Industrial Policy in the Global Semiconductor Sector

Pinelopi Goldberg[1] Réka Juhász[2] Nathaniel Lane[3]
Giulia Lo Forte[4] Jeff Thurk[5]

[1]Yale University, BREAD, CEPR, NBER and PIIE

[2]University of British Columbia, CEPR and NBER

[3]University of Oxford

[4]University of British Columbia

[5]University of Georgia, Terry College of Business

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Motivation

- Semiconductors widely perceived as a strategic industry
  - Driver of economic growth: backbone of the modern economy, R&D intensive
  - Dual-use: national security motivations
- Widely held belief that the industry receives vast amounts of government support
- Common economic justification for support is learning

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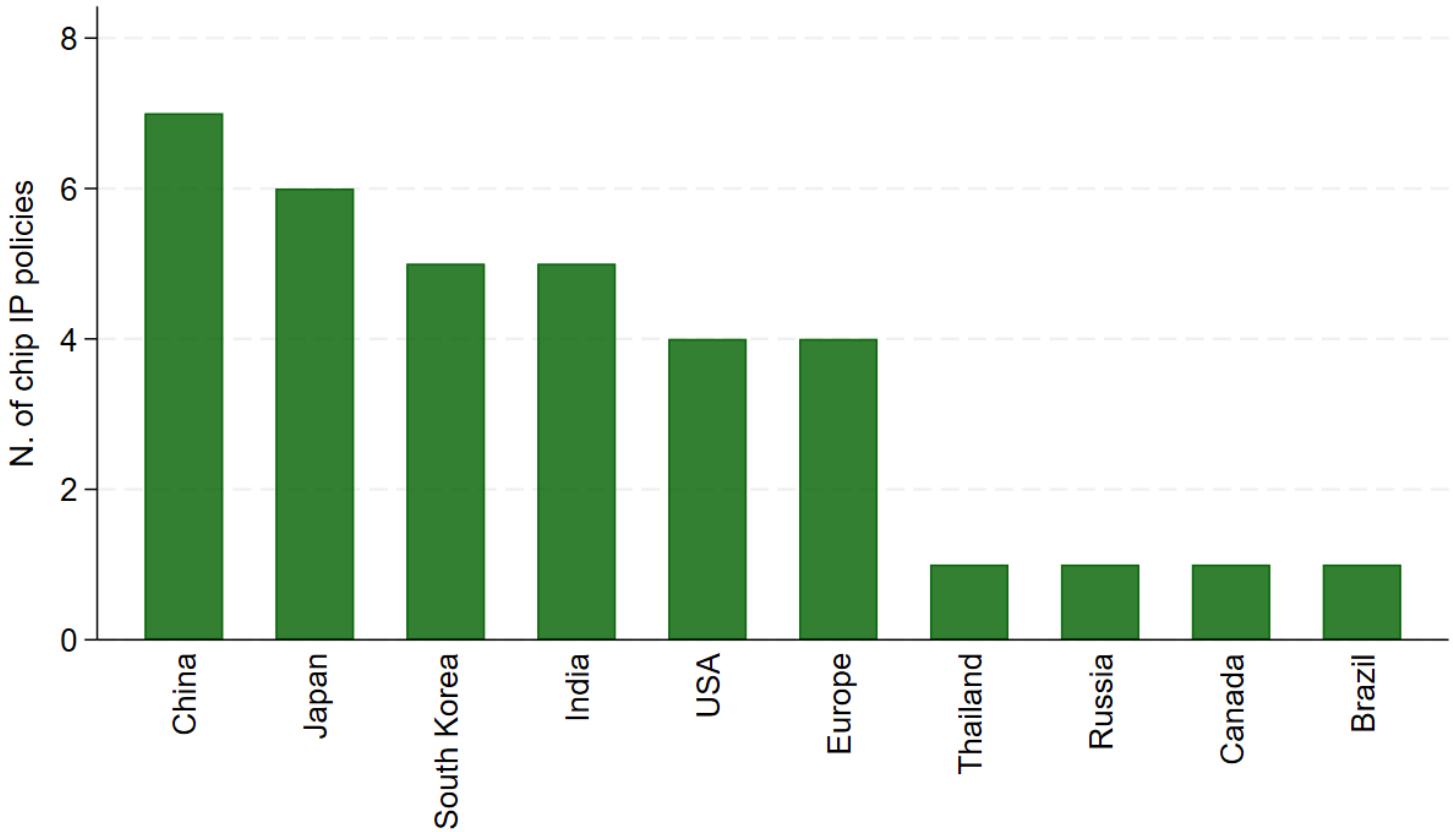
$\Longrightarrow$ Based on existing work, difficult to quantify industrial policy and evaluate its economic effects

