

Can Rural Regions Innovate?

“Rural Innovation and Services” workshop

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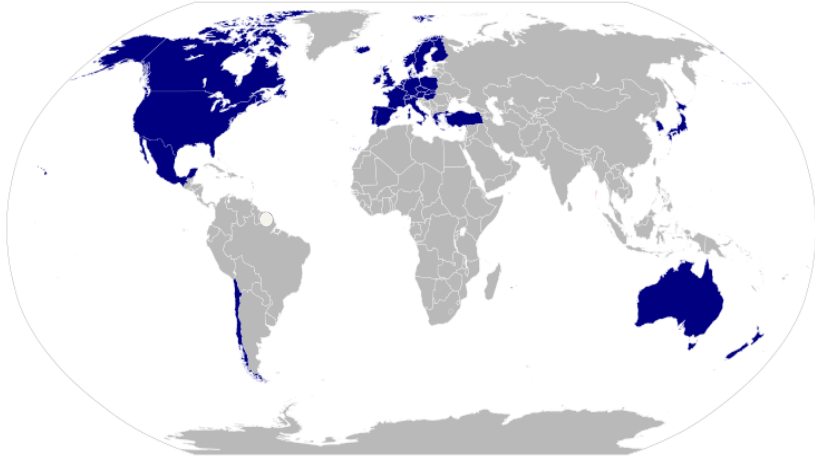


Outline

1. Is there growth potential in rural regions?
2. Can rural regions innovate?
3. Policy lessons

OECD Territorial Reviews:

A series of case studies of regional policy



In OECD member countries :

- ❖ 18 National Territorial Reviews (+2 in process)
- ❖ 22 Metropolitan Reviews (+1 in process)
- ❖ 2 National Urban Policy Reviews (+1 in process)
- ❖ 6 Regional reviews (+2 in process)
- ❖ 5 review s on regional innovation systems
- ❖ 9+2 National rural Policy Reviews (+1 in process)





Thematic Reviews -- Rural

❖ Factors of regional competitiveness

(1) Empirical evidence

-- General trends

(2) Case studies

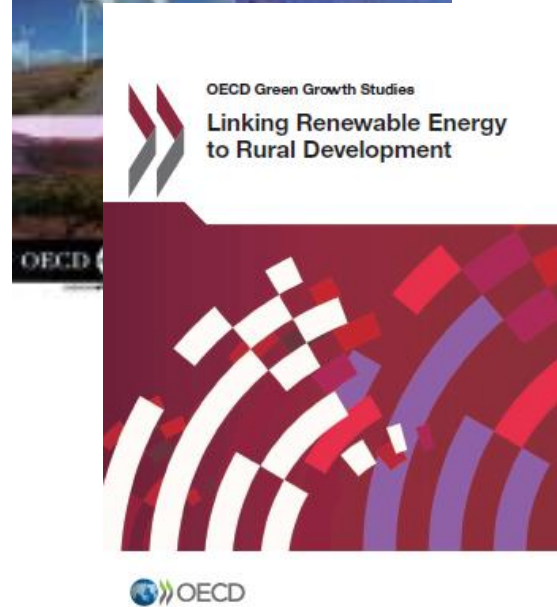
- Field analysis
- Questionnaires,
- Peer reviewers, experts



• Policy implications:



Linking Renewable Energy to Rural Development (15)



RURAL-URBAN Partnerships Project (16)

(3) Implementation Governance



OECD Regional Data-Base (RDB)

- ❖ The RDB includes regional statistics on 5 major topics:
 - Demographic , Regional accounts , Labour ,
 - Social and environmental indicators , Innovation

