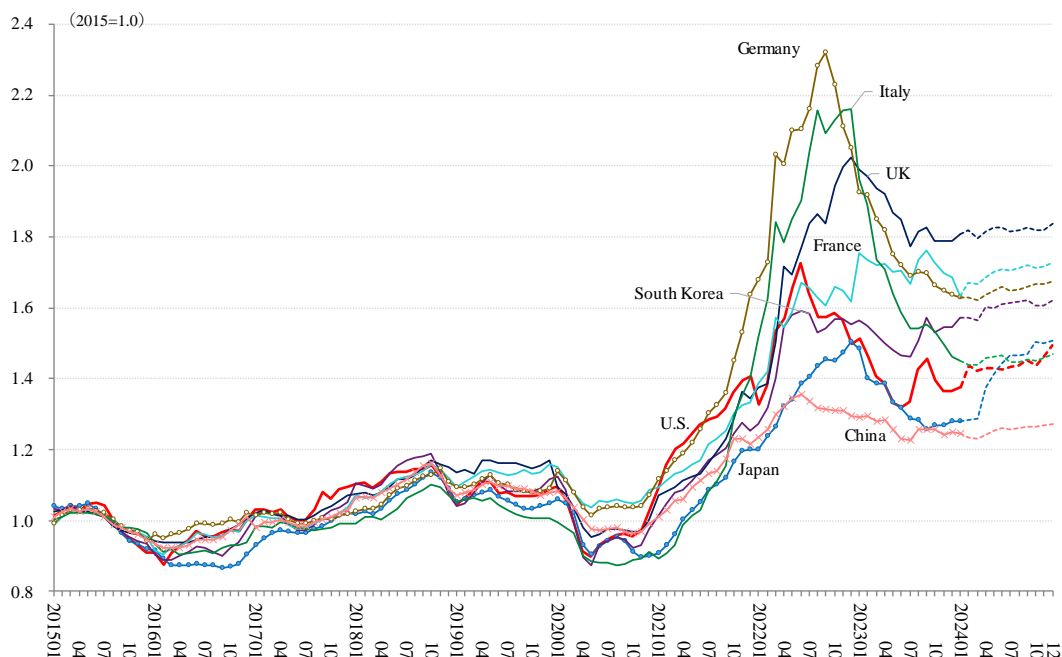
• EU (Germany, France, and Italy) and the UK



Unit: Index (RUEC in Q1 2015=1.0). Period: Q1 2015–Q4 2023. Notes: The prices are seasonally adjusted and include taxes and subsidies. The volumes are seasonally adjusted.