1. Quantifying government support

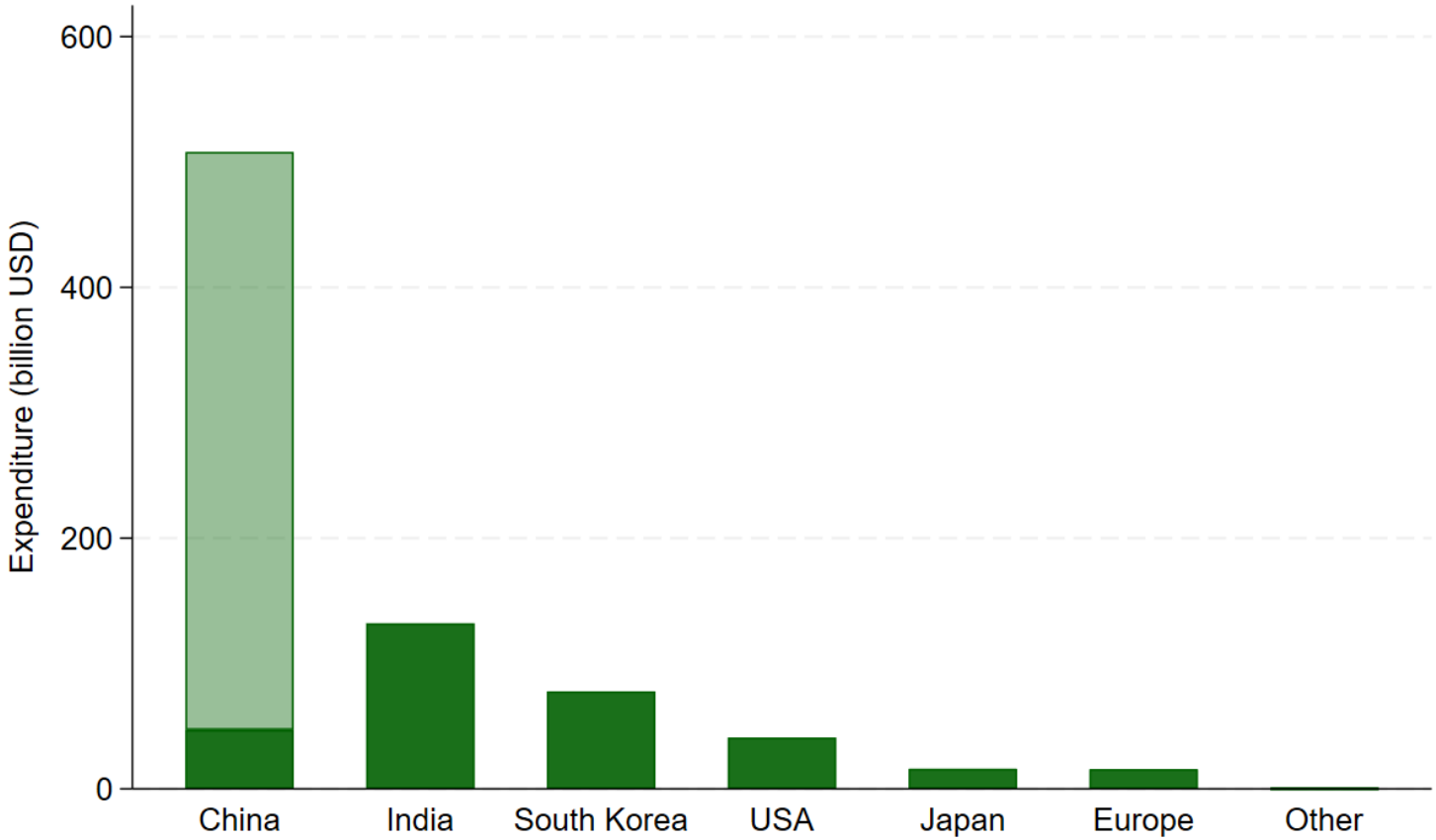
- Data and model-based approach suggest most (all?) current major producers subsidize their industry.
- Historical evidence suggests support particularly important early on
- Financial support + foreign tech transfer from the frontier

