

Geography of Innovation and the Location of MNEs R&D Activities

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Outline

- Innovation is clustered in a few places in the world ('local buzz' argument)
- These few places need to be connected to each other ('global pipeline' argument)
- MNEs are privileged actors to build these pipelines, but they need to internationalise their R&D activities in geographically dispersed locations
- What are the factors that drive the location of R&D by MNEs?
- What is the right level of analysis?

The changing geography of innovation

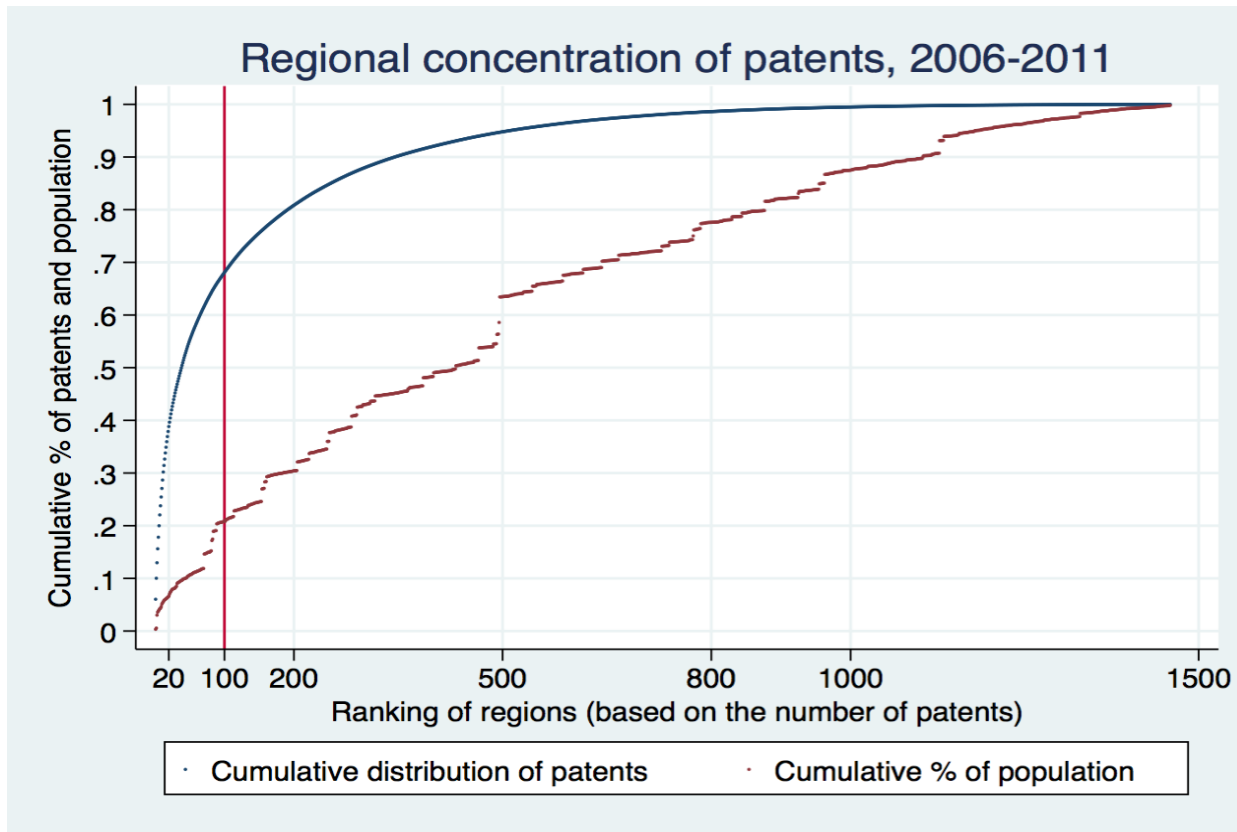


Based on OECD
Regional
Innovation
Dataset

– 1,482 regions
(TL2 or TL3)
in 39
countries,
over 32 years
(1980-2011)

