



# REGIONAL ECONOMIES AS KNOWLEDGE LABORATORIES

EDITED BY PHILIP COOKE AND ANDREA PICCALUGA



## Regional Economies as Knowledge Laboratories

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## 2. Higher education and high intellectual unemployment: does education matter? An interpretation and some critical perspectives

**Ernesto Tavoletti**

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### 1. INTRODUCTION: GLOBALIZATION AND THE KNOWLEDGE DRIVEN ECONOMY

What is the nature of the link between 'globalization' and the so-called 'knowledge economy'? Why has globalization made knowledge such an important ingredient for economic performance, according to widespread belief? In other words, is globalization the cause of the great attention paid to knowledge and is this attention justified? We believe these questions have far less easy answers than expected.

In some ways, 'globalization' does not seem to be anything new in a capitalistic economy. In this sense we do not agree with M. Castells (Castells, 1993) and M. Carnoy's (Carnoy, 1998) belief, indeed quite representative of the dominant doctrine, that what is special about the 'global economy' is that 'strategic core activity, including innovation, finance and corporate management, function on a planetary scale in real time and that this globality became possible only recently because of the technological infrastructure provided by telecommunications, information systems, microelectronics machinery, and computer-based transportation' (Carnoy, 1998, 21).

On the contrary, the innovations of the last two or three decades in high tech industry have been large and substantial in improving quality and speed of information provision. However, the fact is that they are not the main point in explaining the current attention paid to knowledge as the key for improving economic growth. Therefore, we want to suggest that it is not recent high tech innovations that have made knowledge fundamental for economic performance.

Indeed it can be hypothesized that the high tech 'revolution' has made information a far less important and strategic ingredient than in the past,

because it is available much more quickly and cheaply, and for many more people than in the past; in many cases it is no longer a rare and inaccessible resource. The current importance paid to knowledge and information derives not from high tech innovations but from some structural changes in the composition of the world economy that provoked a major change in the 'general view'.

## 2. KNOWLEDGE AS ABILITY TO GENERATE EFFECTIVE ACTION

According to rationalist epistemology there is a definitional difference between 'knowledge' and 'information'. 'Knowledge' is what an individual receiving a message already has and what changes as a result of receiving information. 'Information' is the message that is transferred. So, *strictu sensu*, rationalist epistemology assumes that only information can be transferred, knowledge being something belonging to the individualistic sphere. What makes this difference almost irrelevant in the rationalist tradition, at least from a practical point of view, is that, as a rule, all knowledge can be translated into information.

The Cartesian tradition assumes, in fact, a dualism between an objective world of physical reality and a subjective mental world of an individual. Rationalist thinking can either reduce the physical reality to mental states and processes ('idealism') or reduce the mental world to physical states and processes ('materialism'). In both cases *knowledge* is a collection of representations that can be translated into language, *thinking* is their manipulation process and *communication* is the transfer of *information* (Lakoff, 1987). Language and sentences can deliver a representation of the world that can be true or false, coherent or not coherent, but their ultimate grounding is in their *correspondence* with the state of affairs they represent (Winograd and Flores, 1986). It is the *correspondence theorem*, between representation and physical reality, that allows in principle that all knowledge can be translated into information.

The consequence of mainstream economic growth theory, as expressed for example in Romer's endogenous growth model (Romer, 1986), is that growth stands for the accumulation of codified objective knowledge. The rationalist epistemology and the *correspondence theorem* means Romer assumes that 'knowledge' is like a blueprint that has a separate existence from that of any individual. According to this doctrine, the enormous accumulation of information (and so knowledge), allowed by recent high tech innovations, provides a major and historically unprecedented boost to productivity and economic growth. Romer argues, correctly, that in the long run economic growth is a

because it is available much more quickly and cheaply, and for many more people than in the past; in many cases it is no longer a rare and inaccessible resource. The current importance paid to knowledge and information derives not from high tech innovations but from some structural changes in the composition of the world economy that provoked a major change in the 'general view'.

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function of knowledge but we agree neither with Romer's definition of knowledge nor with his view about the high tech role in accumulating it.

The concept of knowledge developed in the self-organizing approach (Maturana et al., 1986), described as well by Robert A. te Velde (te Velde, 1999), is much more useful in explaining the relation between knowledge and economic growth and the possible impact of high tech innovations.

