

## Industrial policy is an old tool







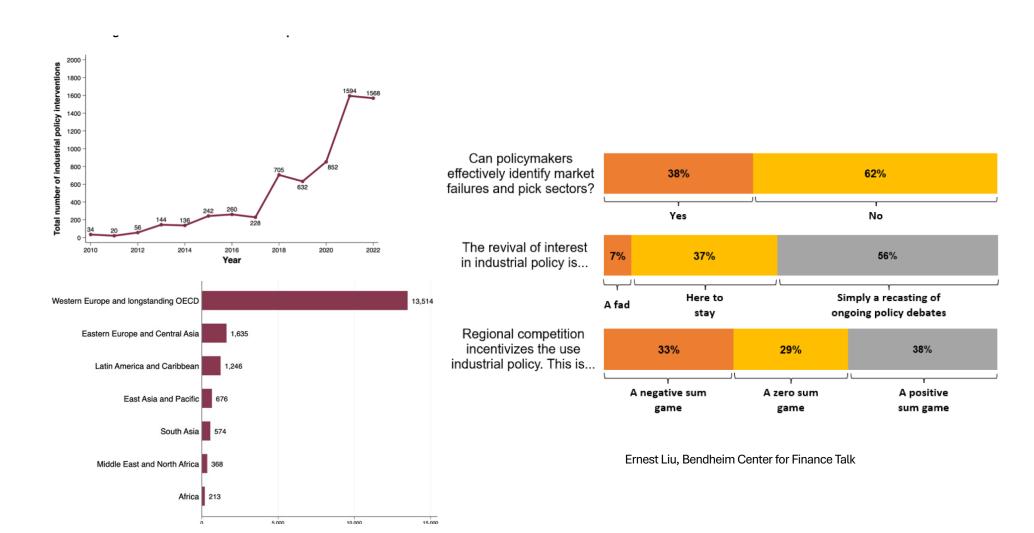






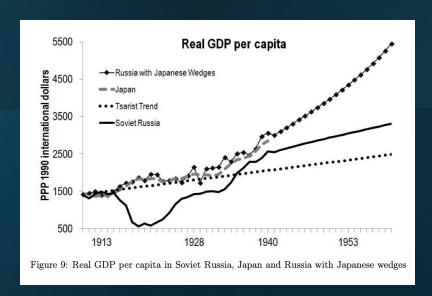
- Government interventions that target the supply side: stateowned enterprises, direct subsidies, subsidized credit....
- Benefits: protect strategic sectors (e.g., steel, military) and/or promote sectors with high fixed cost or increasing returns to scale (e.g. anything that requires a lot of R&D)
- Challenges: expensive, hard to choose the right sectors

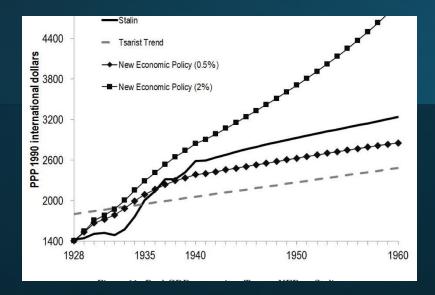




Rukasz et al., 2023

#### Extreme IP does Worse than "market"





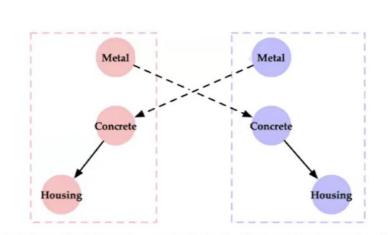


Cheremukhin et al. 2017

### Moderate IP May Work (up to a point)

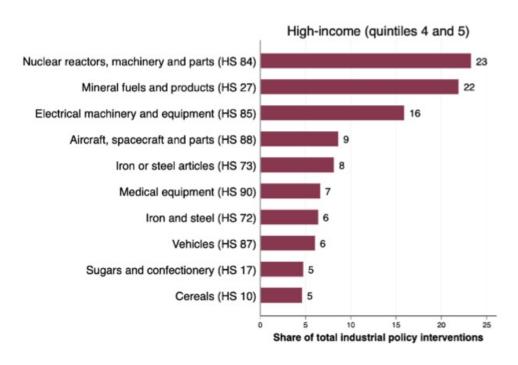
- Small Asian economies in 1970s and 1980s: S. Korea, Japan, Taiwan, etc.
- China in 1990s and 2000s
- Good for sectors catching up to the frontier of technology and production
- Less good for pushing the frontier
- For small countries: Sector growth = GDP growth
- For large countries: Sector growth = partial GDP growth

Getting the Biggest Benefits from Industrial Policy



- In most cases, target upstream sectors (Liu 2019)
- In patient societies, target R&D; impatient, target production (Liu and Ma, 2024)
- Target sectors with more domestic downstream production (Chen et al., 2024)
- Target downstream and upstream sectors (e.g., EV and batteries) if there are coordination problems (Aghion et al., 2024)

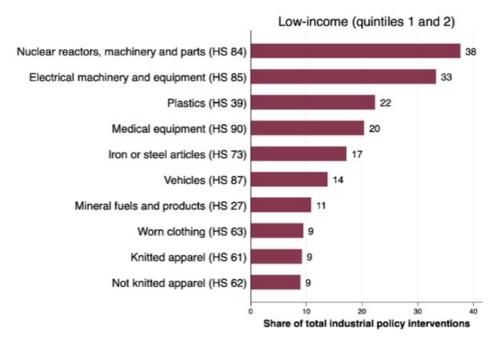
#### IP today: Rich Economies



- R&D: Japan, South Korea, Germany and the U.S. have the most efficiently allocated IP (Liu and & Ma, 2024)
- Specific technologies: the U.S. underinvests in semiconductors by 21% (before CHIPS Act) and underinvests in green technologies by 25% (more if we account for environmental benefits)
- China and South Korea overinvest in semiconductors by ~50% and ~40%

(Figure: Rukasz et al., 2023)

#### IP today: Poor Economies



- Industrial policy?
  - Feasibility and benefits depends on state capacity to implement and level of domestic technology
  - · Current IP often mistargets
- · Joint ventures higher up on the supply chain?
  - E.g., If China wants lithium from Zimbabwe, the China should build lithium refining factories in Zimbabwe (if not iPhone assembly plants) that hire locally.
  - E.g., If Europe imports cocoa, oil and natural gas from Nigeria, it should build factories that process these products that hire locally.
  - Technology and management spillovers

(Figure: Rukasz et al., 2023)



# Role for Industrial Policy and International Institutions

- Emphasize the selective use of IP
- Clarify the economic pros and cons of IP to enable fair and transparent negotiations at the country and sector level
- Create guidelines/best practices for North-South investment that emphasize thoughtfully designed joint ventures in higher parts of the supply chain.