



# **R&D Globalization: Challenges and Opportunities**

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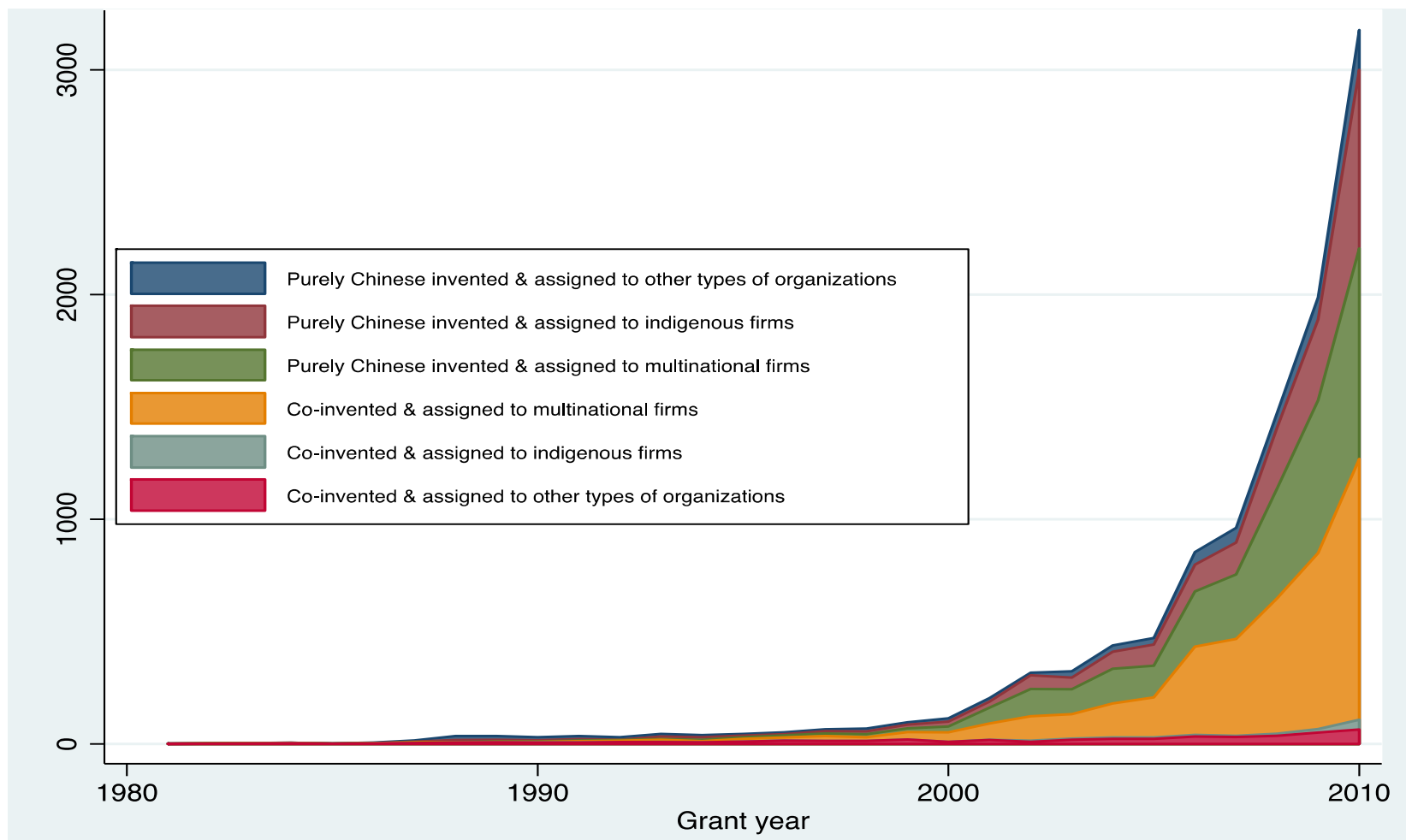
**National Bureau of Economic Research**

