



Learning Cities, Learning Regions and Economic Development: The role of Universities in Spain.

Martí Parellada



Introduction

- Current economic context
 - Knowledge-based economy
 - Central role of innovation
- In this context, the best vehicle to achieve regional economic development is the learning region/city concept.
- In learning region/city, universities and higher education institutions are basic and can contribute clearly to regional development.



About learning regions (1)

- Characterized by regional institutions which facilitate individual and organizational learning through the coordination of flexible networks of economic and political agents (OECD, 2001)
- A learning region can be defined as a regional innovation strategy in which a broad set of innovation-related regional actors or stakeholders (politicians, public research establishments, universities and higher education institutions, and companies) are strongly but flexible connected with each other



About learning regions (2)

- A learning region implies a triple-helix interaction
- The learning region is an eclectic concept that theoretically is based on literature on regional learning, clusters and networks and institutions of innovation, an readapt and mix concepts like industrial districts, regional systems of innovation , etc.



About learning regions (3)

- Phases of developing the learning region (Reichert, 2006):
 - Leadership
 - Identify strengths and opportunities and creating internal transparency. It is needed a sufficient research and skills base and enough infrastructural assets. Also tax conditions and funding opportunities are important, as well as the individual contacts of key personalities and soft factors, like amenities
 - Enabling collective psychology and its symbols. Two disciplines contributes greatly: marketing & architecture and urban planning
 - Strategy formulation
 - Defining key actions and institutions-intermediaries as nodal points of knowledge region development.



Learning regions and universities

- Two traditional missions for universities: teaching and researching. Third mission: the contribution of universities to economics and society in the regions where they are involved.
- Fundación CYD (Knowledge and Development Foundation) analyses and promotes the contribution of Spanish universities to the economic and social development and enhances the university-business interface. Its annual CyD report, focuses on the analysis of this contribution in several ways.



A. Economic impact of universities in regions

- CyD Report 2005 includes a calculation of to the impact in terms of GVA and employment of consumption demand and investment that the presence of the university system itself generates in Spain and its regions.
- The results obtained: If we consider the multiplier effects, and both the direct and indirect impact, then the global impact is equivalent to the 1,5% of total employment and the 1,3% in terms of GVA. This last result for regions can be seen in the next table.



	GVA	Employment
Andalusia	1,6	1,7
Aragon	1,2	1,5
Asturias	1,5	1,7
Balearic Islands	0,5	0,7
Canary Islands	1,3	1,3
Cantabria	1,2	1,5
Cast.La Mancha	0,8	0,9
Cast. y León	1,5	1,7
Catalonia	1,0	1,3
C. of Valencia	1,5	1,7
Extremadura	1,3	1,3
Galicia	1,5	1,5
Madrid	1,4	1,8
Murcia	1,4	1,5
Navarra	0,6	0,8
Basque Country	0,9	1,0
Rioja	0,8	0,9



B. Universities and human capital formation

- Universities can contribute to human capital development in the region through:
 - educating a wider range of individuals in the local areas
 - ensuring that they are employable when they leave education
 - improving the balance between labour market supply and demand
 - helping local employers by responding to new skills requirements
 - ensuring that employees go on learning by supporting continuous professional development
 - creating entrepreneurship programmes or
 - helping attract talent from outside.



Universities and human capital formation: some data for Spain
Offer-demand

- Spain is one of the EU-25 countries with the greatest ratio of university students compared to the total number of students.
- In the academic year 2003-04, there were a total of 1.485.993 students enrolled at Spanish universities, though this number is decreasing respect to previous years, as well as the number of graduates.
- The greatest proportion of students corresponded to social sciences and law (48,8% of the total), followed by technical studies (26,6%).



Universities and human capital formation: some data for Spain
Graduates and labour market

- Holding a higher education degree is an indicator of better job opportunities: the activity rate increase with educative level (30,4% for population with primary studies; 67% for secondary; and 81,7% for population with higher education degrees).
- This better relative behavior also occurs with unemployment rates: the unemployment rate decreases as the degree of education increases (in Spain in 2005 the unemployment rate of population with higher education degree was 6,8% whereas it was 10,5% for secondary education and 10,1% for primary).
- As it refers to average incomes, persons with a university degree have 41% more income than those with secondary education.



Universities and human capital formation: some data for Spain
Balance between demand and offer of highly qualified jobs

- Greater relative mismatch in highly qualified positions than in lower qualified jobs. Mismatch slightly higher for graduates (two cycles) and PhD than for graduates (single cycle).
- One effect of this mismatch is overqualification. In Spain in 2005, 32,2% of the employed population had higher education degrees, but just few more than 30% had job positions of this level. The other effect of this mismatch is unemployment: the 23,2% of the unemployed population had higher education.
- The lower mismatch between supply and demand of university graduates particularly occurs in Technology, followed by Health and Architecture, Telecommunications, Finance and insurance.



