

David Encaoua (EUREQua, CNRS & University Paris I)
 Dominique Guellec (OECD)
 Catalina Martinez (OECD)

David.Encaoua@univ-paris1.fr
Dominique.GUELLEC@oecd.org

The economics of patents: from natural rights to policy instruments

Abstract

The patent system has experienced major changes in most countries over the past two decades, aiming in general at strengthening the role of patents: expanding the patent subject matter and endowing the patent holder with broader rights. This paper uses latest advances in the economic theory of patents for examining these changes, and beyond, for rethinking the rationale of the patent system.

Economic theory does not see patents as a *natural right* that should be systematically granted to inventors whatever the conditions. Instead, the economic approach sees patents as a *policy instrument* aimed at fostering innovation and diffusion, that can be used *or not* depending on the economic and technological conditions, and which should be fitted to this task. Major implications from economic theory regarding current policy debates are as follows:

- The extension of the patent subject matter to new areas, such as software, business methods, and scientific discoveries in recent years, should not be taken for granted. Patents should not be seen as the solution by default. In industries where imitation is costly, where first-mover advantages are important, where innovation is sequential, in the sense that each further invention is built on previous ones, or where basic discoveries can be considered as essential facilities, patent protection might do more bad than good for innovation.
- The patenting requirement, minimal ‘inventive step’ required for a patent to be granted, should be high enough in order to avoid the grant of low-quality patents, which are very costly to society.
- Exemptions for research use should be protected, as restricted access to knowledge hampers cumulative technical change.
- Patent applicants and patent examiners should be allowed to use as much information as possible to improve their knowledge about the economic value of inventions, in order to reduce the number of low-quality patents granted. This could be implemented by increasing the ‘flexibility’ of the administrative process for granting patents, as it is happening in many countries, so that patent applicants can have the option, at several stages in the process, to withdraw their application and not incur the cost of pursuing it.
- Rather than the statutory patent life, what matters is the effective patent life, which can be affected by patent policy, especially the breadth of patents and renewal fees. Broader patents are more difficult to be invented around or improved upon, which makes their effective life longer. Renewal fees increasing steeply allow a selection of the inventions whose value justifies longer protection.

Beyond these currently debated issues, economic theory pleads for an in-depth reshuffling of the patent system, for transforming it into a self-selection and revelation mechanism, whereby patentees reveal the economic characteristics of inventions, compensate society for the protection they are granted and obtain sufficient incentives to innovate. In the case of isolated innovations, the notion of optimal patent refers to a degree of protection that minimises the discounted value of the deadweight loss created by the patent under the constraint that the

discounted profit provides enough incentives to invest. In the case of sequential innovations, the optimal degree of patent protection maximises the rate of innovation and economic growth. Thus, optimal patent protection differs across inventions, but there is no direct way society (the patent office in this case) can observe the relevant characteristics of each invention.

If the system were to be radically changed, an optimal patent policy should be based on a multidimensional menu of different degrees of patent protection and corresponding prices that is submitted to patent applicants, so that they can choose the degree of protection they wish to obtain and pay for – higher protection would correspond to a higher price. The feature of the current system that comes closest to this idea is the system of renewal fees, as patentees choose the duration of the protection they want to receive and pay accordingly. Such a system could be extended to other characteristics of patents, notably linked to breadth (e.g. the number of independent claims), so that patentees seek for a protection level that is sizable to the value of their invention. The introduction of a system by which the patentee agrees on a fee at which he commits to sell his rights once granted (i.e. a buyout mechanism) in the context of such menus is also envisaged.