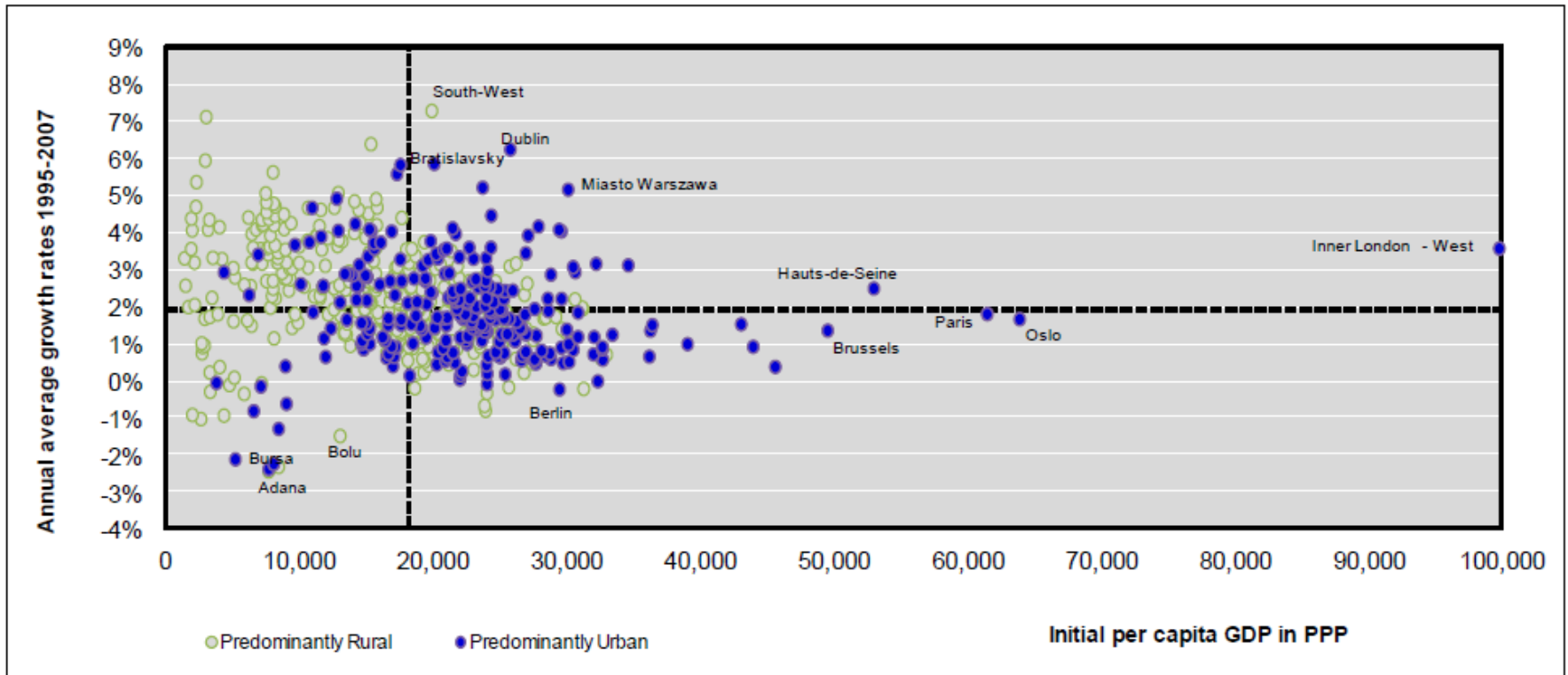
- ❖ To facilitate comparability, regions are:
 - Classified in 2 Territorial Levels (TLs):
 - TL2 Territorial Level 2 (337 regions)
 - TL3 Territorial Level 3 (1708 regions)
 - New regions: China, Brazil, South-Africa, Chile etc..
 - Classified by regional type OECD definition: (PU, I, PR)
 - **Extended regional classification (PU, INC, INR, PRC, PRR)**

- ❖ Database can be directly accessed from the OECD
 - Statistical portal: <http://stats.oecd.org>
 - OECD eXplorer: <http://stats.oecd.org/OECDregionalstatistics>
 - OECD MDB: www.oecd.org/gov/regional/statisticsindicators



There is no single/unique path to growth...

