Economics and Geography of Innovation

module B

Economics, Finance and Public Policy

Raffaele Paci

with Barbara Dettori

Lecture 1

- Raffaele Paci
- email: paci@unica.it
- tel.: 070-6753764

Who am I?

- Professor of Economics
- CRENoS member

https://www.unica.it/unica/it/ateneo_s07_ss01.page?contentId=SHD30655

- Research interests:
  - Regional economics
  - European innovation and production system
  - Technological externalities and spillovers
  - Economics of tourism

Who are you?

- **Short presentation**
  - **At least name and surname….**
  - **But also, if you want, something about your background and your expectations about this course and the whole programme**

Some info

- All material available on line
- Office hours: Monday h 11-12 Wednesday h 16-17
- Other meeting can be arranged via email
- Other news on the website

Aim and structure

The main aim of the course is to analyse some important issues of the current scientific debate on the economic integration among the European regions. A specific attention will be devoted to the empirics of the spatial distribution of production and innovation activities mainly due to the agglomeration economies.

The course is organised in three parts:

1. Agglomeration and determinants of regional performance
2. Spatial distribution of innovative activity
3. Laboratory on spatial econometrics (Dott.ssa Barbara Dettori)

Final exam

- The evaluation will consist of two parts:

1. presentations in the classroom
2. drafting of a statistical essay

Contents

- The course tries to provide a basis of analytical knowledge on the Economics of regional integration for both production and innovation activities.
- This knowledge will then be used to study how the phenomena of concentration of production and innovation in the territory can determine the success or failure of regions.
- The course will have a strong orientation to applied and empirical contents that will be analyzed in a laboratory of statistical and econometric analysis techniques applied to the study of production and innovation in European regions.
- The course aims to develop in the student the ability to analytically apply the concepts and principles learned in the classroom.

THE FACTS TO BE EXPLAINED


World at night


Africa


North
America


Europe and Middle East


Asia

Regional economics

Regional economics deals with "What is, where, and why" (Hoover, 1971)

“Regional economics is the study of the spatial order of the economy. It is the study of the geographical allocation of scarce resources. Inhabited areas, shops, manufacturing plants, businesses, schools, banks are not chaotically localized (...) but show an order and a localization scheme that can be studied and understood. "(Nourse, 1968)

"The regional economics is ... the study from the point of view of the economy, of the differentiations and interrelations of areas in a universe of distributed resources that are not equally and not perfectly mobile" (Dubey, 1964)

Principles of spatial organisation

- Principle of Accessibility
- Principle of Agglomeration
- Principle of Spatial interaction
- Principle of Hierarchy

Principle of accessibility

Ready availability of production factors for firms without having to bear a (excessive) transport cost / time

Possibility of collecting information

Possibility of access to services that are bound to specific locations

Possibility of being part of physical networks

Principle of agglomeration

- **Internal economies**

  Economies of scale and economies of scope

  Division of fixed costs on larger production volumes

  Labour specialisation

  Pecuniary externalities

- **External economies**

  concentration of plants in few specific spatial locations (agglomeration nodes or poles)

  - Specialisation externalities (reduction of transaction cost within the area; availability of specialized workers
  - Urbanisation (or diversity) externalities (urban areas, new sectors)

External economies

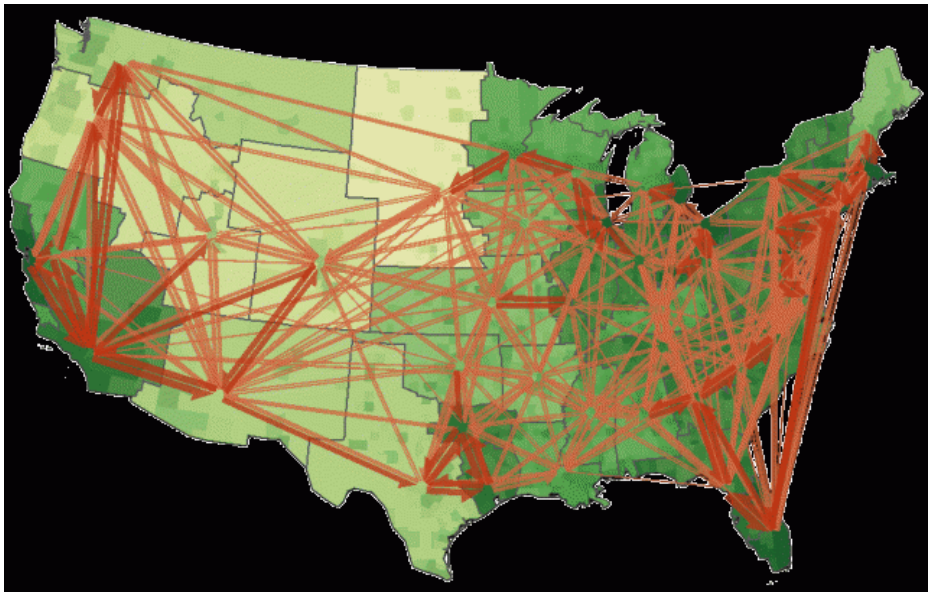
- Indivisibility in the provision of some services
- Possibility of exploiting social fixed capital
- Possibility of using specific natural resources
- Synergies linked to centralization of activities (market image, entrepreneurial culture, professional capacity)

Principle of Spatial interaction

Spatial interaction is a dynamic flow process from one location to another.

