TWO SOURCES OF PERSISTING PATENT CONTROVERSY

BOJAN PRETNAR[*]
UNIVERSITY OF LJUBLJANA, SLOVENIA

INTRODUCTION

Patents have been always a subject matter of controversy. Without going too far back in time, a significant controversy took place in the second half of the last century, the main topic being the economic impact of patent protection in (and on) developing countries. Roughly speaking, while the developed "North" has more or less unequivocally maintained that patents do have a positive impact on economic growth through promotion of technical progress, the developing "South" has claimed, in essence, that patents are monopolies, the consequence of which is suppression of indigenous innovation and adverse impact on transfer of technology. The dispute has been for obvious reasons highly politicized, but it is interesting to note that the major claim of the South, namely that patents are monopolies, has actually a firm support in economic theory, which has been developed predominantly in USA by noted economists such as Schumpeter, Arrow, Nordhaus, Mansfield, and Scherer, just to name a few. The fact that the theory does not fit the reality in the North is an issue, which I will deal with in a minute.

Two well-known political initiatives stood in the center of this North-South controversy. The first one was the UNCTAD Code of Conduct on Transfer of Technology, and the second being an attempt to revise the Paris Convention in Nairobi in 1980, with the aim to erode its anyhow modest standards of patent protection. Both initiatives failed. Then, a few years later, the North struck back with a new counter-initiative, which eventually led to the adoption of the TRIPs Agreement.

Apart from this political background, the TRIPs Agreement has been by and large considered by its main proponents - the North - as a vital instrument for further progress and (trade-based) growth. However, as the developed world has moved in the last few decades into the new type of economy, nowadays labeled as "knowledge-based society" (or knowledge-based economy), a new controversy about patents has emerged, this time, surprisingly, **within the developed North itself**.

In a nutshell, while the immensely growing importance of patents – as well as other intellectual property rights, notably trademarks and copyright – has been adequately recognized, a simultaneous and steadily growing criticism of them has been also taking place. However, this time the criticism has been raised predominantly by scholars,

[*] This is slightly ammended and updated version of a presentation I made at the Queen Mary Intellectual Property Research Institute of University of London on March 21, 2005. The views expressed in this paper are strictly personal and do not necessarily represent or reflect the views of the World Intellectual Property Organization (WIPO), of which I am currently a staff member.

experts and activists of various NGOs that reside primarily in USA and/or in EU; that is, in the North, to stick to already applied terminology. Again, there are a few illustrative examples at hand. We are all familiar about the Declaration about the future of WIPO, signed by many prominent individuals, including two Nobel laureates; there is a Manifesto authored by Prof. Boyle of Duke University; in European Union, the Directive about patentability of computer-implemented inventions, about which I will say more in a few moments, has failed and has a slim, if any, chance to be adopted in a foreseeable future, even if written completely anew.[1]

How to explain the forces that have ignited this controversy? Of course, we all know that similar confrontations have been seen several times in history as the so-called anti-patent movements.[2] Yet this time the situation is significantly different. According to Lester Thurow, *"knowledge-based capitalism isn't going to work without a new system for determining who owns or controls intellectual property rights."*[3] Whether we agree or not with such a dramatic statement, the fact is that intellectual property has gained, observed historically, an unparalleled economic and social importance. This implies that any wrong decision, i.e. either too much or too little protection, which may emerge from the current controversy, could easily cause economic and social consequences with a significantly larger impact than this possibly was the case in the past. This importance then calls for a very careful analysis of possible forces that drive the current controversy.

I think that there are two fundamental, and partly interrelated, sources of the controversy.

