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Innovation and Competitiveness in the Regions

EDITORIAL

Report by **Thierry Madiès** and **Jean-Claude Prager**

No further proof is required of the territorial dimension of innovation, competitiveness and growth, which is also being enhanced by globalisation.

The report examines the theoretical foundations of regional growth and development policies, by focusing its analysis on innovation, R&D (both public and private), and the importance of human capital and its training. The diagnosis, based on international and in particular intra-European comparisons, results in concrete recommendations for more effective regional economic policies which are more firmly centred on the key themes of the Lisbon Agenda. Administration of innovation needs to be lightened, meaning that the company needs to be placed at heart of the innovation process. Coordination should also be improved between the different administrative echelons responsible for public interventions. In addition, the policy for the competitiveness clusters requires redefining.

Christian de Boissieu
Executive Chairman of the CAE

Innovation is at the heart of the Lisbon Strategy and Europe is struggling to close the gap on the US and Japan in this area. The territorial dimension is playing a greater role as regards innovation and competitiveness: as soon as a region is large enough, it can increasingly present itself as the most relevant geographic link in the chain of success.

The report examines the ties connecting the regional economy and the innovation economy. To this end, it studies the importance of geographic location for growth and innovation's place in advanced countries. As regards France, the authors ponder the role of the regional public authorities in this field, the nature and potential effectiveness of territorial innovation policies, and consider the risks of excessive interventionism as well as the successful governance structures for territorial innovation. The main purpose of this analysis in the report is to provide the regional public authorities with the basic tools for improving the competitiveness of the territories and public policies in the global knowledge economy.

The report was presented and debated at the CAE's plenary session on November 15. This report, written under the auspices of the permanent unit, presents the authors' main conclusions.

The geographic dimensions of innovation and competitiveness

Innovation is the economic valuation, whether used for profit or not, of new ideas which improve all the dimensions of the production of goods and services. There is proper supply and demand for knowledge and a procedure for circulating knowledge whereby the same economic agent is both the producer and consumer of knowledge. Nevertheless, knowledge and in particular innovation are not ordinary economic goods as knowledge is not destroyed by use; quite the opposite in fact. The final consumption of knowledge is

a collective investment, to which conventional macroeconomic reasoning about supply and demand cannot be applied.

The next step is to choose the appropriate territorial level. The administrative region is currently seen in Europe as the central level of territorial innovation policies, even if the focal point of innovation and competitiveness policies continues to be the large town, especially as the impact of increasing returns and the resulting polarisation effects are mainly felt at this level.

Lastly, competitiveness is initially generated in companies. However, competitiveness is

also measured by a territory's capacity to contribute to the creation and development of economic activities and to attract and retain people and capital. The best known competitiveness is competition between nations, which is visible on multiple levels such as taxation, exchange rate manipulation, flexibility of resources, etc. This concept should be extended to the capacity to 'fix' and endogenously develop innovative activities over a territory, as they are now considered to be an attractor and an indication of economic success. In this extended vision, competitiveness therefore also covers the aptitude to enhance the development potential of a region's economic units and the standard of living of its inhabitants.

Innovation and region: the stylised facts

Several stylised facts reveal the close connection between geography and innovation:

- the trend of concentrating economic activities is even more visible when the activities are innovative, and therefore with high added value, due to the strong external effects related to proximity and increasing returns, both at company and territorial level. The reduction in the transport cost of both material and immaterial goods is intensifying this phenomenon;
- the concentration of innovation has remained stable over time with a slight catch-up effect over the last ten years;
- there is a significant cultural component to the geography of innovation which includes capacity for personal initiative and the extent of interpersonal trust in economic relationships. There is a visible division between Northern Europe and Southern Europe;
- there is a positive correlation between GDP per capita and the extent of innovation in a region and the level of human capital.

The conclusions of economic analysis

For the new geographic economy, the situation of economic activities in space is the result of tension between *centrifugal* forces leading to the dispersion of economic activities and *centripetal* forces which are the source of the spatial conglomeration of activities. Spatial configurations which are more or less polarised are the result of arbitrage between three types of factor, besides transport costs:

- increasing returns to scale which encourage polarisation;
- spatial competition which reduces polarisation except for companies producing very differentiated goods;
- positive external effects.

External effects means situations in which a player benefits from the action of a third party without having to pay. These effects are 'technological' when interactions at local level help spread technical progress or knowledge which is useful for production, or 'financial' for mechanisms spreading cost reductions.

The role of geographic proximity in the transmission of knowledge cannot be denied, as it has been confirmed in empirical literature, even if this role depends on both the tool used for measuring external effects and border effects. Note that empirical studies of French data show that productive external effects dominate knowledge-based external effects in some cases, which implies that all regional innovation policies have to base themselves on a pre-established industrial base.

The authors also examine the specific role of players' networks of professional relationships on the extent of knowledge-based external effects. Border effects can exist according to the nature of the knowledge, but once they have been crossed, there is no limit on the distance of diffusion.

More specifically, the authors separate intra-sector knowledge-

based external effects from inter-sector knowledge-based external effects. They note the existence of inter-sector knowledge-based external effects in French *départements*. Geographic proximity would therefore seem to increase inter-sector knowledge-based external effects.

