

KNOWLEDGE ECONOMY AND NEW TERRITORIAL INEQUALITIES IN SPAIN: A MULTISCALAR PERSPECTIVE

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INTRODUCTION

The European Union faces the challenge of promoting a knowledge-based economy, to strengthen its competitiveness, reduce the relocation of activities and improve the quality of employment. This need to move towards a new economy is even greater in Spain, which suffers the crisis of its previous growth model. The importance and dynamism of the knowledge economy is usually assessed through three types of indicators: the relative presence of knowledge-based Activities, highly skilled human capital, or innovation effort and R & D performed.

The article aims to analyze the present importance, recent developments and, above all, localization patterns at different scales of knowledge-based activities, defined from the criteria provided by organizations like the OECD and are usual in much of the international literature. After a brief theoretical reflection that defines the main hypothesis, the text investigates the dominant spatial logic and ends with a multivariate analysis that correlates the presence of these activities and various indicators of socioeconomic development in the territories, critically reviewing some ideas widely disseminated.

I. MAP OF THE KNOWLEDGE-BASED ACTIVITIES (KBA) EXPLANATORY SOME KEYS AND DISCUSSIONS

Three arguments are repeated on their localization patterns and their territorial impacts: the tendency to spatial agglomeration, the persistence of specializations related to local trajectories and their positive effects on the attraction of talent, increased revenues and higher quality employment.

The most consistent spatial trend of these activities is to concentrate in a few regions and major urban agglomerations and, within them, in big cities, which helps to reinforce the hier-

archy between territories. It can be said that there is a *spiky* distribution, of great territorial contrasts, despite the potential relocation of activities which use, essentially, information and knowledge. In his explanation dominate the influence of *hard location factors*, of a material nature, including the presence of infrastructure and quality services, real estate offer or institutions of R & D. To these are added *soft location factors*, linking the presence of highly qualified human capital not only with the job offer, but also with the quality of life, diversity and cultural dynamism. But it should not ignore the appeal of some middle-sized cities, which are now benefiting from the overall improvement of accessibility, a greater supply of public goods, environmental quality, equity capital that some have inherited and promotion strategies of their resources some specific local governments, capable of generating an institutional environment favorable to their development.

A second trend observed is the spatial clustering of activities that generate the same type of goods or services giving rise to localized knowledge clusters. The business and institutional density and the dynamics generated by the proximity are the source of increasing returns that attract new establishments. Although the whole cluster is integrated into multi-scale networks, it does not negate the influence of place, its resources, its networks of actors, their know-how and spillovers, leading to phenomena of path dependence, with cumulative decisions over time that are origin of specializations that persist for long periods.

Finally, knowledge-based activities is often associated with other socioeconomic characteristics of the territories which some consider a direct result of their presence. These can stand to produce a growth more stable and resistant to economic cycles of capitalism, which ensures high productivity and competitiveness, a high average income and a good quality of employment, both in terms of working conditions, wages or stability. This linear relationship between knowledge and regional development has been criticized, however, by those who point certain mystification in the dominant discourse, which raises a debate that has an answer in the analysis for the Spanish case.

II. RECENT TRENDS OF EMPLOYMENT IN SPAIN: OF TERTIARISATION TO A DEVELOPMENT OF KNOWLEDGE ECONOMY?

The first decade of the century was a period of contrasts for employment in Spain. Between 1995 and 2007, employment grew a 55.6% to 19.2 million, dropping to 17.6 million at the end of 2010. Unemployment remained at about two million until 2007 to reach 4.1 million just three years later by the combined effect of the global financial crisis, real estate and the stagnation of domestic consumption.

During these years, the process of services growth is reinforced by the weakness of the industry and the collapse of the construction from 2008, up to employ 70% of workers. But to better understand the current processes are needed approaches which are beyond the traditional duality industry *vs.* services, as proposed by the concept of knowledge economy, which integrates those activities of both sectors intensive in its use. In 2009 represent in Spain 211,983 companies (12.1% of total) and 3,129,065 jobs (18.0%), a modest numbers in spite the growth in the last decade. There is a clear predominance of Knowledge intensive business services and the education sector, accounting for 59% of that occupation, while the cultural sector is the weakest and technology intensive industries were the only ones that fell (table 1).

III. SPATIAL LOCATION OF EMPLOYMENT IN KNOWLEDGE-BASED ACTIVITIES (KBA): CONCENTRATION VS. SPECIALIZATION

These are activities with a special tendency towards spatial concentration, despite producing mainly based on nonmaterial assets and intangible resources. The provinces of Madrid and Barcelona suppose 42.1% of Spanish employment and, together with the nine that follow in importance, reaching 68%, compared to its scarcity in much of the interior provinces, which highlights new forms long-standing territorial imbalances (table 2 and figure 1).

