

Energy and emission embodied within China's international trade

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Note: the views expressed in this PPT should not be attributed to author's institution

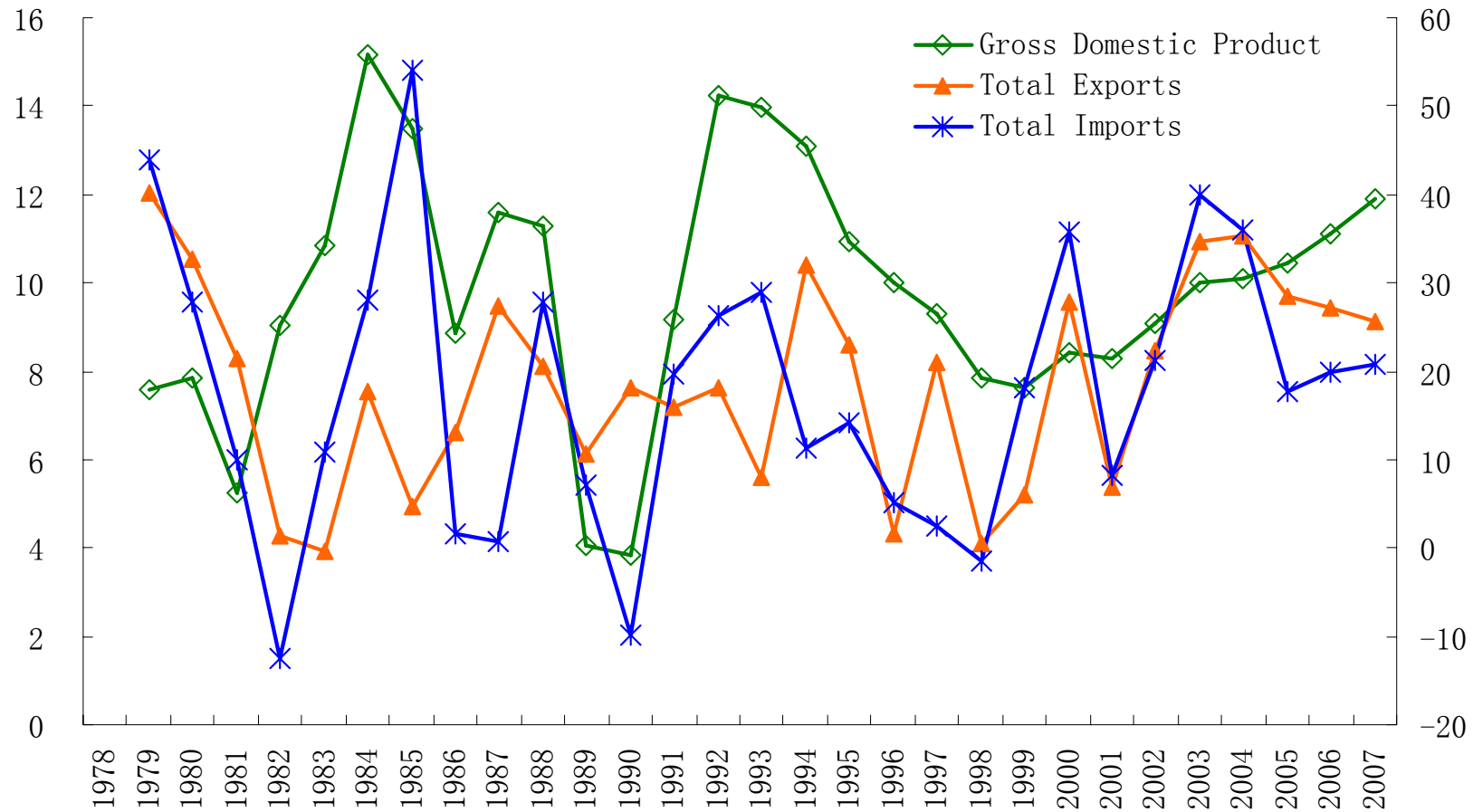


Outline

- Introduction
- Methodology
- Main Result

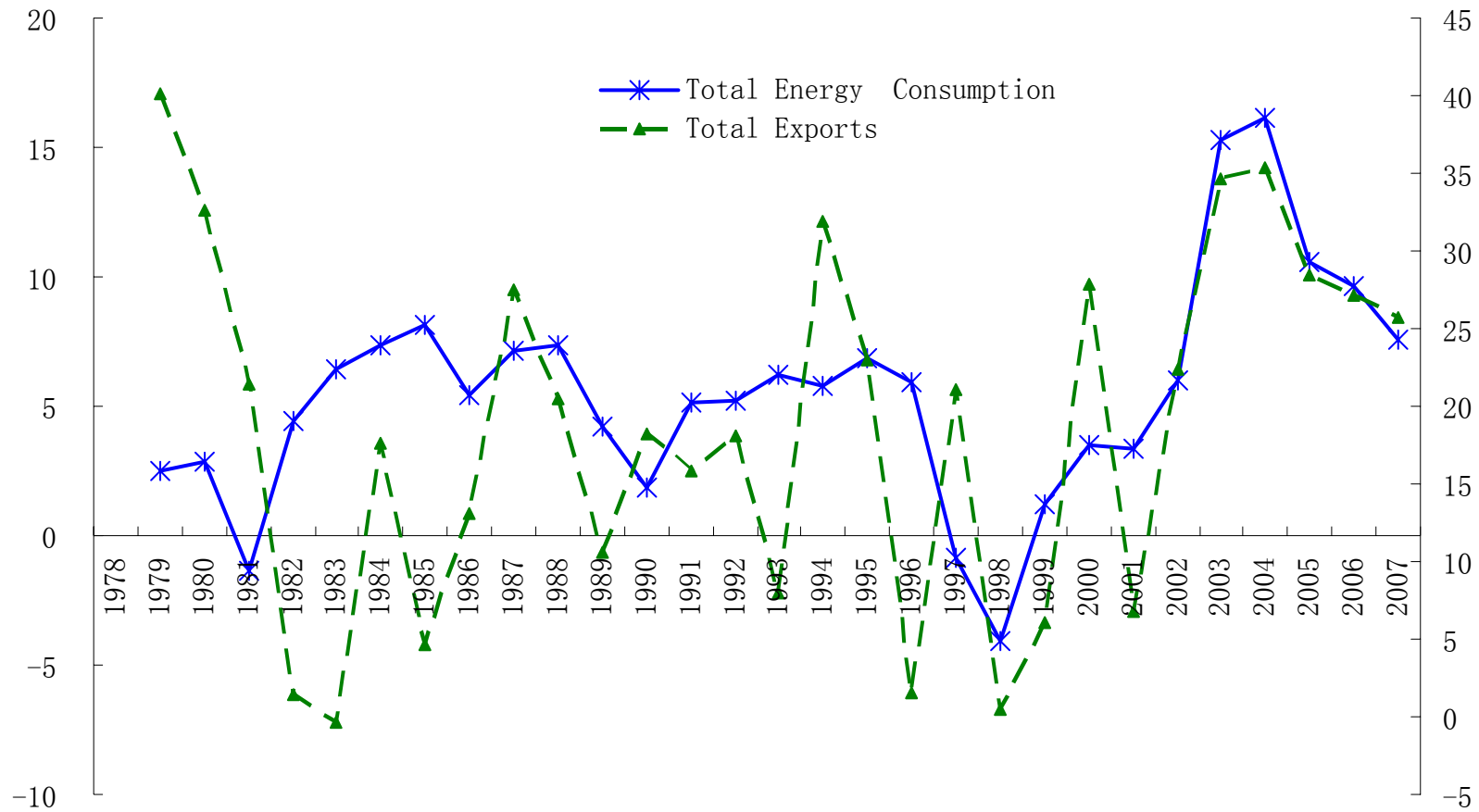


Economic growth and international trade





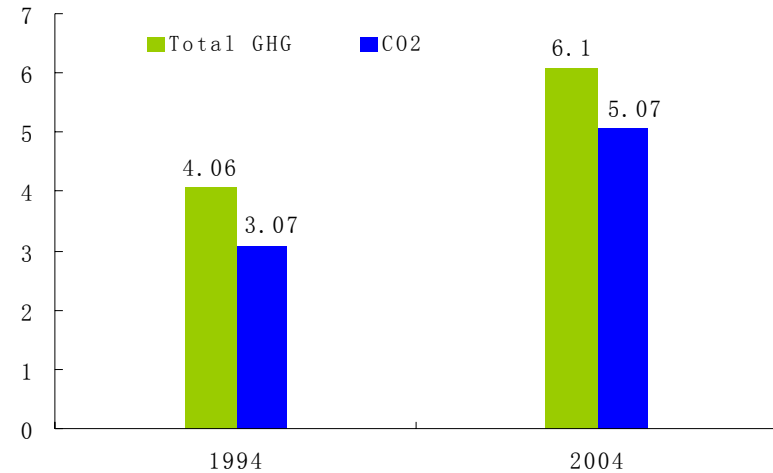
