INNOVATION IN GLOBAL VALUE CHAINS

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OECD
BETTER POLICIES FOR BETTER LIVES

GVCs and GINs

- Semantic discussion?
  - Value chain: production, distribution, etc. but also R&D and innovation!
  - GVCs = GINs + GSCs?

- Where does innovation take place in GVCs: does co-location matter?
  - OECD (2016) – Belderbos, Sleuwaegen, Somers and De Backer: « Where to locate innovative activities in GVCs? Does co-location matter? »

- Differences and interdependencies of two networks
  - OECD (2017) – De Backer and De Stefano:

    « The links between GVCs and GINs: an exploration »

Co-location in GVCs

- « If I offshore production today, will R&D and innovation follow tomorrow or the day after tomorrow?

- Specific information
  - Projects: fDi Markets database – 5000 international R&D and innovation projects
  - Co-location and distance
  - R, R&D, D, design, testing

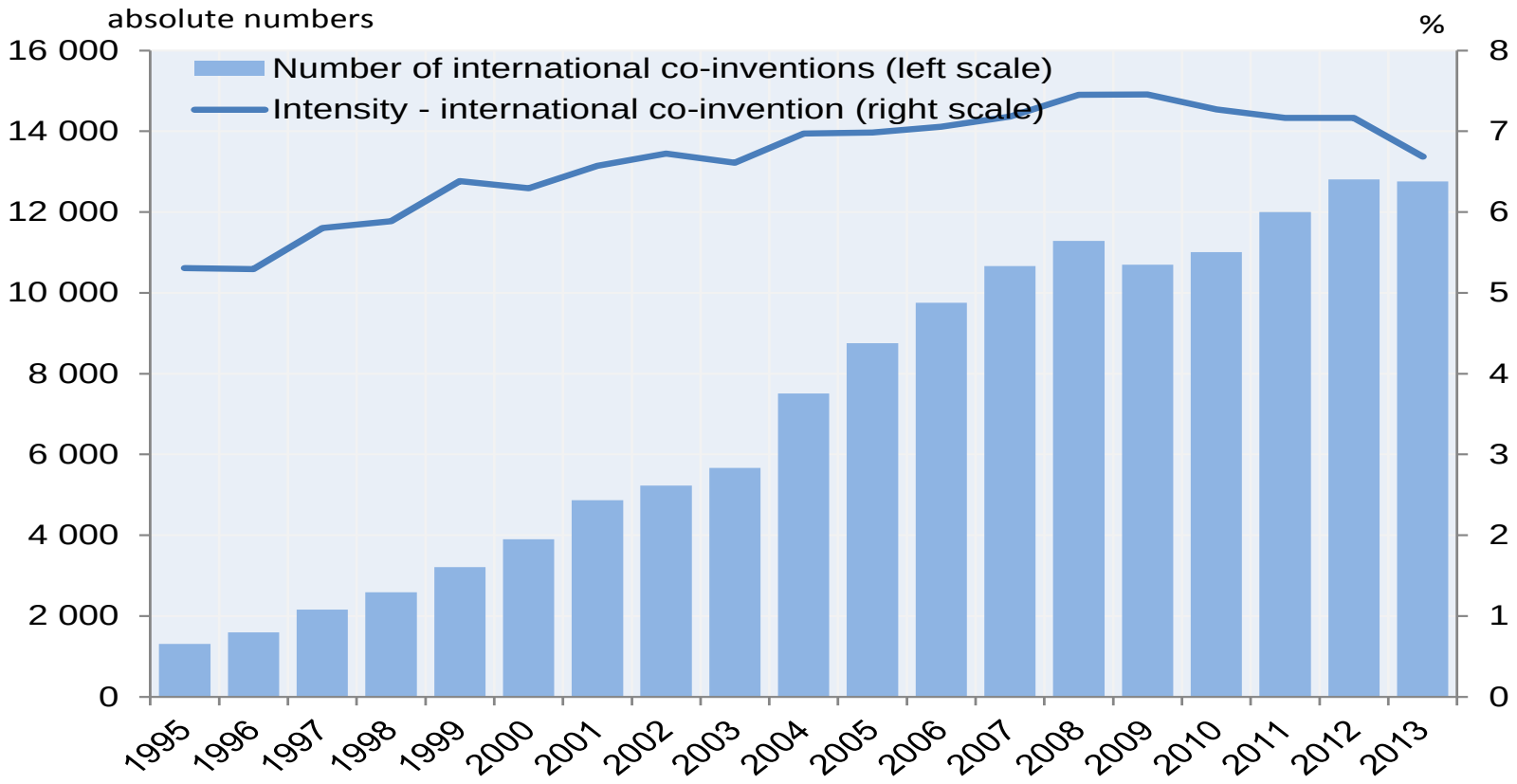
- No push effect of prior offshored production activities
- Once decision to offshore is taken, there is however pull effect of prior offshored production
- Stronger in engineering industries