1. LACK OF PROPER ECONOMIC UNDERSTANDING OF PATENTS

The first source is of economic nature. All the evidence suggests that economic theory has not yet convincingly answered a fundamental question whether patents are an economic monopoly or not. Economists themselves have repeatedly admitted their poor understanding in this respect. More than half of a century ago, in 1951, Edith Penrose wrote: *"Although the patent system has developed primarily to promote economic ends, economists have devoted very little attention to it and none at all to the international patent system."*[4] One may look even further back and wonder, why Adam Smith, the brilliant father of modern economics, whose famous book The Wealth of Nations was first published in 1776, overlooked innovative efforts and related patent-protection activities of James Watt and his financial sponsor Matthew Boulton, who almost at the same time, in 1775, asked the Parliament to extend the term of Watt's patent on steam engine, a petition, which eventually won the approval in May 1775.[5]

---

[1] All three mentioned documents are available on the Internet.
[2] Machlup, Fritz, Patents, in International Encyclopedia of the Social Sciences, The Macmillan Company & The Free Press, 1968, pp. 461-472.
[3] Thurow, Lester, Creating Wealth, Nicholas Bailey Publishing, London 1999, p. 125.
[4] Penrose, Edith, The Economics of the International Patent System, John Hopkins University Press, Baltimore 1951, p.xi.
[5] For more details see Scherer, Frederick, Innovation and Growth, The MIT Press, Cambridge, MA 1989, Chapter 2.

Coming back to more recent times, a noted economist George Priest came in 1986 to the following conclusion: *"As a consequence, this literature has taught us almost nothing, nor has it guided research or thinking so that an approach with firmer empirical base could be developed…Personally, I believe that there is little hope that economic analysis can resolve the question of the appropriate scope of the protection of intellectual property…As a consequence, I regret, the influence of the economist on the law of intellectual property will always be limited. The lawyer must look to other sources of guidance."*[6] And just a few years back, in 1999, Ove Granstrand wrote: *"In summary, the IP literature has a long and thin, but growing, tradition, highly fragmented by IPR type, discipline, occupation, and country."* [7]

These few quotations clearly carve out the problem. If economists are indeed unable to give any guidance to lawyers and policy makers about the socially optimal scope of protection, then we inevitably have a fertile ground for widely diverging opinions and thus for controversy. If the above quoted economists are right, then the problem is that none of expressed opinions can apparently be declared as right or wrong, as sound economic arguments are not at hand. If so, there is little hope to see a rational emergence of more or less common insights and conclusions, meaning that the discussion may be easily trapped in an endless debate over a number of predominantly legal issues, to which various sociopolitical aspects are added in one way or another.

However, it is also true that economists did say quite a lot about patents, especially in the period after the works of Machlup and Penrose were published. So why have they remained so self-critical?

I believe that an explanation may be as follows. Roughly speaking, the vast majority of economists agree that patents are an economic monopoly, and this view has gradually evolved into an absolutely dominating doctrine. Economists, however, do definitely not appreciate monopolies, as they lead to allocative inefficiency. On the other hand, it was also recognized that there would hardly be any technical progress in absence of patent protection. Therefore, patents are inevitably just a kind of a trade-off,[8] and much research was oriented towards a possible optimization of it. One well-known approach was to optimize the optimal life of patents;[9] more recently, there were various attempts to seek an optimal scope of protection.[10] In addition to the theoretical insights, important empirical topics were also recently made.[11]

---

[6] Priest, George, What Economists Can Tell Lawyers about Intellectual Property: Comments on Cheung, in Palmer, John and Zerba, Richard (Eds.), Research in Law and Economics, JAI Press Inc., London 1986, p. 20/1.

[7] Granstrand, Ove, The Economics and Management of Intellectual Property, Edward Elgar, Cheltenham, UK 1999, p. 87.

[8] Cf. Silberston, Audrey, The Patent System, Lloyds Bank Review, No. 84, 1967, pp. 32-44.

[9] Nordhaus, William, Invention, Growth, and Welfare: A Theoretical Treatment of Technological Change, The MIT Press, Cambridge, MA 1969.

[10] Cf. Gilbert, Richard, and Shapiro, Carl, Optimal Patent Length and Breadth, Rand Journal of Economics 1990, Vol. 21 No. 1, pp. 106-112; Klemperer, Paul, How Broad Should the Scope of Patent Protection Be?, also in Rand Journal of Economics 1990, Vol. 21 No. 1, pp. 113-130.

[11] Cf. Maskus, Keith, Intellectual Property Rights in the Global Economy, Institute for International Economics, Washington 2000; Maskus, Keith and Fink, Karsten (Eds.), Intellectual Property and

As a trade-off, any analysis of desirability or nondesirability of the patent system crucially depends upon initial assumptions, with emphasis being put on either one or another side of the basic trade-off. Almost without exaggeration, one could say that there might be as many models as individuals dealing with the topic. In other words, the widely agreed view that patents are undesired monopolies which, however, the society needs for technical progress, itself permanently generates different opinions and contradictions, a fertile ground for controversy.