Export and energy consumption



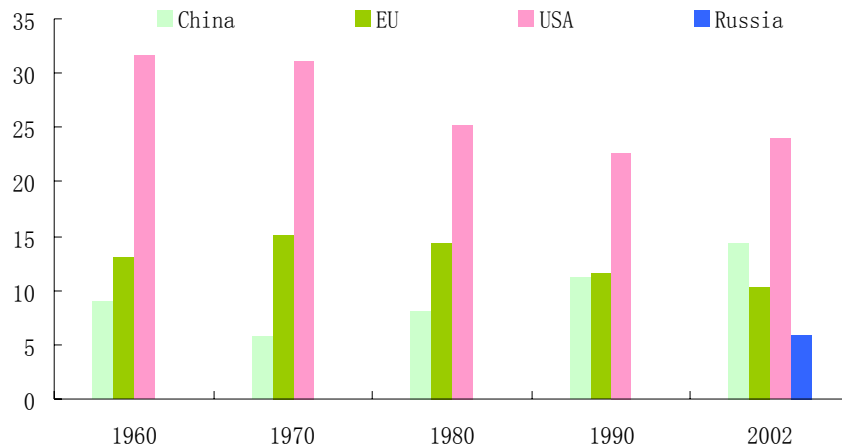


Pollution Emission

- In 1994, total greenhouse gas emission is 4.06 billion TCO₂E, of which 3.07 billion tons is CO₂; In 2004, total greenhouse gas emission increase to 6.1 billion TCO₂E, of which 5.07 billion tons is CO₂.



Data source: The People's Republic of China Initial National Communications on Climate Change

