PROFILING REGIONAL ECONOMIES: CONSIDERATIONS FOR SMART SPECIALISATION STRATEGIES

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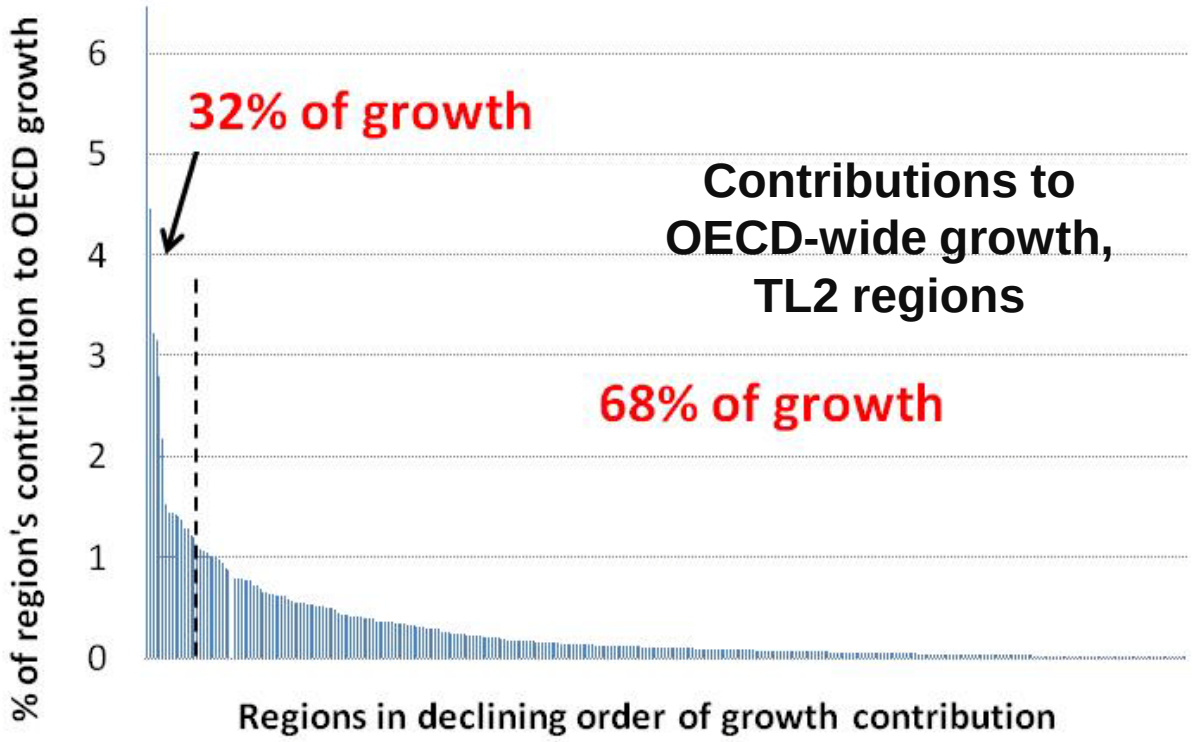
OECD
BETTER POLICIES FOR BETTER LIVES

Presentation overview

- Regional growth… and well-being
- Regions and innovation policy
- “Functional” areas
- Connectivity

Regional growth: some general trends

- A few big regional hubs contribute a lot to aggregate growth
- But most growth occurs outside the hubs
- Several big cities are making little or no growth contribution
- The notion of an "average region" is meaningless



Source: OECD (2011), *OECD Regional Outlook 2011*, OECD Publishing.

Regional growth: innovation-related variables

- **Innovation:** Technology-based measures of innovation become increasingly important for regional growth the closer the region is to the technology frontier
- **Skills:** The low-skilled population is a bigger drag on regional growth than the lack of high-skilled workers, in part because the low-skilled are less mobile

Growth drivers/bottlenecks	Relative level of development		
	Lagging (>75% of national average *per capita* GDP)	Intermediate (75-100% of national average *per capita* GDP)	Leading (>100% of national average *per capita* GDP)
Human capital/skills: presence of very low skilled	√√	√	√√
Human capital/skills: presence of highly skilled	√	√	√√
Labour-force mobilisation: participation/employment rates		√	√√
Innovation activity: patents, R&D spending, employment in knowledge-intensive sectors	√	√	√√√
Agglomeration effects: density of population, density of GDP			√
Quality of government	√√	√	√

Note: √ = somewhat important √√ = very important; √√√ = critical factor.
Source: Based on OECD (2012), *Promoting Growth in All Regions* and other ÒECD research.

Some implications for the design of RIS3 in low-density regions

- Focus on *different metrics*: it may not be relevant to measure rural innovation potential by metropolitan criteria
- Lower population density implies that *physical geography* counts for more and rural economies are more idiosyncratic: look at specific assets
- *Small is not necessarily the problem: isolated is*. Promote networks and ownership. Production chains matter and innovation is an interactive process. Links downstream may matter most: demand-driven innovation
- *Social capital* is a specific asset of communities – but use of social capital depends on whether the members of the group feel authorised to innovate
- *Process innovations* in service delivery may be particularly promising in the current context