- Median patents per million inhabitants have increased, but the cross-regional dispersion has increased even more
 - the gap between the the top innovating regions and the rest is widening

The changing geography of innovation



Based on OECD
Regional
Innovation
Dataset

- 1482 regions (TL2 or TL3) in 39 countries, over 32 years (1980-2011)
- just **100 regions** account for **70% of patents** (and only 20% of population)

The changing geography of innovation



Based on OECD
Regional
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- 1482 regions (TL2 or TL3) in 39 countries, over 32 years (1980-2011)

- **Co-patenting with foreign inventors** is becoming more important

Geography of innovation and MNEs

- Innovation activities tend to cluster to allow more effective transfer of (mostly) tacit knowledge ('local buzz')
 - the importance of 'being there'
- Local knowledge eventually needs to be integrated with knowledge external to the cluster ('global pipelines')
- But how knowledge is transferred in these global pipelines?
How can the obstacles of 'not being there' be overcome?
 - MNEs can help

Geography of innovation

- MNEs are becoming orchestrators of knowledge
 - tap into diverse knowledge clusters
 - de-contextualise tacit knowledge
 - transfer it within the MNE and across space
- Create connections between clusters (global pipelines) and share tacit knowledge across locations despite of geographical distance
- But they ‘need to be there’ through their international R&D activities

MNEs and internationalisation of R&D

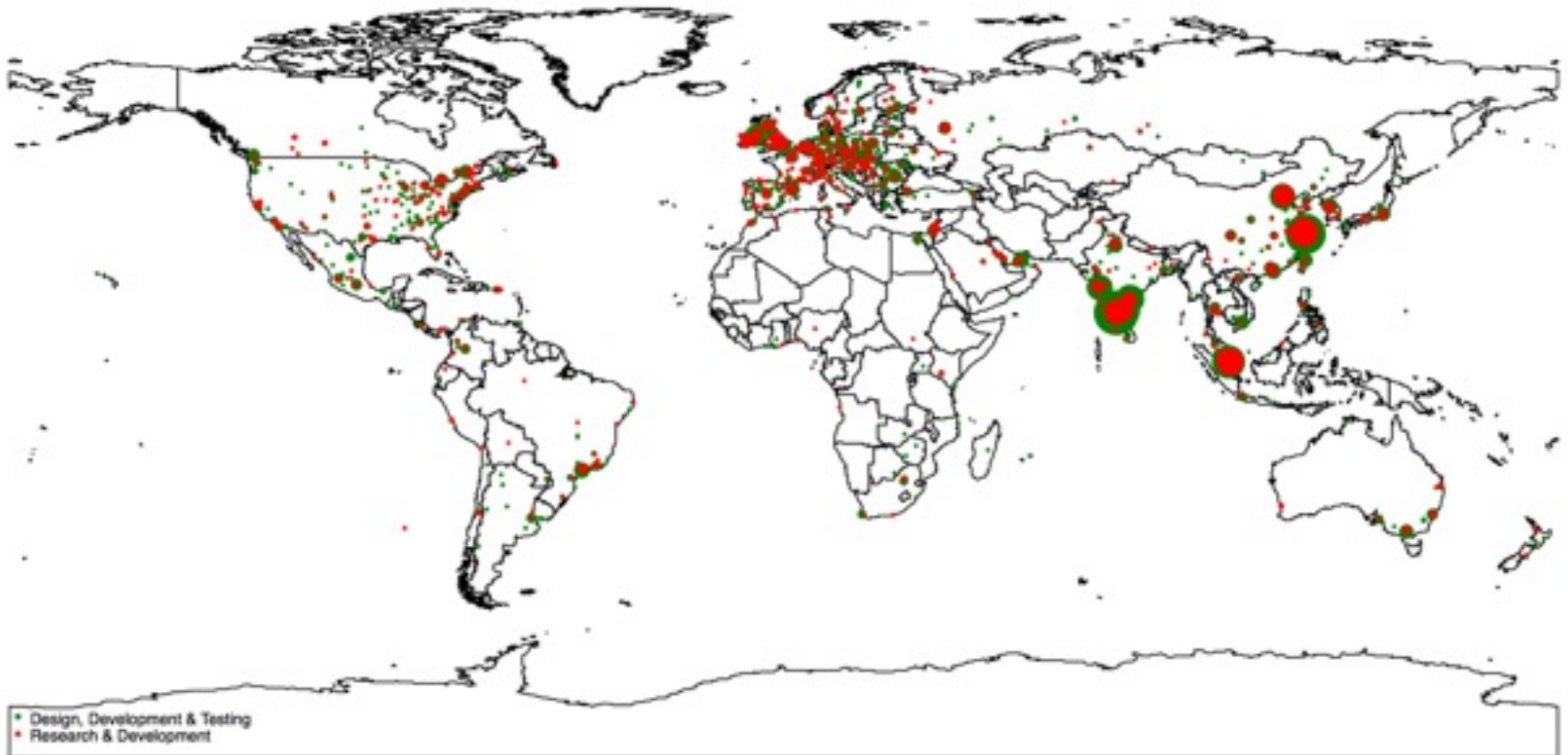
- Still we know relatively little on internationalisation of R&D
 - ▶ Bernhard Dachs will tell us more about the patterns and trends in internationalisation of R&D across countries
 - ▶ Giacomo Damioli will tell us about characteristics of regions (within countries) that attract international R&D and territorial competition to attract R&D FDI
 - ▶ Sara Amoroso will tell us about the effects of R&D FDI on the host economies