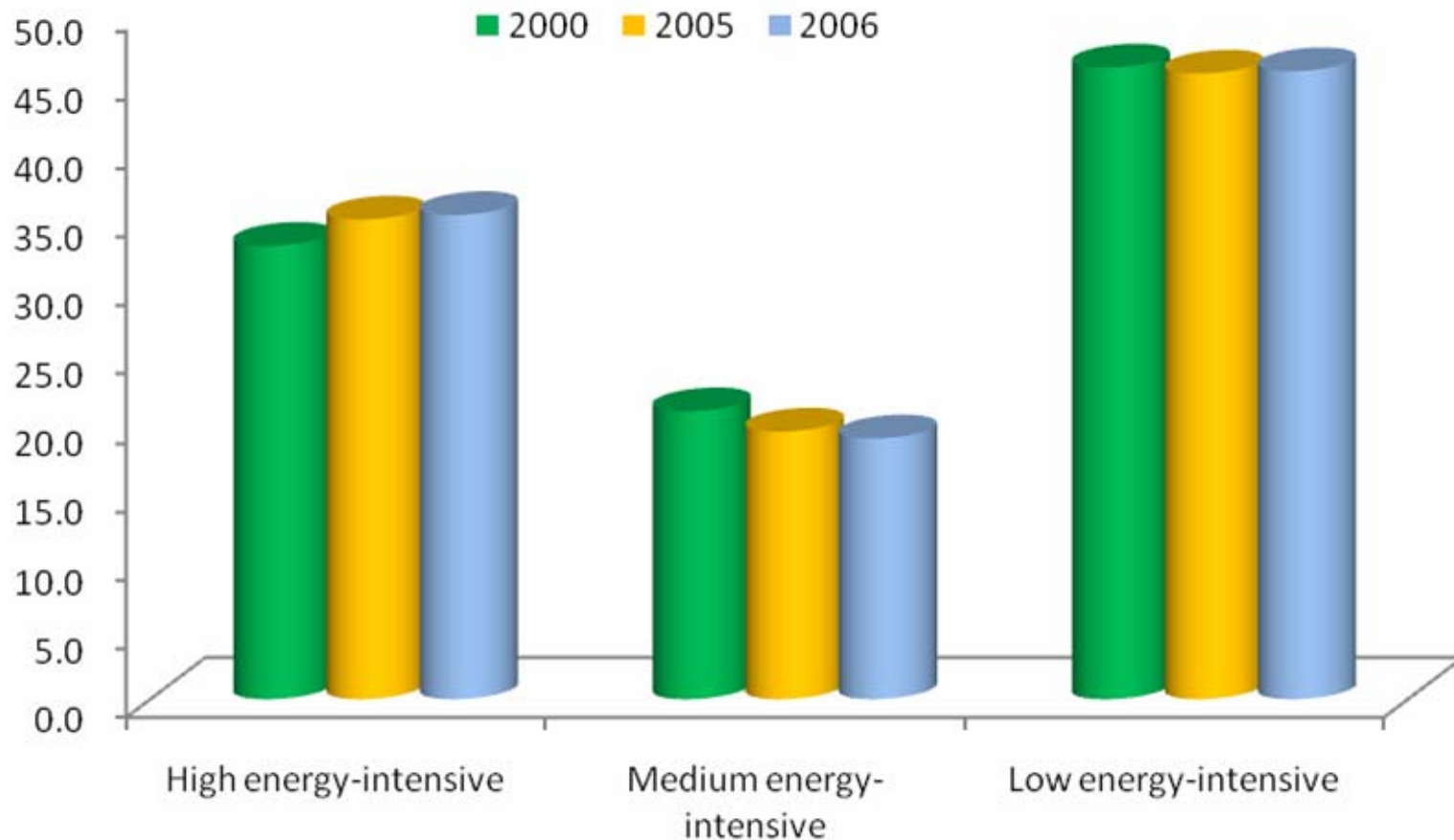


Data source: World Bank, WDI 2006

- In 2000, total greenhouse gas emission in China accounts for 14.4% of total world emission, USA for 23.96%.