Perhaps the most disturbing contradiction is the fact that the prevailing patent-is-monopoly theory is utterly weak as far as its empirical verification is concerned. Pick up any specific technical topic and make a patent search, and hundreds of patents related to the very same topic would emerge in most cases. So, how could a patent be taken as a monopoly, if there are so many substitutes? This empirical fact of life was of course noted and has been repeatedly applied as an argument in favor of pro-competitive nature of patents. However, while the pro-competitive nature of patents can be well defended on the basis of empirical data, its weak point is that it lacks a consistent formal economic model. On the other hand, the patent-is-monopoly model is theoretically perfectly consistent; if a patent is not a monopoly, then the costs of related R&D cannot be recovered. In short, there is an unresolved contradiction between theory and reality.

Taken all together, one could indeed gradually begin to believe that Mr. Priest's conclusion that, I repeat, *"the influence of the economist on the law of intellectual property will always be limited,"* is correct. Eventually one might accept the fact that there will be always a ground for an endless controversy.

However, this conclusion sounds similarly prophetic as the frequently quoted saying that *"everything that can be invented has been invented."* This prediction has been attributed to Charles Duell, commissioner of the U.S. Office of Patents around a century ago, who supposedly proposed in 1899 to shut down the Patent Office for this reason. It gained its popularity for an obvious reason that it could be indeed almost impossible to find another statement as wrong as this one. By analogy, one might have serious doubts whether the influence of economists on the law of intellectual property will indeed be **always** limited. By the way, it was found already in 1940 that Mr. Duell never said this;[12] nonetheless, this saying has been so often quoted that it has been gradually accepted as a truth, and thus being still repeatedly quoted again and again even by prominent scholars.[13]

In searching what could be done to refute the pessimistic conclusion of Mr. Priest, I suddenly got a clue in a recent textbook, in which the following sentence struck my mind: *"The idea that large technological advances must be accompanied by above-normal profits for companies wise enough to invest in these markets is not a law of economics."*[14]

Development – Lessons from Recent Economic Research, The World Bank and Oxford University Press, 2004.

[12] Journal of the Patent Office Society, July 1940, pp. 479-481.

[13] Cf. Baumol, William, The Free-Market Innovation Machine, Princeton University Press, Princeton 2002, p. 268.

[14] Liebowitz, Stan, Re-Thinking the Network Economy, Amacom, New York etc. 2002, p.3.

In the context of the patent dilemma, this so utterly obvious truth directly implies that one has just to give up the classic fundamental assumption about the economic nature of patents. The essence of assumption, developed more than 60 years back by Joseph Schumpeter as a part of his "theory of creative destruction," is that R&D costs are recovered **only** from monopoly (i.e. above-normal) profits, and not, say, by the income earned under the principle of marginal pricing, which is typical for an economically efficient competition. However obvious it may sound, the crucial point was that the prevailing economic theory of patents is built just on **an assumption**, but not on a law of economics!

While this insight seems so obvious, it has been apparently overlooked for much the same reason, which has made the never said quotation of Mr. Duell so popular. Schumpeter's assumption has been extensively studied for a number of reasons, and has been thus repeated again and again so many times that it has eventually been taken for granted almost as an eternal truth, that is, as a law of economics. In this respect, we should not forget that patents **must be** assumed to be a monopoly, otherwise the Schumpeter's "law" *a priori* cannot hold.

Once I have recognized all this, it was more or less a matter of professional routine to develop what may be called as a formal pro-competitive model of patent protection, the English version of which was published in the December 2003 volume of IIC.[15]

In a nutshell, this model of the economic impact of patents leads to exactly opposite implications than the prevailing patent-is-monopoly doctrine. Each and every firm can enter the market and compete with others as long as it invests into its own R&D; only non-innovative firms (free riders) are excluded from the market. In contrast to prevailing theoretical models of so-called patent races, which imply that the owner of the first patent is the sole winner and thus a monopolist, my model implies that each and every innovating firm is possessing its own patent; in theory, there are exactly as many patents as competing firms.