Data on GVCs and GINs

- GVCs
  - Trade
  - ICIO/TiVA, WIOD
- GINs
  - R&D data
  - Innovation surveys
  - Patent data
    - International co-invention
    - International co-application
- Importance of MNEs

GINs on the rise, but…

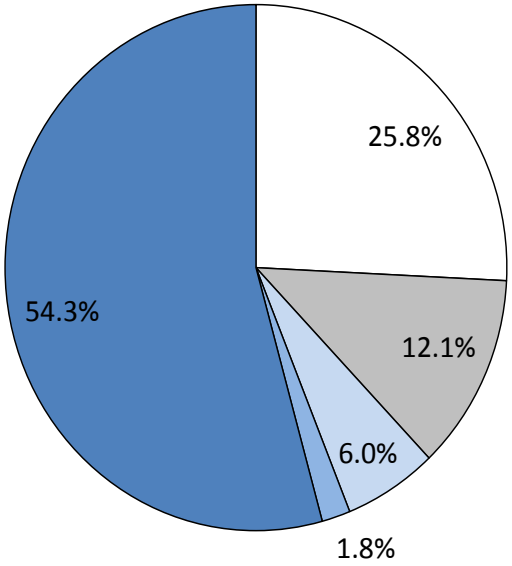
International co-invention, 1995-2013

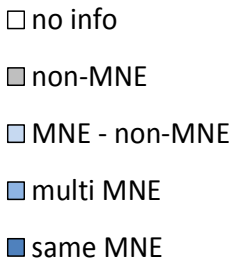


GINs and MNEs

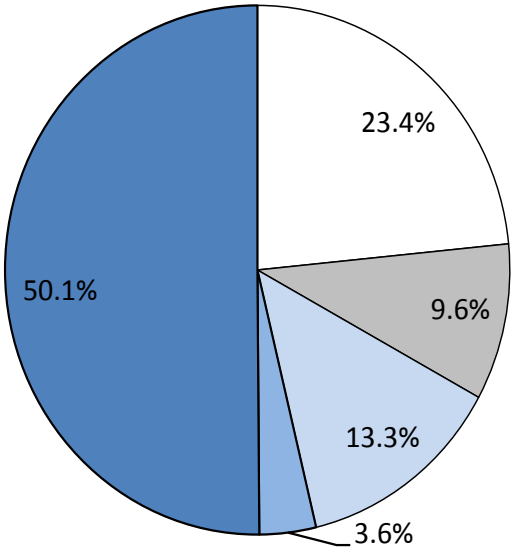
MNEs in patenting and international co-invention, 1995-2013

