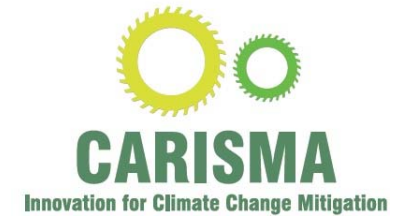


# R&D offshoring to emerging economies: implications for European industries

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## R&D offshoring to emerging economies: implications for European industries



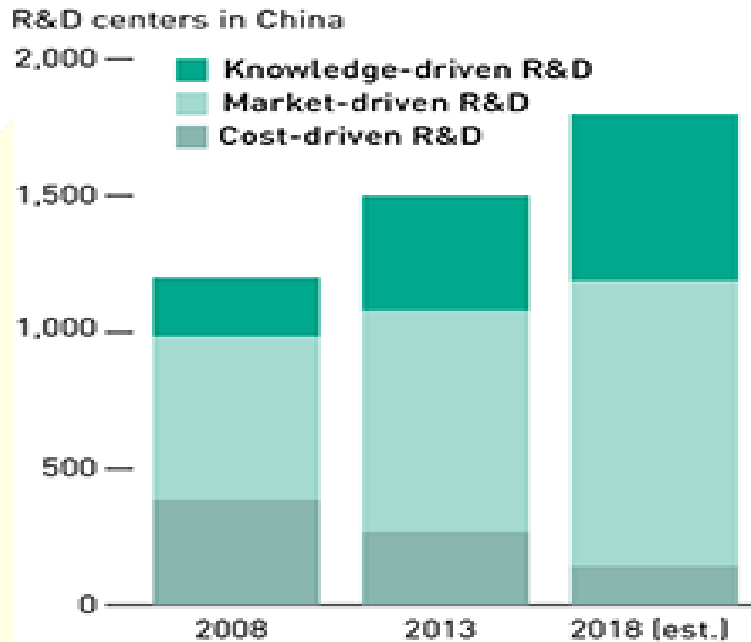
- CARISMA analyses and supports R&D in climate technology in EU
- But, R&D is increasingly taking place on a global scale
- China, India, Brazil, etc. increasing global actors in R&D
- R&D "offshoring" to emerging economies by western multinational companies
  - Local R&D centers
- Implications for R&D/diffusion of new climate technologies in Europe and beyond
- Opportunities and challenges for the involved European firms.