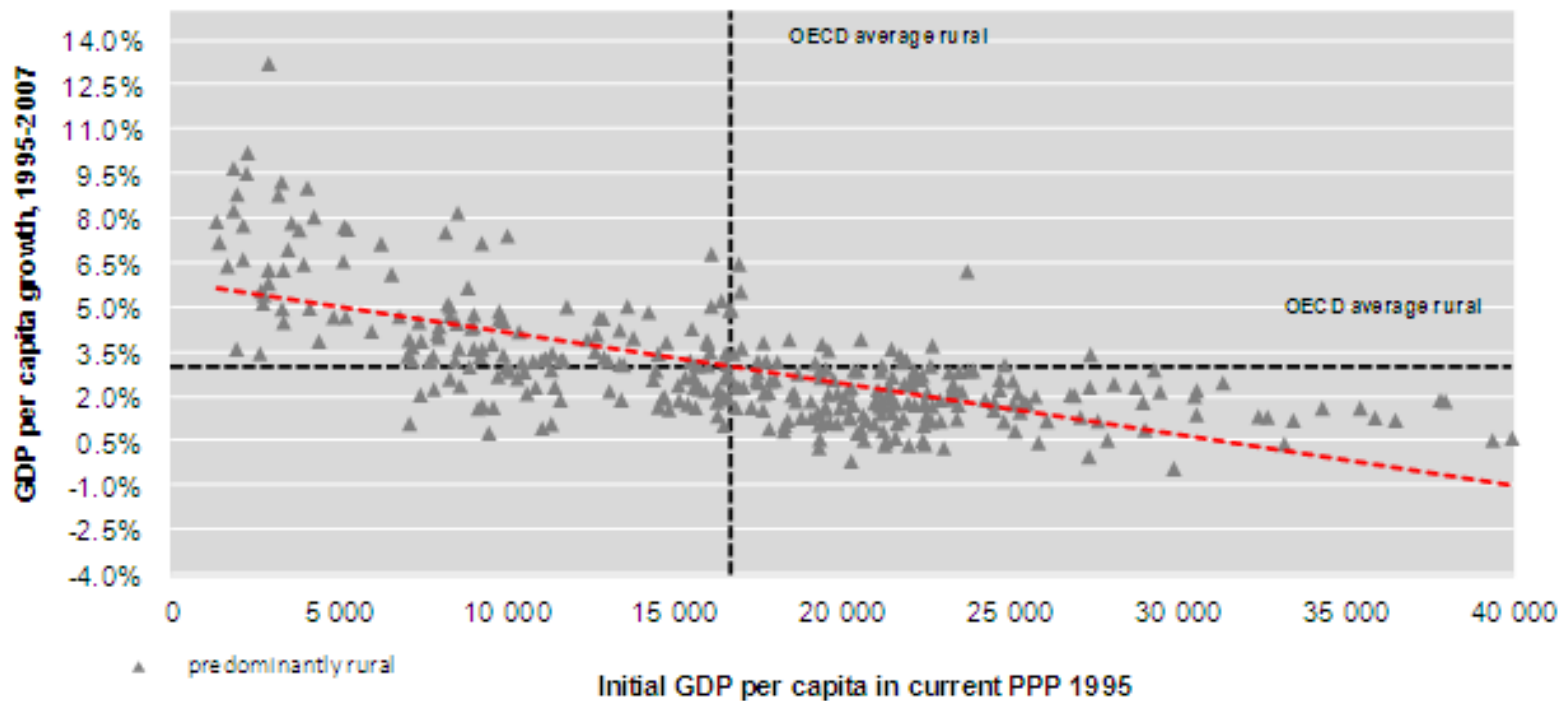
No marked convergence or divergence profiles by type of region
Predominantly urban and rural regions, 1995-2007





Convergence forces in rural regions

Growth trends in rural regions, 1995-2007





The most dynamic OECD regions over 1995-2007..