PCT patents





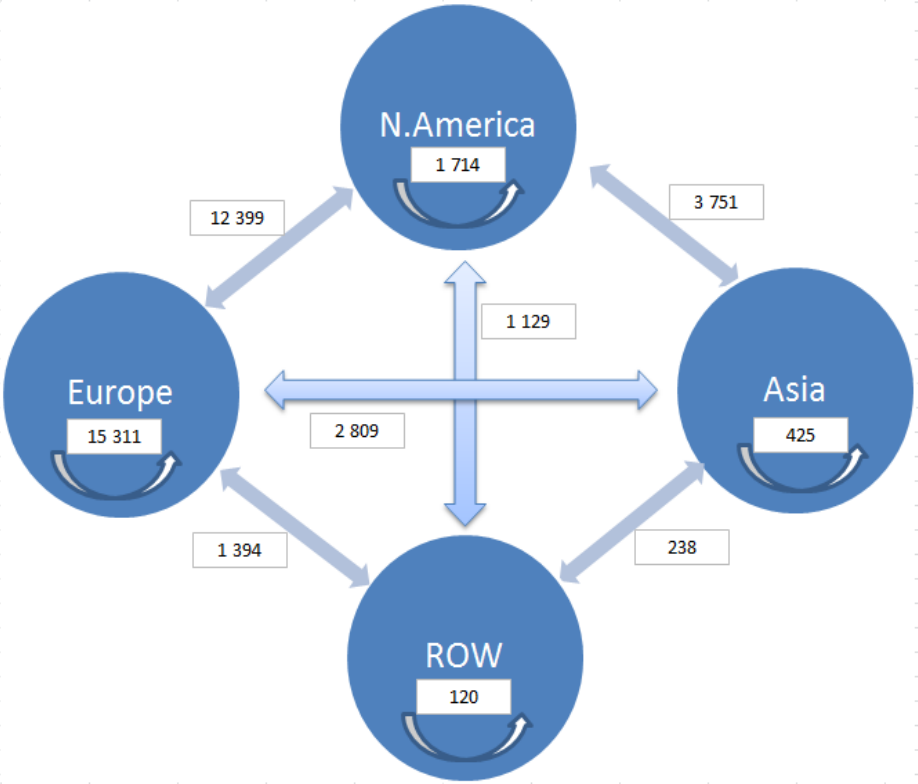
International co-inventions



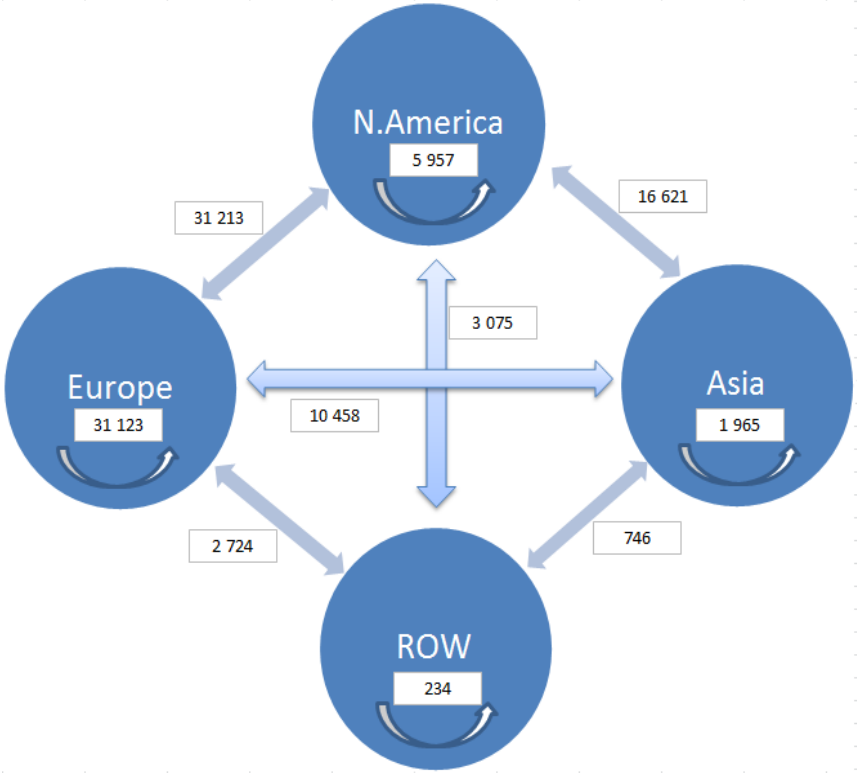
Changing geography of GINs

International co-invention by region (absolute numbers)

1995-2004



2005-2013



Geography of GVCs and GINs (1)