Using this analysis, the authors refute any idea of undifferentiated regional policy and distinguish three types of region with different corresponding policies:

- regions where production factors benefit from 'classic' comparative benefits and where development involves physical investment and the development of the knowledge base;
- regions characterised by significant sector external effects at town level and where development is based on the innovative potential of sectors and on interaction between companies and local research centres;
- regions which are knowledge hubs, containing multiple sources for the production and diffusion of innovation and where inter-sector external effects supplement the existing significant intra-sector external effects.

Regional innovation policies

Theoretical studies based on the new geographic economy reveal a clash between economic growth targets and objectives in terms of territorial cohesion. The spatially limited spreading of knowledge-based external effects makes both the polarisation of economic activities in space and the hub/spoke geographic structure two positive factors for growth, even if it also leads to an increase in spatial inequality which could harm the internal cohesion of a country.

The approach to regional policy changed with the Lisbon Declaration. The objective of cohesion as a factor for global growth gradually gave way to interventions in favour of R&D, targeting the dynamic clusters. As

a result, the issue of territorial cohesion is factored through reducing the cost of spreading innovation and broadening the geographic extension of knowledge-based external effects, mainly by developing transport infrastructures or NICTs.

The foundations of regional innovation policies

The appropriateness of public intervention is not questioned when it comes to boosting research, especially fundamental research; on the other hand, it is challenged when the sociological factors of innovation are called into question. The neoclassic logic of market failures suggests that companies tend to 'under produce' innovation as a collective good, but the argument is still raging as to whether these failures are generated at national or local level. One school of thought, sometimes qualified as being Anglo-American tends to give limited scope to regional intervention: a certain ideological vision of the situation, which remains very popular today, rejects the usefulness of any policies other than for favouring the corporate environment or improving resources. The evolutionary theory of regional innovation systems also has reserves about the effectiveness of public action in this field, even it does favour taking into account the sector specificities of each region. Be that as it may, according to the authors, the liberal doctrines currently preached by most countries in favour of policies based only on the economic environment do not prevent them from often implementing very vigorous and influential policies.

Public spending on the knowledge economy represents between 5% and 10 % of the GDP of advanced countries, but the amount directly set aside for the purpose of territorial policies is generally very low. The social return to R&D expenditure at country level is very high, and visibly above private return,

justifying public efforts to increase it. In addition, it is much higher than the return to the other public infrastructures, and in particular transport. These factors point to an increase in R&D expenditure at territorial level.

The debate over economic diversification or specialisation at territorial level highlights the benefit of not discouraging specialisations that can result in critical mass. A balanced strategy requires several sector priorities and initiatives which are more often than not focused on key technologies in the framework of technological 'competence' or 'excellence' centres selected from project tenders, especially European project tenders.

Distribution between the State and the regions

Arguments such as the proximity of local players or the improved allocation of public funds speak in favour of greater decentralisation. They are less convincing when it comes to long-term expenditure on innovation and assume that critical mass has to be reached. Similarly, using greater reactivity at local level as an argument is less justified as regards innovation and is even erroneous if the local authorities are in favour of maintaining the status quo.

In addition, not everything is a public good in the sphere of innovation and there is a permanent debate as to the place of competitive mechanisms, cooperation and coordination. Even if market failure has to be avoided, so must public over-funding and competition with the private sector. Public initiatives in innovation should cover three fields:

- strategy: the diagnosis, the vision, the strategic outline and the most difficult files should be *shared*;
- coordination: financial and fiscal aids, incubators, public scientific installations, university offices of technology transfer calling on public funds should be *coordinated* between public players;

• competition: the rest, including public bodies with low economies of scale, are expected to be in the *competitive* sector.

Foreign examples are useful. They show that there is still a lot of room for improving the effectiveness of systems via the evaluation of the links in the chain, from producers of knowledge to network players ensuring the distribution of this knowledge, especially to companies. In these countries, the state continues to generally manage the system, but its implementation can be entrusted to private organisms chosen by tender offers to the competition and assessed using rigorous methods.

Territorial governance in these countries involves the creation of specialised agencies responsible for implementing the strategy of local players, but with sufficient autonomy to resist demands which would spread subsidies too thinly and protect long-term initiatives.

The instruments for regional innovation policies

There are numerous and varied instruments for innovation policies. Their use has developed over recent decades. Traditional policies are focused on two main factors: firstly, the development of technological and scientific infrastructures with a view to increasing the resources and supply of advanced knowledge, in the spirit of the linear innovation model and the doctrine of development clusters; and secondly, financial incentives for encouraging R&D in companies. A central consideration for policies at the moment is the increase in the capacity of companies to absorb innovation and the transfer of knowledge from research establishments and institutes of higher education. At present, a number of regions are drawing up policies based on a very broad approach to the role of public power for boosting in-

novation, often by focusing on the increase of high-level human resources as a main factor for innovative capacity in companies. There are still a substantial amount of corporate aid schemes, even if their effectiveness is increasingly questioned.