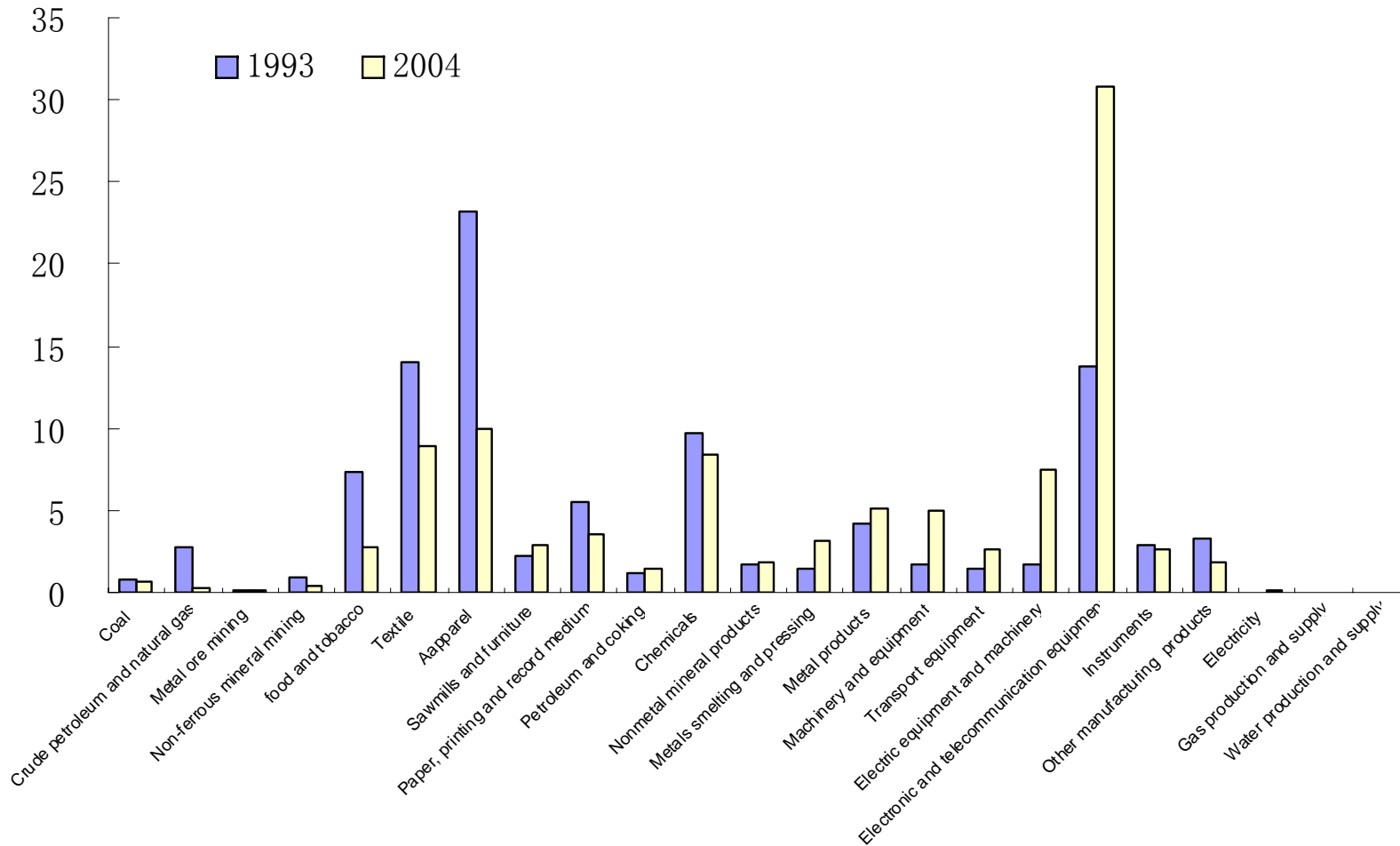


Composition of industrial value added by the energy intensity



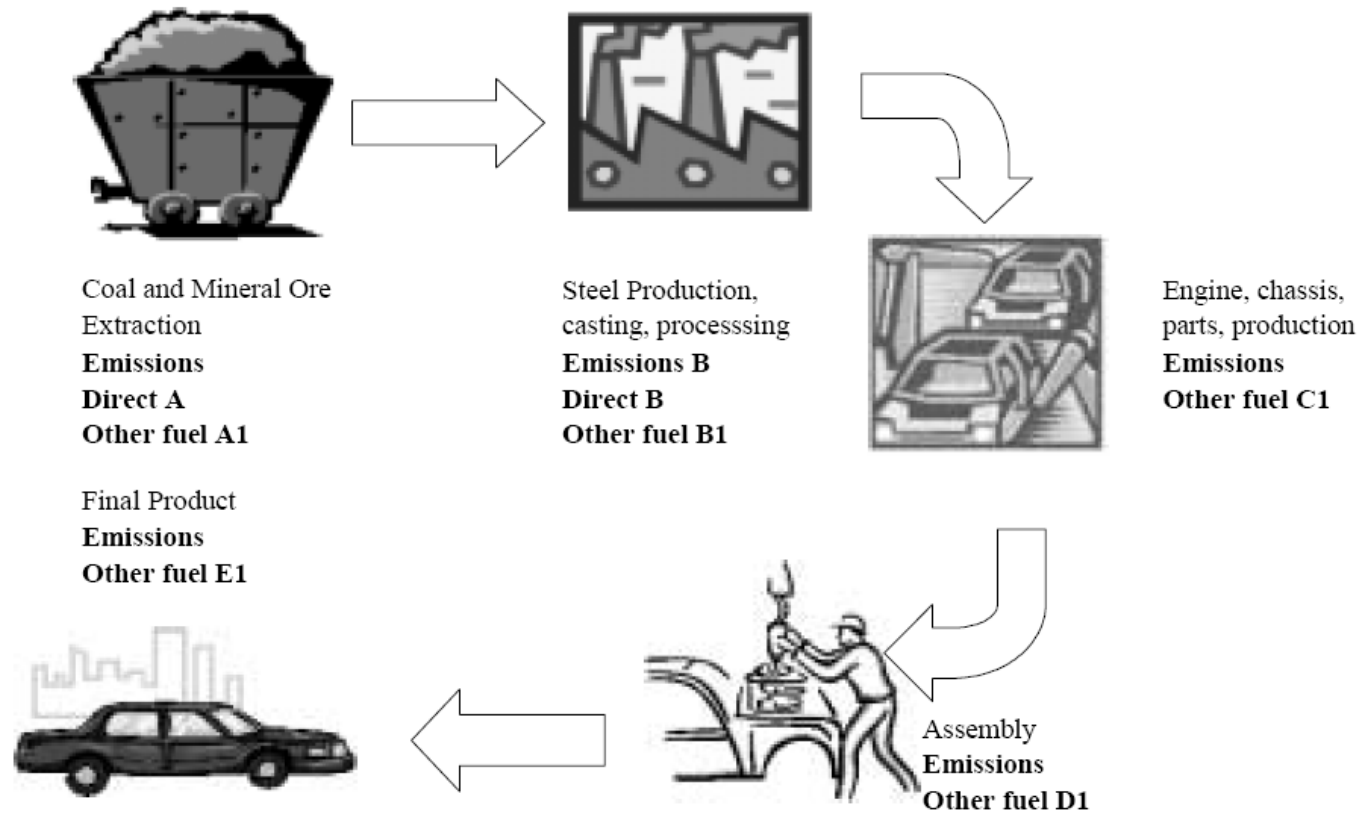


Composition of Manufacturing export by sector





Embodied energy and emission



Cited from: Nadim Ahmad and Andrew Wyckoff, Carbon Dioxide Emissions Embodied In International Trade Of Goods, OECD Working Paper, DSTI/DOC(2003)15



Methodology

- Embodied energy (pollution emission) in international trade is to total direct and indirect energy consumption (pollution emission) within products used domestically to export.

$$X = (I - A^d)^{-1} Y$$



$$E = e \cdot [(I - A^d)^{-1} Ex]$$

Where, E is the embodied energy /emission;
e is the energy consumption/emission per output by sector;
Ex is the export vector;



Cont.

- Embodied energy (pollution emission) within export from **country a** to **country b**, i.e import by **country b** from **country a**

