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## **56<sup>th</sup> Congress of the European Regional Science Association**

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### **Innovation, Income and Regional Development: An assessment of the importance of differences in regional potentials.**

#### **Abstract:**

The purpose of the current paper is to analyze the impact of regional potentials on the process of growth. How are different types of regions (e.g. medium sized [city] regions, rural regions, urban regions or metropolitan and high-tech cluster regions) affected by improved performance, and to what extent can differences be explained by ex-ante difference in income? Based on data from the regional innovation scoreboard (RIS) is this issue addressed relative to the income level, previous growth performance and convergence.

The first main part of the paper provides a brief overview of the empirical and conceptual background for the study based on a review of literature.

In the next section, the innovation performance of the regions is modelled relative to the income level and the underlying influencing factors are identified. Hereby, we are able to identify strengths and weaknesses of the innovation structure in different regions. In addition the issues of returns to scale will be considered.

In section 4 the innovation performance is related to the process of convergence and divergence. Earlier research has shown that although convergence is present at aggregated European Union level a much more diversified picture is revealed at the disaggregated level. Here it is frequently observed that the more wealthy and central regions move away from the other regions. One of the results is that the economic crisis has reinforced not only intraregional divergence within countries but also the traditional divide between the stronger Northwest European countries and the South and East of Europe.