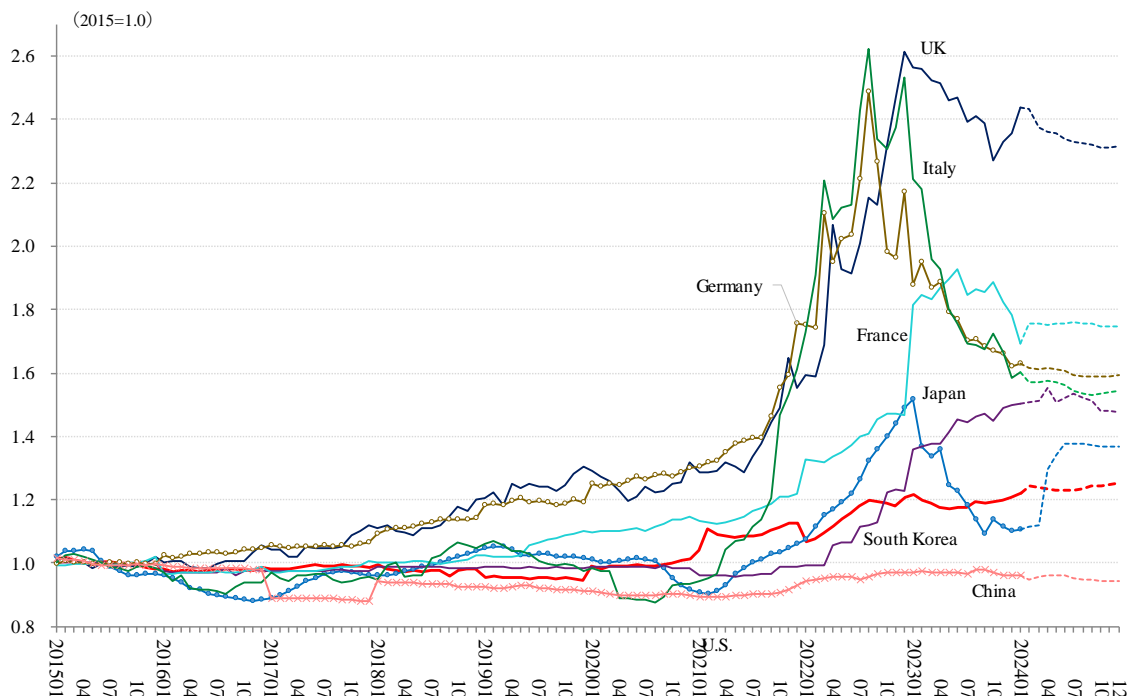
## 2 Energy Prices

### 2.1 Quality-adjusted Energy Prices for Final Use



Unit: Index (average price at local currency unit in 2015=1.0 in each country). Period: January 2015– January 2024. Notes: The dotted line represents forecasts for February–December 2024. Quality-adjusted energy price is defined as the implicit Translog index. The prices are seasonally adjusted and include taxes and subsidies.

### 2.2 Electricity price

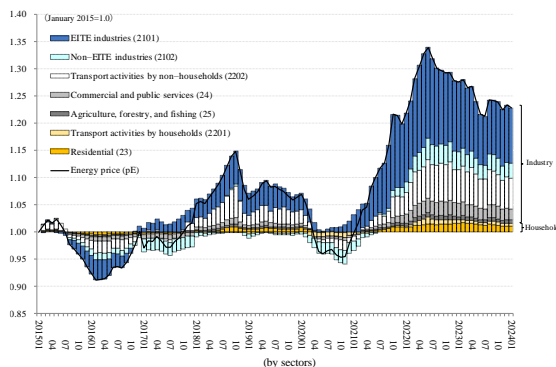
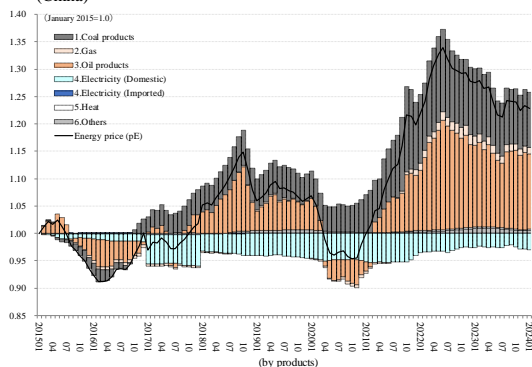


Unit: Index (price at local currency unit in 2015=1.0 in each country). Period: January 2015– January 2024. Notes: The dotted line represents forecasts for February–December 2024. Energy price is defined as the implicit Translog index. The prices are seasonally adjusted and include taxes and subsidies.

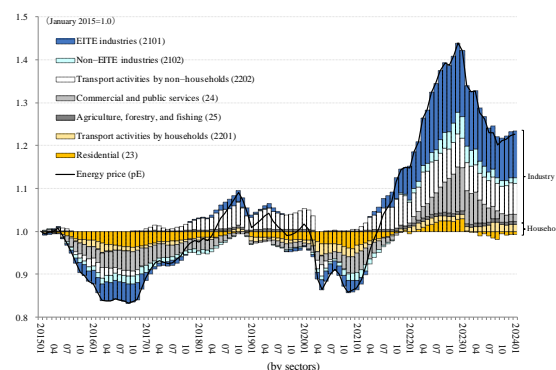
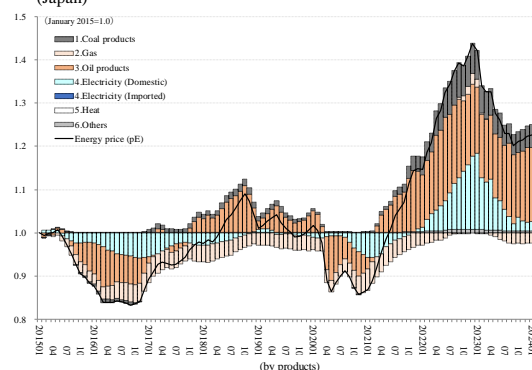
### 2.3 Sources of Energy Price Changes

• Asia (China, Japan, and South Korea) and the U.S.

