Introduction

1. The changing role of higher education for regional development policy

The idea of a research project about higher education and local economic development started from the observation of the fast changing role of tertiary education for regional and local economies and from the urgent need to tackle the problems produced by these changes.

The phenomenon can be depicted as follows.

From a cautious beginning, knowledge has progressed to the centre of economic theory, particularly in the last decade, and there is now a wide spread belief that knowledge is one of the main ingredients for economic growth (Becker 1993; Drucker 1993; Rullani 2001; Wolf 2002; for a discussion from four different disciplinary perspectives). The general idea is that the availability of «knowledge workers» (Rifkin 1995; Aronwitz & De Fazio 1997) determine the rate and quality of economic growth, localizing knowledge-intensive industry in those nations more able to attract or educate such a kind of workers and relegating «labour intensive» activities to less provided nations (Castells 1993; Carnoy 1995).

The consensus about that belief has created an increased attention towards the two main institutions that are intended to create knowledge: higher education institutions (HEIs) and firms. While it is obvious that HEIs are the main generators of knowledge, until very recently the same thing could not be said about firms. It is, in fact, thanks to progress in management studies during the 1990s that firms are considered today a main and obvious generator of knowledge (Nonaka and Takeuchi 1995).

The following step of analysis was the study of university-industry linkages as generators of knowledge, which is in itself an autonomous field of study (Branscomb 1999). It is evident though, at least for European re-

Ernesto Tavoletti, *Higher education and local economic development*, ISBN 978-88-8453-878-9 (online)
ISBN 978-88-8453-879-6 (print)

gional studies researchers, that HEIs and firms, and the linkages between them, are not the sole providers of knowledge in every day reality and that the whole «regional learning system»[1] has to be taken into account: «companies draw knowledge from a variety of sources and – in order to understand the process of knowledge transfer, and the contributions that HEIs make to regional development through knowledge transfer – it is important to look at HEIs and knowledge transfer in a regional context […] and the concept of learning region is the best point of departure […]»[2].

Being companies out of public control, higher education policy studies and regional policy studies, as well as policy makers, focused on education institutions and «regional learning or innovation systems», respectively, as the main tools for policy in the knowledge economy.

As a consequence, public attention for education has reached unprecedented levels in many countries and it was able to gain front pages in Britain even during war times[3]: «Our number one priority for investment is education» (Tony Blair 1999); «Tony Blair says his priorities are, education, education, education, so are mine (but in a different *order)*» (John Major 1997) and Alison Wolf's statement (2002, p. 10) that «the belief in education for growth runs deep and wide beyond our political classes, replacing socialism as the great secular faith of our age» seems something more than a provocation.

Among the many actors operating in education, universities are considered the most strategic for economic development (Castells 1991) and they have received the greatest public attention. The number of students going into tertiary education has increased steadily. In former West Germany in 1960, 6 per cent of young people completed the *Abitur*, the academic school-leaving certificate that gives access to university. By 1997 the figure was 37 per cent. This more than six fold increase almost exactly parallels the growth in university and polytechnic (higher-technical) students (Wolf 2002: 173-174). In France, German, Great Britain and Italy, between 1980 and 1995, a doubling in the numbers completing a first degree is followed by a near doubling in the numbers of university students. So that today in Western Europe over a third of the age cohort is enrolling in tertiary education (and governments' plan is to reach soon a fifty per cent level) and this number increases to two-thirds in the United States (OECD 2002).

[1] For a discussion and definition of «regional learning systems» in comparison to «regional innovation systems» see Cooke and Morgan (1998). Briefly we can say that «learning»– in the Piagetian definition – is only a first step to innovation and only «regions which possess the full panoply of innovation organisations set in an institutional melieu (Jonson and Gregersen 1996; Maillat 1995) where systemic linkage and interactive communication among the innovation actors is normal, approach the designation of regional innovation system» (Cooke and Morgan 1998: 71).

[2] Rutten R., Boekema F. and Kuijpers E. (2003), *Economic geography of higher education, setting the stage*, in Rutten R., Boekema F. and Kuijpers E. (2003) (eds.), *Economic geography of higher education*, Routledge, London, pp. 4-5.

[3] See the students' loans issue ending up on British tabloids front pages in January 2003.