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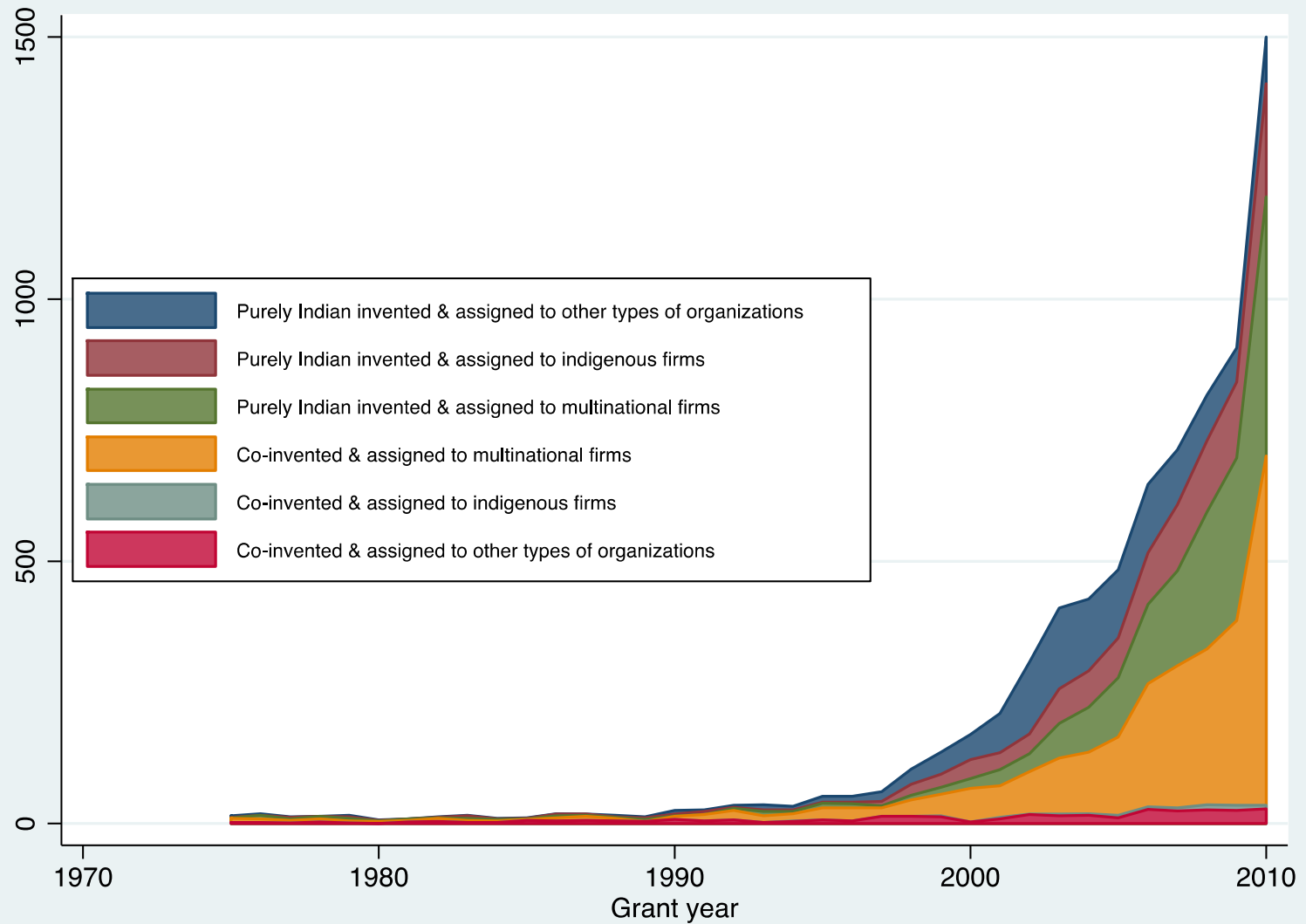
## R&D globalization: what's new?

- A working definition: corporate R&D activity that takes place outside, or partly outside, the home country.
- America's leading multinationals have been doing this for a long time...
- Since the late 1990s, there has been a pronounced shift towards much more activity in emerging markets.
- These new hosts of international R&D activity present a unique set of opportunities and challenges.