In 1968, Maturana's neurophysical research on colour vision showed that physical reality had only a triggering role in the generation of the colour space of the observer (Maturana and Varela, 1980): the nervous system acts as a generator of phenomena, rather than as a filter in mapping reality. Living systems live in their own mental world, that is, they refer to some 'external' environment (a system at a higher scale) that they have created themselves, as in Heisenberg's phenomenological theorem where the interpreted and the interpreter do not exist independently (te Velde, 1999, 5). According to Maturana's view the main feature of living systems is *autopoiesis* ('self-creation'). They are open to information but closed to knowledge, which is rooted in personal history, personal features and previous knowledge. The main difference with 'idealism' is that the *correspondence theorem* is not true any more. But if the *correspondence theorem* is not true and we live in a world of *autopoietic* systems in which each one is just a source of perturbation to the others or, in other words, we have a different world for each single *autopoietic* system, how is it possible that we have valuable interactions? Maturana speaks of 'structural coupling' or mutual co-adaptation of two independent systems.

An autopoietic system will by necessity evolve in such a way that its activities are properly coupled to its medium. Its structure must change so that it generates appropriate changes of state triggered by specific perturbing changes in its medium; otherwise it will disintegrate – it dies. The structural coupling generated by the demands of autopoiesis plays the role that the rationalistic tradition naively attributes to having a representation of the world (Winograd and Flores, 1986).

So two agents interacting repeatedly with each other might become structurally coupled. 'Structural coupling occurs when the agents develop behaviours that reciprocally trigger complementary behaviours. As a result, their actions become coordinated so as to contribute to the continued autopoiesis of each other ... . These interlocked patterns of behaviour form the so-called *consensual domains*' (te Velde, 1999, 5). Maturana refers to behaviour in a *consensual domain* as *linguistic behaviour*; when the nervous system has developed in such a way that it can interact with its own symbolic descriptions we have *language*. The main function of language is not the transmission of information about an external physical reality but the establishment and consolidation of a *consensual domain* through continuous interaction with other autopoietic

systems. Agents are not in a physical reality but in a *consensual domain*: 'reality only exists within a consensual domain and is a construct of the agents within that domain. Reality is therefore neither objective nor individual but essentially social in nature'.<sup>1</sup>

On the one hand, these epistemological premises imply that 'information' cannot be translated into 'knowledge' by the simple use of a codified language, and knowledge is no more a storable good that can be accumulated. On the other hand, 'knowledge' is always associated with action: you cannot attain knowledge without concrete, specified cognitive processes operating on experiences obtained through concrete interactions between agents (Arthur et al., 1997). Already established consensual domains allow meaningful interactions and coordinated actions between agents. Moreover, the point is that the consensual domain is always local and social in nature. The individual possibility to attain knowledge is strictly linked to the social system and consensual domains in which one acts, whether this is a department, a firm, a local system or a region.

The difference between information and knowledge becomes sharp. Information is an amount of symbolic descriptions produced by individuals, which is storable and can exist by itself: it is an evolution of the behaviour in a *consensual domain*, in which individuals can interact with their own symbolic descriptions. We called this evolved behaviour *linguistic behaviour*. The main function of information and language is to improve interactions between individuals and, through interactions, knowledge. There is no direct link between the accumulation of information and the increase of knowledge. Knowledge does not exist by itself but only inside a community of individuals and is continually regenerated and given existence through linguistic and non-linguistic activity, and the structural coupling generated by that activity. Breakdowns may occur at any moment at the individual as at the social level. This brings us very far from the neoclassic growth model, in which knowledge is individually and steadily accumulated, almost like a sort of capital. Knowledge becomes a very fragile social product, inseparable by the evolutionary process of actions and interactions inside a 'local' community of individuals.

If we assume this concept of knowledge it is at least doubtful that the new technologies made knowledge more important than it was in the past, or even that they significantly enhanced the exchange of knowledge between people.

The adoption of information technology might greatly improve the transfer of information but the critical elements of the 'converter' role are the human-specific qualities to deal with breakdowns and to create consensual domains (Brown and Duguid, 1998). These technologies could play a role in the coordination of action but are at best a supplement to the delicate and complicated processes of inter-human communication. If the share of non-substitutable

informal communication is high, the introduction of information technologies could even damage the existing communication processes and patterns. This is understood well by Robert A. te Velde: 'what marks the rise of a *knowledge society* is the fact that economic value is explicitly attributed to the ability to generate effective action. Effective linguistic behaviour and good language skills are the cornerstones of such a *knowledge society*, not massive databases and 'intelligent' expert systems' (te Velde, 1999, 8).