The growth of higher education for both financial and human resources goes together with a shifting of policy making from central governments to regional and even local governments[4] (see for a European discussion Cooke and Morgan 1998).

In Europe the phenomenon of «regionalization» is associated with an increasing disparity of growth rates among regions and an increasing convergence at the national level (Cooke 2002).

The increasing competition among regions and local systems to attract FDIs (foreign direct investments), jointly with administrative and fiscal «regionalization», has produced a demand of higher education from students and households towards regional and local governments and this phenomenon is especially evident in Italy (Leonardi 1993).

Households are beginning to consider tertiary education as a necessary prerequisite for a successful career and even the only chance to gain access to some job opportunities and services. So, it becomes a central civic right in order to provide equal opportunities to all and the presence of a higher education institution in the region has the same socio-economic relevance and political priority of fundamental civic infrastructures such as motorways, airports, primary and secondary schools.

The increasing attention of academics, national governments and public opinion for innovation, national innovation systems (Nelson 1993) and scientific research, increases the demand of tertiary education in the periphery as the only tool to avoid cultural and economic marginalization. «Regionalization» and increased freedom of HEIs to decide their own future, looking for students, money and resources in short supply, make this demand easily satisfied and HEIs' branches, also thanks to new technologies and local governments' financial help, are mushrooming everywhere. The phenomenon is especially evident in countries with a very developed regional and local administrative structure.

In Italy and Europe many factors are acting in developing a tertiary education system embedded in local communities:

- political pressure from citizens on regional and local policy makers for easier access to tertiary education and improved employability, with a parallel demand for a tertiary education integrated with local productive needs and aspirations;
- fixed or decreasing resources from central government and growing internal costs create HEIs' financial dependence from external sources either with a private origin or allocated on a competitive base;
- financial resources from the central government (see for instance D.lgs 297/1999, for many years the main Italian law for financing research),

[4] According to the Italian Constitution, regional governments are the ultimate responsible for education and Italian local governments very often provide very substantial help, in the form of money and estates, to attract tertiary education courses in their own territory.

from the European Union and even from local institutions (for instance bank foundations) tend to be subordinated to the evidence of local partnership and effective local economic impact;
- HEIs' autonomy and competition among universities for students, human and financial resources, is a major booster for tertiary education embedding in local communities and for HEIs having an active role in partnership and networking;
- in many regions firms' demand for skills and competence, also to gain access to European funds, can be satisfied only by HEIs.
- This growing pressure, for a booming higher education sector and surrounding production systems in need of competences to collaborate (Etzkowitz and Leydesdorff 1997), finds nonetheless major obstacles in many European countries:
- HEIs are gaining freedom as far as new sources of financial entrances and spending are considered, but in many European countries, such as Germany and Italy, for a paradox they don't have the same freedom to choose their own human resources;
- Careers inside HEIs seem to go in the opposite direction in respect to vital financial resources for research coming from the outside. Academic careers still depend from *élite* and publishable research while universities' survival depends on «university-industry linkages», so that inside some HEIs' governance structures there is no incentive at all for academics to engage in vital local partnerships and networks;
- as a consequence of the previous point, we may have a sacrifice of knowledge investments in research areas valuable for regional development to the advantage of publishable research as determined by international interests according to the law «publish or perish». The example of Galles, as depicted by Bob Morgan (2002), is emblematic: «The concentration of effort in achieving published research, however, can result in high opportunity costs in terms of the contributions institutions can make to local economic development»[5];
- it is possible to argue that in the most successful cases (Keeble and Wilkinson 1999; Morgan and Cooke 1998) university-industry linkages need also non market mechanisms in the form of national and regional government intervention, providing regulations, institutional infrastructure, incentives and sometimes vision and will;
- in countries where industry is characterized by family owned SMEs, involved in traditional productions, interactions between HEIs and firms may prove difficult because of different objectives, methods, values and culture.

[5] Morgan B. (2002), *Higher education and regional economic development in Wales: an opportunity for demonstrating the efficacy of devolution in economic development*, «Regional Studies», 2002, n. 36, p. 68.

Leoni and Manzoni (2002) shows that in the present economy and configuration of the value chain, the most widely requested form of knowledge are individual competences such as *problem* solving, relational skills, professional communication, team work and cooperation, and that is why firms pay increasingly less attention to positional goods as university degrees, obtained through individualistic accumulation of «traditional knowledge», and pay increasing attention to expensive psychometric tests.