Finally, the paper discusses and evaluates the impact of different types of innovation performance and the level of income on the perspectives of economic growth for different types of regions. A number of scenarios are sketched for the perspectives of the regions depending on endogenous as well as external factor endowment and dynamics.

Keywords: Innovation- regional income differences - economic growth – concentration - convergence & divergence

JEL Classification: R11, R12, R58

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## **1. Introduction**

The purpose of the current paper is to analyze the path dependency of economic development with point of departure in an analysis of the impact of regional potentials on the process of growth. The term regional potential does not have an unequivocal meaning, but is usual linked to the traditional linear growth concepts and the concept of new economic growth theory. Since potentials or factor endowment varies between different types of regions, these regions are affected different. How are diverse types of regions (e.g. medium sized [city] regions, rural regions, urban regions or metropolitan and high-tech cluster regions) affected, and how can they improve their performance in a period of change in the international division of labor. Furthermore the paper aims at to explore to what extent can dissimilarities be explained by ex-ante differences in income and factor endowment? Based on data from the regional innovation scoreboard (RIS) the issue is addressed relative to the income level, previous growth performance and convergence.

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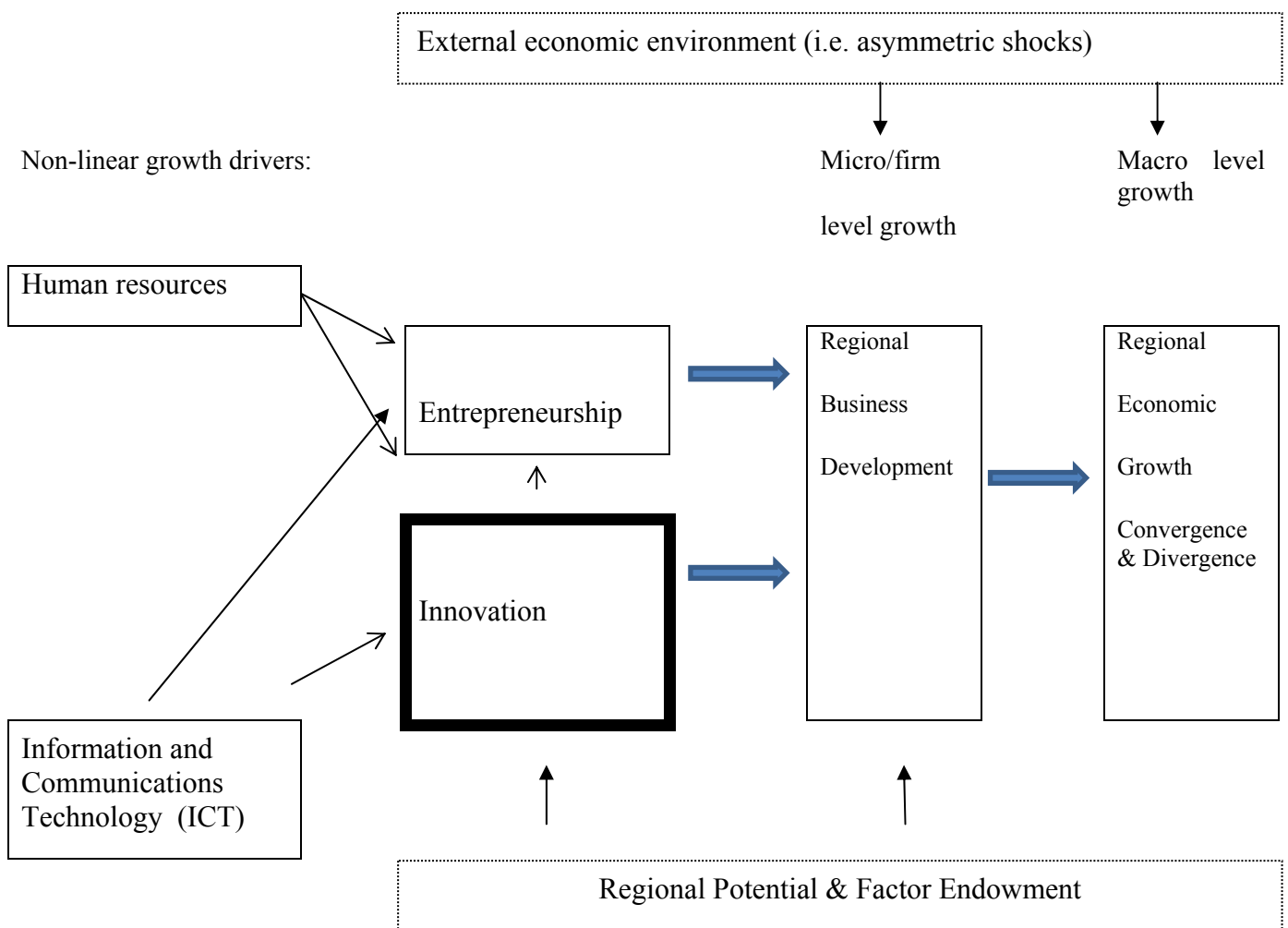
## **2 The context.**