### 3. THE CULTURAL SHIFT FROM PHYSICAL ASSETS TO KNOWLEDGE

So, if it is not information technology that made 'knowledge' (as ability to generate effective action) so important in the present economy, what did produce such a major shift in the western interpretation of economic growth, paying much more attention to knowledge in respect to tangible assets? The confusion between information and knowledge, and the consequent consideration of a database as accumulated knowledge, certainly played a role in focusing so much academic and political attention on the supposedly amazing potential of information technology in increasing knowledge.

Nonetheless, we agree that knowledge has become a more and more important 'raw material' in the past two or three decades. Here follows our 'non IT' explanation.

First, after World War Two reconstruction and satisfaction of basic needs through mass standardized production, economic activity in the major industrialized countries shifted from material goods to services and information-processing activity. Services, involving in general a much higher level of interaction between human beings, require more complex consensual domains, language skills and abilities to overcome breakdowns in relations: so, higher levels of knowledge are needed.

Second, changes from mass standardized production to flexible customized production, and from vertically integrated large firms to vertically disintegrated networks between small-medium firms and clusters of firms, have produced a 'spreading of knowledge' from the centre to the outskirts. Analysing the reasons for this change in production would bring us too far from our purposes but, for certain, this new structure requires a much larger diffusion of knowledge between a much greater number of economic agents than does vertical integration (Lorenzoni, 1990).

Third, economic activity, in industry, agriculture and services, is increasingly science-based. As we saw in previous sections, behaviour in a *consensual domain* is a *linguistic behaviour* when the nervous system has developed in such a way that it can interact with its own symbolic descriptions (*language*).

Development has gone so far and scientific language has proved so useful in economic activity that this knowledge is now extremely complex and must be provided to everyone through that special social activity that we call education and training. Certain levels of education and training prove unavoidable in providing every kind of knowledge but it is in science that they seem to be more effective. Science and knowledge in general have long been important for economic growth but as economies evolved and became more complex, under increasing competition, they became critical, together with the activity of education and training to provide them.

Fourth, increased global competition, initially between the USA and Japan, during the 1980s, gave clear evidence of the importance of 'knowledge'. During the 1980s the fear that Japan could overtake the United States in international competition even produced new research to understand the roots of Japan's competitive advantage. This research started to highlight the new importance of 'knowledge' in the competitive advantage of a nation.

What is special about Japan is that its thought never experienced the Western and Cartesian dichotomy between mind and physical reality that we discussed extensively in previous sections. As Nonaka and Takeuchi explain, the

Japanese have a tendency to stay in their own world of experience without appealing to any abstract or metaphysical theory in order to determine the relationship between human thought and nature. Such a basic attitude of the *oneness of human and nature* is one of the most important characteristics of the Japanese intellectual tradition (Nonaka and Takeuchi, 1995, 29).

'Moreover, the natural tendency for the Japanese is to realize themselves in their relationship to others' (Nonaka and Takeuchi, 1995, 31).

If we recall our definition of 'knowledge' as the ability to do something in a *consensual* domain nurtured and sustained through continuous social interactions, we realize that the three philosophical pillars of the Japanese tradition, *oneness of human and nature*, *oneness of body and mind*, *oneness of self and other* have produced a much more modern concept of 'knowledge' than the West.

Many observers agree in considering this 'knowledge' to be the key of Japan's success. Nonaka and Takeuchi hold that the success of Japanese companies is not due to their manufacturing prowess; access to cheap capital; close and cooperative relationships with customers, suppliers and government agencies; or lifetime employment, seniority systems and other human resources management practices – although they consider all these factors to be important. Instead, they make the claim that Japanese companies have been successful because of their skills and expertise at 'organizational knowledge creation'. By this they mean the capability of a company as a whole to

create new knowledge, disseminate it through the organization, and embody it in products, services and systems. Organizational knowledge creation therefore becomes the key to the distinctive ways that Japanese companies innovate.

As we will see later on, the problem is that in many countries, such as Italy and even Japan itself, this newly discovered concept of 'knowledge' did not extend to the management and teaching methods of higher education.

#### 4. KNOWLEDGE AND EDUCATION

The increasing importance of knowledge produced, as a consequence, an increasing importance for education in policy-making, because of the high level of complexity reached by *linguistic behaviour*.