MNEs and internationalisation of R&D

- ◉ Areas for future research
 - ▶ is there a trade-off between
 - ▶ dispersing R&D to exploit external agglomeration economies
 - ▶ keeping R&D close to production (and other activities) to exploit intra-firm agglomeration?
 - ▶ what is the right level of geographical disaggregation for studying location (and effects) of international R&D?
 - countries, regions, cities?

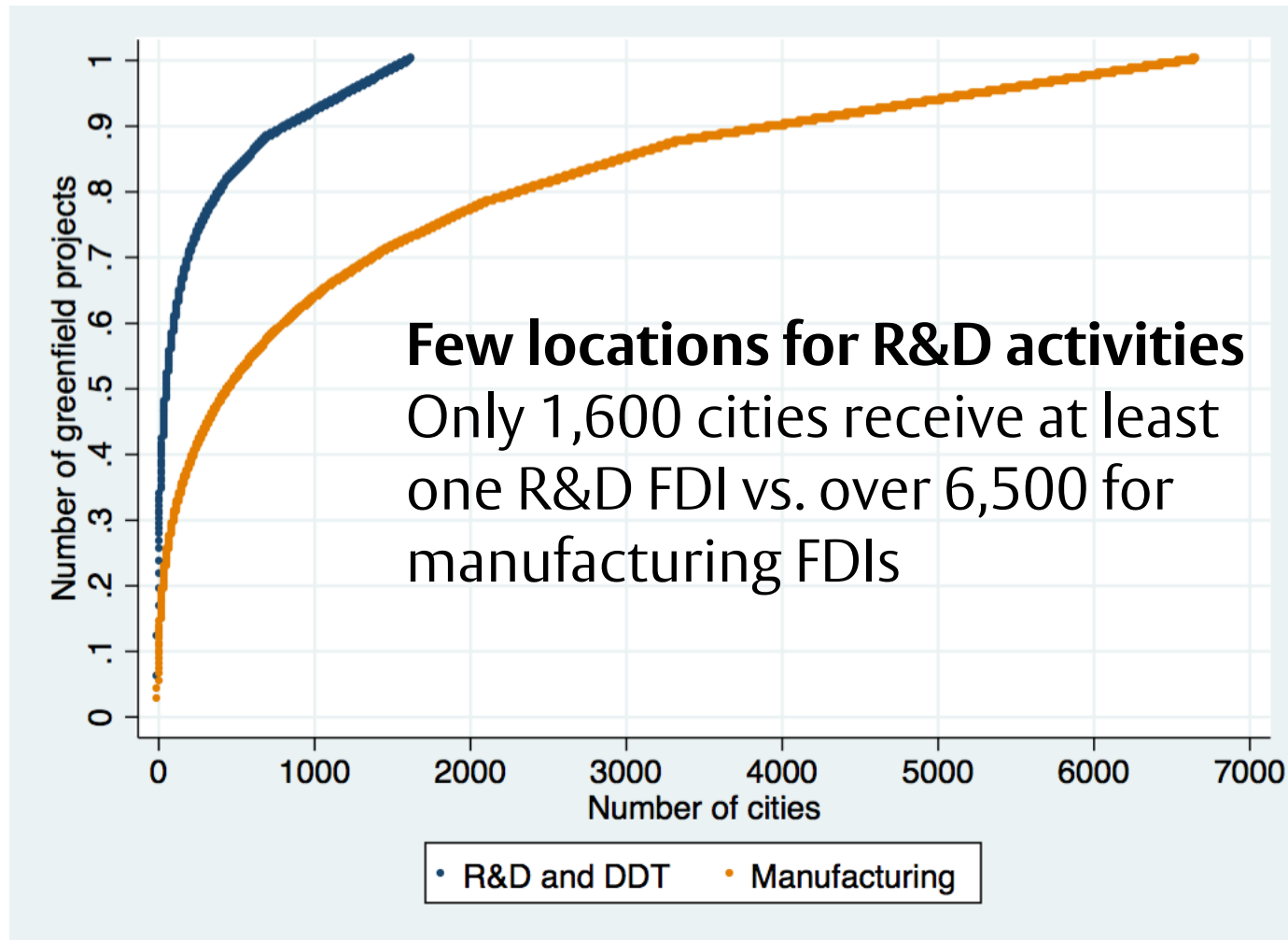
Internationalisation of R&D

R&D and DDT FDIs

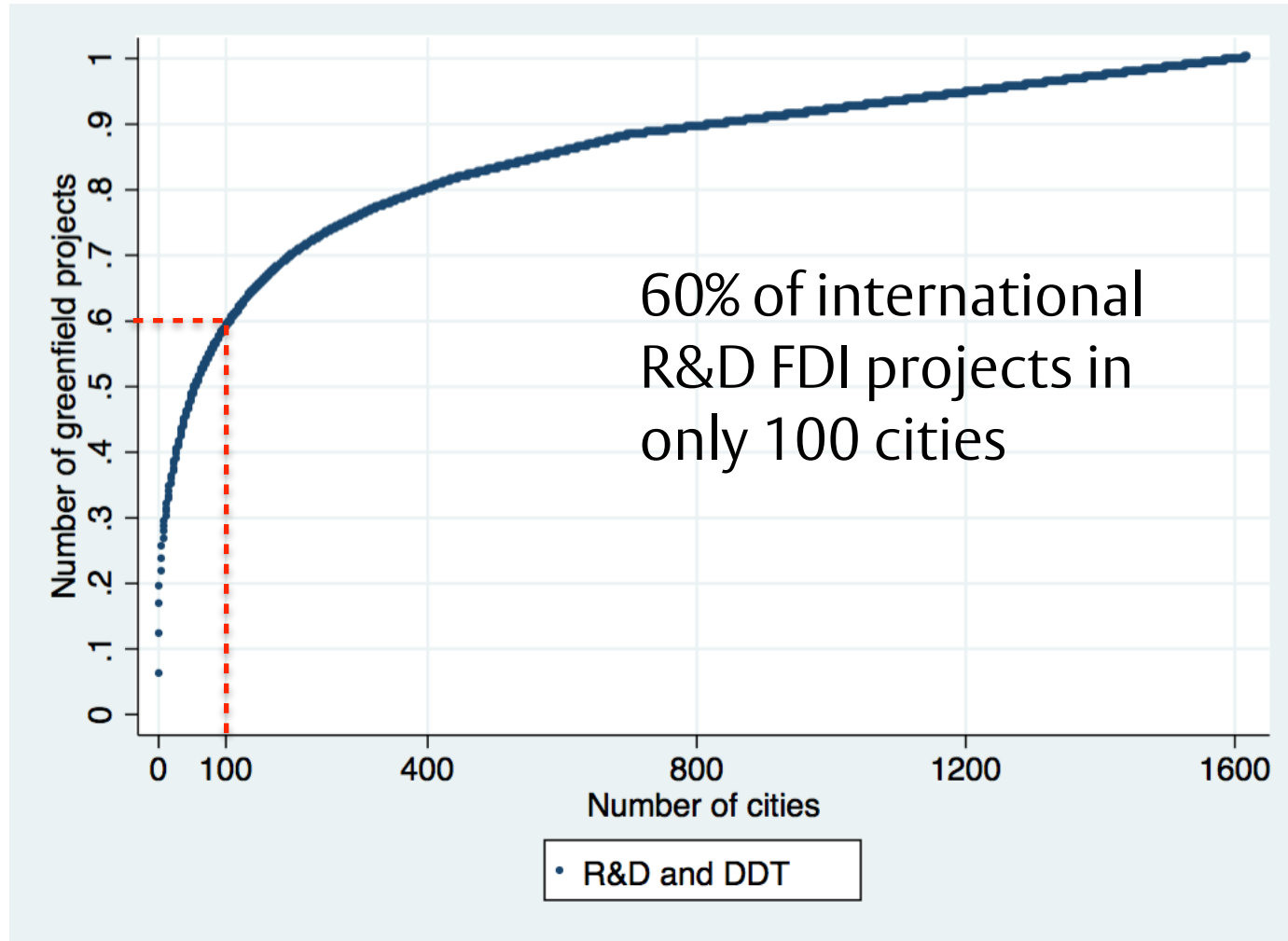


7,788 projects in R&D or Design, Development and Testing in **1,621 cities** worldwide
Source: fDi Markets

