It is almost 50 years since Fritz Machlup assessed how economists view the patent system. He stated that researchers in general tended to be negative about the net social benefit of the patent system, reflecting their concern that patents generate monopolies and that, in many cases, patents are not even necessary to encourage invention. However, Machlup’s view was that there were no good models to replace the patent system, and that patent system as such serves some useful purposes. Criticism and skepticism on the maintenance and the excessive broadness of patent are still common among many if not majority of economics and law and economics scholars, who believe that the costs of protection exceed the benefits obtained in exchange.

The standard economic rationale for patents is to protect potential innovators from imitation and thereby give them the incentive to incur the cost of innovation. Conventional wisdom holds that, unless would-be competitors are constrained from imitating an invention, the inventor may not reap enough profit to cover that cost. Thus, even if the social benefit of invention exceeds the cost, the potential innovator without patent protection may decide against innovating altogether. Obviously, invention inducement is not the only case for patents. Mazzoleni and Nelson present additional three theories (not necessarily mutually exclusive) about the principal purposes patents serve. In short, patents according to these theories provide incentives for: (i) the disclosure of inventions that otherwise would rely on secrecy, (ii) the investments needed to develop and commercialize inventions and (iii) the orderly exploration of broad technological prospects for derivative inventions.

In this short note I will review what economists perceive to be major shortcomings of the patent system, and comment on each of them. I will especially focus on second order effects of patents i.e. those that are not directly linked to the issue of monopoly inefficiency but to the other (dis)incentives and consequences of patent protection. Though probably crucial, I will not debate about the issues of patent length and breadth.

Patents apart from the deadweight loss caused by the increase of prices due to the monopoly position embody other kinds of distortions. Since the monopoly holder faces decreased competition concerning the patented technique, it is unclear whether monopolist will have incentives to continue innovation; at least the market
pressure for him to do so will be limited. Rather than arguing in favor of or against dismantling current system, I will to systematically focus on shortcomings that are frequently mentioned in the literature. The list of these shortcomings is not exhaustive as other have been identified by economists both on macro and micro level.

First, the desire of acquiring the monopoly power that patents confer encourages too many innovators to pursue the same research projects entering a “race to patent” which needlessly absorbs a portion of the available resources. Thus, contrary to the traditional problem of too little innovation, economists in their “invention race models” suggest that the patent system may encourage too much expenditure in wasteful research toward the same invention goal. Still, similar racing may occur even in the absence of effective patent protection, as inventors anyhow sought to achieve a first mover advantage (i.e. lead time and learning curve advantages) on a new product. In addition, there is little empirical evidence that patent races are quantitatively important in determining the pace of actual technological innovation.

Second, the fragmentation makes obtaining necessary licenses more difficult and more costly, by multiplying the number of rights holders who must be contacted to obtain a license and who must be paid. This fragmentation representing an impediment to trade is often termed as the “tragedy of the anticommons”. In the essence, the anti-commons theory emphasizes the transaction failure due to high transaction (negotiation) costs. While Heller and Eisenberg make use of the example of patents and biomedical research, the tragedy of anticommons with respect to patents could occur in most of industries. A manufacturer would need to negotiate to use several patents in order to legally create a product (e.g. most often cited example is the one of microchips, where a single microchip can contain over 5,000 different patents, similarly the protocol that governs how information is stored on DVD-R media, is known to involve at least 177 different patents.). In practice, firms interested in implementing heavily patented protocols like these typically approach the issue by joining together to form a standard-setting organization, a patent pool, or some other licensing intermediary. However, if at least a few patent holders out of every collective solution after a certain period those patent holders can lead the licensing regime into disarray. Even more important such networks of cross-licenses between industrialists already present in a sector serve as a way to exclude competition from newcomers.

Third, several researchers claim that patents increase other transaction (administrative and search) costs as prospective innovators must expend resources on registering and defending a patent (application fees, prosecution fees, patent attorneys or agents costs, translation and maintaining costs) as well as on patent searches to avoid infringement the patent licenses required as well as already mentioned negotiation costs. Yet, one may argue quite opposite. By establishing a title registration system, patent ownership rules significantly reduce transaction costs compared to the available alternatives, namely trade secrecy and contract law. In addition if one assumes that, in general, potential licensees and patent holders have little difficulty in reaching a license agreement (the transaction costs of patent licensing are small), then one may take a relatively relaxed view of the costs of granting a patent.
Fourth, the broadening of intellectual property rights over the last two decades has raised concerns about “holdup problem” particularly for cumulative innovation. In general, when innovation is sequential, an early patent holder has a potential claim against subsequent innovators. In a situation when an innovator is better informed about the value of a new idea than the holders of rights on previous ideas, a patent system strictly discourages innovation by increasing the cost of acquiring the rights needed to innovate (an innovator may choose to perform a sub-optimal level of R&D or even not to invest in the innovation at all). The holdup problem becomes more important the more the nature of innovation is sequential and complementary. While we should not forget that the effect has two sides – rewarding pioneers amounts to discouraging secondary inventors and creators; conversely, favoring the latter reduces the incentives of the former, we should bare in mind that the patent law is not the only instrument against anti-competitive behavior. To this extent, competition policies and laws can be an important instrument to regulate potential abuses of patent rights and to complement patent inherent boundaries.