$$E_{a,b} = e_a \cdot \left[(I - A_a^d)^{-1} Ex_{a,b} \right]$$

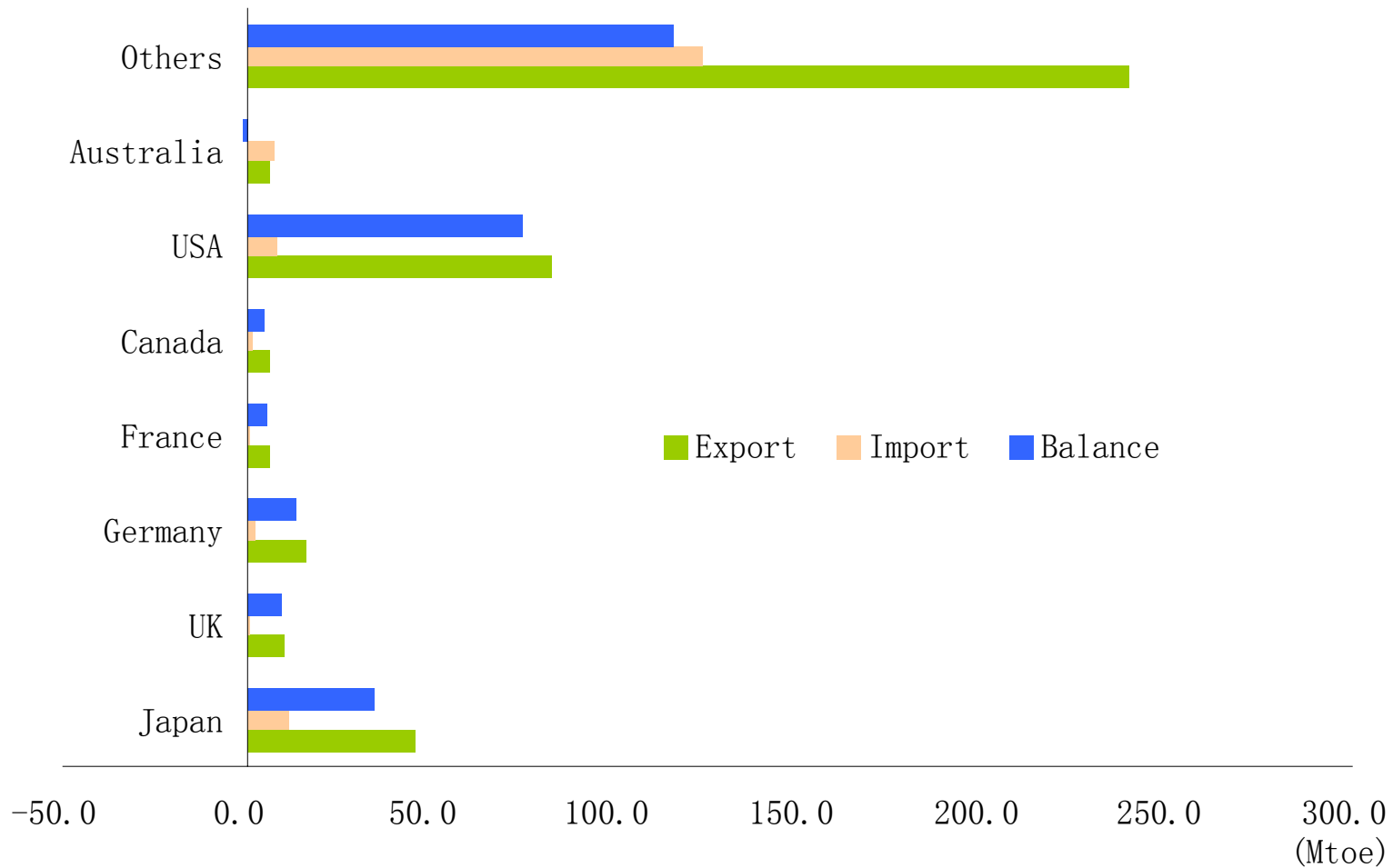


Data

- China's 2005 IO table
- GTAP database V.7