Universities and human capital formation: some data for Spain
Access of graduates to the labour market

- The main access way to labour market is personal and social contacts, and the use of internet is growing rapidly. Very few people began to work creating a firm.
- Graduates in technical studies, as engineers and architects, as well as graduates in health sciences are who earn more and are less overqualified once they begin to work.
- Mismatch between skills required by employers and those possessed by graduates are reported. Mainly in oral and writing communications skills, or in their capacity to make knowledge practical and deficiencies are observed also in the use of English as well as the will to move to another city or region.



Universities and human capital formation: some data for Spain
Lifelong learning and continuing education

- Studies developed in a framework of relative reduced participation of Spanish citizens: Percentage of persons with higher education participating in continuing education are 21% in Spain and 60-65% in Nordic countries and the United States.
- And when the firms need to update the knowledge of the staff usually look the help of other institutions like trade unions, chambers of commerce, etc. before going to universities.
- The incorporation of official master degrees into the catalogue of universities will force to redesign the offer by universities and to adapt their units for the management of continuing education to these new circumstances.



Universities and human capital formation: some data for Spain
Main problems

- Results obtained from an opinion survey undertaken by the CYD Foundation remarked that the main weakness of the university-business relationship in this field are:
 - *promotion of entrepreneurial attitudes among students and the role of university education to guarantee the development of capabilities and skills*
- Other problems: mismatch between offer and demand, not enough emphasis in lifelong learning and continuous education, not enough use of internships and work-related activities in universities, in general.



C. Universities and innovation in firms

- Universities can contribute to regional innovation through:
 - transferring the results of research (here is very important the mechanisms of support)
 - cooperating with private firms
 - creating new enterprises (spin off: with the participation of university researchers)
 - license of patents
 - the mobility of university researchers to firms



Universities and innovation in firms Research: Resources and results

- R&D expenditure in Spain in the higher education sector is 0,33% respect to the GDP (0,41% in UE-25). The participation of universities in the R&D total expenditure is 29% (22,1% in UE-25).
- In Spain, the 49% out of a total of 110.000 researchers come from the higher education. The resources available to university researchers was 51.000 €, well below the mean value for Spain (88.500 € per researcher), and half of the expenditure in countries like Germany and France.
- The total amount of scientific publications by Spanish researchers has reached 2,9% of the world scientific production. The university is the main responsible (60% of the total number of Spanish publications).



Universities and innovation in firms Technology transfer from universities to companies (1)

- The weakness in Spain is the "technology push" channel (expressing the technology push of universities to business). On the contrary, as compared to other countries, Spain shows a good level when responding to the business demands ("demand pull" channel).
- Demand pull: Indicators like the business funding of university R&D, the funds managed and the activity developed by Red FUE, Red OTRI or science and technology parks (mechanisms of support for innovation and the transfer of results to firms). Growing.
- Technology push: Indicators like the cooperation in innovation of companies and universities, the creation of spin-offs and the licensing of patents. Stagnation.



Universities and innovation in firms
Technology transfer from universities to companies (2)

- Demand pull: Business funding of university R&D reached a level similar to the EU-25. Including funds managed by Red FUE, Red OTRI and science and technology parks.
- Technology push: Only 3,5% of the companies qualified as innovative developed collaborative relations in the area of innovation with universities. The creation of university spin-offs is under the average values in Europe and the United States. The licensing of patents is still a channel not much exploited (€ 1,7 million), away from incomes corresponding to the most advanced countries.
- Also it is observed a weaknesses in the mobility of researchers. In Spain, the percentage of researchers in companies represent 30% of the total, much below the value corresponding to EU-15 countries, which is 49%.



Universities and innovation in firms
Main problems

- Results from the opinion survey shows the main weakness in this field:
 - *business appeal to the University for developing research projects, the promotion of entrepreneurial attitudes among faculty members by the University, the business commitment with the model of a university as driving force for economic development, and mobility of researchers between academia and industry.*
- Other problems remarked by OECD (2007): Policies have often been indirect and temporary as giving incentives to co-operate with the private sector, or grants. Policies have often prioritised the development of high technologies, and tend to forget other industries or services



D. Universities and cultural and social development

- It can be also important the role of higher education institutions and universities in regions in fields like:
 - culture and society
 - sustainable development
 - health and welfare
 - urban and rural regeneration...
- But OECD (2007) shows that in a majority of countries these kind of tasks are often not taken into enough account.



Conclusion (1): some limits to active regional involvement of universities

- Regulations that have to face universities, little autonomy.
- Problems of insufficient and centralised funding
- Barriers to co-operation with businesses, like having divergent objective an priorities; difficulties in indentifying partners, restriction on publishing research results, lack of entrepreneurship, insufficient R&D by private sector, specially SME.



Conclusion (2): problems to measure contribution

- Only by means of an appropriate understanding, through homogeneous and comparable indicators, it will be possible to introduce incentives that promote the contribution of universities to development and that could also be properly assessed.
- In Spain in subjects as relevant as the access of graduates to the labour market, continuing education or the different expressions of technology transfer, an homogeneous and comparable information doesn't exist or, though available, it incorporates initiatives that respond to a great extent to projects undertaken by specific universities, or that, even though existing and having an homogeneous and comparable nature, are not publicly disseminated.