The problem is that many HEIs seem to be locked in their own glorious «Humboltian tradition» and unable to shift from «Mode-1» science to «Mode-2» science (Gibbons, Limoges, Nowotny, Schwartzman, Scott and Trow 1994)[6]. On the opposite, using Becattini's words (Becattini 2002), there is a need to go back, ideally, to a Socratic kind of knowledge.

High profile attempts to maintain, or promote, differentiation between research-led and access oriented institutions, with the first ones consolidating into a more prestigious and traditional «Mode-1» science, seem doomed to failure in a democratic society aiming at granting equal opportunities to all (Gibbons *et al.* 2001: 87) because they are often conceived – using Alison Wolf's words – as «a great idea for other people's children» (Wolf 2002: chapter III).

However, 1) assumed the importance of improving university-industry linkages and embedding HEIs in their own regions; 2) identified the obstacles that is necessary to remove in order to improve these linkages; it is crucial to clarify if the present booming of tertiary education is in any way consistent with industrial districts characterised by family-owned SMEs involved in traditional productions.

According to Signorini's huge theoretical and empirical investigation (2000, chapter XVII) about Italian local systems, commissioned by the Italian Central Bank, inside industrial districts family-owned businesses are 94 per cent of all and in ordinary local systems this percentage is on average 90 per cent[7]. So that, on a national base, more than 90 per cent of Italian businesses are family-owned.

[6] «One of the characteristics of Mode-2 science, we claimed, was that knowledge was now being generated *in the context of application* […]. The implication of our argument was that science could no longer be regarded as an autonomous space clearly demarcated from the "others" of society, culture and (more arguable) economy. Instead all these domains had become so "internally" heterogeneous and "externally" interdependent, even transgressive, that they had ceased to be distinctive and distinguishable […]» (Gibbons *et al.* 2001: 1).

[7] Signorini bases his work on Sforzi's definition (1991) of «sistema locale di lavoro» as empirically developed by Istat (1997). A «sistema locale di lavoro» can be roughly defined as an area that self contains the commuters' movements on a daily basis. According to this criterion, the entire nation can be divided in «sistemi locali di lavoro» and some of them have the additional characteristic of being «industrial districts" or "almost industrial districts». Basically, the main characteristic that a local system must posses in order to be attributed the additional label of «industrial district» is a mono industrial culture.

According to the same investigation (Signorini 2000: chapter. VII), the average number of employees for each business is lower than ten in every Italian region (Tuscany 6.3%, Lombardia 9.4%, Trentino 6.2%) and even in the most heavily industrialized local systems these percentages don't go higher than 18 on average. The fact that these family-owned SMEs are involved in very traditional and often labour intensive productions doesn't help the development neither of intellectual employability nor of fruitful cooperation between HEIs and industry.

2. Research questions and objectives

This research is of a practical nature and is intended to be the first step, and indeed an exploratory step, towards a very ambitious and long run objective, that is to design higher education policies and regional development policies to favour valuable interactions and linkages between HEIs and the local systems and regions in which they are embedded, with specific reference to the Italian case, with its peculiar industrial districts and cities (Lazzeretti 2003). This is not to say that HEIs should become service-oriented institution. As well expressed by Bob Morgan for Wales, their regional role must be consistent with their nature and mission: «For the universities there must be a realization that they are there to serve Wales, not Wales to serve their aspirations» and «this is not to say that the research community should become too parochial. The challenge surely is to device a system that allows all universities in Wales to develop a research capability that will contribute to the development of welsh economy, whilst still being an integral part of the UK's research community» (Morgan 2002: 72). That is a necessity because, using Branscomb's words «universities are by tradition-one might say by intellectual necessity-open to participation by scholars all over the world. Yet their sources of funding are almost entirely domestic, and in most countries (including the United States) primarily governmental. Politicians may be expected to ensure that the benefits of university research are effectively, if not primarily, captured by domestic workers and investors» (Branscomb 1999: 3).

The research will start from the most evident, provocative and hot sign of crisis in the relation between HEIs and local systems, which is a very evident and paradoxical intellectual unemployment in knowledge economies, in order to investigate the concept of «knowledge» and the kind of knowledge that HEIs should provide to favour embedding and valuable interactions with local communities. We believe, in fact, that a clarification about the kind of knowledge that should be provided by HEIs, apart from its relation with unemployment, is a precondition to any investigation about higher education and local development.

