Bartłomiej Biga

a summary of the dissertation

Economic and Social Analysis of the Inventions Protection Law

In this dissertation the system of protection of inventions is analyzed in the convention of law and economics. It is a method witch assumes treating law as every other subject of economic research. It is analyzed with strictly economics tools. In this point of view the main purpose of law is effective allocation of goods which leads to maximalization of the social welfare. Law and economics let us predict how entities react to changes in law. It is possible because of incorporation of behavioural theories - above all the rational choice theory.

The main purpose of this dissertation is to indicate which legal solutions in the area of industrial property law can effectively protect inventions in the social and economic way. To minimize the social costs this protection should be set on the lowest level, on which inventors are encouraged enough to create and reveal their findings. Contemporary legal norms are analyzed and on this ground some recommendations of the law reform are formulated. This changes could reduce the negative impact of some imperfections on the effectiveness inventions protection and make easier using advantages in generating social benefits.

To achieve this goal, the prior clarification of criteria according to which the industrial property law should be evaluated had to be clarified. According to law and economics assumptions, this criteria should have roots in economy effectiveness. It is very helpful to show the most important causes of the dissonance in the area of invention protection between law in books and law in action.

Research in this dissertation will be made to verify the main research hypothesis - granting legal protection to inventions is beneficial both for creators and for society. Because of the fact that this work is made in the convention of law and economics, more important issue will be indicated for social benefits. The satisfaction on inventors has got just indirect meaning in this paper.

This work has also got some different research goals. First of all, to define how much the institution of patent encourages to create and reveal inventions. In this context both legal and non-legal alternatives of this tool will be discussed. In the context of economic effectiveness and the level of

complementary to actual system of invention protection and innovation encouragement is assessed. The main point of consideration is the working of a patent, which is undoubtedly the fundamental instrument of invention protection. Although, in most cases Polish perspective will be adapted. In the consequence of strong globalization processes of both economic relations and industrial property law, many references to the regulations in other countries will be made. However, most claims in this paper have got universal character.

The essential considerations are preceded by references to the theoretical basis of economic and social analysis of legal protection of inventions. The specificity of law and economics which provides the framework of the research is described in this section too. The attention is focused on its interdisciplinary character, which assumes using both economy and legal achievements. It needs to be emphasised that the methodology is in fact totally economic one. The legal aspect is shown in the research area. The implications lead to express that legal regulations are seen as the system which should foster economy effectiveness in goods allocations.

The next aspect is the rational choice theory. Its meaning for law and economics is undoubtedly a key and problematic too. On the one hand it is the basis of this method. On the other hand in the face of increasing the criticism of this theory, the value of the considerations in law and economics could be diminished. The solution which on the one hand could protect law and economics and on the other hand will not introduce false, counter-fact assumptions is to look at the rational choice theory with the assumption that even if individual entities act irrationally, the result of the choices is rational by looking at the community as a whole.

Them main part of considerations is about the patent because it is the main method of legal protection of inventions. In spite of fact that in the world there are very strong trends to unify the institution of patent protection, it still can not be described as fully uniform. There are still differences between particular legal systems. Even in the European Union one patent does not exist which would be valid in each member state. The present European patent is the bundle of country patents - and in consequence the protection is not identical in the whole area of the European community. To understand the differences, a short historical background of this institution development and attempts of its institution, will be very helpful.

There is analysed a wide aspect of detailed things which allow to obtain a broader picture of costs and benefits of this institutions. Because of natural limitations in the size of the dissertation, there is only a place for the most important of these detailed aspects. It is expected that the most important answers will be obtained by a comparison of functioning patent in pharmacy with software patents. The first area is called by the defenders of patent protection system, because in this area a patent acts the best. While the second exposes all of weak aspects of patents. In relation to software, which is protected by very strict copyright law, all weaknesses are vividly exposed. This is the reason why the arguments of the patent antagonists in this sector are very persuasive. They suggest that in this aspects patent hinders the development, and in the further perspective it could in fact stop it completely.

The result of focusing on public interest in law and economy is the subject of subsection 3.3. This part is about these sectors, where the monopoly granted by industrial property law can generate exceptionally high deadweight loss. To play their role in the right way some solutions have to be build on standards. In order to be effective standards have to be developed by many entities. It caused the need to create compulsory licensing for solutions which are standards. Naturally, the possibility of such interventions is not without the influence on the juxtaposition of expected costs and benefits.

Caring about high quality of patent law is particularly important in the face of intensified activity of “patent trolls” in the 90s of the 20th century. “Patent trolls” ale entities that use imperfections of the patent law to gain financial profits. They register or rebuy patents which are related with well-known and far spread solutions which have not been patented yet. Afterwards they demand financial compensation for alleged breach of these patents and license fees for using these solutions in the future. This is how the patent system instead of favouring development, becomes a sort of brake.