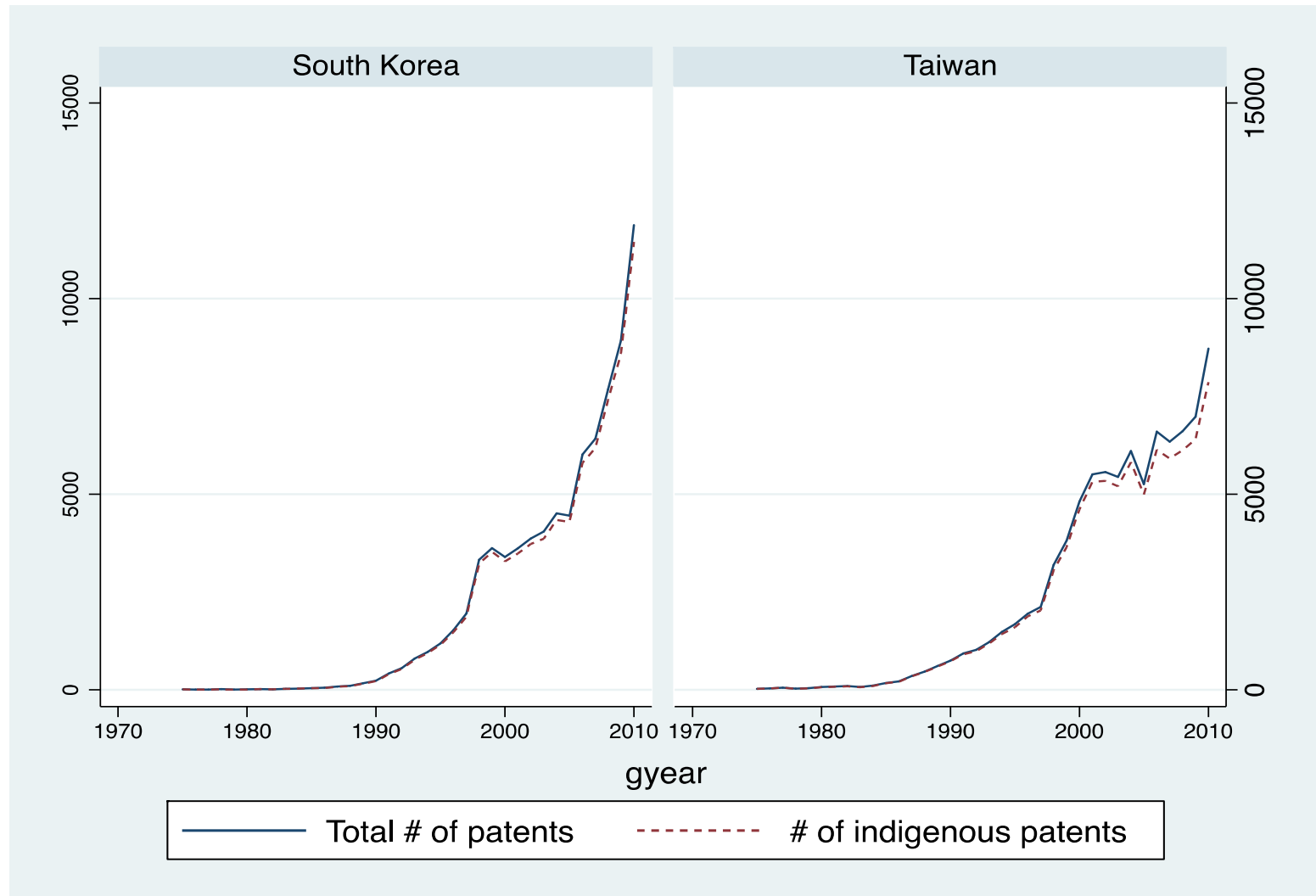
# We see explosive growth in USPTO patents granted to inventors based in China...



## And in India...



# China and India differ from Taiwan and Korea in the composition of their innovation surges



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## An encouraging view of recent developments...

- R&D processes can now be disaggregated into multiple stages, which are then located where they can be undertaken most effectively.
- The best of China and India's vast legions of science and engineering graduates can be plugged into global R&D operations, managed by the world's most sophisticated multinationals.
- The possibility of a win-win outcome for a more integrated global innovation system that can benefit both emerging and advanced economies.
  - The entire world benefits from the scale and low cost of the Chinese and Indian S&E workforce
  - China and India engage in frontier R&D at an early stage in development
  - Western technologies are redesigned to meet Indian and Chinese needs
  - China and India won't eat our lunch, they will take us out to dinner!

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## But these new hosts also present important challenges...

- Inadequate protection for multinational intellectual property rights.
- A deliberate strategy to accelerate the development of indigenous high-tech “national champions” through:
  - Strong financial incentives for local R&D
  - Forced localization of production (LCRs)
  - Organized efforts to steal trade secrets, through “cybertheft” and more traditional means.
  - “Voluntary” technology transfer
- Multinationals rarely have the upper hand when bargaining with a determined sovereign government.
- How should the United States – and other Western FDI source countries -- respond to this?

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## Existing legal remedies have their limits...

- “Forced” technology transfer is WTO-illegal, but relatively easy to disguise.
- And LCRs can also be set up in a way that makes them hard to address with standard legal remedies.
- Only governments have legal standing to press these cases at the WTO.



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## Moving toward a more strategic response

- Finding out what is really going on – from anecdote to systematic evidence.
- A major effort to challenge forced localization (and forced technology transfer) using the WTO.
- India and the link between high-skill immigration, trade, and FDI.
- Alternative points of leverage vis-à-vis China.
- The existence of “indigenous innovation” strategies in host countries seems to call for a more strategic response by source countries.