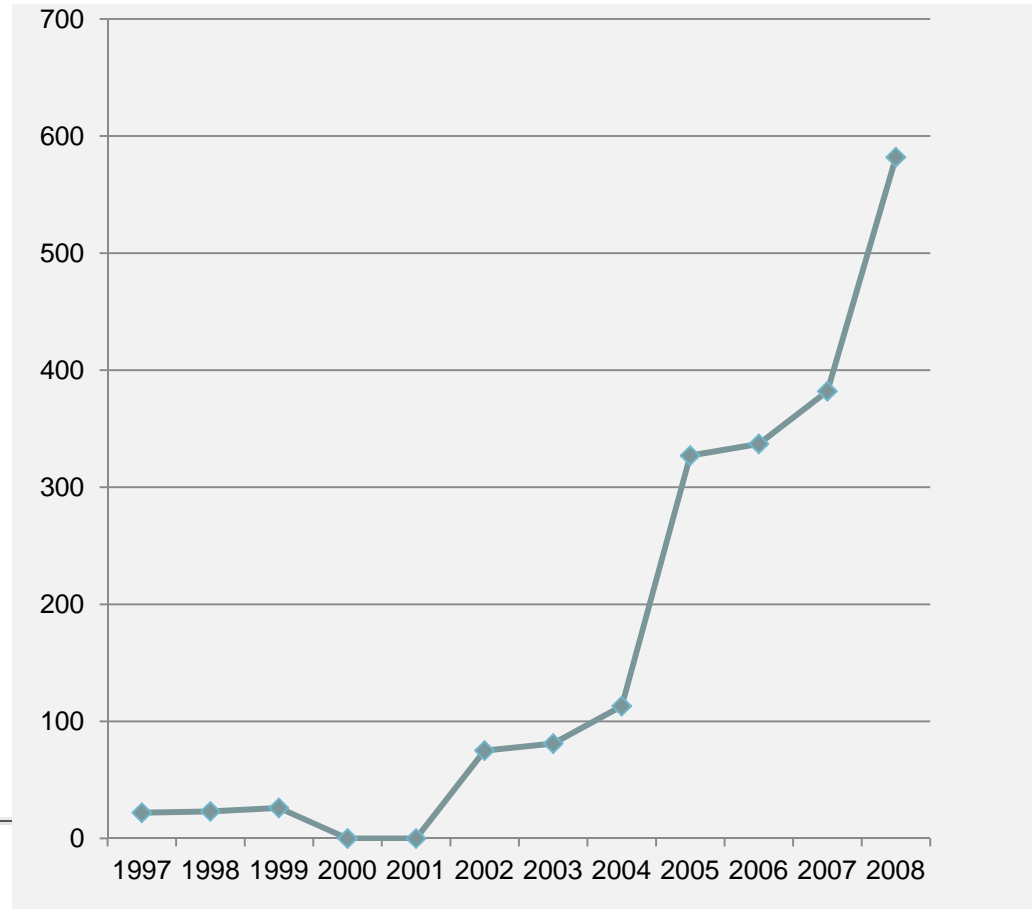
# R&D offshoring: some indicators



No. of foreign-owned R&D centers in China (2008-2018).



Source: Zedtwitz et al. (2015).