In the end of the third section patent races are analyzed. From the economic point of view in this matter the most important is the fundamental tradeoff. On the one hand undoubtedly patent races contribute to the acceleration of research. On the other hand, it generates costs of research replication. This effect is stronger when the prize is higher. In this case – patent is the prize. In this

context is important to consider which level of speed in research – in the theoretical model – is optimal and which law regulations contributes to being closer to this level.

After the discussion about costs and benefits of patents which are the fundamental method of invention protections – both in the general and the specific way – it is needed to contrast this instrument with alternative methods. On this ground it is possible to present conclusions and recommendations, which should lead to making patent more effective, and to show such sectors, where this kind of protection should be replaced with one of the alternative methods.

Since the main goal of patent is stimulating inventions, in the subsection 4.2 some other methods, which can be useful in achieving this goal, are discussed. In this case, it is implemented in the direct way because it is not made as a result of invention protection. This fact allows to presume that using these direct methods would be much more effective.

Some issues require reference to innovation policy and its relation to development policy. It should be emphasized that simply increasing founding for innovation does not guarantee its growth – for example in Poland. Naturally, there are a lot of reasons of ineffective spending of these founds, but a very important role is played by the poor quality of law. Additionally, improving law environment is without doubt one of these sectors which are most susceptible to relatively quick and inexpensive changes.

The purpose of presented conclusions and recommendations is to set the direction of changes which lead to increasing social welfare. However, is should be analyzed in the context of complicated political aspects – both in the level of a country and internationally. This is the reason why the recommended changes are as close as it possible to status quo or rely on mechanisms which are similar to existing methods. It is not the purpose of this work to recommend a revolutionary system of patent protection without any chances to implement it. Additionally, social reality is changing very fast. Therefore implementing deeper changes – which require more time – is very difficult because of huge delay between decision making and real implementation.

One of the purposes of this dissertation is to put into the discussion of invention protection some arguments raised as a result of law and from the economy point of view. The described discussions

allow to draw some conclusions. A part of it has got a form of recommendations. Naturally, they are not complete solutions, but surely they can be an impulse to further discussions about the shape of industrial property law where a deep complexity of this sector will be recognized but the accent will be put on economic aspects. This perspective is the best for looking for solutions focused on maximizing social welfare.

The key conclusions and recommendations – which are articulated in all the deliberations of this paper – are as follows:

1. Shaping public policies related to inventions based on continuous balancing of two categories of arguments – for stimulating creativity and about disadvantages of monopoly.
2. The main purpose of industrial property law should be an effective allocation of goods, which ought to contribute to maximizing of social welfare. Satisfaction of creators is not the final goal – it should create motivation to work – to create and reveal useful solutions for society.
3. The most effective patent protection system is the one which on the on hand encourages research activities and sharing results adequately, and on the other hand it minimalizes negative results of created monopoly. To minimize social costs this protection should be set on the lowest possible level, at which inventors are adequately encouraged to create and reveal their findings.
4. To avoid overpatenting clarification of patentability conditions or at least more strict interpretation of existing conditions are needed. Current condition of being not obvious is too weak to efficiently block patenting of such inventions which should not be covered by legal protection it's because of not compatible with public interest. Implementation of these actions would lead to the elimination of patents characterized by the lowest quality and in consequence to reduce the total number of patents in force. It would contribute to the improvement of the general efficiency of legal protection of inventions.
5. From the social point of view the fact of creating enormous number of inventions is not very valuable on its own. If access to these inventions will is strongly limited, it will bring both benefits just for a small group of people and will cause the irritation of the majority.
6. The acceleration of research is not the goal in itself which implementation would not be limited. Due to different categories of costs – in some circumstances – the speed of research could be too high from the social point of view. Naturally, instruments which encourage the

speed of research have got different level of efficiency. Therefore a specific level of research speed could be achieved at different costs.