In addition, the old Western concept of 'knowledge' was a major boost for formal education and training policies. As far as the policies of single Western countries are concerned, both at the national<sup>2</sup> and regional<sup>3</sup> levels, higher education has received increasing financial, legislative and 'associative' efforts (Cooke and Morgan, 1998).

The problem is that education and higher education are not enough to produce economic growth and, in their traditional methods, they are not enough to produce even 'knowledge', according to our new definition of knowledge. In the Republic of Georgia, for example,<sup>4</sup> half of school leavers now go straight into higher education and another third enter tertiary vocational training (largely as a possible back door into university); since 1991 over 200 new degree-offering institutions have sprung into life alongside the old state university (Wolf, 2002). With half the registered adult unemployed holding degrees, Georgia is a living example that education is, at least, not enough to produce economic growth.

#### 5. HIGHER EDUCATION AND HIGH INTELLECTUAL UNEMPLOYMENT

What is surprising in this entire scenario is that even some Western countries, like Italy, experienced the highest level of unemployment between young and highly educated individuals. So, on the one hand, national and regional governments are making so much effort to improve higher education, on the basis that 'knowledge' is the key for economic growth. On the other hand, these highly educated individuals seem to be the most affected by unemployment! There is also a great need for workers for positions that require a very low level of education, as immigration flows from poor countries and requests for more immigration by firms suggest. Table 2.1 shows data for the

Table 2.1 Unemployment rates for geographic areas and qualifications

	North-West	North-East	Centre	South
Degree and doctorate	5.6	7.9	14.1	28.0
High School	3.8	3.6	9.8	27.3
Professional training	4.1	3.2	8.3	26.6
Secondary school	5.9	4.0	10.5	24.7
Primary or no school at all	11.1	5.8	14.5	35.6
Total	5.0	4.3	10.6	26.8

Italian case from the National Institute of Statistics (ISTAT, 2001), for individuals from 25 to 34 years old.

According to these official data from the Italian National Institute of Statistics (ISTAT), in every Italian region, people with a High School diploma or even just professional training have a better chance of getting a job than people with a university degree, assuming they are from 25 to 34 years old.

In Central Italy, the level of unemployment amongst young people with primary or no schooling is practically the same as that among individuals with university degrees (14.1 per cent and 14.5 per cent respectively). According to an investigation by the Marche Region (1998), 'the difficulties of young Italian individuals with high qualifications to enter the labour market are great and they are revealed by the long time that is needed to get a job,<sup>5</sup> that is often disappointing and unstable'.<sup>6</sup>

Even if, according to the Italian National Institute of Statistics (ISTAT), the scenario improves, analysing data for individuals from 34 to 64, that is really a very small consolation for the 'young' generation of a 'knowledge economy'.

Italy has the lowest 'comprehensive private internal rate of return to tertiary education',<sup>7</sup> for males, among OECD countries: 6.5 per cent (Italian data for females is not available) (see Table 2.2).

Italy's 'expenditure on instruction, research and development (R&D) and ancillary services in tertiary education institutions as a percentage of GDP' is 0.83 per cent, the lowest among OECD countries. It is 1.03 per cent for Turkey, 1.11 per cent for Mexico, 1.07 per cent for Hungary, 1.10 per cent for Spain, 1.07 per cent for the United Kingdom, 1.13 per cent for France, 1.06 per cent for Germany; the country mean is 1.32 per cent (OECD, 2002, 207). Only Mexico, Poland, Korea and Slovak Republic among the 30 OECD countries have a lower level than Italy of foreign students enrolled (OECD, 2002, 236).

It is well known that employment-to-population ratios among young adults who are not in education provide information on the effectiveness of transi-

*Table 2.2 Comprehensive private internal rate of return to tertiary education. OECD countries 2002, males*

United Kingdom	17.3%
United States	14.9%
Denmark	13.9%
France	12.2%
The Netherlands	12%
Sweden	11.4%
Italy	6.5%
OECD country mean	11.8%

tion frameworks. Employment-to-population ratios for 20 to 24-year-olds generally exceed 70 per cent with the exception of some OECD countries such as Greece, Italy, Poland and Turkey. For the 25 to 29 age group, most OECD countries have ratios of between 70 to 80 per cent, with the exception, again, of Greece, Italy, Poland and Turkey (OECD, 2002, 255).