The main focus of the present work is to look for *best practice* around Europe which, for their conditions and characteristics, could be able to provide some lessons or ideas for the Italian case.

Being an action-oriented approach and an exploratory study about a real and complex phenomenon, the adoption of case studies seemed the most valuable methodology (Yin 1989).

Being developed in a business management department and in a faculty of economics with a long tradition in the study of districts (Becattini 1979; Bellandi 1982; Dei Ottati 1994; Lazzeretti and Storai 2000) this work adopts a very different point of view in respect to other similar higher education and regional development policy studies and Ph.d thesis (see for the British case Kitagawa 2004 and Potts 1998). Our main point of view and unit of analysis will be HEIs themselves and their linkages with regional and local actors, such as industries, regional development agencies and governments, and specific attention will be paid to HEIs' «corporate governance».

3. The state of the art

Investigation of HEIs' role in local development requires creating a bridge between regional development policy and higher education policy. As outlined by Keane and Allison (2000), the first workable framework of analysis to create such a link has been the concept of «learning region»[8] (Boekema *et al.* 2000; Morgan 1997; Florida 1995).

The role of HEIs in the knowledge-creation process has been developed in the literature in general terms (Gibbons *et al.* 1994; Dill 1995) and with specific reference to the regional economy (Rip 2002).

The academic literature, across different disciplinary fields, presents a huge variety of studies about the regional role of universities: with a theoretical approach (OECD 1982), across different nations (for instance Dahllöf and Selander 1994), with specific reference to some regions (for instance Dahllöf *et al.* 1998; Hölttä 1998; Krieger and Stratmann 1999), to entrepreneurship (for instance Williams 2003), to technology transfer (for instance Grant *et al.* 1996; Thomson 1998), about start-ups (for instance Di Gregorio and Shane 2003), with both qualitative and quantitative methods.

In a quite original article, Peter Vaessen and Martin van der Velde (2003) argues that «from a learning region point of view, university-society link-

[8] In a theoretical discussion about the concept, Hassink defines a learning region «as a regional innovation strategy in which a broad set of innovation-related regional actors are strongly but flexibly connected with each other, and who stick to a certain set of policy principles» (Hassink 2001: 226); it is a more restricted and demanding definition (focusing just on regional innovation policy) than the concept developed by Cooke and Morgan (1998), which refers also to the general institutional endowments and social capital of a region.

age research has to focus on persistence in the relationship between the two rather than on incidental schemes like external research and consulting projects»[9]; it is original because it is just the opposite of what university-society linkage research has been doing (Branscomb 1999) and shifts research focus on «*recurring* external face-to-face contacts of individual university employees with organisations in the (local) environment»[10], considering leisure social participation of university employees next to their professional face-to-face contacts in the environment. They suggest, in fact, that the stream of academic knowledge filtering into the local community via indirect connections through the spare time social engagements of university workers may be considerable. The definition of knowledge we will adopt in chapter one will take this into account.

Marc Vermuelen's research (2003) goes in the same direction and is *de facto* in favour of non traditional concept of knowledge for HEIs aiming at promoting regional development, when it says that «having the right attitude is more important than having the required knowledge» and that «in this way, the role of education will also drastically change and the emphasis will shift from the qualification function (the training of specialists) to the selection function»[11]. The characteristics of future professionals that Vermuelen sees as most relevant for the regional economy are interaction, process interventions, communicative skills and «an open eye on the shop floor», and he suggests to relay on vocational education: colleges and other HEIs (practice), as they have more a tradition and better networks, could interact with universities (reflection) in order to educate valuable «reflextive practioner».

Nonetheless the current literature doesn't provide a comprehensive answer about the kind of knowledge that HEIs should produce in those peripheral regions which are characterised by an industrial base of SMEs involved in very traditional productions; what kind of governance structure they should adopt and which strategy. The present work, as an exploratory study, aims at being a first step for a contribution to that issue.