7. Studies provide contradictory answers to the question whether the current system of legal protection of inventions generates an appropriate, too low or too high level of incentives affecting the speed of innovation in relation to the corresponding costs in the context of social expectations.
8. Studies on industrial property law requires interdisciplinary approach. Beside legal end economy perspective there is a needed to use other social sciences – mostly psychology and sociology.
9. Considerations in law and economic are in fact a detailed approach of utilitarianism, which because of the danger of impending of "moral monstrosity" should not be practised in separation to different science aspects – mostly the ethic context.
10. It is needed to supplement law and economy which is based on a rational choice theory with the behavioral approach, because it takes into account the fact that people are sometimes altruists and overoptimistic. They have got limited strong will and self-control, and their choices are often based on mental shortcuts and current practice.
11. Acting in a rationally economic way of particular entities does not always in itself lead to solutions optimal for the society. It causes the need to provide legally such circumstances of acting, where for the egoistically oriented people is favourable to make such decisions which will be profitable for society too – it will maximalize social welfare.
12. Strong intentionality in economic relations implicates the need of global unification of legal invention protection. Industrial property law could play its role well only if it is implemented all over the world.
13. It is needed to analyze the elasticity of demand at a fixed price of patented product in the context of substitution cost. In a situation where the society is more willing to purchase substitutes, this is an argument for expanding the scope of the patent. In other words, a narrow patent is justified when it prompts only a relatively small number of people to purchase substitutes. It happens when the demand in the cost of substitution is relatively non-flexible.
14. Endless patents would be less effective than patents granted on current conditions. Additionally, predicting the effects is in longer time strongly difficult. Therefore, implementing endless patents would bring high risk.

15. The policy of making patent higher is an effective instrument to limit the number of granting patents, which is beneficial from the social point of view.
16. It would be beneficial for society to form a patent as a short and relatively wide institution. Fewer number of years for which the patent would be granted would mirror the constant acceleration of technical development, which shortens the real lifetime of a patent. It would not be, therefore, a critical change from the inventors point of view. It would be rather a law adaption to reality. Moreover – short patent means generally no problems with the heigh of patents. Wider patents would make it more difficult to invent solutions around the patent. Such inventing solutions are rater very negatively.
17. The possibility to diversify the period for which patents are granted in various industries should be an area of detailed analysis.
18. It is hard to clearly assess the effects of implementing the single European patent. Besides undoubt benefits such as a unified institution of patent and reducing the costs of its granting and keeping, there are some important weaknesses too. It would cause a visible increase of the number of patens in force in particular countries. In the point of Polish entrepreneurs centralized patent litigation processes which will take place outside Poland would cause many problems.
19. As a result of popularization of global standards for the protection of inventions in developing countries, mainly in the Far East, has been reduced significantly in the recent years scale of unauthorized copying of inventions.
20. The most significant obstacle in the unification of the protection of inventions in the global scale is the strong conflict of interest between the wealthiest countries and the developing ones. As a rule, the interest of developed countries is to strive for the strictest regime of intellectual property rights while developing countries depend on the weakest protection of inventions.
21. Patent does not act as tangible property.
22. Basically improve the quality of industrial property law requires the redefinition of property rights, which would make it more similar to tangible property. Only some of the changes would involve the introduction of specific mechanisms. In most cases, the reform should focus on getting benefits from protection of tangible property including intellectual property, too. In this context it would be desirable to make patent claims more transparent, clear and

unambiguous and make the procedure of searching a more real one as an effect of reducing the existing number of patents.

23. Patents does not provide similar economic benefits like a classically understood tangible property rights. The weaker correlation between this form of protection of inventions and economic growth has been confirmed in many studies and by using different methodologies.
24. It is necessary to reject an approach which assumes evaluating of procedures connected with granting of a patent only on such a basis: the shorter, less complicated and cheaper, the better. The proceedings play an important role in reducing the number of granted patents and in caring for the strictest possible patent borders.
25. One of the methods of making the system more favourable for inventors without imposing additional society burdens, is to shorten, with maintaining quality standards, the procedure for granting a patent.
26. The area witch is particularly vulnerable to easy unauthorised coping of inventions at the same time very long, costly and risky from the point of view of creators is the pharmaceutical industry. In this area are focusing ethical dilemmas too.
27. The existence in pharmaceutical sector institutions of fair use – both in terms of obtaining generic version and the production of a drug on prescription in pharmacies is socially benefical.
28. It is postulated that the governments and global organizations dealing with health issues to take more responsibility for exploration and production of drugs for the most dangerous diseases. Particullary desirable actions in this area would be participating in the costs of clinical research and in costs of manufacturing and distribution of medicine. This would allow to relax the regime of intellectual property protection without taking away the possibility of pharmaceutical companies functioning.
29. The pharmaceutical industry is a unique example in which it is reasonable to postulate geographical diversification of the intellectual protection regime instead its unification.
30. A strong postulate is to stop granting software patents or at least a significant reduction of these practices. Software is sufficiently protected by copyright. The patent's protection is incompatible in this area and it is petrifying market. This market should be a natural place for dynamic innovation activities undertaken by independent inventors.
31. The balance of costs and benefits of software patents is a negative one not only for society but also for creators. The exception may be only the largest IT corporations.