The model, though abstract and partly technical, seems to be significantly closer to the observed reality. Therefore, it is a radical confrontation with the dominating economic theory. Last but not least, the model has an important feature: it is strictly based on classic fundamental principles of patent law. This may not necessarily hold for the prevailing monopolistic doctrine, in which some important misconceptions could be identified (they are to some detail elaborated in my IIC article, and thus will not deal with them here).

Taken all together, I dare to say that my model has a potential to be of some guidance for policy-makers, because it explicitly shows that the patent system is pro-competitive; and it may be of guidance for lawyers, because the patent system is pro-competitive only if its most fundamental features, such as nonpatentability of scientific discoveries, strict

[15] Pretnar, Bojan, The Economic Impact of Patents in Knowledge-Based Economy, 34 IIC 887-906 (2003). The German translation of the article appeared in GRUR Int., Vol.9/2004, pp. 776-786.

respect of criteria concerning novelty and inventive step etc. are maintained. But of course, much more needs yet to be done.

2. LACK OF DEFINITIONS IN LAW

Let me now switch to the second main topic. I believe that the absence of some fundamental definitions in the law may well be the second main source of the ongoing controversy, including its possible impact on the lack of economic understanding of patents. I personally suspect that the missing definitions have significantly misled economists in their work as well, though this could be indeed hard to prove. However, in contrast to the prevailing economic nature of the first topic, this one may be a professional challenge primarily for experts in patent law.

Above all, the crucial issue seems to be lack of a definition of **INVENTION.** In order to justify this, possibly an unorthodox proposition, I shall first recall Article 27 of the TRIPS Agreement, which, *inter alia*, provides that…*"patents shall be available for any inventions, whether products or services, in all fields of technology, provided they are new, involve an inventive step and are capable of industrial application."* What we all know is that the very subject matter of patent protection, i.e. invention as such, has not been defined; only its three main properties – novelty, inventive step, and industrial applicability – are named as criteria for patentability.

It is also equally obvious that an invention is not the same as a scientific discovery. This readily explains why the TRIPS Agreement, in contrast to, say, European Patent Convention (EPC), does not explicitly exclude scientific discoveries from patentability. For experts in patent law (though not necessarily for economists and other non-lawyers), it is clear that the approach of the EPC is to a large extent redundant: a scientific discovery is *per definitionem* not an invention, and thus there is no need to exclude scientific discoveries explicitly from patent protection.

While lack of a definition may have some advantages, we have a catch here. If there is no definition of what is an invention, then it is indeed difficult to claim that a patentable invention is ***per definitionem*** not a scientific discovery. In contrast to the non-existing definition of invention, however, there is a useful definition of scientific discovery in the *Geneva Treaty on the International Recording of Scientific Discoveries of 1978.* Article 1(1)(i) of this Treaty defines a scientific discovery as *"the recognition of phenomena, properties of laws of the material universe not hitherto recognized and capable of verification."*[16] Oddly enough, this treaty is one among a very few treaties originated by WIPO that have never entered into force.

While the absence of clear definitions in patent law and some misleading legal jargon may be an explanation of some significant misconceptions in economics (I again refer to my IIC article in this respect), it is fair to say that – at least so far - legal experts have not

[16] Cf. Straus, J., op. cit., p. 43; also WIPO Intellectual Property Handbook (Second Ed.), WIPO publ. 489(E), Geneva 2004, p. 4.

experienced too many difficulties, if any, in this regard. However, in view of some recent developments, this may not necessarily hold anymore.

To be more specific, let me recall the recent debate in European Union about the currently much discussed *Directive on patentability of computer-implemented inventions*. The final proposal of the Directive as drafted by the European Commission in 2002 had, *inter alia*, the following provision (Article 3): *"Member States shall ensure that a computer-implemented invention is considered to belong to a field of technology."*

This particular provision is now irrelevant, because it was deleted in the last, significantly different version of the Directive as prepared by the European Council, which nonetheless was eventually also rejected in the European Parliament in summer 2005. Nevertheless, I am quoting it here as an exemplary illustration of how the absence of definitions of fundamental legal terms can feed the controversy rather than to prevent it. It is easy to show that the quoted provision is indeed curious. Why do we need to impose Member States an obligation to ensure that a computer-implemented invention is considered to belong to a field of technology? Patentable inventions ought to belong by their very nature to a certain field of technology, at least according to Article 27 of the TRIPS Agreement. However, this could also mean that there might be other types of inventions, which do not belong to a field of technology and may be for this legal reason non-patentable. However, as long as we do not define the notion of invention in general, and of patentable invention in particular, we cannot be quite sure about this.