4. Structure and methodology of research

Chapter one, taking the Italian case and the Italian National Bureau of Statistics' data about unemployment as a starting point, will develop: 1) an original conceptual and theoretical framework to address the problem of

[9] Vaessen P. and van der Velde M. (2003), *University knowledge transfer*, in Rutten R., Boekema F. and Kuijpers E. (2003) (eds.), *Economic geography of higher education*, Routledge, London, p. 89.
[10] *Ibid.*
[11] Vermuelen M. (2003), *Knowledge still travels on foot*, in Rutten R., Boekema F. and Kuijpers E. (eds.) (2003), *Economic geography of higher education*, Routledge, London, p. 79.

intellectual unemployment in the knowledge economy; 2) an «operationalised» definition of «knowledge» that goes beyond the classic epistemological dimension explicit/tacit knowledge (Nonaka and Takeuchi 1995), and is able to favour valuable interactions between HEIs and regions.

Chapter two will present the results of a case study about the University of Twente and its region. The choice of Twente was determined by the fact that the University was established *ex novo* in a peripheral and declining industrial area, focused around textile, and it proved to be a booster for the local economy. The university of Twente demonstrates that it is possible to achieve, starting from unfavourable conditions, poor resources and even in a short time, both local economic relevance and frontiers of science, provided that good management practices, strong entrepreneurial vision and will are effectively implemented in the institution.

Chapter three will present the results of a case study about the University of Cardiff and its region. The reasons for the choice of Cardiff are similar to the ones of Twente, being Cardiff a peripheral region in a once declining industrial area.

While Twente gave us the opportunity to critically assess management practices inside HEIs, Cardiff allowed us to conduct a quantitative measure of its regional and local economic impact and to review the tools available for this kind of studies.

Both the case studies were an opportunity to critically verify the conceptual framework developed in chapter one which, even if intended to explain intellectual unemployment in knowledge economies, allows us to suggest a broader definition of knowledge whose main consequences facilitate the consistency of higher education and regional development policy.

As far as methodology is concerned, chapter one is based on data from the Italian National Bureau of Statistics (ISTAT) and OECD (2002) and is eminently theoretical.

The case study developed in chapter two took great advantage of the time I spent with the people from the «Centre of Higher Education Policy Studies (CHEPS)» and the «Centre for Studies of Science Technology and Society» at the University of Twente itself, in March 2003, and in Maribor in July 2003 at CHEPS' summer school about the «Socio-economic role of higher education». The case study was mostly based on documents and materials I had the opportunity to collect at CHEPS' library and was supported by a few interviews of an open ended nature with local academic leaders, researchers and students. The study tried to read Twente's experience on the base of the most recent literature on higher education and regional development policy.

The case study developed in chapter three is based on my experience at the «Centre for Advanced Social Studies» (CAS) of the University of Cardiff in January 2003. The time spent in Cardiff allowed me to collect first hand documents and material about Caridiff University and its region, support-

ed too by a few interviews of an open-ended nature with academic personnel. The case study draws heavily from CAS's library and previous studies and would have been impossible without Philip Cooke's invaluable assistance and support.

Chapter four deals with the theme of «governance shifts» in higher education in an international perspective, both at the HEIs' «corporate level» and at macro-national level. Taking previous chapters as a base, its main objective is to identify and compare governance structures across different nations, looking for new paths, out of the «Humboltian tradition» and «Mode-1» Science, and able to guarantee both HEIs' regional economic relevance (and sustainability) and international scientific excellence. Chapter four would have been impossible without the assistance and advice Prof. Guy Neave (director of both CHEPS and the European Universities Association, EUA, at OECD) provided me with in Oslo, in August 2003.

As I have already made clear, the present «research» is intended to be a step towards the achieving of a practical social objective, that is to give a contribution to the solution of a living and present issue. In that sense, embracing a sincere «culture of research» as opposed to a «culture of science» (Latour 1998), it was not shy of taking some risks and enlarging the debate wherever it seemed relevant to: «science is certainty; research is uncertainty. Science is supposed to be cold, straight and detached; research is warm, involving and risky. Science puts an end to the vagaries of human disputes; research creates controversies. Science produces objectivity by escaping as much as possible from the shackles of ideology, passions and emotions; research feeds on all of those to render objects of inquiry familiar»[12]. But now it is reader's duty to decide if the risks we took were worth taking or even justified.

[12] Latour B. (1998), *From the world of science to the world of research?*, «Science», 280, pp. 208-209.