According to OECD data,

in a few OECD countries, even young people who have completed tertiary-level education, probably a first degree given the age band involved, are subject to considerable unemployment when they enter the labour market. The ratio of unemployed non-students to the total youth population among this age group is up to 16 per cent or more in Greece, Italy, the Slovak Republic and Turkey, and higher than 13 per cent for 25 to 29-year-olds in Greece and Italy (OECD, 2002, 257).

The country mean among the 30 countries joining the OECD is 5.2 per cent for the 20 to 24 age group and 3.9 per cent for 25 to 29-year-olds. Moreover, by comparing work status for the 20 to 24 age group, Italy shows a remarkably small gap (in comparison to other OECD countries and the country mean) between those who have obtained upper secondary education and above and those who have not. These data for Italy, especially the ones from ISTAT, are so abnormal as to require a critical analysis.

Certainly, much could be done to improve legislation and coordination between the higher education system and firms. However, we believe that the main cause of these numbers, at least in the Italian case, is a fundamental contradiction in the educational system. This logical contradiction can be summarized as follows: we make the claim that relying on the traditional Western concept of 'knowledge', as we explained it in the previous sections, the Italian system of higher education was built to provide higher education as a 'positional good', and to provide it to as many as possible. This claim requires a full explanation.

The political economy of education markets classifies two broad types of commodity produced in education: *student goods* and *knowledge goods*. Student goods are what are acquired by students during their course of study. Knowledge goods are tradable intellectual property, such as copyrighted books, research data, patented scientific discoveries. Student goods divide into *self-goods* and *training goods*. Self-goods are purchased by the student or her family in order to enhance attributes of that student. Training goods are purchased by employers in order to enhance the value-creating skills of their employees. Self-goods are further divided into *positional goods*, which are status goods that provide social advantage, and *other goods of self-improvement*.

In the United States, Japan and most industrialized countries, the most desired forms of positional goods are places in elite schools and the professional faculties of leading universities. In Japan it is normal that a high school student would attend an expensive evening school to prepare admission examinations to prestigious universities, and it is not so rare that a student would spend some years, after ending high school, just in the effort to be admitted to the University of Tokyo, Faculty of Law. Admittance to this or other elite schools means a high probability of achieving the highest and best-paid positions in public administration and private corporations (Dore, 1965). The struggle among students to get a degree from prestigious institutions is no less intense in the United States (Duke, 1986).

What is special about Japan, in particular, is that its tradition and philosophy developed a concept of knowledge very similar to our new definition of 'knowledge', and its most innovative firms pioneered the introduction of this new knowledge into production (also described by Ikujiro Nonaka and Hirotaka Takeuchi in the *The Knowledge-Creating Company*), whereas its educational system has remained stuck to the traditional Western concept of knowledge. The reason is that the Japanese educational system has always been a Western one in its main framework. When Japan underwent the catch-up phase of its historical development, that was a political choice of imitation of Western models by the central government (Duke, 1986). During the USA military occupation a strong Western policy for education was enforced (Hall, 1949). So, today, this ancient Western origin of the educational system is well established in the Japanese tradition of higher education (Duke, 1986). In our opinion, the fact that firms were not managed by the government, as education was, allowed them to preserve the concept of 'knowledge' typical of the Japanese tradition.

Coming back to 'positional goods', the problem about them, in education as elsewhere, is that they are *hierarchical* in character (by definition some are more valuable than others). They are not just 'scarce', like all economic commodities, but *scarce in absolute terms*, in the sense that total supply is



fixed. According to Marginson (Marginson, 1997, 27–50), positions of social leadership are finite and cannot be expanded through changes in education, and there cannot be universal or equal access to such positions, except when education has no positional value. In Hirsch's words, 'positional competition, in the language of game theory, is a zero-sum game: what winners win, losers lose' (Hirsch, 1976, 52), and when the number of educated people with a given level of credentials increases, the value of these credentials must decline. Education may provide knowledge, skills and social experiences without limitations, but as long as it is employed as a screening device for social positions 'advance for everyone' is an illusion:

At any moment in time, and for any one person, standing on tiptoe gives a better view, or at least prevents a worse one. Equally, getting ahead of the crowd is an effective and feasible means of improving one's welfare, a means available to any one individual. It yields a benefit, in this sense, and the measure of the benefit is what individuals pay to secure it. The individual benefit from the isolated action is clear-cut. The sum of the benefits of all the actions taken together is nonetheless zero (Hirsch 1976, 7).