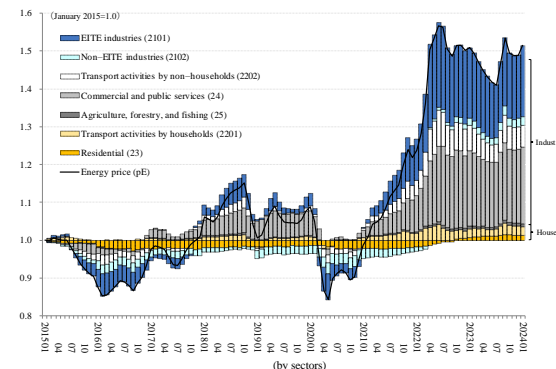
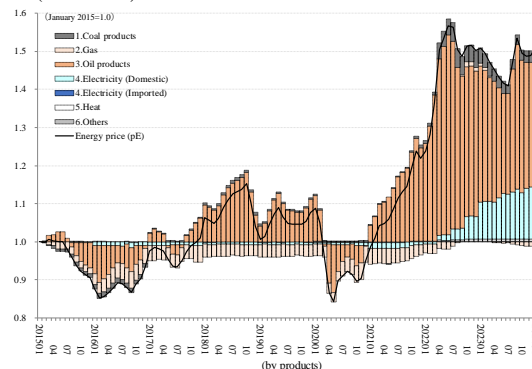
(China)



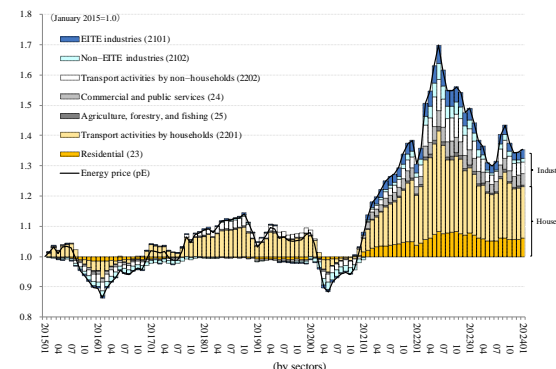
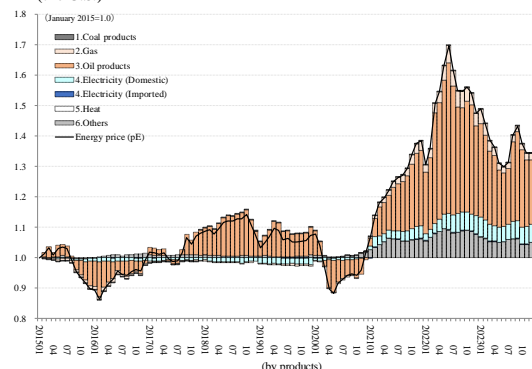
(Japan)



(South Korea)



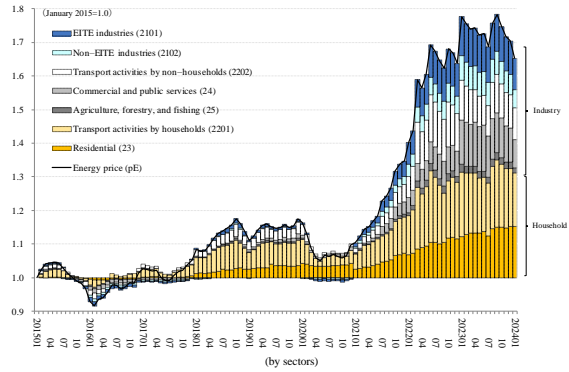
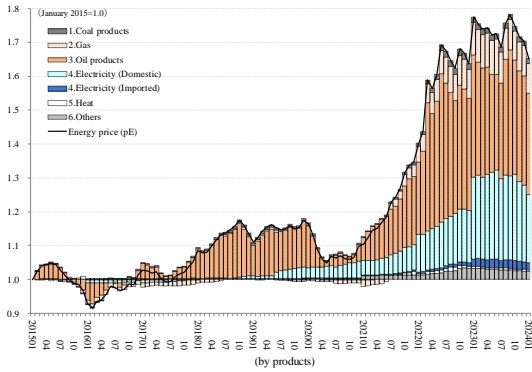
(the U.S.)



