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The funding of R&D between patents and tax incentives

Aristoteles Moreira Filho

Economic studies have turned virtually consensual the conclusion that the adequate development of innovation requires the intervention from the state through public policies. On the one side, technological development presents itself as a common goal, since it conditions not only the competitiveness of national markets and companies but also determines the increase in the welfare level of the global economy and the rise in prosperity of the whole humankind. On the other side, technology is an asset whose

monetization does not occur spontaneously in a free market environment: the marginal cost of reproducing an innovative idea is close to zero and its use by one economic agent does not exclude the use by the rest of the players (non-rivalry and non-exclusivity). The high risk, uncertainty and the immaterial nature of a research

and development project with regard to its outcome, in the form of a technological asset eventually obtained and its future value, impose multiple challenges to corporate finance practices and traditional methods of securing financial operations, which explains why the credit market for innovation activities is so underdeveloped.

Since its inception in 17th century Europe, the patent system has been functioning as a fundamental instrument in addressing these market failures which constrain the inventive process in the economy, doing so by the way of conferring the innovative agent exclusive rights of exploiting his invention for a given time frame. Patents are not, though, the only mechanism by which the state intervenes in the market with the goal of fostering innovation. Direct subsidies (grants), government contracts and procurement, regulatory barriers and even prizes are all public policy tools used to reward the inventor and thus combat market failures affecting innovation. Tax incentive regimes are nevertheless the policy instrument whose inducing potential comes the closest to that of

the patent system since they share a basic common feature, which is their general applicability. In this sense, instead of being decided on an individual project basis, the governmental support in form either of patents or tax incentives is based on general norms neutrally applicable to all research and development projects, efforts and outcomes, as well as to all economic agents, to whom concern the decision about where and when to allocate inventive resources more efficiently.

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In a moment when Brazil is discussing improvements to its major R&D tax incentive regime, brought about by the Law no. 11,196/2005 ("Good Law"), it is imperative to put this instrument into context, more specifically in the light of what the literature has been naming an external perspective of innovation law:

instead of analyzing each different stimulus to innovation within its microsystemic setting, it should be assumed that the search for the best innovation policy design requires approaching all instruments in a holistic fashion vis-à-vis their common goal, considering the technique and the functionality presented by each of them, and at the end critically analyzing the accomplished results in the light of the implemented institutional arrangement.

There is a need to overturn the false premise that the patent system corresponds to a free market solution with no costs for society, while subsidies and tax incentives create a financial burden on the economy. In fact, when exclusive rights to



commercial exploitation are granted to inventors, the law operates hampering free competition in supplying the market with innovative products and services, thus increasing prices way beyond the levels which would prevail in a competitive setting. By breaking the logic of the free market, the resultant deadweight loss can generate a greater social cost than the other public policy tools geared towards the funding of innovation activities: although the distinct scope makes difficult a direct comparison, it is conspicuous that in the US patent income generates an annual cost in the order of \$ 100bn, while the tax incentives for innovation generate a burden of only \$ 12bn.

Hence, the question is no longer about if, among the different innovation inducing mechanisms, there are costs to be borne by society, but rather in which circumstances what instrument can promote the most efficient allocation of resources, public and private, in the innovation process of the economy. Patent exclusivity may construe a relevant stimulus for sectors whose technology is particularly vulnerable to copying and imitation in the market stage, so that investment-phase support is not enough to assure profitability levels to R&D projects, this being the case particularly for the chemical and pharmaceutical industries. Grants and tax expenditures, because they anticipate liquidity at the project stage irrespective of its success, are more effective in stimulating the innovation which is capital-intensive, as well as inventive activities carried out by micro, small and medium-sized enterprises, which have restricted access to credit, smaller R&D portfolios and are more risk-sensitive. Moreover, there are several technology fields which are not properly covered by patent protection, such as human and animal genetics and, outside the US, the computer software sector, as are also industrial and trade secrets and the increasingly relevant tacit knowledge, which develops through learning-by-doing and cannot be formalized under a patent application. In this environment, tax incentive regimes, featuring a broader scope, can operate more efficiently, this also being the case for the services sector as well as for innovation projects of a local technology level, which do not raise the state-of-the-art in the corresponding technological field. In the current scenario of fast, real-time, inexpensive, cumulative and interconnected innovation, with the increasing digitalization of everyday life, the traditional patent system no longer thoroughly meets the needs of innovative agents, requiring then the application of complementary public policy tools for adequate innovation funding and inducement.

The recognition of the complementarity between innovation funding mechanisms should serve as a starting point to a prospective reevaluation of our S, T & I policies. While evolving and adapting the patent system within the scope of flexibilities

granted by international treaties can be considered, fiscal incentives for innovation not only allow but also require a redirection which brings them closer to meeting their vocation and full potential.



Aristoteles Moreira Filho is Graduate of the Law School of Salvador Catholic University, PhD candidate in Tax Law from the Law School of the São Paulo University (USP) and researcher at CEST-USP.

Coordinator: Edison Spina

This article is a result of the authors' ascertainment and analysis, without compulsorily reflecting CEST's opinion.