At urban scale, which is the most significant, the contrasts are reinforced: the five main areas (Madrid, Barcelona, Valencia, Seville and Bilbao), which meet just 4% of Spanish municipalities, account for KBA much employment as the rest territory, with maximum levels of polarization in the case of cultural activities and Knowledge Intensive Business Services, while older industries have relocated. At the other extreme, rural areas account only one eighth of the total (table 3 and figure 2). To the externalities generated by agglomeration, the symbolic capital must be added, associated with certain representative spaces in major cities to explain their resistance to movement when the cost and accessibility factors could contribute, as with many other activities.

However, cities between 50,000 and 250,000 inhabitants still account for 30.9% of employment in KBA and some like Pamplona, San Sebastian, Vitoria, Cordoba and Girona are among the highlights. There are also many middle-sized cities that are characterized by specialization in any of these activities, with significant regional differences. Part of the old industrial cities of the Atlantic and the Ebro axis, along with some of Catalonia, maintain a concentration in technology intensive industries, while some of the most evolved into services. The Knowledge intensive business services tend to concentrate instead on the major urban areas, anyone who has been its historical and something similar happens with the cultural sector, although in this case also are specialized some cities with an important cultural heritage. Financial and educational sectors have a more dispersed distribution and dependent of population, highlighting where there is a relative shortage of other activities (figure 3).

IV. KNOWLEDGE ECONOMY AND TERRITORIAL DEVELOPMENT: RELATIONSHIPS KEYS AND DISCUSSIONS

To analyze the possible spatial relationships between the KBA and the socio-economic development of territories, is produced a data matrix with a total of 17 provincial-level indicators, for which it has the necessary information (table 4). After calculating the correlation coefficients between them (table 5), was performed by principal components factor analysis to synthesize large number of variables and characterize the provincial behavior (tables 6-8). The results obtained are the following:

- i) The total volume of employment in KBA is directly related to population, employment and GDP, by relying heavily on the externalities of agglomeration. Their relative size, however, is more associated with greater production efficiency and high average income, regardless of the provincial population size.
- ii) The various services based on knowledge rather associate with each other and the crowding index (excluding education, a public service which is more dispersed), but

not necessarily with indicators of efficiency and innovation effort. Technology-intensive industries show, however, a poorly correlated with the location of these services and more with a highly qualified human capital, as well as high productivity, export capacity or per capita income.

- iii) The rate of unemployment and precarious labor contracts signed over the last three years also maintain a certain ratio of negative sense with the presence of such industries, but hardly any with the rest of the activities reviewed. This confirms that the location of companies and institutions based on knowledge does not in itself guarantee a higher quality and stability of employment generated, more conditioned the system of labor relations.
- iv) In considering the factor scores for pairs of components (figure 4), the provinces of the Basque Country and the axes depart from here (Atlantic, Ebro), along with Barcelona and some other upcoming, shows positive values higher in industries high-technology, potential and economic competitiveness, while most inland provinces, Mediterranean and island are in negative values. By linking, however, the set of knowledge-based services and the size in terms of provincial population, employment and GDP, the positive values correspond to the provinces with the largest metropolitan areas, far above the rest. This means, therefore, two distinctly different distribution patterns, whose implications also differ on development.

V. CONCLUSIONS

Under the most visible changes that have affected employment in Spain during the last decade, both in quantity and in its distribution by sectors, the research revealed a progressive increase for the knowledge-based activities (KBA), which and represent 30% of the total, although much of the territory still remains almost alien to this process. The strict selectivity to guide location decisions leads to a strong spatial concentration, visible at different scales, which is a very significant indicator of new forms of regional and urban hierarchy tend to consolidate now.

However, certain local conditions (actors, resources, history, institutions, politics) have allowed some middle-sized cities have also joined the Knowledge Economy, beating the brakes from their size. Therefore, together with structural trends referred to in the text, can not ignore the significance of different answers given from the territories, which are necessary for a true understanding of the resulting map.

Address the current economic crisis will require rethinking the old model of growth and, from that perspective, a greater presence of KBA, along with the modernization, efficiency gains and improve employment in traditional activities, are now a challenge to overcome difficult but also inevitable if we want more and, above all, better development. Therefore, to know the importance, characteristics, evolution, spatial strategies and impacts (labour, economic, environmental...) of these activities is a research program which requires to complete the general overviews with case studies and the use of qualitative techniques to a better understanding of these processes.