Fitting policies to places: complementarities among policies

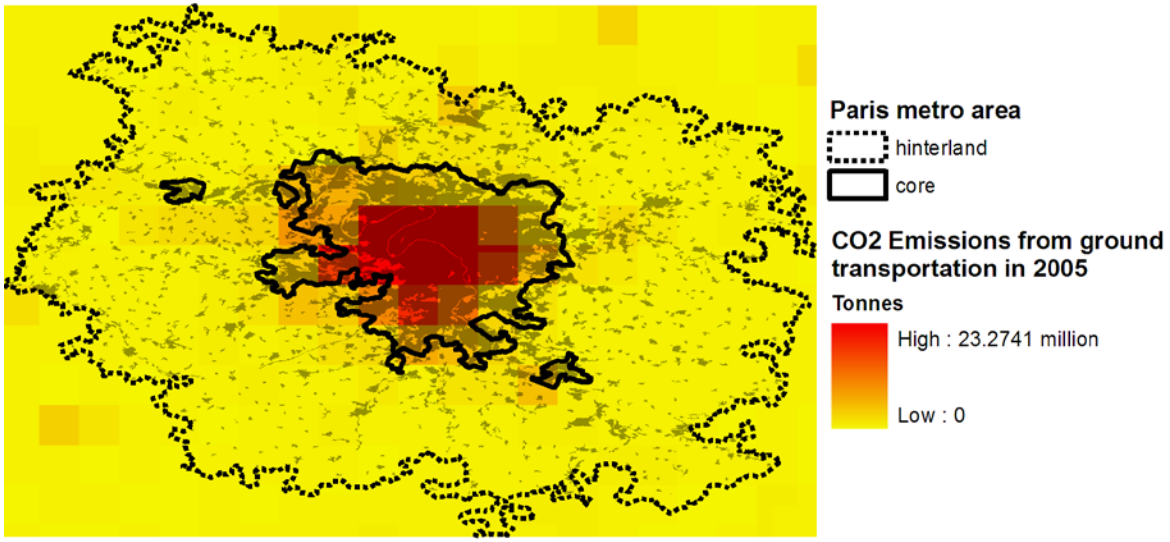
	Efficiency	Equity	Environmental Sustainability
Economic policies	Sustained growth	Economic reforms may increase equity	Green growth may improve sustainability
Social policies	Social policies may increase efficiency (knowledge, trust, security)	Social cohesion	Environmentally sustainable social policies
Environmental policies	Green economy may boost innovation	Social policies can enhance inclusiveness; poor people are the most hurt by environmental degradation	Sustainable environment

Source: OECD (2011), *OECD Regional Outlook 2011*, OECD Publishing.

How's Life in Your Region? Well-being in regions and cities

Well-being...

1. goes beyond income inequalities;
2. should be measured where it matters; and
3. is strongly influenced by governance.



- Measure outcomes to support policy-making
- Learning from national, regional, and local experiences
- Case studies from the following countries: Denmark, France, Italy, Mexico, United Kingdom, United States
- Final report with key facts and policy recommendations on making use of outcome indicators for policy making (July 2014)

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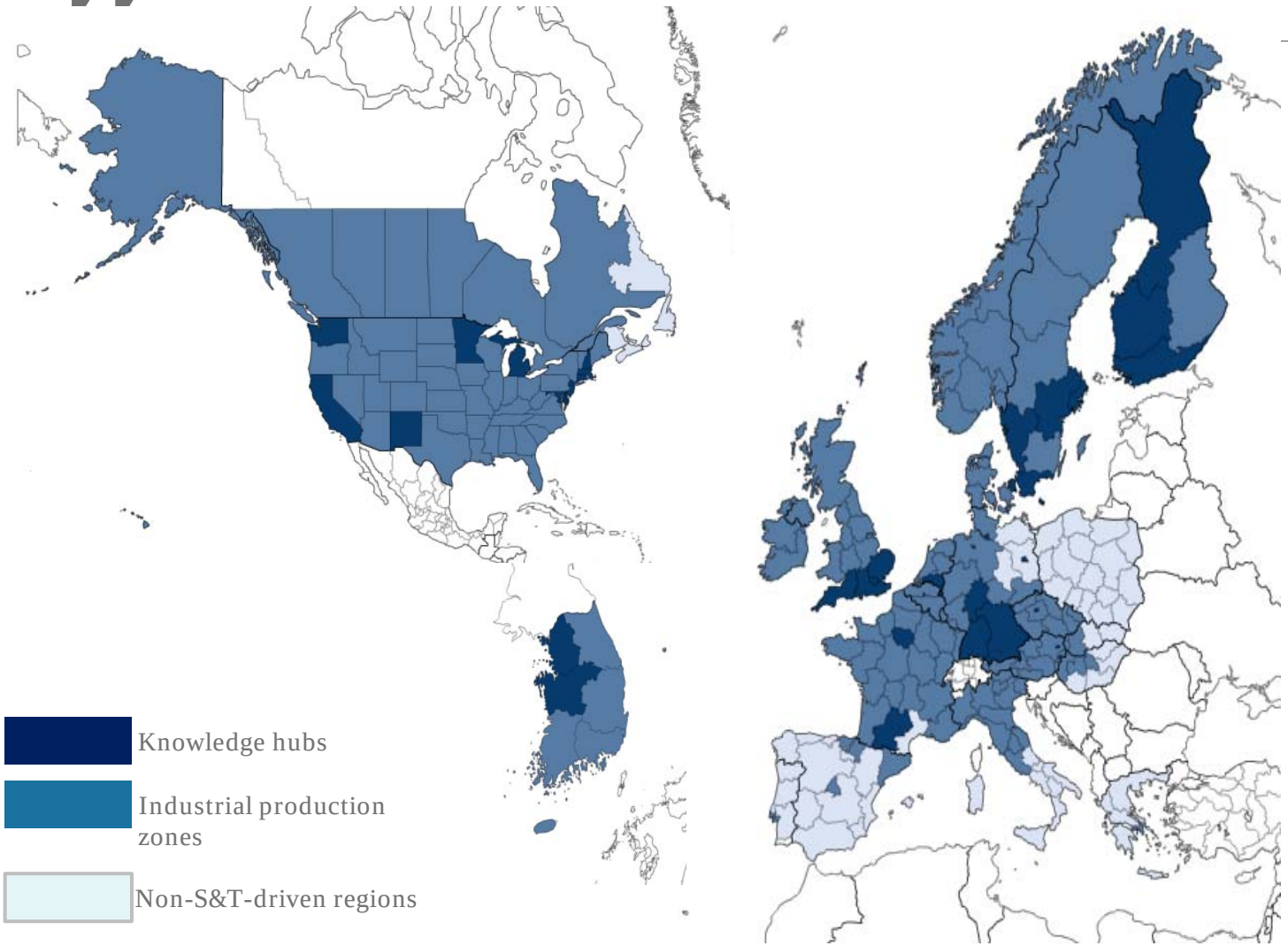
Categorisation of regions using innovation-related variables