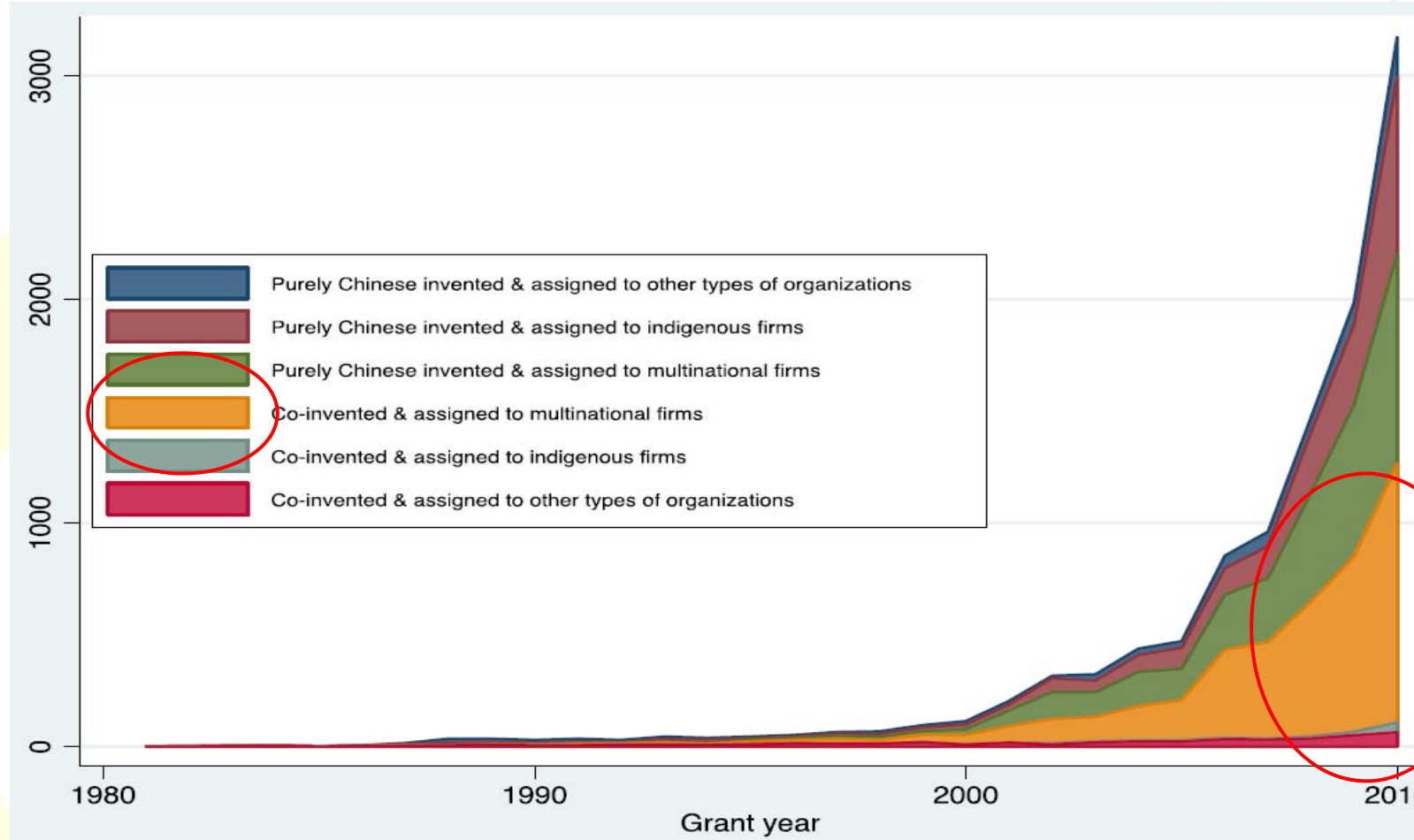


R&D investments in India by US MNC affiliates 1997-2008. (million USD).

Source: Basant and Mani (2012).



