

The Spatial Convergence of Knowledge in Portugal

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Abstract - Human resources are an essential element in territorial development. When these are characterized by a high level of training, they also enhance a number of effects in fundamental areas of binomial territorial-social cohesion. In this respect, the existence of higher education institutions throughout the territory allows the spread of human resources' qualification but, by itself, does not guarantee the retention of these resources in different regions. Thus, the objective of this paper is to undertake a spatial analysis of convergence of knowledge through studying the evolution of the percentage of population with higher education in the periods elapsed between the last three censuses in Portugal. Although that percentage has risen appreciably, the convergence is shown to be (very) insignificant.

Keywords: *Census, Convergence Analysis, Higher Education, Spatial Econometrics.*

1. Introduction

Human resources are an essential element in territorial development. When they are characterized by a high level of training, they enhance a series of effects which are essential in the relationship between territorial and social cohesion (Rego & Caleiro, 2010; Rego & Caleiro, 2012; Rego et al., 2012). In this regard, the existence of higher education institutions across the territory allows a delocalised qualification of human resources but, by itself, does not warrant the implantation of these resources in the various regions. Therefore, the main objective of this paper is to analyse the spatial convergence of knowledge through studying the evolution of the percentage of the population with higher education in the periods elapsed between the last three censuses in Portugal, i.e. between 1991-2001 and 2001-2011.

In the majority of empirical studies, regional (or spatial) economic convergence is studied from the viewpoint of the GDP growth *per capita* (see the work of

Barro and Sala-i-Martin). However, since human capital is a key factor in economic growth it seems important to know the spatial distribution of that kind of capital and whether regions have converged in terms of the stock of qualified human resources. In fact, a relevant spatial convergence of knowledge is expected to be reflected in spatial convergence in terms of economic growth, or even of unemployment rates.

Regarding conditional convergence of average *per capita* income in the regions of mainland Portugal,¹ Guerreiro (2014) concludes that the percentage of the workforce with higher education is a significant variable in distinguishing the 'steady state'² of regional economies. As mentioned in Tano (2014), concerning an empirical study in Sweden, the spatial distribution of human capital influences regional differences in terms of economic growth and prosperity. This study reveals a regional clustering of human capital in Sweden, with special relevance for major urban areas. In Portugal, when regional differences in terms of average remuneration are analysed, most above-average municipalities are located (with rare exceptions) in the metropolitan areas of Lisbon and Oporto, justified precisely by the concentration of highly qualified human capital (associated with highly-paid occupations) in these regions (Guerreiro, 2014).

The remainder of the paper is structured as follows: Section 2 presents and describes the data; Section 3 uses a spatial econometrics methodology to study the potential process of convergence; Section 4 concludes.

¹ This study aims to ascertain whether the Portuguese standard of living depends on place of residence. Convergence is studied in terms of income (*per capita* average wages) in the municipalities of continental Portugal.

² Steady state, in that growth is constant and may even be equal to zero. This "steady state", in each economy tends to converge in the medium and long term, according to Lee (1995), depending on the "social skills", which may support or inhibit the use of the "relative delay potential" in the growth process.