Knowledge Hubs
✓Knowledge-intensive city/ capital districts
✓Knowledge and technology hubs

Industrial Production Zones
✓US states with average S&T performance
✓Service and natural resource regions in knowledge-intensive countries
✓Medium-tech manufacturing and service providers
✓Traditional manufacturing regions

Non-S&T driven regions
✓Structural inertia or de-industrialising regions
✓Primary-sector-intensive regions

Notes: This map is for illustrative purposes and is without prejudice to the status of or sovereignty over any territory covered by this map. Maps may be cropped for ease of display. Eight different types of regional profiles, based on an analysis of 12 indicators in OECD regions with available data, were grouped into these three categories.
Source: OECD (2011) *Regions and Innovation Policy*, OECD Publishing.

Some considerations for framing regional action for innovation support

Knowledge Hubs
✓Knowledge-intensive city/ capital districts
✓Knowledge and technology hubs

Industrial Production Zones
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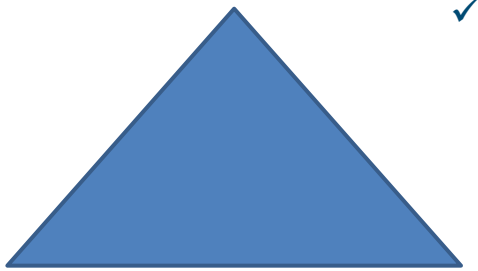
Institutional context

- ✓ Significant control of STI powers and or resources
- ✓ Some decentralisation of STI powers and/or resources
- ✓ No decentralisation but regional innovation strategies
- ✓ No decentralisation and innovation projects only



Type of region

Regional strategy

- ✓ Building on current advantages (science push / technology led or a mix)
- ✓ Supporting socio-economic transformation (reconversion or identification of a new frontier)
- ✓ Catching up: towards the creation of knowledge-based capabilities

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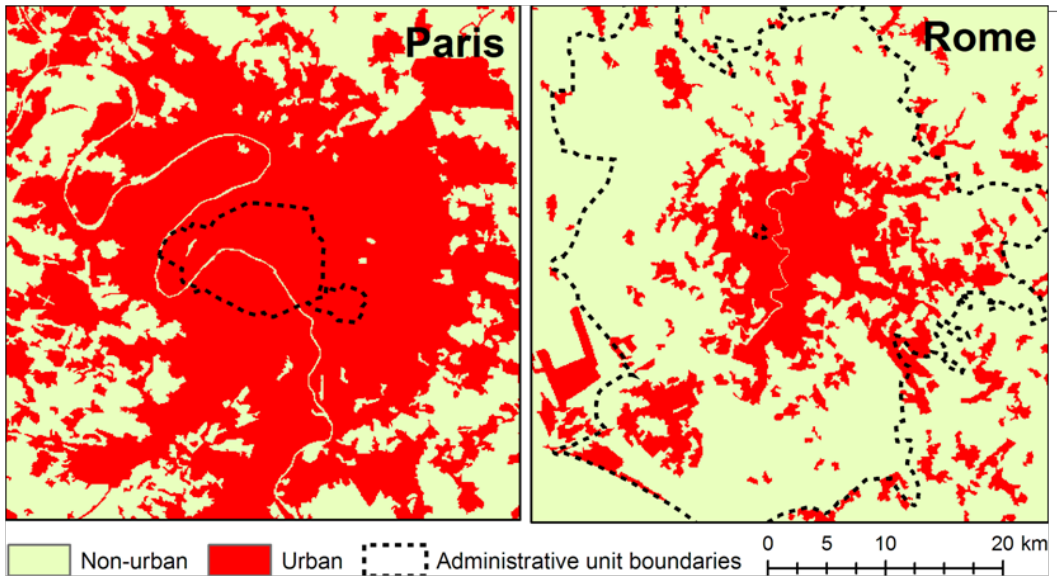
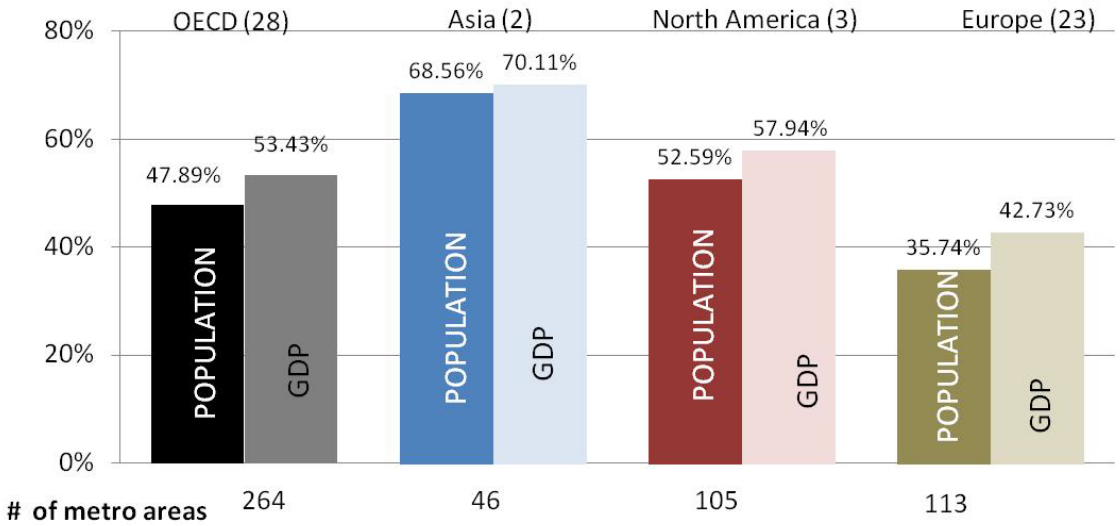
Redefining Urban: functional urban areas