# R&D offshoring: some indicators

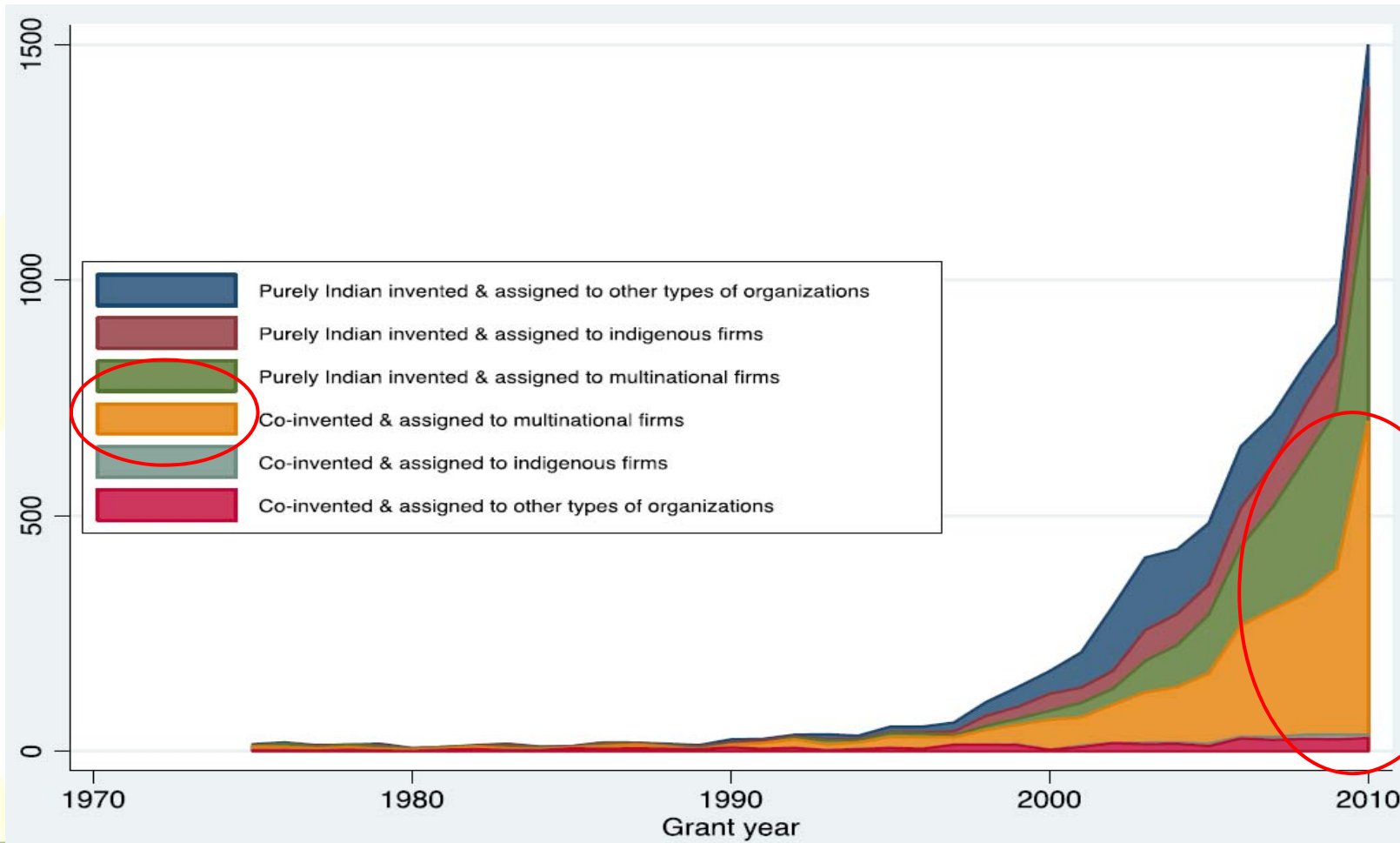


No. of 'co-invented' patents and MNC-sponsored USPTO patents in China (1980-2010).

Source: Branstetter et al. (2013).



# R&D offshoring: some indicators

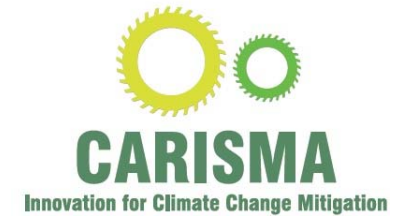


No. of 'co-invented' patents and MNC-sponsored USPTO patents in India (1970-2010).

Source: Branstetter et al. (2013).



## Key pre-conditions and concerns



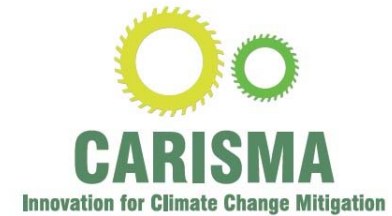
- A phenomenon that is increasing in scope and scale
- Enabling pre-conditions across emerging economies:
- Increase in public R&D funding and focus on innovation
- Trade liberalization reforms (inward FDI)
- Increase investment in education and human resources (e.g. no. of Phd graduates).

National concerns raised in the EU and US in relation to R&D offshoring:

- Loss of long term industrial leadership and competitiveness in core technologies
- Loss of knowledge jobs in high-tech key sectors
- 'Hollowing out' the home country knowledge base
- Spillover of core knowledge, creating new competitors.



## Firm-level evidence suggests that..



### Firms benefits from R&D offshoring:

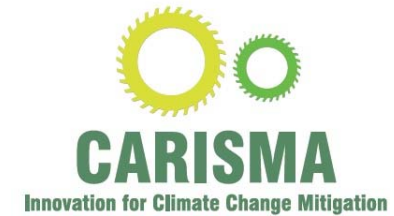
- Lower costs of (expensive) R&D
- Increase in productivity and innovative performance
- Overall economic gain
- Effective adaptation of products to (changing) local market demands
- Benefitting from access to a bigger and diverse talent base globally (global race for talent and ideas)
- Overcoming the lack of engineers in home countries.

### Operational challenges for firms:

- Knowledge management of globally spread network of R&D units
- Cultural and language barriers
- Different organisational routines
- Investment in training and upgrading/specialisation
- Communications and face-to-face interaction
- Active management of spillover
- Disconnect of crucial link between production and innovation.



## Recommendations



National/regional policy makers:

- *Prevent/reduce* R&D offshoring:
  - Policies aimed at increasing the supply of engineers in the European home countries
  - Increase in state funding for private and public R&D to keep innovation at home
  - Incentivise co-localisation of production and innovation.

National/regional policy makers:

- *Promote* R&D offshoring:
  - Local units providing consultancy and extension services to European MNCs
  - Facilitation of business networks, local contacts and market knowledge
  - Training programs in cross-cultural business management.

What can be done at the international level? EU?, UNFCCC?





Thank you  
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