Initial GDP *per capita* and annual average growth rates in GDP *per capita* among the five TL3 region types, 1995-2007

Type of OECD region	GDP <i>per capita</i> in PPP			
	n	Growth (1995-2007)	Initial levels (1995)	Ratio to OECD average
Urban (PU)	233	1.93%	22 568	124%
Rural close to city (PRC)	199	2.33%	14 324	79%
Rural remote (PRR)	123	2.24%	16 234	89%
Intermediate close to city (INC)	280	1.81%	17 950	99%
Intermediate remote (INR)	15	2.15%	16 096	89%
Total	850	2.06%	18 172	100%

Source: OECD Regional Database.

- High Growth in GDP pc
- Low GDP pc



Outline

1. Is there growth potential in rural regions?

➤ Yes !!

2. Can rural regions innovate?



Characteristics of Rural Regions

	average		
	PU	IN	PR
GDP	44,579	17,388	8,757
GDP density	61.2	4.3	1.5
population density	1224.2	144.7	37.5
employment	750,809	374,777	237,546
unemployment rate	8.1	8.1	8.5
employment rate	66.6	66.5	67.6
participation rate	73.4	73.0	74.4
GDP per capita	30,390	23,740	21,196
GDP per worker	72,136	59,319	54,391

Agglomeration effects in UR

- GDP density 41 x higher
- Population density 32 x higher

Scale effects:

- output 5 x higher
- employees 3x higher

1. Lower density – no economies of agglomeration

- no internal market → need to export to international markets

2. Long distances

- need to be competitive to survive and overcome

3. Lack of critical mass



Performance of regions with low levels of development...



Growth factor	Indicator	Regions with large catching up potential		Regions with catching up potential		Advanced regions	
		Growing above av.	Growing below av.	Growing above av.	Growing below av.	Growing above av.	Growing below av.
Productivity	Productivity (GDP per employee)	31,612	29,728	55,832	50,728	72,551	59,824
Infrastructure	Motorway density	0.15	0.13	0.26	0.18	0.19	0.24
Human capital	Primary educational attainment (% of LF)	42%	46%	26%	22%	25%	29%
	Tertiary attainment (% of LF)	21%	19%	26%	25%	31%	26%
	PISA score mathematics	443	405	476	487	484	478
	PISA score reading	459	436	482	485	490	465
Labour market	Employment rate	57%	55%	71%	68%	71%	66%
	Unemployment rate	9%	8%	5%	7%	5%	6%
	Long-term unemployment rate	4%	5%	2%	2%	2%	2%
	Youth unemployment rate	21%	22%	13%	16%	12%	15%
	Participation rate	62%	60%	73%	72%	74%	69%
Innovation	In (patent application)	1.7	1.8	4.4	4.1	5.0	4.0
	Patent applications per million	20	16	91	74	158	82
	In (patent application copatents)	1.1	1.6	4.0	3.6	4.6	3.6
	Co-invention within region	124	90	673	536	2932	1256
	Co-inventions within ctry	105	71	294	261	759	466
	Co-inventions foreign	16	53	126	112	314	206
	R&D expenditure total (as % of GDP)	1.06%	1.03%	1.50%	1.41%	2.21%	1.51%
	BERD % GDP	0.35%	0.42%	0.90%	0.86%	1.35%	1.00%
	GERD % GDP	0.33%	0.22%	0.23%	0.20%	0.42%	0.16%
	High and medium HTM % empl.	3.3%	4.8%	5.2%	6.1%	5.3%	6.4%
KIS (as % of total employment)	22.5%	28.2%	33.3%	32.8%	36.7%	32.2%	
Agglomeration and connectivity	Population density	17.51	18.38	19.40	18.63	29.47	23.41
	GDP density	1.10	0.99	4.29	3.38	29.14	24.19
	Degree of openness	14	15	40	40	65	44
	Clustering coefficient	0.034	0.038	0.089	0.093	0.123	0.084
	Centrality	0.001	0.001	0.002	0.002	0.007	0.005



As regions approach the production possibility frontier...



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➤ Innovation in science and technology are key in advanced (urban regions) pushing the technological frontier forward



Can Rural Regions Innovate?