32. Compulsory licenses play an important role I making invention protection system more flexible. It is necessary to keep this institution also in the most controversial aspect – it means when the patent office finds abuse of the patent. In face of increasing number of patents in force compulsory licences let us protect some sectors from petrification of innovations. This tool should be widely used in the process of weakening the regime of legal protection of inventions, because of its grounded presence in many countries and international agreements, it shall be subjected to an easier implementation.
33. It is legitimated to postulate changes to grant compulsory licenses when the patent is abused. It should be more suitable for free market economy, where the priority is not to struggle of deficient statistly, but to promote the development and innovation. It is necessary to build in some mechanisms which minimize the risk of transformation of discretionary powers into such arbitrariness which contradicts the foundations of democratic country.
34. Actions based on a FRAND formula should be developed. The need to use this model also comes from the fact that putting a standard in hands of one market player could lead to excessive strengthening of his position.
35. To minimize the risk of litigation of a standard based patent is desirable to extrapolate some elementary principles of the European competition law. If someone runs for making a standard based on his solution, the law would obliged him to keep far-reaching transparency in licensing policy.
36. In the context of standardization it is also worth considering the possibility of taking over patents by state or international body with money and putting them into public domain. This idea can be implemented in both the free access variant, an in paid licences, which would be managed by the entity that is not one of the market players.
37. The greatest activity of “patent trolls” are observed in relation to software and business methods. Although the patents obtained by these entities usually have very poor quality, and their formulated objections violations are rarely true, big companies, in order to avoid the risks and costs associated with litigation proceedings, are mostly victims of “tolls” blackmail.
38. Reforming the patent in the direction of the institution closer to tangible property would contribute to the reduction in “patent trolls” activity – just like the requirement of a clear explanation of damages suffered by plaintiff.

39. The greatest factor influencing the intensity of the patent race is the amount of the prize which is mostly shaped by construction features of the patent.
40. Patent race has got positive impact on acceleration of research but it also generates some significant costs related with its duplication. These can be constrained by resolving the race at an earlier stage(which may not be too early, because it brings the risks of granting patents for inventions, which developed without time pressure could be finalize much later than expected). Undoubtedly, an important advantage of the patent race is excluding companies with low efficiency in cost management.
41. Despite of significant difficulties in determining the rules of participation in benefits of the patents by the entities that lost race, it is worth to consider easing the rule "the winner takes it all".
42. It is benefical to implement alternative – sometimes non-legal – methods of invention protection and stimulating of inventiveness. In some areas it shows a higher efficiency than conventional mechanisms based on patents.
43. In some industries,mostly related to advanced technologies, time advantage gives a better guarantee of obtaining adequate revenues than patent protection. In most sectors only time advantage would prove to be a too weak intellectual property protection. The rule is that intellectual property is easy and cheap to copy. The most extreme example is the pharmaceutical industry.
44. The attractiveness of trade secrets in contrast to patent is generally greater for smaller entities.
45. There are a number of effective factors stimulating inventiveness which in many cases are complementary to the monopoly created by the patent. The key example is the prestige, especially for the employees of research and didactic centres.
46. It is necessary to participate in costs of creating the first-level inventions by companies which use it to create suitable invention of second-level for commercial exploration. Undoubtedly, this area requires co-financing from the state budget, too. Even more when, the deficit of research on inventions of the first-level is higer.
47. It is not legitimate to postulate complete abandon for the use of the legal invention protection. It would cause paralysis in innovation in some sectors. It would be very dangerous especially for the pharmaceutical sector.

48. It can be assumed that a reasonable form of state cooperation in innovation processes would be the implementation of some kind of tenders for research units. The subject of their actions would be a contract to do research in the key areas for society in a situation when the current state of knowledge allows to predict a high probability of success in a reasonable period of time.
49. Stronger correlation between the number of patents with research company spendings than with all research spending in a country. Ergo: the commercialisation of the research is more effective in the business sector. It would justify the limitation of public research.
50. The fundamental problem in creating changes in the patent protection law are difficulties in estimating the actual value of patent categories.
51. Despite difficulties in real and legal formulating of precise scopes, diversification of methods to protect inventions and implementing some differences within tools, would give a chance to cover invention with a more effective protection.

The analyzed branch of law has to protect the interest of both creators and society. The contradiction between this two categories is only apparent. Necessary changes in intellectual property law should be guided by the objective of introducing such mechanisms that will encourage innovation effectively. Therefore law should focus on ensuring the protection in areas with relatively low social burden. At the same time it should resign from the artificial regime of protection in those cases where the questionable profits of inventors are correlated with huge costs and inconveniences to the society.