It is a general concept that may refer to the movement of :

- people (workers, commuters, migrants)
- goods (raw materials, intermediates)
- intangibles (information, knowledge)
- …



Principle of Hierarchy

A spatial hierarchy is understood as a geographical clustering of regions, where important differences exist in terms of innovation and growth dynamics between the clusters.

Certain locations (regions, cities...) have a dominant role with respect to others

A general framework for analysis: the production function

Y performance variable: growth of production (or innovation), TFP

Depends on the accumulation of inputs:

- tangible assets (land, phisical capital, labour units, natural resources, public infrastructures…)

- intangibles assets (human capital, technology, knowledge, culture, social capital, entrepreneurship, trust, institutions, ….)

On how inputs are shacken together: productivity, efficiency, internal economies (scale and scope), external economies (spatial interactions, agglomeration, specialisation, diversity)

On first nature conditions (fundamentals):

- geography (weather, water, energy, accessibility)
- history

Main data sources for territorial analysis

- Istat
  - http://dati.istat.it/Index.aspx
  - http://noi-italia.istat.it/
  - http://www.istat.it/it/strumenti/territorio-e-cartografia/sistemi-locali-del-lavoro

- Eurostat:
  - http://ec.europa.eu/eurostat/statistical-atlas/gis/viewer/?config=RYB-2018.json&
  - http://ec.europa.eu/eurostat/data/database
  - http://ec.europa.eu/europe2020/europe-2020-in-your-country/index_en.htm

- Oecd
  - http://stats.oecd.org/Index.aspx
  - http://www.oecd-ilibrary.org/urban-rural-and-regional-development/data/oecd-regional-statistics_region-data-en
- UNCTAD
  - http://unctadstat.unctad.org/EN/

Readings (first part)

The agglomeration process of production and innovation activities

European Commission (2017) 7*th Report on Economic and Social and Territorial Cohesion*. Brussels.

Beaudry C., A. Schiffauerova (2009) Who's right, Marshall or Jacobs? The localization versus urbanization debate, *Research Policy*, 38, 318–337.

Paci R., Usai S. (2008) Agglomeration economies, spatial dependence and local industry growth, *Revue d'Economie Industrielle*, 123, 3, 87-109.

Marrocu E., R. Paci, S. Usai (2013) Productivity growth in the Old and New Europe: the role of agglomeration externalities, *Journal of Regional Science* 53(3) 418–442

Determinants of regional performance

Dettori B., Marrocu E., Paci R. (2012) TFP, intangible assets and spatial dependence in the European regions, *Regional Studies*, 46, 10, 1401-1416.

Marrocu E., Paci R. (2012) Education or Creativity: what matters most for economic performance?, *Economic Geography*, 88, 4, 369-401.

Marrocu E., Paci R. (2013) Regional development and creativity, *International Regional Science Review*, 36, 354-391.

Spatial distribution of innovation activity

Proximity dimensions, KPF, knowledge flows, M&A (students' presentations)

Introduction

1. Audretsch D., Feldman M. (2004), Knowledge Spillovers and the Geography of Innovation, in Henderson J.V. and J.F. Thisse (eds.) *Handbook of Urban and Regional Economics*.

2. Boschma R. (2005) Proximity and innovation. A critical assessment, *Regional Studies*, 39, 61–74.

3. Moreno R., Paci R., Usai S. (2006) Innovation clusters in the European regions, *European Planning Studies* ,14, 9, 1235-1263.

4. Moreno R., R. Paci, S. Usai (2005) Spatial spillovers and innovation activity in European regions, *Environment and Planning A*, 37, 10, 1793–1812.

5. Paci R., Usai S. (2009) Knowledge Flows across European Regions, *Annals of Regional Science*, 43; p. 669-690

6. Marrocu E., Paci R., Usai S. (2013) Proximity, Networking and Knowledge Production in Europe: what lessons for innovation policy?, *Technological Forecasting and Social Change*. 80, 8, 1484-1498.

7. Paci R., Marrocu E., Usai S. (2014) The complementary effects of proximity dimensions on knowledge spillovers, *Spatial Economic Analysis*. 9, 1, 9-30.

8. Boschma R., Marrocu E., Paci R. (2016) Symmetric and asymmetric effects of proximities. The case of M&A deals in Italy, *Journal of Economic Geography*, 16, pp. 505–535.

9. Di Guardo M.C., Marrocu E., Paci R. (2016) The concurrent impact of cultural, political and spatial distances on international Mergers & Aquisitions, *The World Economy*, 39(6), p 824-852

L1	17/11/2020	Introduction	
L2	18/11/2020	EC (2017) 7*th Cohesion Report*	
L3	23/11/2020	Agglomeration economies	Paci-Usai 2008 REI
L4	24/11/2020	Determinants	DMP 2012 RS
L5	25/11/2020	Agglomeration economies	MPU 2013 JORS
L6	30/11/2020	Creativity	MP 2012 EG, MP 2013 IRSR
L7	01/12/2020	Cont creativity, Sardinia, health	
L8	02/12/2020	Introduction to Innovation	
	09/12/2020	Laboratory Spatial econometrics	3
	10/12/2020	Laboratory Spatial econometrics	3
	14/12/2020	Laboratory Spatial econometrics	3
	15/12/2020	Laboratory Spatial econometrics	3
	16/12/2020	Laboratory Spatial econometrics	3
L9	11/01/2021	Proximity dimensions	students' presentations
L10	12/01/2021	KPF, knowledge flows	students' presentations
L11	13/01/2021	M&A	students' presentations