Mismatch of administrative borders

264 functional urban areas of 500,000+ in OECD Metro database

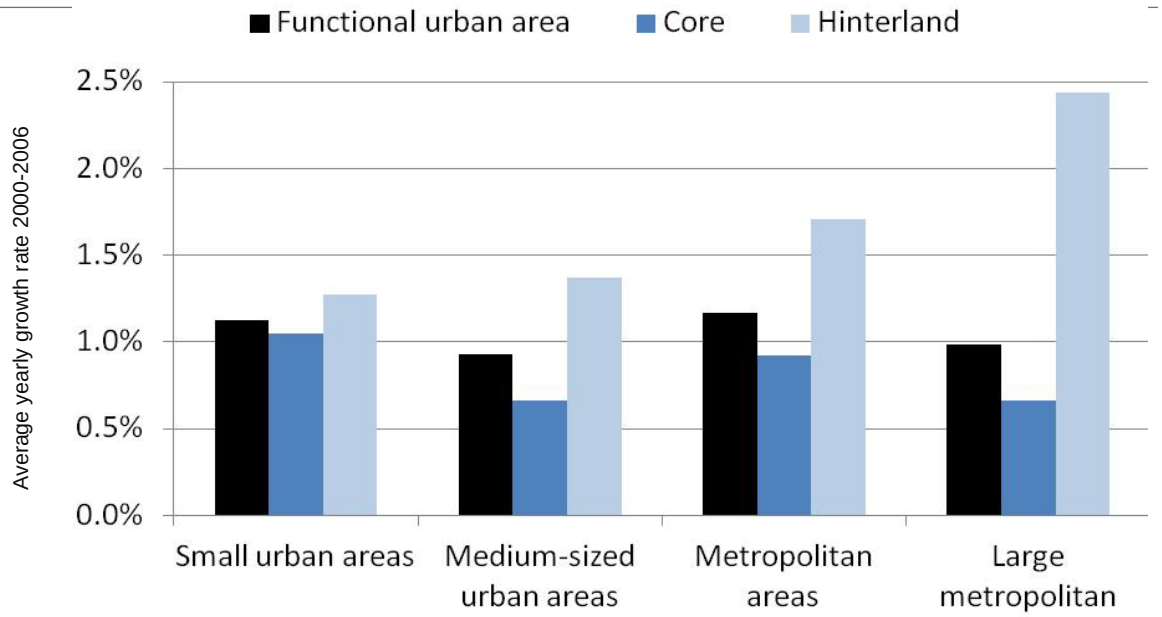


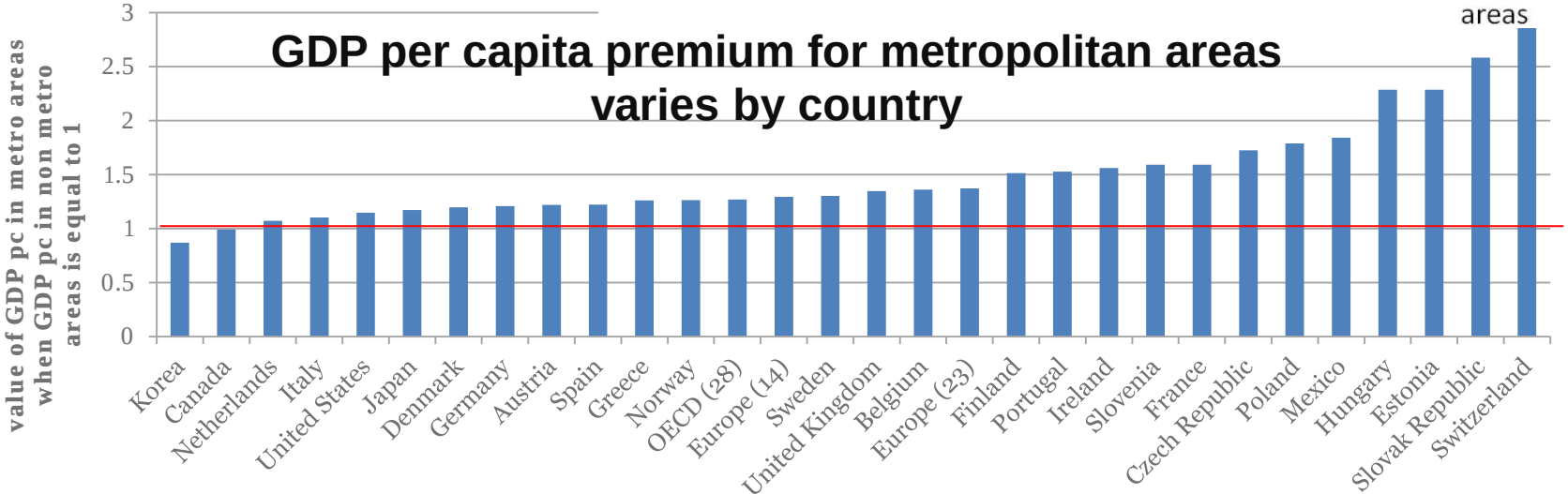
Source: OECD (2012) *Redefining Urban: A New Way to Measure Metropolitan Areas* and OECD Metropolitan Database www.oecd.org/gov/regional/measuringurban

Note: Percentage of population and GDP in metro areas (2008).