This phenomenon, even if obvious as it appears, is very tricky for neoclassical tools and methodological individualism as they tend to miss the interdependence between individuals and the negative externalities resulting from education: as a consequence, the full costs of education may be underestimated. The methodological individualist assumes, in fact, the social good is the arithmetical aggregate of all of the individual goods. But, as we can see, this methodology lacks any sense for individual benefits of positional investment in education.

The big difference between Italy and, for example, Japan and the United States concerns positional goods. In Italy places and degrees in prestigious universities are almost irrelevant because of extremely egalitarian policies between universities, the result being that a simple and ordinary degree is the main positional good available in education.

The importance that the labour market has traditionally attached to degrees from different Italian universities is not comparable to the importance that is given in Japan or the United States. Some Italian universities are better than others but the traditional social screening devices (apart from non-academic ones that have always played a major role in Italy, such as wealth and parents' education) have always been the level of qualification (primary, secondary, university) more than the universities where they have been obtained. As proof of that, until a very few years ago there was free access to almost every Italian public university to every Italian student holding any high school diploma or professional training whatsoever; exceptions were so few as to be almost irrelevant. The effect of this policy was that the positional good

'university degree' lost much of its 'positional rent', with all of the typical consequences that the political economy of education suggests: 1) individual investment in education falls short of expectations; 2) 'credentialism': the growth of educational credentials reduces the positional information conveyed by each credential and individuals look for more credentials; 3) the employer intensifies the screening process, raising the required level of credentials and forcing ever higher levels of investment in education; 4) professional groups require increasing levels of qualification to enter the profession; 5) 'the race gets longer for the same prize'; 6) education becomes a 'defensive necessity'; 7) as living standards rise, more people can invest in positional goods, and positional competition is intensified, especially during economic stagnation when the scramble for the remaining positional goods increases; 8) the value of positional goods falls and their price rises; 9) individuals suffer disappointment, frustration and 'deadweight' social costs.

The logical contradiction implied by a policy whose objective is to provide the same positional good to everyone, combined with a concept of knowledge provided by the educational system, that is merely instrumental to positional competition and far from the needs of production and society, result in a high level of unemployment and dissatisfaction among highly educated people. Here are two possible, not mutually exclusive, ways out for the Italian and similar cases:

1. Assuming that positional goods are probably the most important goods produced in the educational market, the higher education system should reject any utopian purpose of egalitarianism and, once it is aware of the characteristics and limits of positional goods, introduce a hierarchy between universities, making the system coherent with the existence of positional goods. Shifting positional goods competition from levels of qualification to universities would allow a modern and widespread policy for higher education without its present logical contradiction (this in effect is what is happening currently in the UK).
2. Remove the old Western concept of 'knowledge' as information that can be indefinitely and individualistically accumulated without action, and introduce in the educational system the concept of knowledge we defined in previous sections. This new concept, if not able by itself to reduce the positional value of education, would imply a closer relation between formal education, action, interactions with other individuals, local community and work, and would avoid a mere production of positional goods. This 'new knowledge' is not just instrumental to positional competition but also useful to economic activity and society. In this new circumstance, if positional competition goes wrong due to logical contradictions in policy or for some other reason, the result is not 'a positional

good, *education*, that doesn't have a position any more' (and so is valueless on the labour market) but a creation of knowledge that is economically valuable. Indeed, this 'new knowledge' does not need a positional framework at all.

The second solution is the most interesting as it would reduce the socially expensive zero-sum game for positional goods, and would produce a kind of knowledge and education more relevant to the needs of modern firms. Its democratic and more egalitarian nature is a bonus. Figure 2.1 synthesizes the conceptual framework and the two possible policies. On the vertical axis is the kind of knowledge that the educational system provides: 'traditional/individualistic' (at the top) or 'social' (at the bottom) according to our definitions. On the horizontal axis is the degree of positional competition: 'non-active' on the left (because of logical incoherence in the system, like in Italy, or because not intended, like in the Netherlands), active on the right. The square high on the left is the only one, according to our definitions, that produces a high level of unemployment among highly educated people. The