- Process of urbanization driven by innovations in rural areas.
- **Innovation systems** :
 - More likely to be found in **urban areas** because they involve large scale commitments of highly skilled **researchers** and specialized research **facilities and equipment**
 - Part of an endogenous growth process (standard Romer model)
 - Cluster-based innovation is unlikely in rural regions
- Rural regions however:
 - Are experiencing **continuous technological change** beyond agriculture in rural activities including forestry, fishing, timber, mining, tourism etc.
 - Because most firms in rural regions are **small and medium size enterprises**, they rarely have formal internal R&D activities
 - Innovation and entrepreneurship are seen as central to rural development, as are collaboration among firms and forging stronger rural-urban linkages

➤ **Broader definition of innovation in rural areas is needed**



Can Rural Regions Innovate?

Broader view of innovation considers

- The introduction of a **new good** or significant **improvement** in the **quality** of a good.
 - The introduction of new **method of production**, need not involve a new technology.
 - The opening of a **new market**.
 - Developing a new **source of supply of inputs**.
 - Changes in the **structure of the market** in ways that reduce monopoly power.
- **Rural economies are (i) small, (ii) specialised (iii) exposed to global shocks**
 - ❖ Transport costs in the OECD countries are steadily declining over time so more rural firms are now exposed to **competition**
 - ❖ Success or failure of a single firm can have a major impact on the evolution of a rural region because that firm plays a large role in the local economy
 - ❖ **Innovation may be more important for rural regions than for large cities** since:
 - They are much more **specialized** in the production of tradables
 - Exposed to **international competition** / most rural regions reliant on a small number of export oriented industries
 - ❖ Growth process is not endogenous -- innovation depends upon the actions of **individuals/entrepreneurs** have a great bearing on outcomes



Key Innovations in Rural Areas?

❖ *Wal-Mart:*

- Started by Sam Walton in **Bentonville Arkansas** in 1950 – remains the headquarter
- Bentonville from 2,900 to 35,000 people largely because of Wal-Mart's presence
- Wal-Mart's main innovation (no patent, trade secret) rather the creation of a sophisticated logistics system that lowered its costs

❖ *Bombardier*

- Third largest global producer of commercial aircraft
- Started in 1942 in **Valcourt, Quebec** to manufacture **tracked snow machines**
- In 60's Bombardier popularized recreational snowmobiles and later jet-skis
- In 70's Bombardier family began to purchase a number of failing aircraft

❖ *Lego*

- Fourth largest manufacturer of toys in the world
- Started in 1916 in a wood working shop in the village of **Billund, Denmark**
- Christensen started making furniture but switched to making wooden toys
- Firm purchased a plastic injection machine (1937) and began making plastic blocks

❖ *Ice-hotel*

- ❖ Funded by the Governor of Norbotten (northern Sweden)
- ❖ Employs about 175 people, and receives a around 45,000 daytime visitors and 30,000 night guests a year and exports hundreds of tons of ice to every corner of the world.



Outline

3. Policy lessons



The Old and New Paradigms

Old Paradigm

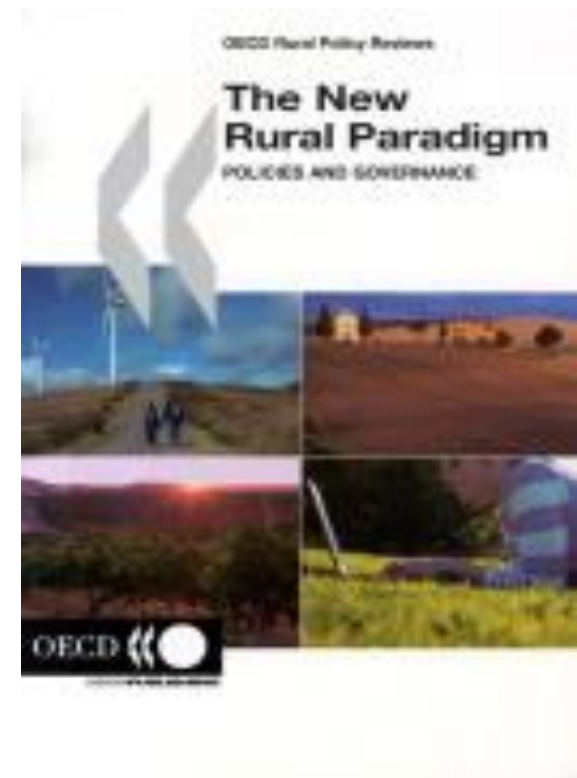
- Equalization or entitlement approach, focused on farm income, farm competitiveness
- Sector based
- Relies on subsidies
- Main actors are national government and farmers