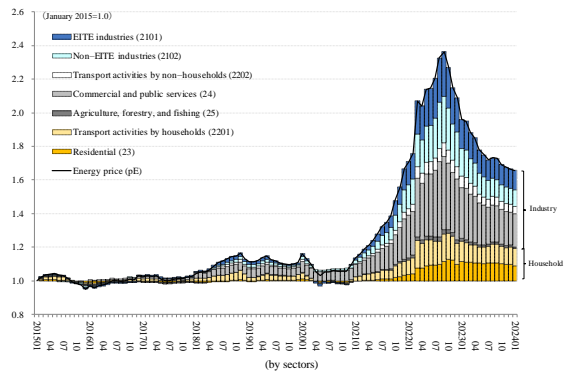
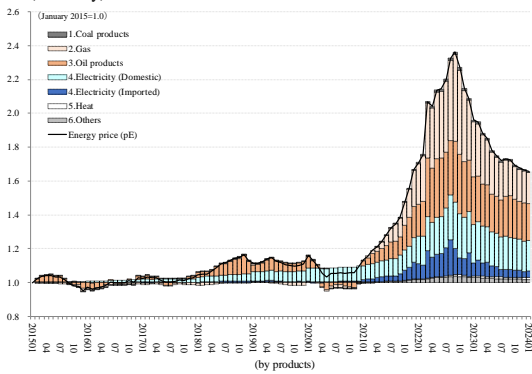
Unit: Index (price at local currency unit in January 2015=1.0 in each country). Period: January 2015– January 2024. Note: The prices are seasonally adjusted and include taxes and subsidies.

• EU (Germany, France, and Italy) and the UK

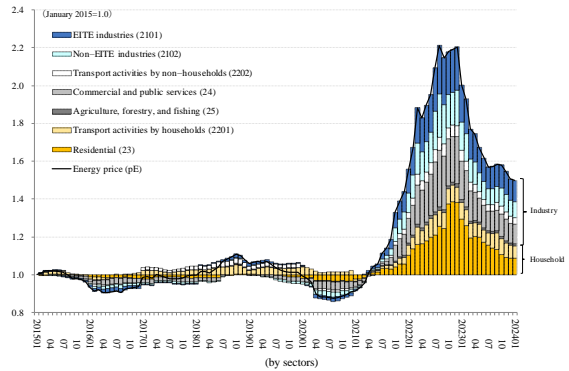
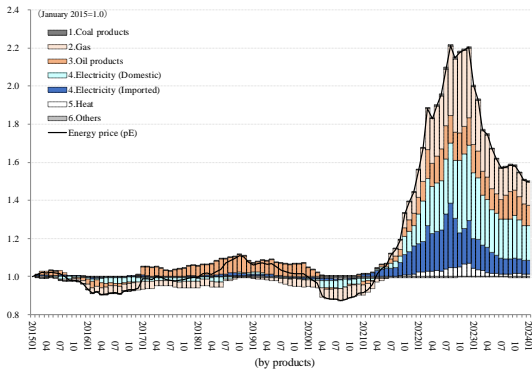
(France)



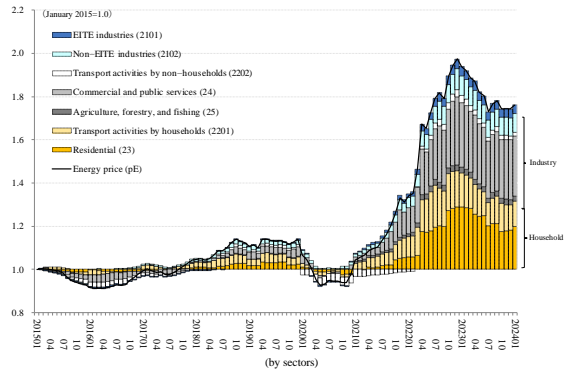
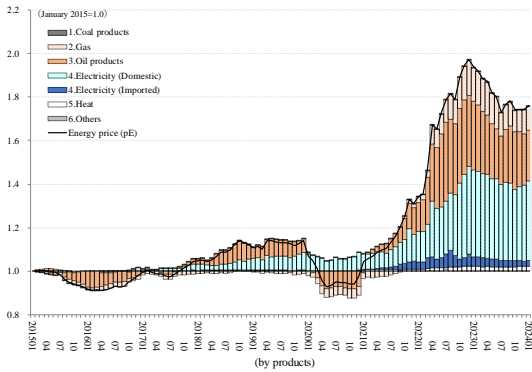
(Germany)



