The geography of eco-innovation in Italy. Evidence from patent data at firm level

Part 1: Data exploratory analysis

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Dataset construction

• We measure innovation in green technologies by using patents. Data are from Orbis dataset provided by Bureau van Dijk, which has recently been linked to the European Patent Office’s (EPO) PATSTAT dataset.
• We count the number of granted patents per firm per year, including only priority patents and excluding equivalent patent filings. The fact that we focus on granted patents of firms’ registered in Orbis implies that our sample is not likely to include the lowest quality patents (such as non-successful applications).
• In addition green patents are identified using the WIPO Green Inventory.
• The WIPO Green Inventory includes all the IPC classes that are associated with environment friendly technologies in a variety of fields. In particular, it includes seven technological fields (alternative energy production, transportation, energy conservation, waste management, agriculture/forestry, and administrative regulatory and nuclear power generation).
• We obtained a final panel spanning from 1981 to 2017, reporting observations on more than 26,000 Italian firms.
Green patenting in Italy over time (1/2)
Green patenting in Italy over time (2/2)
Green Patents in Italy by IPC codes
Cumulative patents green in Italy by IPC codes from 1981 to 2017
Green patenting by area

Green patents by year and macro-region (1981-2017)

- South
- Centre
- North East
- North West

Year: 1980 to 2020
Number of green patents: 0 to 80
Green intensity in patenting by area
Specialization in green patenting
Balassa index by region and time

Centre

North East

North West

South

Green patents by firm size
Patenting accumulation from 1981 to 2017
Green patents by firm size
Patenting accumulation from 1981 to 2017
Green intensity in patenting over time
Micro-sized firms

Intensity in patenting
Share of green patents granted to micro-Italian firms over time
Green intensity in patenting over time small-sized firms
Green intensity in patenting over time
Medium-sized firms

Intensity in patenting
Share of green patents granted to medium Italian firms over time

- 1981-1990
- 1991-2000
- 2001-2010
- 2011-2017
Green intensity in patenting over time
Large-sized firms

Intensity in patenting
Share of green patents granted to large Italian firms over time

1981-1990
1991-2000
2001-2010
2011-2017
Intensity in patenting by firm group