New Paradigm

- Focus on enhancing competitiveness of rural areas using local assets
- Focus is all aspects of the local economy
- Relies on investments
- Actors are firms, all levels of government and NGOs

Rural Policy Within the NRP

- Empower local community organizations and governments
- Build on the development of local assets and promote a **diversified economic** base (new economic opportunities)
 - Nature, tourism, wood, energy ect..
- Guarantee adequate attention to rural issues
- Enhance coordination among different levels of government





Factors for Growth Among Regions Growing Above Average “Growing” Regions

Factors for growth in regions growing above average	Frequency	%
Policies (shift mentality, silos, fragmentation, adjusting policies to assets, linkages, cross border, urban spatial)	8	15%
Infrastructure connectivity	8	15%
Institutions (governance, leadership capacity, continuity, mobilisation)	6	12%
Human capital	6	12%
Innovation, includes entrepreneurial	5	10%
Business environment, public sector activity and industry	5	10%
Geography	4	8%
Internationalisation: international competition and brandname attractiveness	3	6%
Presence of natural assets and amenities	2	4%
FDI	2	4%
Economy (diversified, differentiated and market aware)	1	2%
Other	1	2%
Tourism	1	2%
Density (cohesion, internal fragmentation, labour market mismatch)	0	0%
Demographic factors	0	0%
Agriculture	0	0%
Environmental constraints	0	0%
Availability of financing	0	0%
Total	52	100%



Bottlenecks in Regions Growing Below Average “Underperforming Regions”

bottlenecks in regions growing below average	frequency	in %
Institutions (governance, leadership capacity, continuity, mobilisation)	8	15%
Policies (shift mentality, silos, fragmentation, adjusting policies to assets, linkages, cross border, urban spatial)	7	13%
Density (cohesion, internal fragmentation, labour market mismatch)	7	13%
Human capital	6	12%
Geography	5	10%
Infrastructure connectivity	4	8%
Business environment, public sector activity and industry	3	6%
Demographic factors	3	6%
Innovation, includes entrepreneurial	2	4%
Agriculture	2	4%
Economy (diversified, differentiated and market aware)	1	2%
Other	1	2%
Environmental constraints	1	2%
Internationalisation: international competition and brandname attractiveness	0	0%
Presence of natural assets and amenities	0	0%
FDI	0	0%
Tourism	0	0%
Availability of financing	0	0%
total	50	100%



Conclusion

1. **Institutional** factors and **policy framework** matters

- Institutions that facilitate negotiation and dialogue among key actors in order to mobilise and integrate them into the development process are vital, as are those that enhance policy continuity
- Self-conscious shift towards a growth-oriented policy framework is very often a part of the recipe for success.

2. **Complementarities** and **synergies** are critical

- Simultaneous improvement in policies, infrastructure and human capital, suggesting strong synergies and avoidance of brain-drain effects.
- Simultaneous improvement in *infrastructure, the business environment* and *geographic factors*, thus avoiding leaking-by-linking effects.

3. Upgrading the skills of **low-skilled workers** may be as important for growth as policies aimed at expanding higher education.

4. **Infrastructure** does not appear to be the binding constraint for the great majority of regions.

5. **Entrepreneurship** and “**entrepreneurial discovery**”

thank you

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