(Italy)



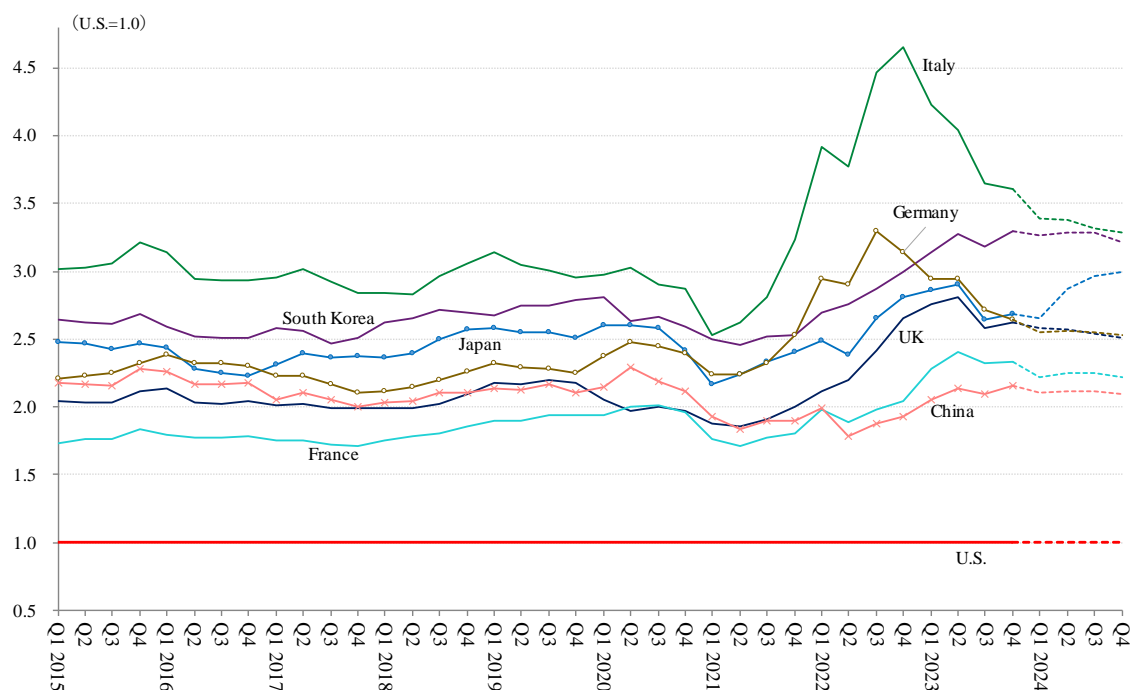
(the UK)



Unit: Index (price at local currency unit in January 2015=1.0 in each country). Period: January 2015– January 2024. Note: The prices are seasonally adjusted and include taxes and subsidies.