Redefining Urban: functional urban areas

Higher population growth outside of urban core





Source: OECD (2012) *Redefining Urban: A New Way to Measure Metropolitan Areas* and OECD Metropolitan Database www.oecd.org/gov/regional/measuringurban .

Cross-border areas for regional innovation: What is the right scale?

Participating areas

- Ireland-Northern Ireland (UK)
- Bothnian Arc (Finland-Sweden)
- TTR-ELAT (Netherlands, Belgium, Germany)
- Helsinki-Tallinn (Finland, Estonia)
- Hedmark-Dalarna (Norway, Sweden)
- Oresund (Sweden, Denmark)

- When does it make sense to cooperate with your neighbour (or instead another place)?
- What is the geography of the innovation relationships in the cross-border area? (one main hub, several nodes, along the border)
- How do sector-specific considerations change the policy approach?

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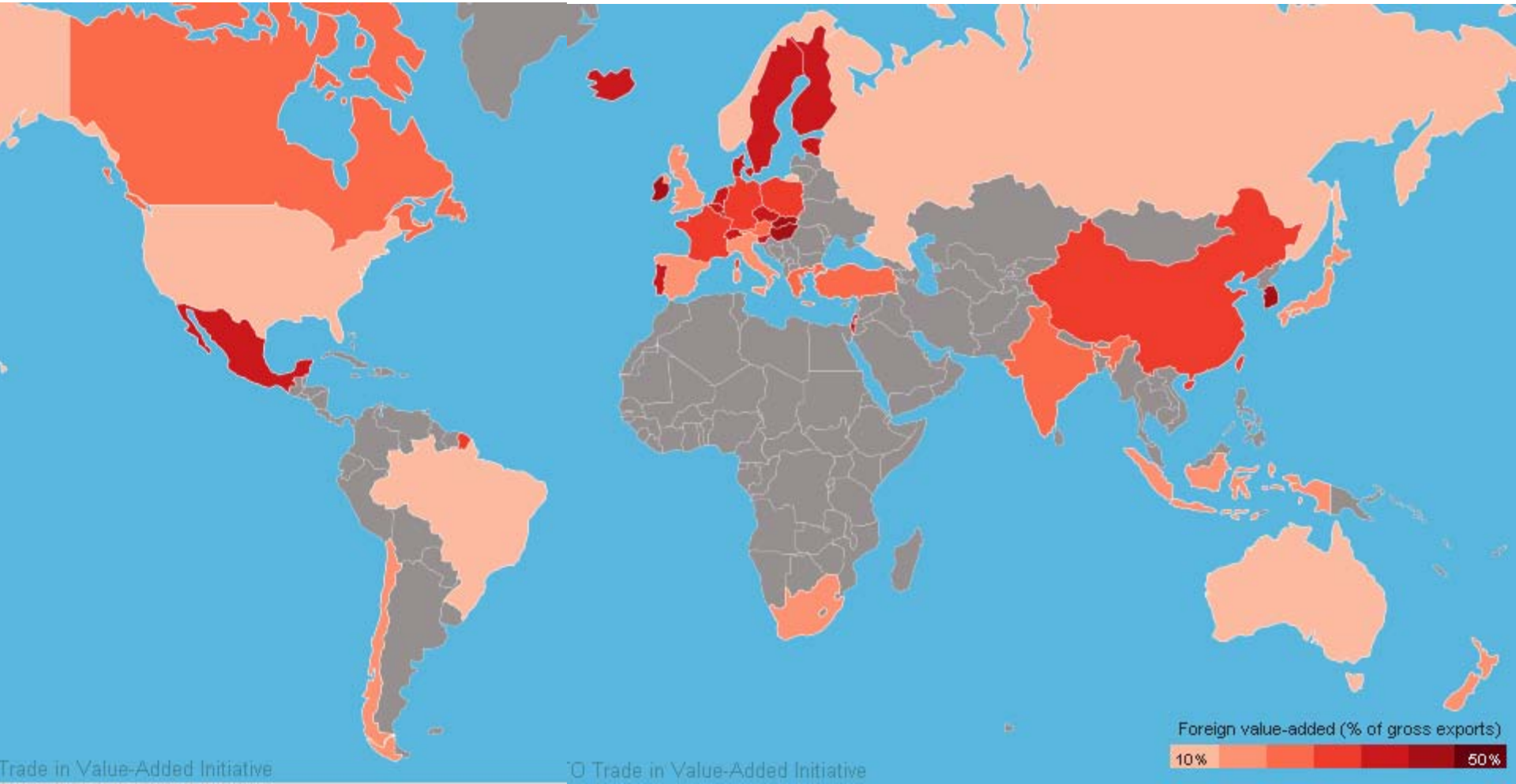
Connectivity: global trade *in value added*

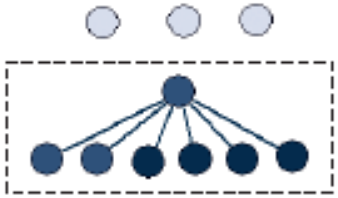
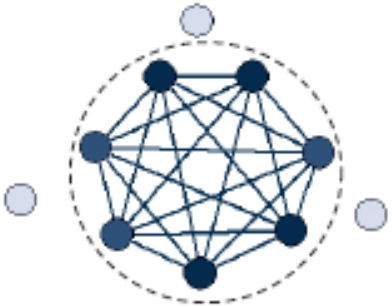
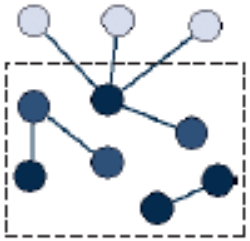
New OECD-WTO database released this month

www.oecd.org/trade/valueadded (40 countries, 18 industries, 2005, 2008 & 2009)