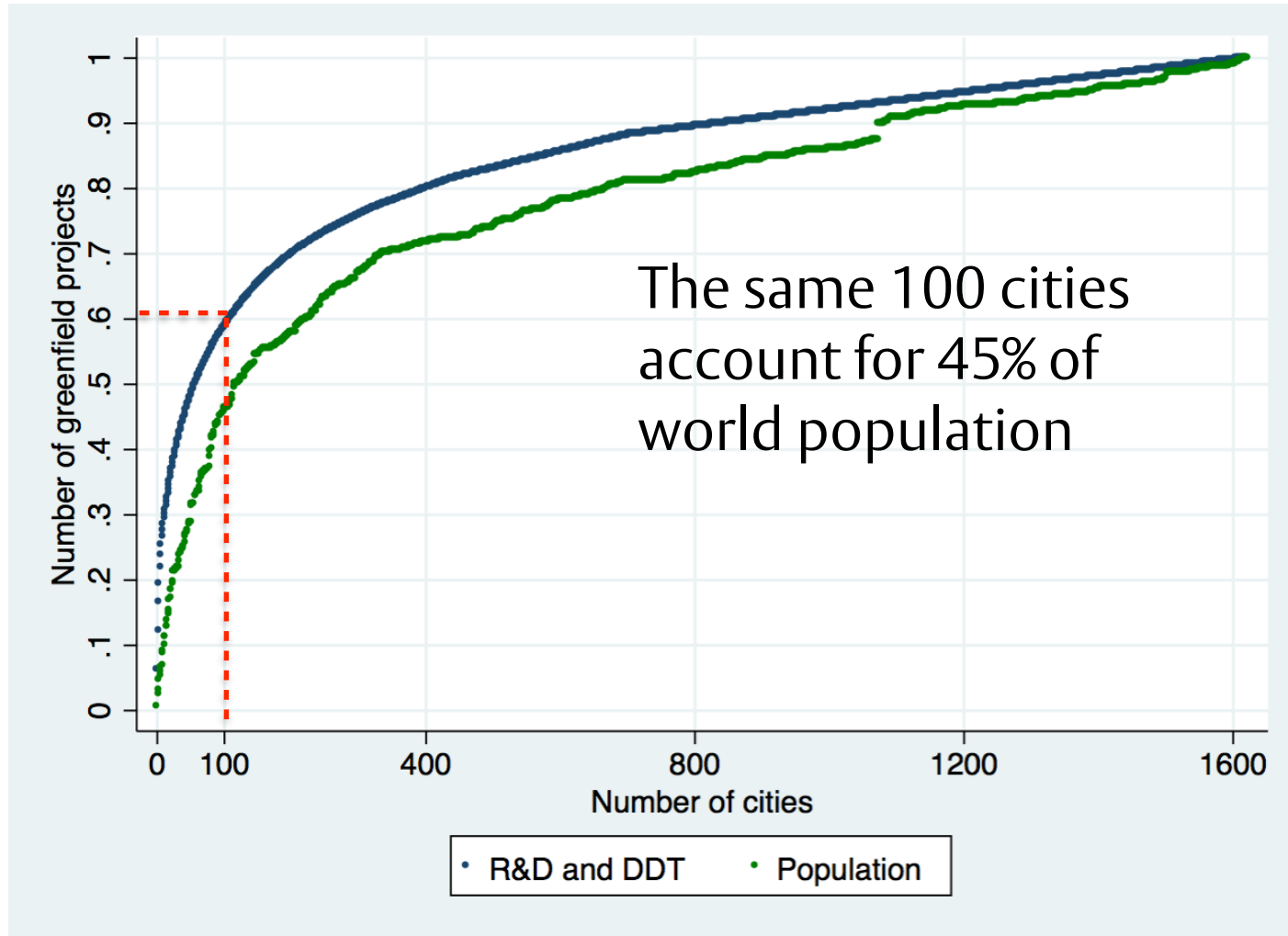
Geographical concentration of R&D FDI



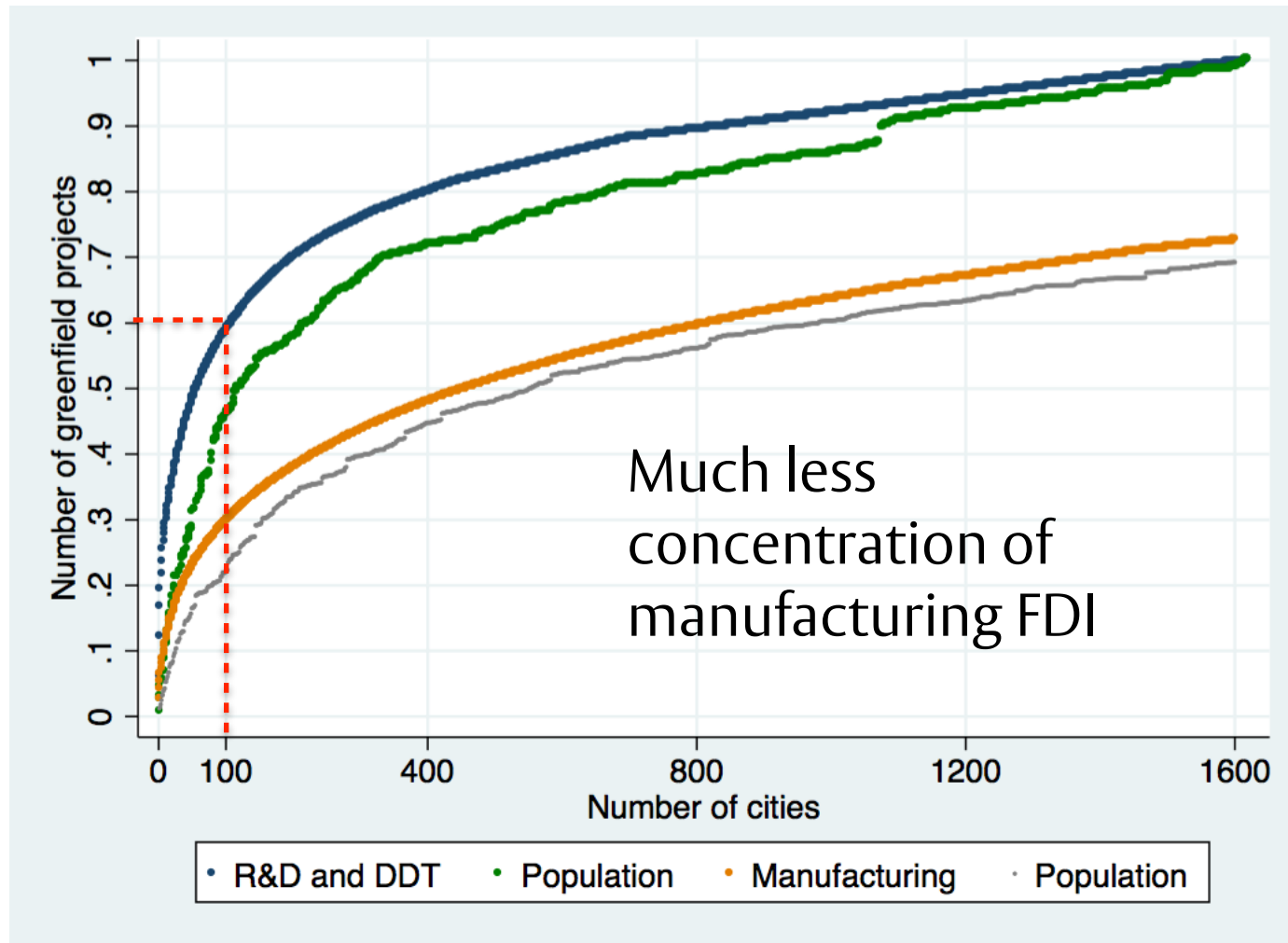
Geographical concentration of R&D FDI



Geographical concentration of R&D FDI



Geographical concentration of R&D FDI



Distance and R&D FDI

Table 2 – **Average distance** between city of origin and city of destination

	Global Cities	Metro area of global cities	Moderate global cities	Peripheral cities	Total
Coordination	7,839	6,709	6,617	6,538	7,316
R&D-related	8,312	7,363	8,605	6,601	7,771
Production	6,481	5,948	5,769	5,494	5,707
Support Svcs.	7,153	5,833	6,227	5,214	6,033
Advanced Svcs.	7,024	6,130	5,886	5,193	6,489
Total	7,122	6,198	6,223	5,484	6,347

Coordination: Headquarters

Support svcs: Customer centers, Logistics, Maintenance, Technical support

R&D-related: R&D, Design, Development and Testing

Production: Manufacturing, Construction, Extraction

Advanced svcs: Business svcs, Sales and Marketing

Concluding remarks

- The increasing concentration of innovative activities goes hand in hand with the need for MNEs to internationalise their R&D
- MNEs need to locate their R&D in few innovative clusters around the world
- Studying international R&D implies studying those fine level of geographical disaggregation
- MNEs may need to cover long distances to be close to knowledge clusters
- MNEs may face a trade-off between dispersing R&D to locate close to knowledge clusters or keeping R&D close to their production to preserve intra-firm linkages