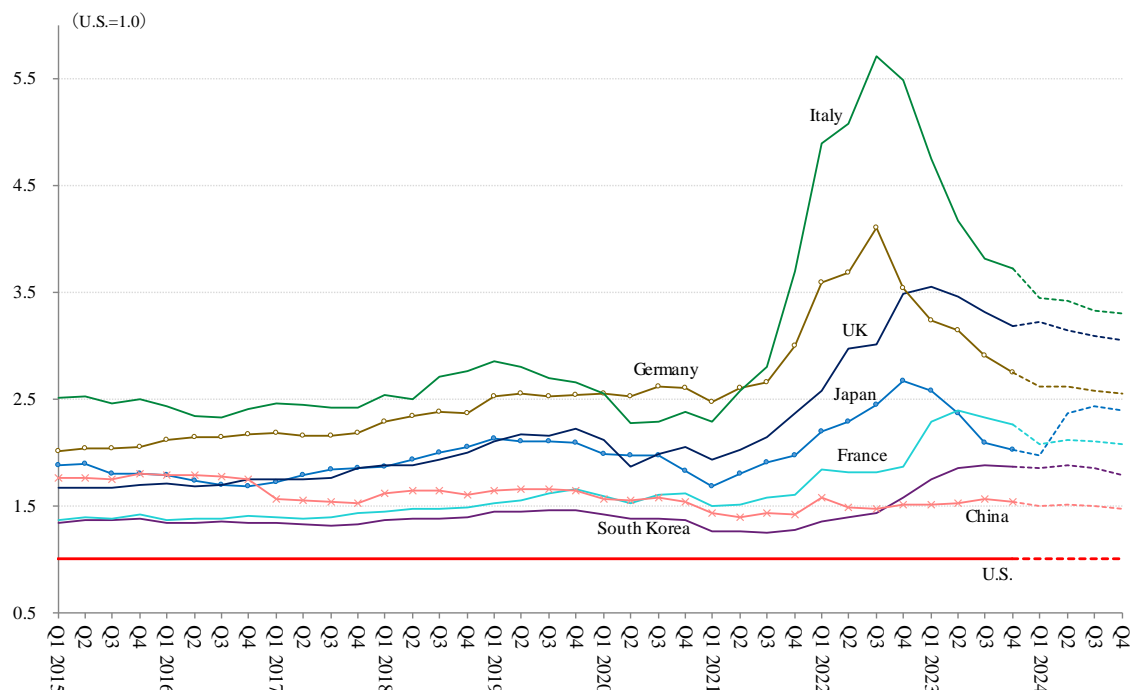
### 3 Real PLI

#### 3.1 Real PLI for Final Energy Use



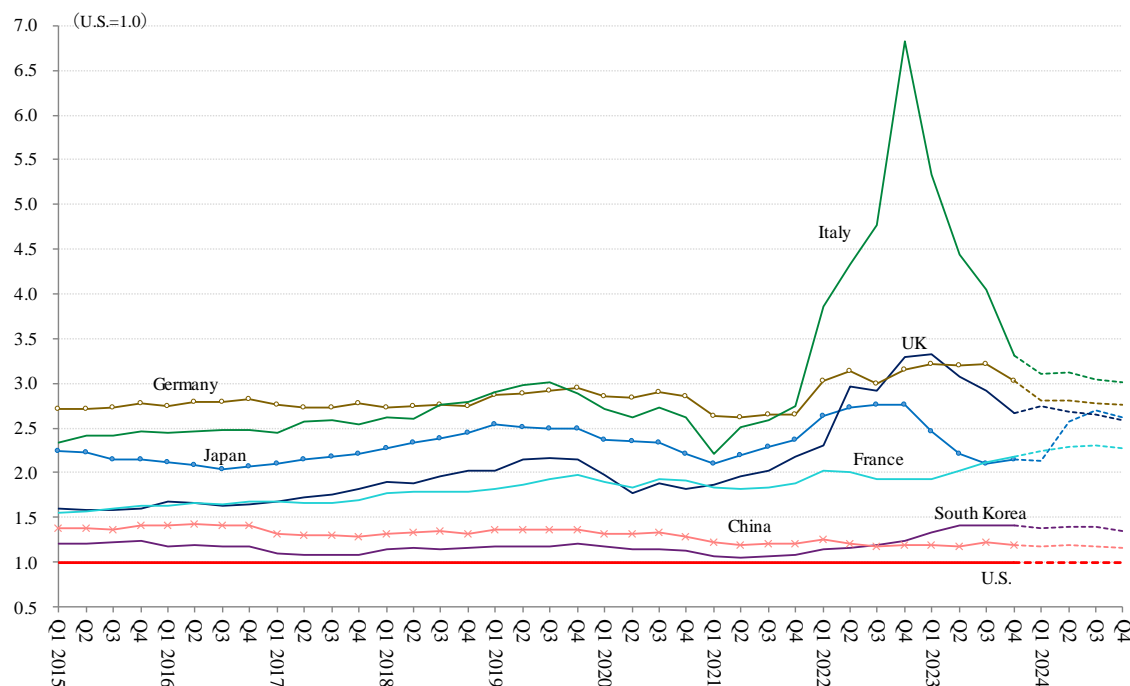
Unit: Index (the U.S. REP in each period=1.0). Period: Q1 2015–Q4 2024. Notes: The dotted line represents forecasts for Q1–Q4 in 2024. The prices are seasonally adjusted and include taxes and subsidies.

