

Innovation policy: what can be done for the catching up process across EU regions?

Adriana Pepe

Jorge Vélez

May 29, 2018

Since the economic crisis that erupted in 2008, innovation in Europe has been slowing down. According to the OECD (2017), it can be seen how countries such as Romania, Poland, and Spain have large disproportions in their different regions compared to the most innovative countries and regions of the continent such as Germany, France, the United Kingdom and the Nordic countries. In countries such as Belgium, or the Netherlands, performance has decreased and Germany, considered as the leading innovative agent of the Union, has not been able to make further improvements. According to the European Commission (2018), the main obstacles for innovation in Europe are: unfavorable frameworks that lead to private investment being held back and poor availability of finance; and fragmentation of effort, where national and regional systems work separately. Considering these factors, an initial developmental activist state economic innovation approach is recommended to close the gap between regions in the EU, and once higher levels of innovation are achieved, policies should gradually move towards a pro-market view to establish the necessary conditions for the sustainability and stability of the business environment.

For those regions which are lagging, it would be necessary to set up an industrial policy that concentrates its efforts on a favorable regulatory framework for entrepreneurship. "Strategic industrial policy (SIP) forms a central component of the developmental state model" (Önis 1991), focusing on high levels of investment in key industries through public guidance, incentives, and resource allocation to expose these industries to international markets. For this, it is essential to reinforce the integration of industrial competitiveness in all political areas of the Union, especially in strategic sectors such as steel, naval, infrastructure or automotive, as a guarantee that the competitiveness objectives are properly coordinated. This technology policy relies on the provision of "focal points" around which actors involved in Science, technology and Innovation (STI) policy arena can coordinate their decisions. Under these focal points it is necessary to move towards increasingly cleaner and more sustainable models of production and consumption, with the imperative of developing and disseminating innovations aimed at resolving social needs.

Furthermore, policymakers should establish the necessary conditions to foster public-private cooperation, mostly between the academic world, technology centers, and firms, with the aim of facilitating the transfer of knowledge and technology, as well as the commercialization of innovations. Chang, Cheema, and Mises (2002) define a tool for public-private cooperation through "intermediate" institutions, which link the state apparatus with the business sector, and play a critical role in ensuring productivity. Intermediate Institutions would guarantee a constant flow of information between the states and the business sector at the local, national and international level. The bottom line of this argument is that the capacity and autonomy

of most of the states in Europe are already built, which in turn problems stemming from rent-seeking behaviour and enforcement of contracts might not be at work. In this context, trust is generated among the actors through the creation of instruments that improve the quality and legal security.

A significant adjunct to policy is the design of taxation systems that not only do provide lower tax burden, but they also give incentives to cooperate towards innovation activities. For instance, if cooperation in innovation activities is achieved, the social rate of return of innovation investments increases, reflecting positive externalities than should be in conjunction with a lower tax burden (Palazzi 2011). In this sense, EU countries can use their tax systems to stimulate cooperation between actors in the innovation systems, using instruments such as more generous tax loss carry forwards or tax depreciation allowances.

Horizon 2020 (H2020) is the research and innovation programme of the EU, with a budget of 80 billion EUR from 2014 to 2020, and the Key Enabling Technologies (KETs) is one of their priorities, in which they target certain technologies like micro and nano-electronics, nanotechnology, industrial biotechnology, advanced materials, photonics, and advanced manufacturing technologies. However, there is a problem with the translation of these efforts into marketable goods and services, which has led to a decrease in the manufacturing of these sectors in the EU (European-Commission 2018a, 2018b). In this sense, there is evidence that the EU has already addressed the need to target key sectors, but efforts haven't been sufficient, partly due to the previously mentioned fragmentation of effort across different countries. Thus, we recommend a further evaluation of the KETs choice in each country with involvement from the proposed intermediate institutions as means of activism. Once H2020 comes to an end and the evaluation process starts, given that this specific interventions were successful, then it would make sense to start moving towards a more competitive, free-market approach.

Once the markets have matured and a better convergence between the regions has been achieved, the fundamental challenge will gravitate around the managing of the external vulnerability of the economies of the region, designing appropriate instruments to administer booms; that is, to prevent crisis (Carlin and Mayer 2003). In this case, tools related to the establishment of strong prudential regulations of internal financial systems, can include both the adequate capitalization of institutions and supervisory schemes aimed at preventing intermediaries from taking unmanageable risks during boom periods. Thus, activities with a similar level of risk should respond to the same regulatory requirements. The policy in this regard can be aimed at obtaining the highest standards of capital and liquidity, with more objective supervision from the national states and cooperation between the different EU countries. For instance, authorities must give clear signals that that they will not in any case save the assets of the owners of financial institutions (and act accordingly if a crisis is triggered), avoiding problems of moral hazard and demanding transparency in corporate finance, to prevent additional risks of bank portfolios.

To conclude, given the urgent need of the EU to improve its innovation system and develop more dynamic and productive approaches to foster key industries and the development of new products, processes and services, an activist state is advised as an initial framework to ensure the accurate selection of industries, effective public-private partnerships, and financial regulations, that will then lead the way towards private investment and free-market policies with emphasis on better taxation systems, in order to guarantee long-term stability and sustainability of the innovation system.

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