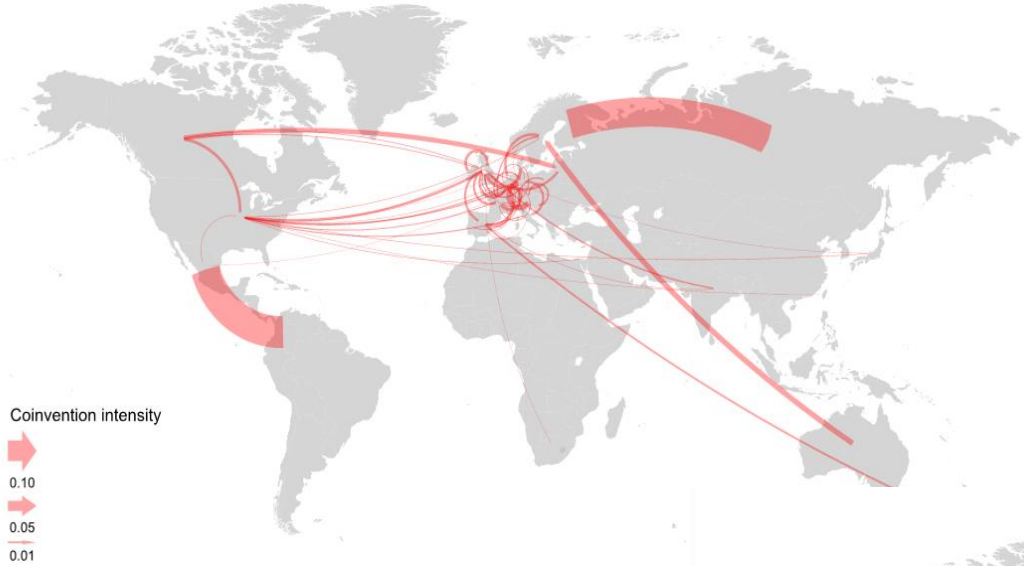
$$CoinvIntensity = \left(\frac{Coinvention_{ijk,t} + Coinvention_{jik,t}}{\sum Invention_{ikt} + \sum Invention_{jkt}} \right) \quad (1)$$

$$TradeIntensity = \left(\frac{Exports_{ijk,t} + Exports_{jik,t}}{\sum Output_{ikt} + \sum Output_{jkt}} \right) \quad (2)$$

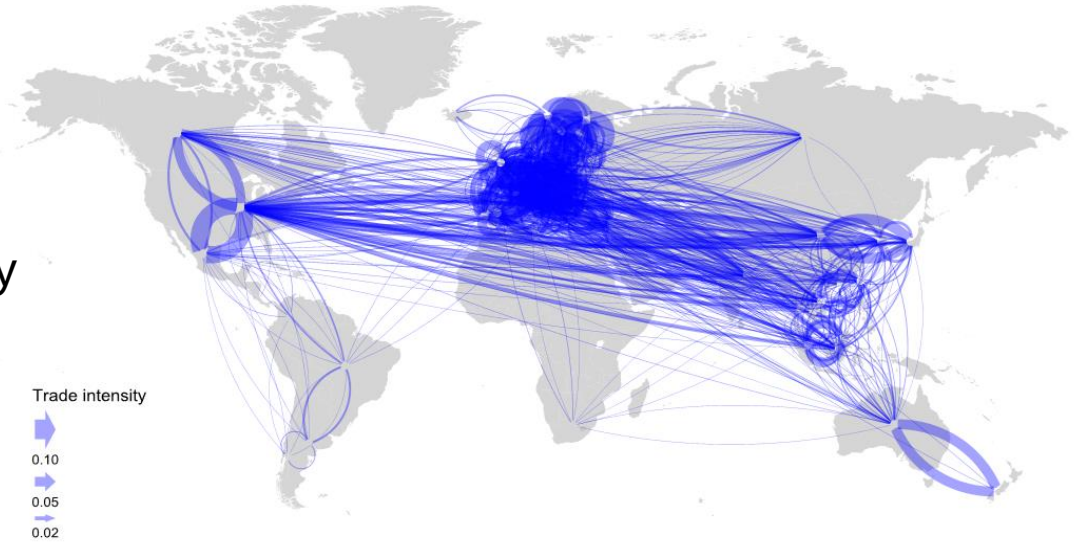
Geography of GVCs and GINs (2)