- IEA database
- Other data

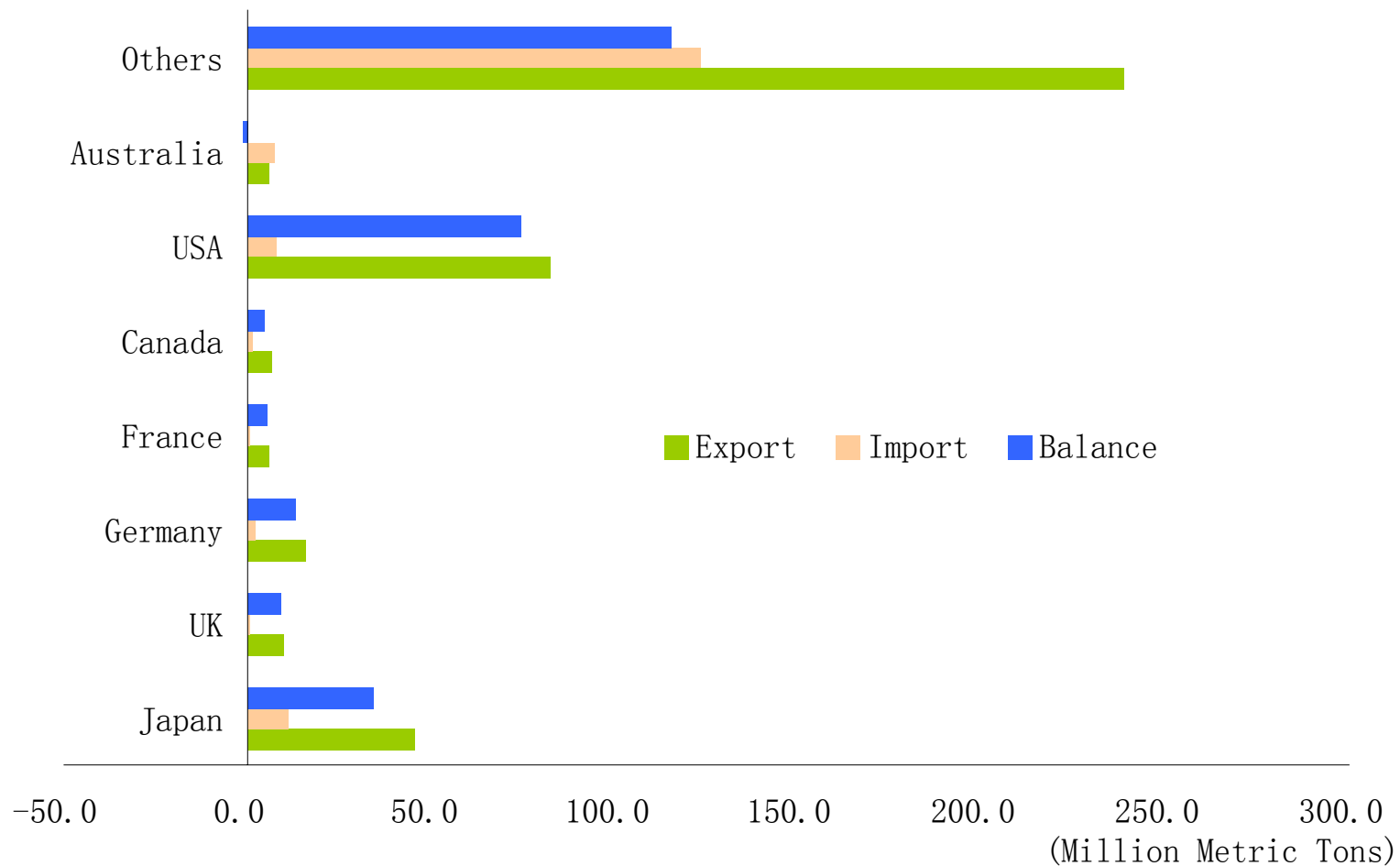


Embodied energy consumption within China's international trade