#### 3.2 Real PLI for Electricity Use



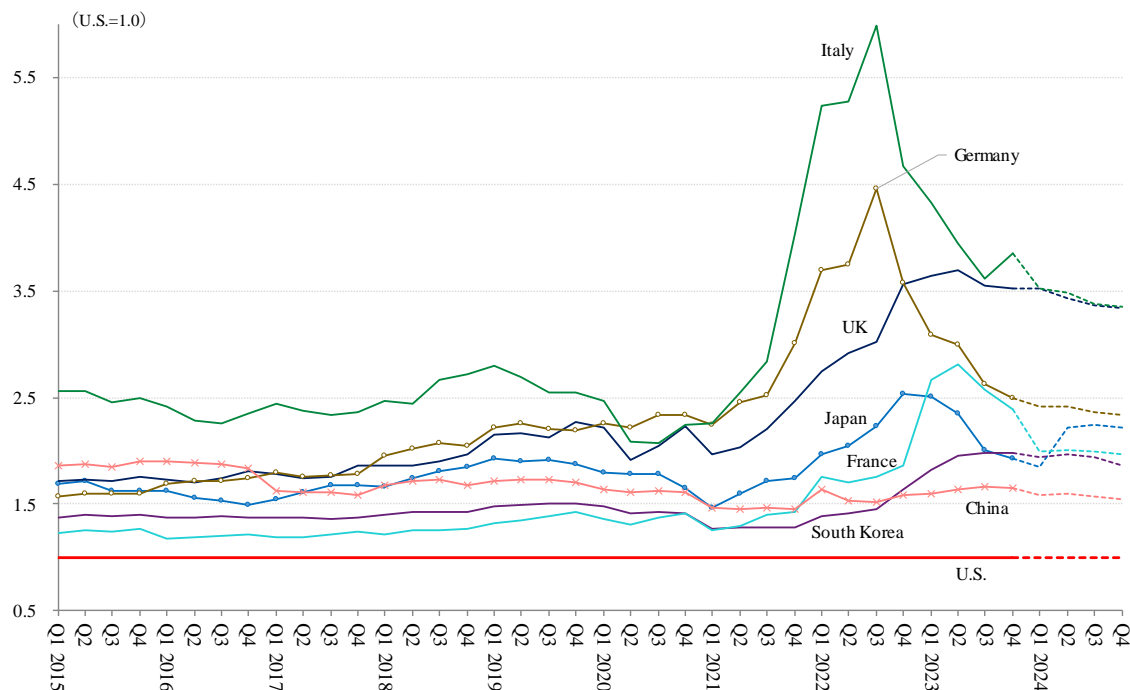
Unit: Index (the U.S. REP in each period=1.0). Period: Q1 2015–Q4 2023. Notes: The dotted line represents forecasts for Q1–Q4 in 2024. The prices are seasonally adjusted and include taxes and subsidies.

### 3.3 Real PLI for Household Electricity Use



Unit: Index (the U.S. REP in each period=1.0). Period: Q1 2015–Q4 2023. Notes: The dotted line represents forecasts for Q1–Q4 in 2024. The prices are seasonally adjusted and include taxes and subsidies.