Textiles, 2000-2005

International co-invention intensity



International trade intensity

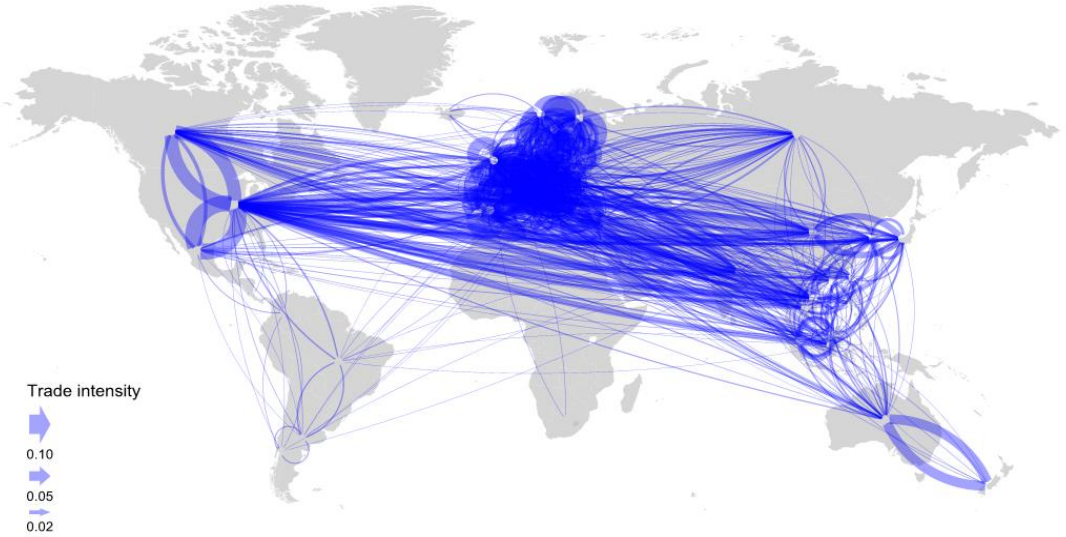


Geography of GVCs and GINs (3)

Textiles, 2008-2011

International co-invention intensity

International trade intensity

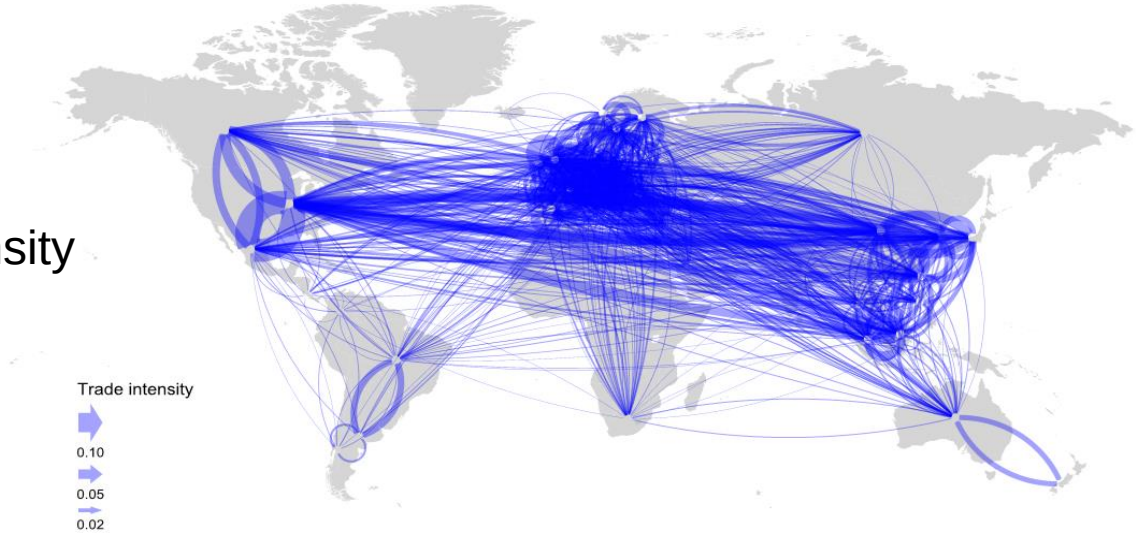


Geography of GVCs and GINs (4)

Electronics, 2000-2005

International co-invention intensity

International trade intensity



Geography of GVCs and GINs (5)

Electronics, 2008-20011

International co-invention intensity

International trade intensity

From GVCs to GINs: does trade promote co-invention? – YES (1)

- Gravity estimation
- Explicitly taking into account physical distance and distance in time zones
- Importance of MNEs

- Evidence:
  - Countries that do not trade also show lower propensity to co-invent
  - More intensive trading goes together with more intensive coinvention

From GINs to GVCs: does co-invention lead to GVC upgrading

- Spillover set-up with co-invention used as weighting factor in access to foreign knowledge
- GVC upgrading: change in domestic content
- Taking into account: absorptive capacity, distance, types of partners

- No evidence found
- Different reasons: spillovers, GVC upgrading, patents

Policy takeaways

- Growing internationalisation of knowledge
- Distance is not dead
- MNEs are central players
- Similarities and differences between GVCs and GINs
  - Matching geography between GVCs and GINs
- Complementarity between innovation and trade policies
- Being in a GIN is not enough

Thank you

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