The reason d'être of regional development policy is to overcome the consequences for settlement and welfare caused by the circumstance that some regions perform worse compared to others. This may lead to a (comparative) derogation of the quality of living, and will create unequal conditions within a country or in Europe as a whole. These complex processes vary over time, and are dependent on external as well as internal factors. Path dependency, institutional as well as economic, reinforce this tendency, but differences in regional potentials may become decisive for the regions to meet challenges from the changing international specialization and division of labor, and make break with old trajectories impossible.

## 2.1 Theoretical and conceptual framework

### 2.1.1 Traditional economic growth vs Non-linear growth<sup>1</sup>

**Figure 2.1:** From growth driver to regional economic growth



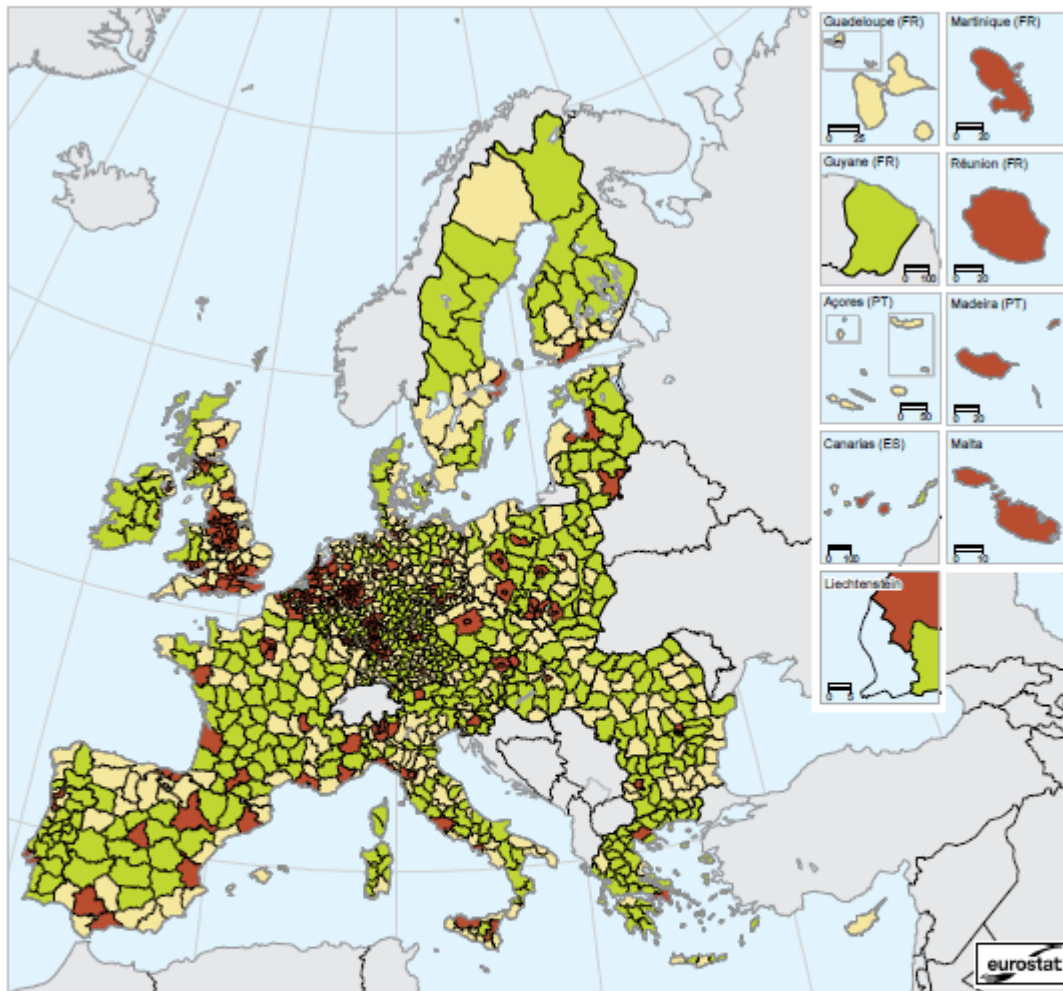
**Source:** adapted from Cornett (2013): 32