Connectivity: profiling regions by internal and external linkages

International linkages

	Centralised RIS	Decentralised Dense RIS	Decentralised Sparse RIS
No hinges			
Single hinge			
Diverses hinges			

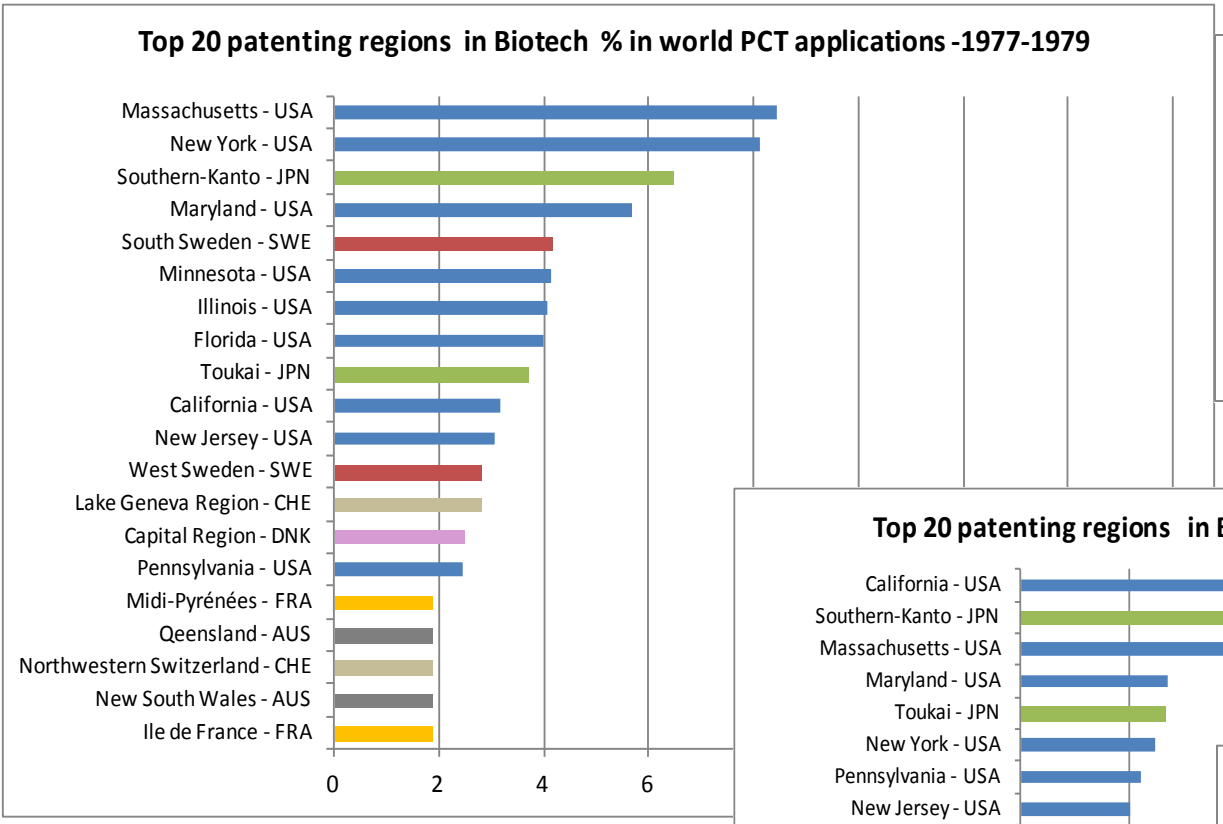
OECD (2011) *Regions and Innovation Policy*, OECD Publishing, Paris based on Benneworth, P. and A. Dassen (2012), Strengthening Global-Regional Connectivity in Regional Innovation Strategies, *Regional Development Working Papers*, OECD Publishing,.