Fifth, and closely related to the previous issue (both in terms of problem and potential solution) is so called research done with negative intent. Often companies that hold a monopoly on a given domain thanks to a portfolio of patents will be incited to secure their monopoly by patenting useful techniques that could be used by competitors, not so as to exploit them, but so as to prevent them from ever being deployed. In the essence closely related to the barriers to entry problem caused by the monopoly and as a consequence locks consumers into using inferior techniques. Still it is not clear whether this represents convincing argument as Hirshleifer showed that rational monopolist would not suppress such inventions.

Sixth, the downside of government grants of monopoly is the rent-seeking it triggers. Through a process of “regulatory capture”, governments eventually become part of the overall rent-seeking system and patents are not atypical case (examples from the recent US patents related legislative activity and related public rent-seeking are abound: in 1984 the pharmaceutical industry was given extended patent protection, in 1994 the term for all utility patents was extended from 17 to 20 years). Rent seeking also occurs in above-mentioned patent races where multiple parties expend resources to secure patent protection for a particular invention ahead of their competitors. However, there is one potential though rather weak counterargument. Rent-seeking is possible through the private sector (expenses in private secrecy) as well as the public, and that legal grants of monopoly may mitigate the costs of private rent-seeking.

CONCLUSION

If patents, as some critics claim, are necessary neither to induce innovation (when competitive rents provide plenty of incentives), nor to avoid “wasteful rediscovery” (when reverse engineering is socially valuable) it is tempting to ask whether they are of any good? This is wrongly formulated question and instead one should ask is there any alternative system that is more socially efficient? As literature shows maintaining secrecy or prize based system do impose some serious problems with
incentives and efficiency outcomes. It seems that answer to this question remained pretty much the same as the one provided by Machlup.

Still, there is unanimous view among economists that that excessively strong or badly formulated intellectual property rights may actually impede innovation. For example, as Bessen and Maskin pointed out, the ideal patent policy limits “knock-off” imitation, but allows developers who make similar, but potentially valuable complementary contributions. In this sense, economic analysis suggests that copyright protection for software programs (which has gone through its own evolution over the last decade) may have achieved a better balance than patent protection. In this view the software patents have been too broad and too obvious, leading to holdup problems. Economists, though not all, are in general very careful. Rather than arguing in favor of abolishing patents, they focus on correcting its shortcomings. As I showed, some of these shortcomings seems be overemphasized. Yet, others may not and possibly and will lead to reform of the patent system in years to come. In fact, I am not sure that a preservation of close to unitary patent system will be sustainable in near future, and that several other sectors will receive specific treatment in terms of breadth and length, or moving to alternative solutions e.g. providing alternative R&D funding for the medical innovation prizes or decreasing the length of protection.

I believe that economic analysis of the patent system point to possible reforms or corrections of existing way of allocating rights to more selective approach to patents of “high quality” (improved standards of “novelty” and “non-obviousness”) with lower transaction costs. Also, it seems much more important to remove the factors that encourage patent offices or courts to reach inefficient decisions with respect to breadth of patents. On the one side patent offices approve applications carelessly as they earn money when examiners accept patents and lose money when they reject applications. Also, rejection of an application entails additional work because, unlike an approval, it must be justified. One the other side, the courts most often do not provide a sufficiently efficient check on poor patent-grant decisions. Thus, there is therefore a need to rebuild a system of incentives that adequately realigns the interests of patent offices with those of society in general.

Still, there is a lot of empirical work to be done, before any firm conclusion should be reached. I would like to conclude with one of the concluding remarks from Machlup's report. „It should be said, first of all, that scholars must not lack the courage to admit freely that there are many questions to which definite answers are not possible, or not yet possible. They need not be ashamed of coming forth with a frank declaration of ignorance.“