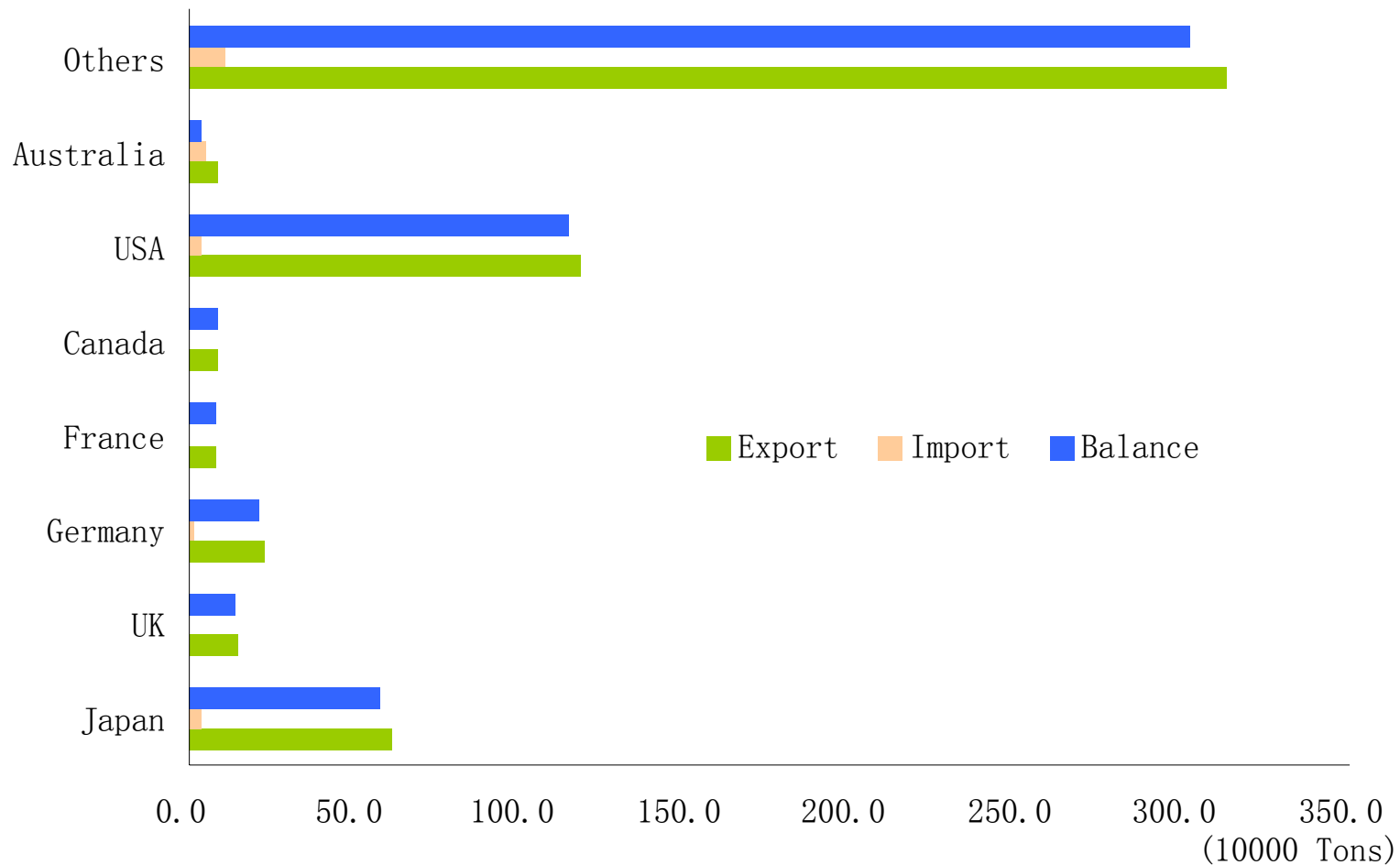


Embodied CO₂ within China's international trade





Embodied SO₂ within China's international trade



Thanks for your attention!