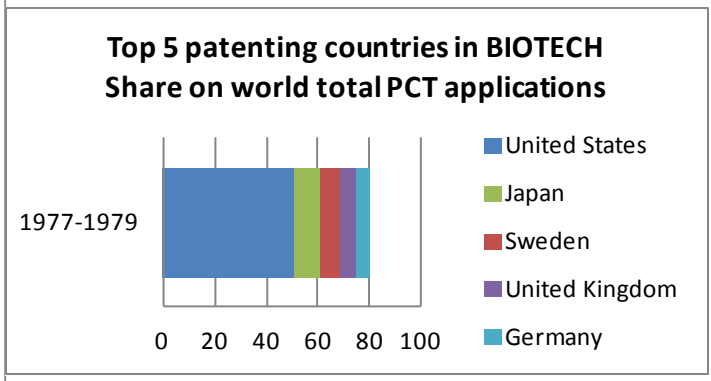
Connectivity: the example of patents

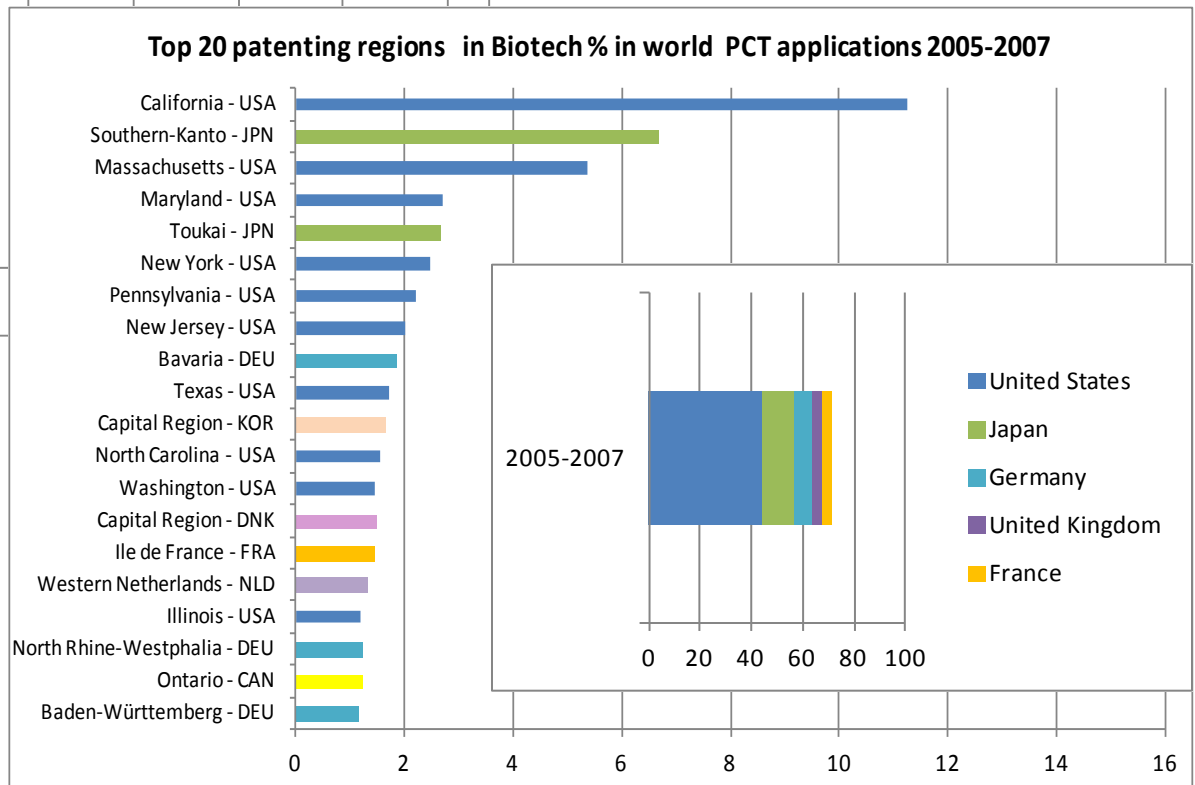
- Findings from Giulia Ajmone Marsan and Annalisa Primi (2012), "Tell Me Who You Patent With and I'll Tell You Who You Are - Evidence from Inter-Regional Patenting Networks in Three Emerging Technological Fields", *OECD Regional Development Working Papers* 2012/03, OECD Publishing.

- Analysis using:
  - PCT patent applications from 77-79 to 2005-2007 (OECD REGPAT database)
  - Variety of forms of collaboration and network indicators: *degree*, *centrality*, *clustering*
  - Evolution of co-inventorship networks over time in 3 technologies (biotech, telecom & renewable energies)

