

Assessing the intensity and spatial extent of knowledge spillovers for green technologies



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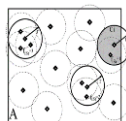


OBJETIVOS / OBJECTIVES

- We identify the intensity and the distance up to which eco-patents cluster together regards to technological classes.
- We identify the intensity and extent over which coagglomerative forces operate between eco-patents and non eco-patents.
- We examine whether these agglomeration and coagglomeration forces vary through time and space.

METODOLOGÍA / METHODOLOGY

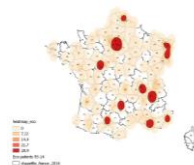
- To identify environmental technology-based patents, we use the Cooperative Patent Classification (CPC) system of the European Patent Office (EPO) (Y Classification).
- We apply relative distance-based methods (Marcon and Puech, 2013) to the analysis of the agglomeration and coagglomeration of Eco-patents and Non-eco-patents using geo-referenced data for France.
- Statistical significance is calculated by constructing confidence intervals for the null hypothesis of independence of firm locations (Monte-Carlo methods with 100 iterations).



$$M = \frac{\sum_{x_i \in R} \sum_{x_j \neq x_i, x_j \in R} (\|x_i - x_j\| \leq r) w(x_j)}{\sum_{x_j \neq x_i, x_j \in R} (\|x_i - x_j\| \leq r) w(x_j)}$$

GRÁFICOS Y TABLAS / GRAPHS AND TEXT

Period	Eco-Patents		Non-eco Patents	
	M-Peak	Distance of significant agglomeration (km)	M-Peak	Distance of significant agglomeration (km)
1995-1999	16.74	0-1	1.04	0-1
2000-2004	30.72	0-1	1.02	0-1
2005-2009	29.89	0-1	1.02	0-1
2010-2014	21.38	0-1	1.04	0-1



RESULTADOS / RESULTS

- Environmental innovations in terms of patent applications are highly agglomerated at very short distances regards to the whole of technological classes.
- Indeed, the extent of agglomeration for environmental technologies was stable from 1995 to 2014 despite extensive developments in information and communications technology facilitate communication between remote organizations.
- Regards to coagglomeration between environmental and non environmental technologies, we find a non-significant dispersion between both kinds of technologies.

CONCLUSIONES / CONCLUSIONS

These results support the promotion of innovation cluster-based policies in France to enhance the collaboration and interaction across green and non-green technologies.

REFERENCIAS / REFERENCES

- Marcon E, Traissac S, Puech F, Lang G (2015) Tools to Characterize Point Patterns: dbmss for R. Journal of Statistical Software 67(3): 1-1
- Ocampo-Corrales, D. B., Moreno, R., & Suriñach, J. (2020). Knowledge flows and technologies in renewable energies at the regional level in Europe. Regional Studies, 1-12.