And the confusion continues. If computer-implemented inventions do belong to a field of technology, then the quoted provision in the Directive is superfluous and makes no sense. However, if such inventions do not belong to a field of technology, then the Directive, if adopted, would force Member States to ensure that a computer-implemented invention must be considered to belong to a field of technology precisely because this would **not** be the case. If so, it would be then more appropriate to talk about an enhanced, "TRIPS plus" protection, in the sense that patents are extended beyond inventions *"in any field of technology."* But this then does make a valid point of some (professionally justified) concern, as new questions arise, for example;

- How do we know if such an extended protection would be equally pro-competitive as this may be the case with "traditional" patents?
- Are such inventions indeed new, involve inventive step, and are disclosed to the extent that a person skilled in the art could carry them out?
- Does it mean that the source code of the related computer program ought to be disclosed in the patent?
- Is it certain that such patents do not protect an idea or a working principle, instead of an undefined form of invention?

Leaving a more profound critique of various drafts of the Directive aside, the chosen example actually shows that the trouble has not been only the missing definition of invention. Hard to believe, but apparently it was not decidedly known whether the so-called computer-implemented inventions do belong, or not belong, to *"a field of technology,"* to quote the TRIPS Agreement; and this then implies that it is actually not

quite clear what is *"a field of technology."* By the way, this particular question may be even more relevant for the patentability or non-patentability of so-called business methods.[17]

Of course, there is a powerful argument against my thesis that missing definitions cause the trouble. It is the role of courts in general and, as far as the EU is concerned, of the ECJ in particular to interpret the meaning of the law, including the task of developing interpretations of notions that are not defined by a straightforward (positive) definition. Yet the problem is that all such interpretations are inevitably affected by the concrete circumstances of each and every case. This further means that any issue under consideration is elaborated piece by piece only, what clearly makes an exercise of getting a generalized picture about it a very difficult and time-consuming affair.

In concluding this part of my speech, I wish to point out that the missing definition of invention is by far not an isolated case. In the area of trademarks, apparently the fundamental notion of "use" is also far from being defined, and the same is true for the notion of goodwill. This is a bit astonishing, given the obvious relevance and importance of the notion of "use" in trademark law. But I do not wish to dwell further on this issue here.

However, if I am right, then it would be desirable to turn the academic attention to the very basics of intellectual property law, making every attempt to upgrade it with the missing definitions. I must say that I am fully aware that this may be a challenge of almost unthinkable proportions with regard to its complexity; however, I also wish to stay faithful to myself, meaning that I cannot *a priori* accept the view that such an undertaking would be impossible. If an effort in this sense be undertaken at the academic level and would result in useful results, then it would be also desirable to see an attempt, say, within WIPO, to harmonize the proposed definitions at the global level.

CONCLUDING REMARK

Coming to an overall conclusion, I wish to point out the following. Given the sheer importance of intellectual property in the knowledge-based economy, it is clear that we need its thorough understanding from both legal and economic point of view. As long as this is not the case, a lot of energy shall inevitably be further spent on controversial debates with little or no productive gain. As a possible way out of this vicious circle, I believe that an effort devoted to a clarification of some fundamental legal aspects of intellectual property might be a an important step, at least because it could – hopefully – provide for an unambiguous guidance for economists in their own work. New economic insights, in turn, could - and should - then serve as a feedback to lawyers in their dealings with emerging legal challenges in such a way that, eventually, the much desired pro-competitive nature of patents shall not be impaired in new fields of human creativity, whether technical or not.

[17] On similarities and differences between (patentability of) business methods and software patens, see Jaenich, Volker M., Sui Generis Rights for Business Methods, 35 IIC 376-391 (2004).