Persistence of some leaders but also new entrants
Biotech patents



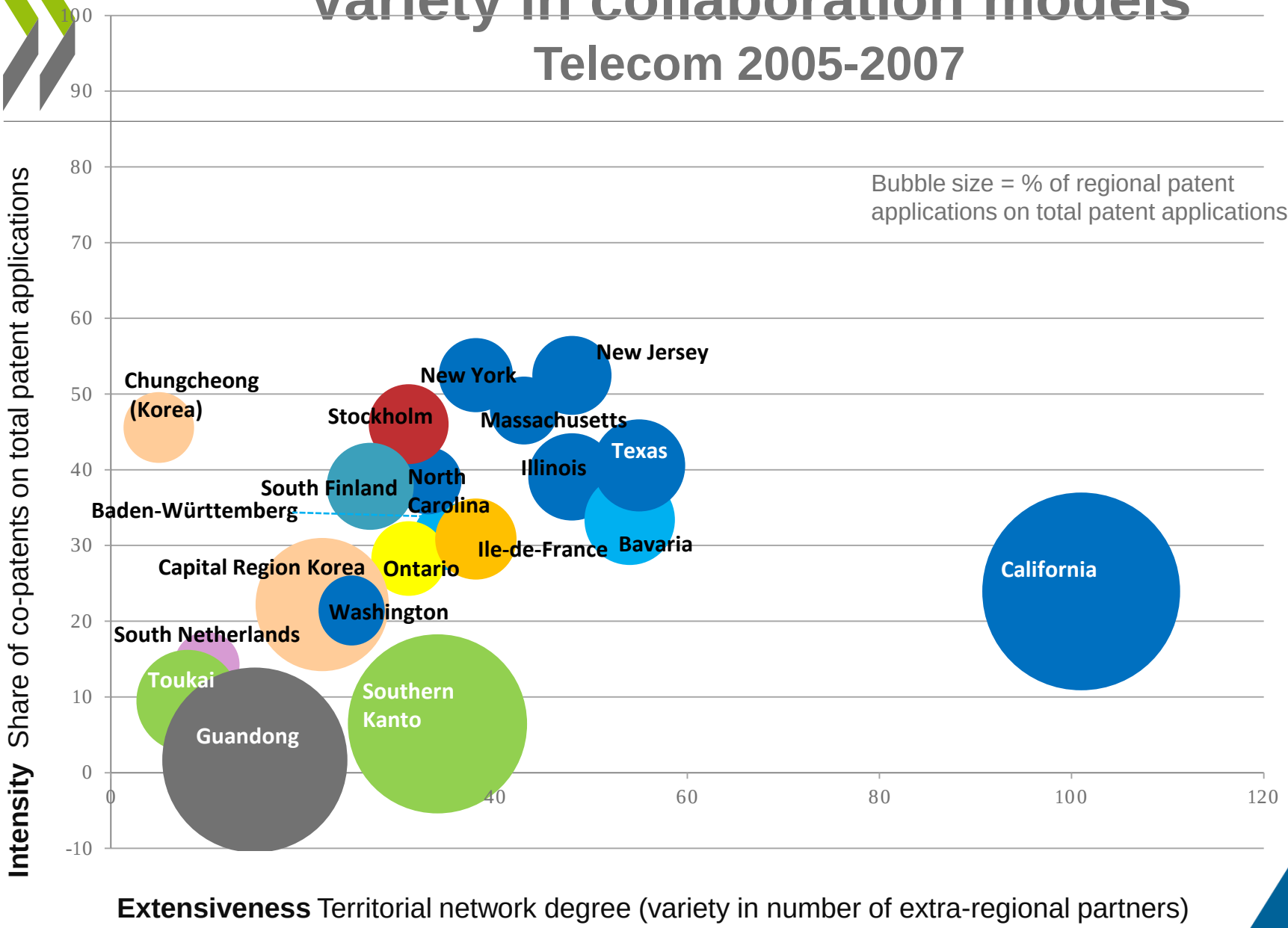




Share of top 20 patenting regions on total patent applications 76% = > 52%

Giulia Ajmone Marsan and Annalisa Primi (2012), "Tell Me Who You Patent With and I'll Tell You Who You Are - Evidence from Inter-Regional Patenting Networks in Three Emerging Technological Fields", *OECD Regional Development Working Papers* 2012/03, OECD Publishing.

Variety in collaboration models
Telecom 2005-2007



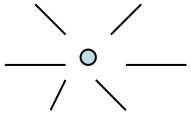
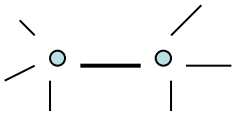
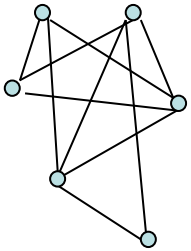
Giulia Ajmone Marsan and Annalisa Primi (2012), "Tell Me Who You Patent With and I'll Tell You Who You Are - Evidence from Inter-Regional Patenting Networks in Three Emerging Technological Fields", *OECD Regional Development Working Papers* 2012/03, OECD Publishing.

Variety of co-inventorship networks for top patenting regions

Biotech

Telecom

Renewable energies

Network topology	REGIONAL OPENESS		
	LOW	MEDIUM	HIGH
STAR 		Bavaria	California
		California	California Massachusetts
STAR + SATELLITE	Ile-de-France & Rhône Alpes	Ile-de-France & Brittany	
DOUBLE- HUB 	Korea Capital Region & Chungcheong Southern Kanto & Toukai	Denmark Capital Region & Central Denmark	
	Southern Kanto & Toukai	Southern & Western Finland Stockholm & East-Middle Sweden Korea Capital Region & Chungcheong	
MONO-HUB with INTERNATIONAL GATEKEEPER	Guandong & Beijing		
MULTI-HUB 	Southern, Eastern & Western Netherlands	California, Massachusetts, Maryland, New York, North Carolina, Pennsylvania, New Jersey, Illinois, Washington, Texas & Ontario Baden-Württemberg, Bavaria & North Rhine-Westphalia	
		California, New Jersey, Texas, New York, Massachusetts, North Carolina, Illinois, Washington & Ontario Bavaria, Berlin, Hesse, North Rhine-Westphalia & Baden-Württemberg	
		Bavaria, North Rhine-Westphalia & Berlin	

Giulia Ajmone Marsan and Annalisa Primi (2012), "Tell Me Who You Patent With and I'll Tell You Who You Are - Evidence from Inter-Regional Patenting Networks in Three Emerging Technological Fields", *OECD Regional Development Working Papers* 2012/03, OECD Publishing.

Network indicators in copatenting: centrality, clustering, degree

- Regions can exhibit different positions and roles in the network structure over time and across technological fields:
  - **North Rhine-Westphalia**: top clustering, centrality and degree in all technologies: biotech, telecom, renewables (2005-2007)
  - **Flanders:** top degree in telecom (2005-2007)
  - **Southern Finland**: top degree in telecom, top centrality in biotech (2005-07)
- Other examples:
  - top centrality in biotech Swedish Regions (East Middle, South Sweden and Stockholm) in the 80s, Lombardy and Copenhagen in the 90s and Oslo and Helsinki in 2005-07
  - top centrality in telecom Lombardy in the 80s, Olso and Western Netherlands in the 90s and Lombardy, Stockholm and Beijing in 2005-07

Connectivity trends using patents reveals…

- **A growing rate of co-applications for patents** are filed by co-inventors located in different regions, with variations by technology
- Patenting intensive regions exhibit very **different collaborative behaviours and roles in the global network** structure, according to sector, stage of development, market structure, critical mass and institutional settings
- Co-inventorship networks evolve over time and tend to become denser, showing **different patterns depending on the technology**
- Early leaders tend to **maintain their leadership** role over time but there are **windows of opportunity** for new players
- Even for top patenting regions beyond the more "closed models" found in Asia, **national borders still play an important role**

Lessons from this research

- Technology-based advantages are created over time, **so smart specialisation/trasformation strategies matter**

- There is **no optimal collaboration strategy**: local and global collaboration may both positively influence innovation processes, depending on the specificities of different innovation systems

- Helpful to measure the **relative positioning of regions in global networks** to reveal connectivity-related behaviours (measured per patents, publications, research projects, trade patterns, etc.)