### 3.4 Real PLI for Industry Electricity Use

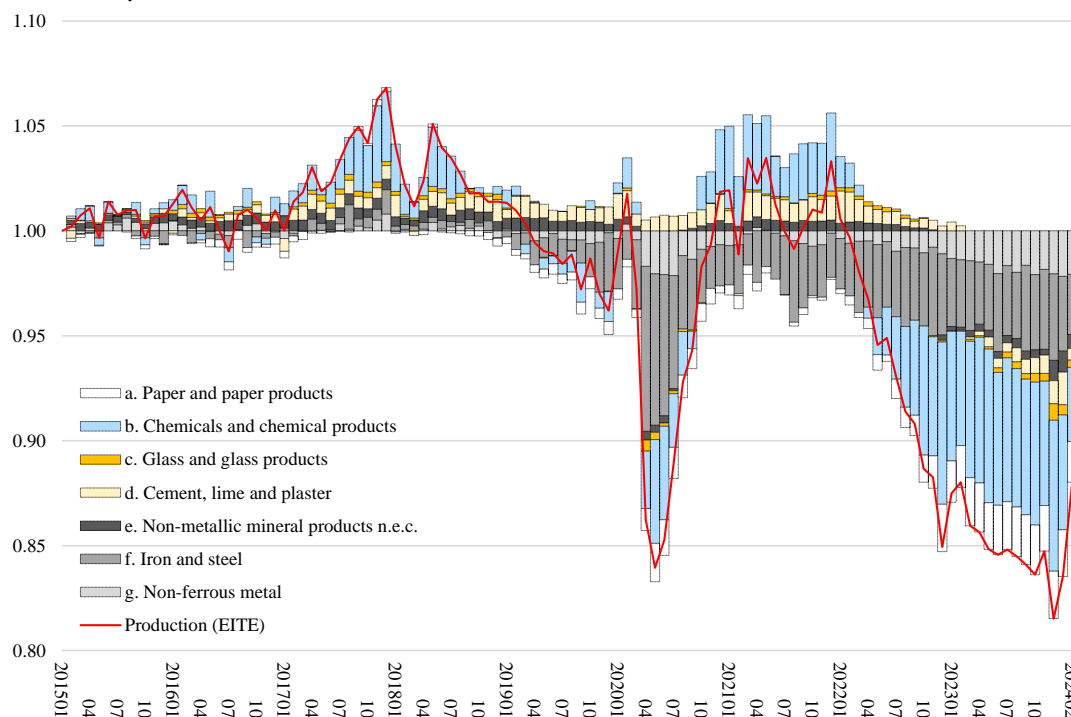


Unit: Index (the U.S. REP in each period=1.0). Period: Q1 2015–Q4 2023. Notes: The dotted line represents forecasts for Q1–Q4 in 2024. The prices are seasonally adjusted and include taxes and subsidies.

## 4 EITE

### 4.1 EITE (Energy-intensive trade-exposed) Industry Output

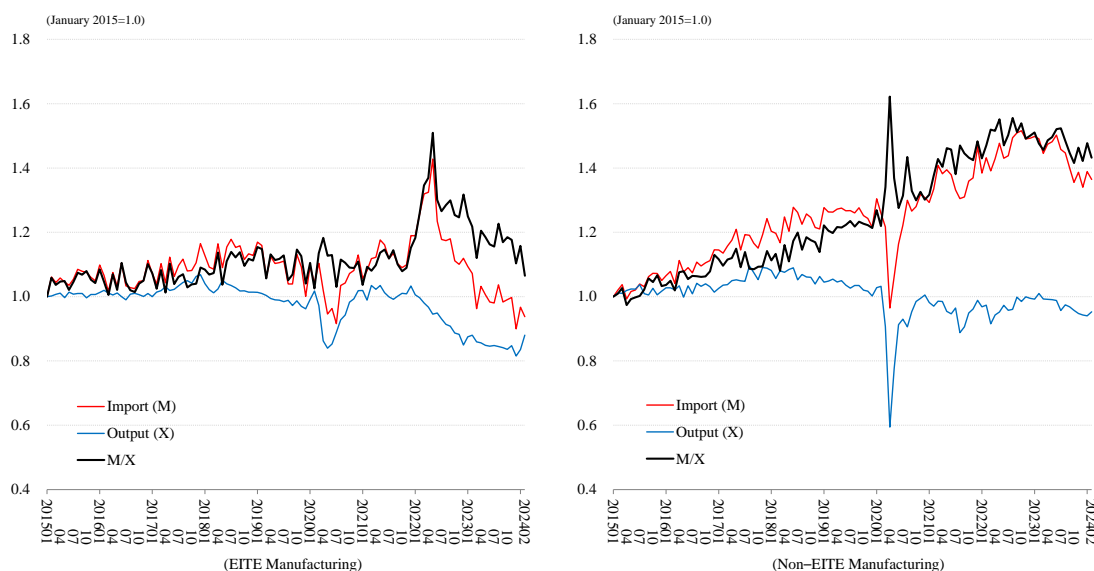
• Germany



Unit: Index (output in January 2015=1.0). Period: January 2015– February 2024. Source: Our computation is based on Statistisches Bundesamt (Destatis) German National Accounts, Cost Structure Survey in Manufacturing, Mining and Quarrying, and Indices of Production in Manufacturing. Note: The industry contribution is based on the Translog index using the previous year's output value share.

### 4.2 EITE and Non-EITE Outputs and Imports

• Germany



Unit: Index (import and output volumes in January 2015=1.0). Period: January 2015– February 2024. Source: Our computation is based on Statistisches Bundesamt (Destatis) German National Accounts, Cost Structure Survey in Manufacturing, Mining and Quarrying, Indices of Production in Manufacturing, Index of import prices, and Foreign Trade