<sup>1</sup> This section is based on Cornett (2013) forthcoming in Brown et al. (2013), Resources and Competitive Advantage in Clusters.

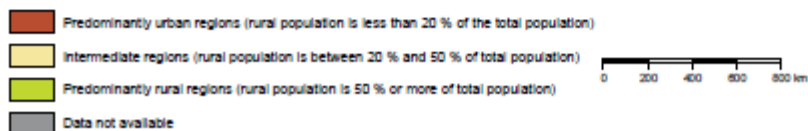
## 2.1.2 Typology of regions vs. mechanisms of growth

**Figure 2.2** Typology of regions

**Map 14.3:** Urban–rural typology for NUTS level 3 regions (\*)



Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat  
Cartography: Eurostat — GISCO, 03/2012



(\*) This typology is based on a definition of urban and rural 1 km<sup>2</sup> grid cells; urban grid cells fulfil two conditions: (1) a population density of at least 300 inhabitants per km<sup>2</sup> and (2) a minimum population of 5 000 inhabitants in contiguous grid cells above the density threshold; the other grid cells are considered rural; for Madeira, Açores and the French outermost regions, the population grid is not available, as a result, the typology uses the OECD classification for these regions.  
Source: Eurostat, JRC, EF-GS, REGIO-GIS

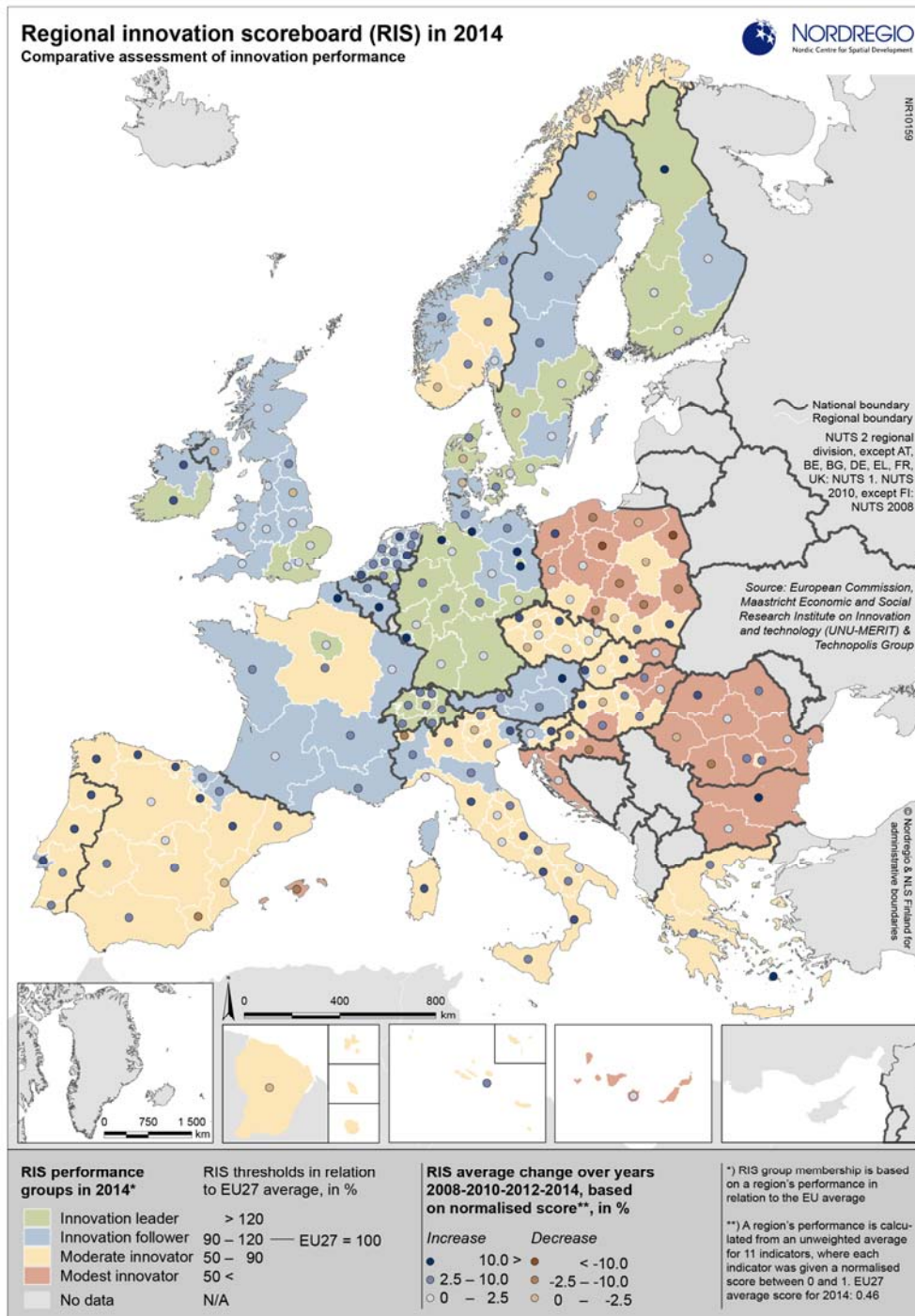
**Source:** Eurostat 2012

## 2.3 Processes of regional convergence and divergence

### 3. Innovation performance and growth

This section aims at to analyze the innovation performance of the regions based on a model explaining innovation relative to the income level of the regions and to identify the underlying influencing factors. Hereby, we are able to identify strengthens and weaknesses of the innovation structure in different regions. In addition the issues of returns to scale will be considered. Figure 3.1 below provides a first impression of the significance of innovation performance as a regional potential for the generation of income and wealth.