Most major producers subsidize



Authors' calculations using data from JLOP (2022) and Global Trade Alert

Quantifying value of support is challenging



Tentative: Chinese IP substantial, but not an outlier based on market size

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- Modern manufacturing of semiconductors requires unprecedented precision
- Scope for learning through:
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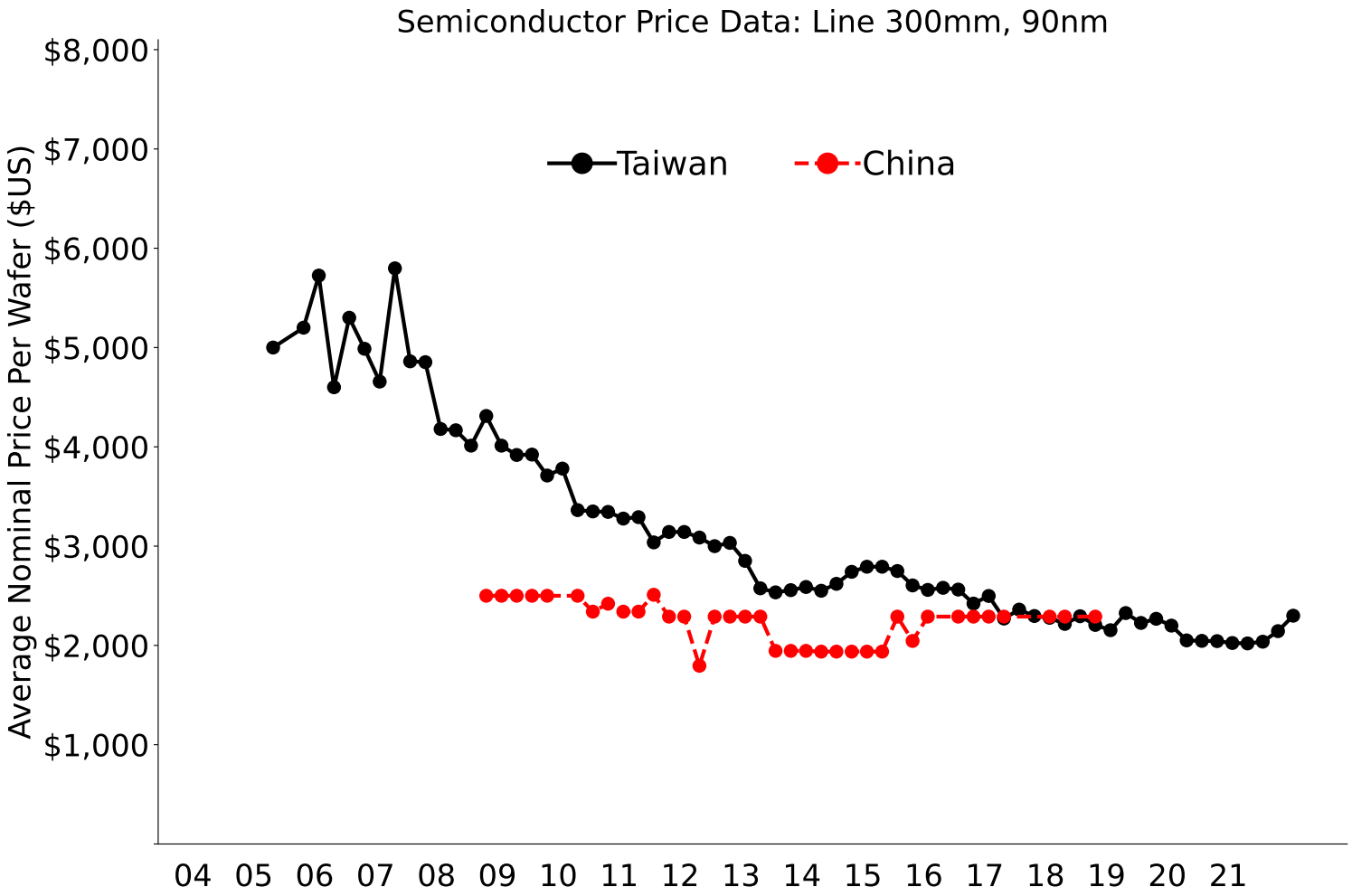
    Some evidence of learning across technologies
  - Across firms?

    We estimate large cross-border learning

    Collaborations along supply chain could spill over to other firms

With cross-country learning, second-movers can enter at a low price



Conclusion

- With cross-country learning, a country's industrial policy can benefit the global economy

- But ... these spillovers cannot be taken for granted

  $\Longrightarrow$ They emerge because of individual decisions made in a globalized and concentrated industry.

  $\Longrightarrow$ There is no guarantee that cross-country learning would emerge in a deglobalized, fragmented industry.