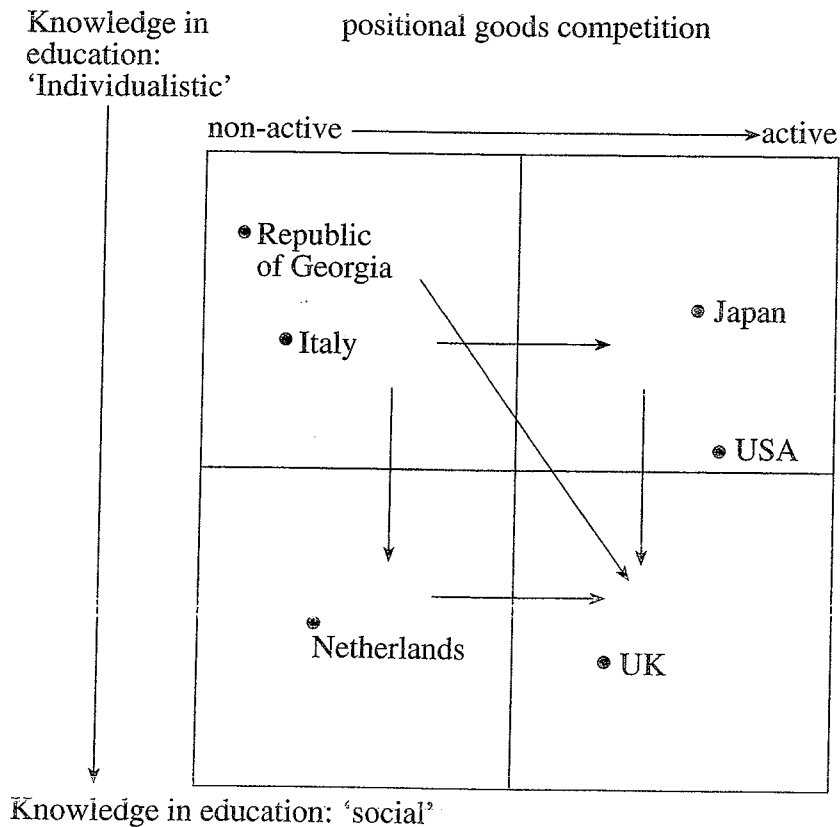


Figure 2.1 The conceptual framework

arrows going out of this square indicate the two, not mutually exclusive, policies to solve the problem. Even if the co-location of countries in the figure is only an example to clarify the conceptual framework, the UK may well be a case in which both the policies are active.

If we accept the epistemological view of the previous sections and agree: 1) on a definition of 'knowledge' as ability to produce effective action in a social context; 2) that the educational system must help in producing this kind of 'knowledge'; 3) that knowledge is the key factor in economic growth; 4) that in the present economy the most widely requested forms of knowledge are individual competences such as *problem solving*, relational skills, professional communication, team work and cooperation; then we understand why firms pay increasingly less attention to positional goods such as university degrees, obtained through individualistic accumulation of 'traditional knowledge', and pay increasing attention to expensive psychometric tests (Jenkins, 1999).

It is also possible to argue that a coherent system of 'positional goods competition' could work more effectively when the major employers are large firms. In this case, because of the great asymmetries in information between employer and possible employee, firms could be compelled to rely more heavily on educational 'credentials'. When firms are very small, or on a family basis, and embedded in a local network of relations based on trust, which reduces asymmetric information, such as is found in typical industrial districts of Central Italy, even a coherent system of 'positional goods competition' could not work, let alone the incoherent one that seems to exist just now.

The problem of eliminating the 'mismatch' between present academic knowledge and knowledge requested by firms is too great to be treated here and would require a complex system of policy measures such as: 1) shifting from a passive to an 'active' way of teaching, to develop the newly requested competencies and link the concept of knowledge to the concept of 'ability to produce effective action in a social context' (Leoni and Mazzoni, 2002); 2) introducing 'stages' and partnerships to allow firms and students to know and interact repeatedly with each other through project-based working, so that they may become structurally coupled, remembering that 'structural coupling occurs when the agents develop behaviours that reciprocally trigger complementary behaviours. As a result, their actions become coordinated so as to contribute to the continued autopoiesis of each other' (te Velde, 1999) and would build their relation on effective interaction, more than through 'credentialism' and socially expensive 'positional goods competition'; 3) reforming universities' funding structure to promote devolution and a development of knowledge not just 'publishable' but that is linked to the surrounding social community, according to our concept of 'knowledge' as a 'social behaviour':

the concentration of effort in achieving published research ... can result in high opportunity costs in terms of the contributions institutions can make to local economic development. There is a need to modify the funding system, so that both the contribution universities are making ... to social reproduction, social capital and social inclusion, and the potential they have for applied research, are recognized and encouraged (Morgan, 2002, 68).