There are no definitive answers as to the effectiveness of regional innovation policies. The development of human resources plays an undeniable role, due mainly to competition between the territories to attract the most skilled individuals. Transfers of knowledge between universities and SMEs are sources of effectiveness. In some countries, this relationship has been externalised to private operators. The effectiveness of innovation funding and corporate subsidies is less obvious because of windfall effects and fiscal competition. Nevertheless, specific subsidies for R&D initiatives seem favourable on the whole. Assessments of the effectiveness of public funds used to finance scientific installations, incubators and town with high-tech industrial research and development facilities are very mitigated. Cluster policies are useful, but one should not expect too much from them. After initially benefiting from public aid, they are eventually supposed to finance themselves via member companies. In France, it is a fact that competitiveness clusters are clusters focused on innovation, with seventy five percent of companies being SMEs which benefit from 60 % of financial aid. In France, corporate advisory services are generally public or semi-public. They are often overabundant in a territory and their effectiveness is rarely assessed. An overabundant public offer blocks private contributors but without any guarantee of quality due to the lack of competition. Venture capital plays a significant role in the development of high-tech activities but its limited size handicaps the European regions. And in this field, capital remains localised as funding initiatives

require significant expertise which itself requires geographic proximity. Territorial marketing has become a lever for competitiveness policies, as rare and mobile resources (skill and capital) are attracted by the benefits and opportunities identified in the region.

Recommendations

The authors consider that the public authorities have to play an important role in the training and development of human resources in regions, as they are the most decisive factor in a territory's capacity to innovate. The presence of an internationally recognised and outstanding university or institute of higher education and the density of its relationships with the economic fabric are the distinctive signs of a region's momentum in the knowledge economy. Priority must therefore be given to reinforcing universities which appear to be the drivers to, and catalysts of, development in regions, and to the successful reform of the university system which was launched in France in 2007.

Last but not least, the authors insist on the necessity of reducing administration for innovation in France by refocusing the public authorities on their basic function of strategy and management. The quality of public innovation strategies does not depend on the number of civil servants or public bodies involved; quite the opposite. As Schumpeter said at the start of the 20th century, innovation comes from entrepreneurs. Companies and private initiative should be placed at the heart of innovation strategies at national level and in the regions. Our country, even if it is a rich source of resources and expertise, is currently paying a heavy price for its attachment to public interventionism as it is finding it difficult to adapt to the modern dimensions of the knowledge economy, with a visible deficit in entrepreneurship and, ultimately, a lack of economic growth.

The report puts forward ten pro-posals for regional innovation strategies, with very concrete suggestions most of the time:

- reduce administration for innovation in the regions;
- simplify public management of innovation and make it more efficient;
- develop selective differentiation strategies for the regions;
- successfully reform the universities and place them at the heart of territorial dynamics;
- base regions' competitiveness on the dynamics of exchanges of knowledge;
- open the regions to external knowledge resources;
- adopt active open innovation policies in the large public and private research centres;
- redefine the policy for competitiveness clusters;
- develop a private offering for innovation services and venture capital;
- set aside significant room for developing innovation in the corporate and personal services sectors.

Comments

Lionel Fontagné considers that the report is rich, interesting and apposite. The report does not provide an answer to the question of causality between per capital wealth in a region and the presence of high-tech activities with a higher innovative content. Progress on this subject will require very controlled statistical analyses by also introducing other variables such as the rate of international openness, the education rate, the level of market openness, etc.

He questions the normative nature of some conclusions which are favourable to the role of the regions and wonders in particular if, given the high social return to innovation, policies in this field should not be drawn up at national or even European level. Is there not a risk of falling into expensive regional policies involving the regions fighting competitive battles which would drain public funds and launching rival projects which would result in efforts being duplicated? The real competitiveness of the regions is actually based more on structural factors linked to education, governance, the fluidity of the goods market and the openness of their economy.

Jacques-François Thisse places more emphasis in his comments on the spatial and strategic aspects of regional development than on the role of innovation. In the permanent arbitrage between increasing returns and the size and costs of transfer, the sustained reduction of the latter is leading the way, resulting in a greater concentration of activities. To this end, activities and subsidies should not be spread too thinly, and efforts should be made to reach critical mass via investments, and in particular public investments, which are sufficiently consistent with the region's strategy. He considers that the appropriate territorial level is the town and more specifically urban systems as the conurbation economies which are a source of greater wealth creation are found in urban metropolises. Nevertheless, strategies do exist for territories lacking these metropolises. They must adopt differentiation strategies and avoid imitating others. Given the tradition of centralisation in France, the creation of independent agencies, which would still report to the relevant political authorities, would

help refocus the authorities' attention on establishing strategic guidelines rather than just the local management of accepted policies. He underlines the importance of territorial governance and observes that in countries with a greater federal culture, which is different to France's culture, the success of territorial development policies is based on the simplicity of institutional structures and good cooperation between the state and private players. Resistance to productive developments should be avoided and Schumpeter's process of destructive creation should be fostered. It should be accepted that some regions develop more than others, especially at international level, and that the State should maintain the central role of guaranteeing national cohesion.