**Figure 3.1** Innovation and regional growth

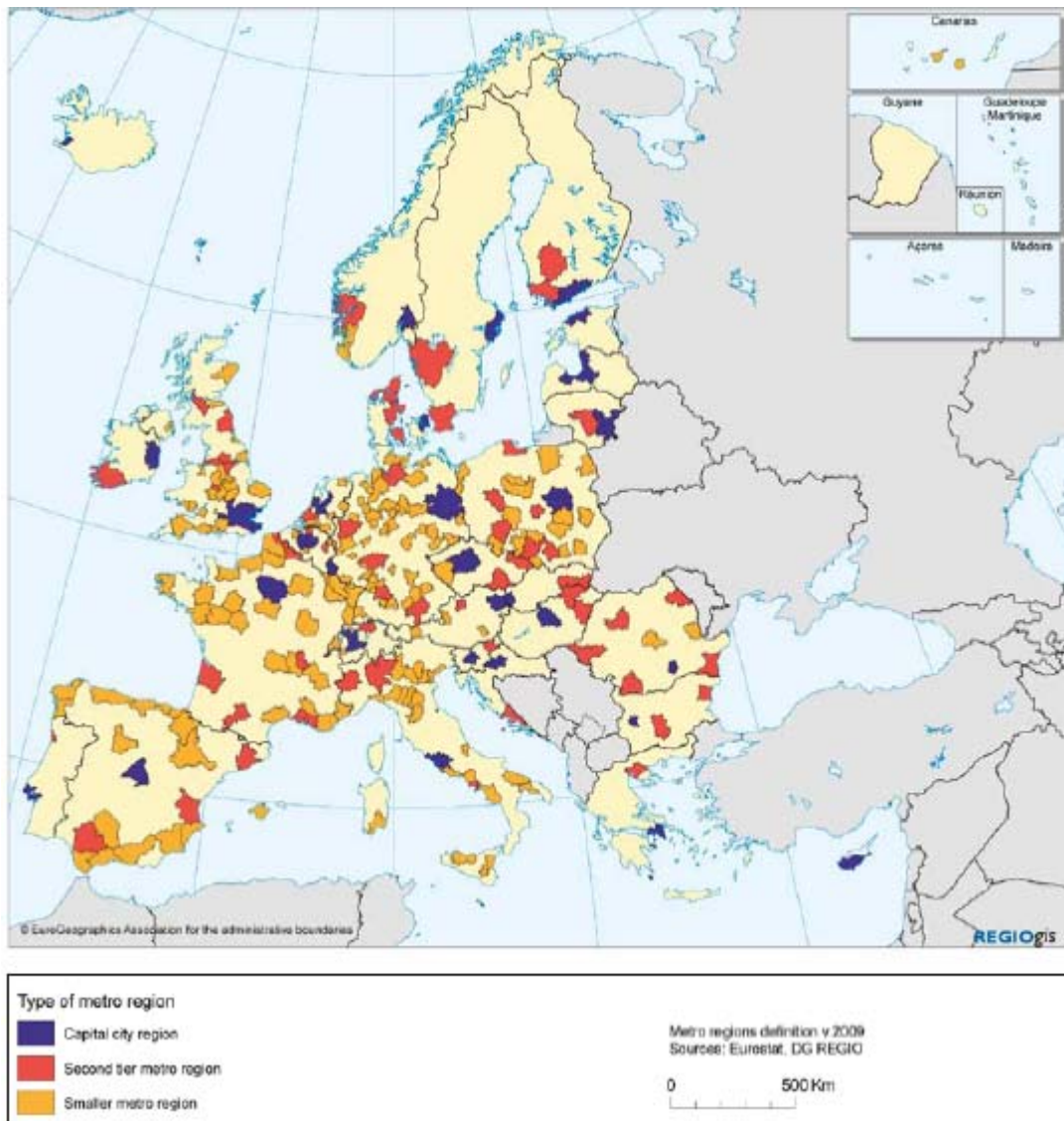


Source: Nordregio 2016a:85, available at:

<http://www.nordregio.se/Templates/NordRegio/Pages/MapPage.aspx?id=4088&epslanguage=en> (10-5-2016)

Section 4 will focus on the growth performance of the different regions depending on their overall classification (leaders, followers, moderate or modest innovators, and in case the changes in classification). More specifically it will be investigated how innovation relevant factor endowment correlate with economic growth. The analysis will include lacked regressions and dummies for urbanization (see map in figure 3.2 below), location (Northwest, South and East) and for dominant sector impacts etc.

**Figure 3.2** Metro regions in Europe



Source: Eurostat 2012

#### 4. Innovation as regional growth driver: Evidence for different types of regions

The central issue to be addressed in this section is to analyze and discuss how innovation performance is related to the process of convergence and divergence. Is innovation a driver or the result of convergence and divergence. Earlier research has shown that although convergence is present at aggregated European Union level a much more diversified picture is revealed at the disaggregated level. Here it is frequently observed that the more wealthy and central regions move away from the other regions. One of the results is that the economic crisis has reinforced not only intraregional divergence within countries but also the traditional divide between the stronger Northwest European countries and the South and East of Europe.

**Figure 4.1** Classifications of regions according to urbanization and economic development

	<b>Center regions -</b>	<b>Peripheral regions -</b>
<b>Center regions +</b>	Convergence/status quo	Status quo /Divergence
<b>Peripheral regions +</b>	Status quo / convergence	Status quo

**Note:** + good/modern factor endowment/high potential - poor/outdated factor endowment/ low potential

As a second step the results will analyzed according to location Northwest/south/East

Figure 4.2 Classification of countries

<b>Category</b>	<b>Country</b>
Northwest	Sweden, Finland, Denmark, Germany, The Netherlands, Belgium, Luxembourg, France, UK, Ireland, Austria [Norway], ([Switzerland])
East	Poland, Estonia, Latvia, Lithuania, Czech Republic, Slovakia, Slovenia, Croatia, Hungary, Bulgaria, Romania
South	Spain, Portugal, Italy, Greece, Cyprus, Malta

**Note:** ( ) not included [ ] not member of the EU

#### 5. Concluding remarks: theoretical and empirical evidence.

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