## 6. CONCLUSION

This chapter does not seek to propose a general policy framework, rather its aim was to show that every effective policy framework for filling the 'mismatch' between higher education and the real economy requires embracing a new concept of 'knowledge', as outlined in previous sections.

This concept, well developed from a philosophical point of view, is not yet ordinarily held in the educational systems of industrialized countries. Its adoption would help in explaining phenomena like high unemployment among highly educated people and would have highly social implications for local communities.

It would contribute to avoiding the *global auction* for investment, technology and jobs operating like a 'Dutch auction' (Brown and Lauder, 1997, 173), in which corporate investors are able to play off nations, communities and workers as a way of increasing their profit margins, and downward bidding spirals impoverishing local communities and workers by forcing concessions on wage levels, rents and taxes in exchange for investment in local jobs.

If the higher education system is, in fact, going to provide this new form of knowledge, together and in full coordination with surrounding communities, instead of involving itself in the expensive and deteriorating fight for positional goods, systems would no longer have an excess of highly educated people, nor would they have the more subtle and invisible general downsizing in positional competition. People would gradually and mentally involve themselves, during and inside their university courses, with the economic activities carried on in the communities in which they live, and would not just present themselves one day on the market, to sell the educational positional goods that they have laboriously obtained through individualistic accumulation of 'knowledge'.

We should probably go back to the classics and the founding father of the socioeconomic concept of 'industrial district', Alfred Marshall, who had a very different view from the following mechanical and formalized neo-classical tradition: his 'educational principles transcend the school-room and highlight the need to ensure young people have contact with real life quite early, when their mental elasticity is greater. There is more to learn in the

workshop than in technical schools, where “*imitation has to yield the first place to formal instruction*” (Marshall, *Industry and Trade*, 1919, 351). ‘Education is also a process of socialization, in which “*sympathies*” are developed by personal contacts “*on the river and in the football field*” (Marshall, 1919, 822–3).<sup>8</sup>

That is probably the best answer to ‘the new international division of labour’ (Carnoy, 1995, 211–17) for industrial districts and local communities: to invest in education to develop this new ‘social knowledge’, in order to accelerate the evolution of their own social environment, because ‘reality is therefore neither objective nor individual but essentially social in nature’ (te Velde, 1999). The world would be no more ‘a representation of mine’ (Schopenhauer, 1819), rather it would be ‘a creation of us’ as social community.

## NOTES

1. Te Velde (1999), p. 6. See also, for a fundamental critique on the autopoietic model Roth and Schwegler (1990), ‘Self-organizing and the unity of the world’. We may summarize the main difference between ‘autopoiesis’ and ‘rationalistic thinking’ as follows. *Rationalist thinking has two forms; it can either reduce the physical reality to mental states and processes (‘idealism’) or reduce the mental world to physical states and processes (‘materialism’)*. In both cases the ‘correspondence theorem’, between representation and physical reality, is true, and language and sentences can deliver a representation of the world that can be true or false, coherent or not coherent, but their ultimate grounding is in their correspondence with the state of affairs they represent. On the other hand, ‘autopoiesis’ assumes that the ‘correspondence theorem’ is not true any more: ‘physical reality’ becomes a product of social interactions among individuals and so a ‘consensual domain’.
2. See, for an extensive treatment, Slaughter (1998), ‘National higher education policies in a global economy’.
3. See, for an extensive treatment, Cooke and Morgan (1998), *The Associational Economy*.
4. Its population is 5.4 million, it is number 139 in the world in GDP per inhabitant at purchasing-power parity and number 16 in the world in unemployment rate.
5. In 1993 individuals looking for a job for more than 12 months were 59.4 per cent. In 1996 they increased to 66.4 per cent.
6. Organismo Bilaterale Marche (1998), *Disoccupazione, offerta di lavoro giovanile e domanda di professionalità delle imprese nelle Marche*, p. 51.
7. The rate of return represents a measure of returns obtained, over time, relative to the cost of the initial investment in education (the costs equal tuition fees, foregone earnings net of taxes adjusted for the probability of being in employment less the resources made available to students in the form of grants and loans; benefits are the gain in post-tax earnings adjusted for higher employment probability less the repayment, if any, of public support during the period of study) (OECD, 2002, 126–34).
8. In Raffaelli (2003), *Marshall’s Evolutionary Economics*, p. 64.

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