

Intellectual property rights, competition and competitiveness in the EU internal market: What is to come with the unitary patent system?

Benedek NAGY, University of Szeged (Hungary)

Anita PELLE, University of Szeged (Hungary)¹

Sarolta SOMOSI, University of Szeged (Hungary)

Abstract:

Intellectual property protection is a means to promote growth through providing incentives for innovation. On the other hand, IP protection restricts competition. The theory of optimal patents helps in assessing these effects and finding the balance between them.

In the international context, differences in IPP strength affect decisions on the allocation of R&D activities. Before the introduction of the unitary patent system, EU member states differed considerably in respect of IPP strength. With the unitary system, IP protection has become stronger in most countries. Moreover, costs decrease significantly, and patenting becomes much more rewarding. Consequently, we expect a rise not only in patenting but also in investments in European R&D. Another relevant effect, in our view, is that potential investors in the knowledge-intensive sectors of the EU internal market may well reconsider the location of their investment to territories (member states) where costs are lower but the technological level, the available human resource and research infrastructure is appropriate. This may eventually result in the improvement of EU competitiveness.

Highlights:

- IP-based industries have the highest potential for growth and job creation in Europe but IPP as an incentive to innovate should be used with care.
- The new European IPR legislation should be in line with competition regulation; IPRs should not provide too wide or too long-lasting protections as that would be counterproductive.

¹ pelle@eco.u-szeged.hu (corresponding author)

- The unitary patent system may well stimulate R&D and investment in innovation helping to boost growth in the EU. Structural changes may also be induced in the longer run, in favor of industries largely operating with IPRs.
- A further possible effect of the unitary patent system is that some R&D activities may be relocated within in the EU, unlocking potential reserves, and thus serving the competitiveness of the EU as a whole.

Keywords: intellectual property rights; theory of optimal patents; European Union

1. Intellectual property in the theory of optimal patents

Intellectual property protection (IPP) has long been viewed as one way to promote growth, through its theoretically well explored effects on innovation. Intellectual property rights (IPRs) provide opportunity to collect returns from innovative efforts and thus serve as an incentive to potential innovators. The incentive, however, certainly comes at a cost.

The term IPRs in general refers to property rights that protect the added value generated by the knowledge economy. It includes the owner's rights to exclude other parties from the use a particular intangible asset. IPRs can be divided into two sub-groups: copyrights (and rights related to copyright); and industrial property rights (patents, trademarks, trade secrets, industrial designs, geographical indications, databases etc). In our study, we are handling these rights together.

IPRs, by their very nature, create monopoly rights in the utilization of certain information and are connected to profit, thereby providing incentives. But they are also associated with efficiency or welfare losses. In trying to balance these twofold effects of IPRs, a whole branch of research has evolved, starting with Nordhaus' (1967) theory of optimal patents that formalized this trade-off and showed the overall effect of patent protection. According to the theory, longer patent term gives longer time for the innovator to recover the costs of innovation; therefore, it serves as an incentive to devote more resources to innovation. Thus, the result would be either that a given innovative step would be taken earlier, or that technology would progress at a greater pace within a given time. A longer patent life, however, also implies that consumers pay higher prices than they would in a competitive industry.

Countries have implemented IPP measures since the 14th century to provide opportunity to innovators to appropriate the returns from their innovations (David, 1992). Such an incentive function of IPP is well explored at the level of individual innovators in the optimal patent

theory (besides Nordhaus, 1967, see also Gilbert and Shapiro, 1990; or Scotchmer, 1991) as it acknowledges that, in order to provide additional reward for the innovator with the exclusive patent right, competition is also necessarily distorted as long as the patent is valid. This trade-off requires the finding of a balance between the pro-innovation benefits and the anti-competitive costs of IPRs in creating the optimal patent institution. The question is how much we are willing to (temporarily) restrict competition for the sake of more innovation.

On the macro level, theory also seems to find a trade-off that leads to optimal patent protection strength. Horowitz and Lai (1996) present a partial equilibrium quality ladder model of intellectual property (IP) and innovation. In their model, the rate of innovation is defined as the product of the frequency and the size of the innovation (Horowitz and Lai, 1996, p.786). They find that stronger patent protection leads, on one hand, to less frequent innovations (as the innovator is safe from imitation by a longer patent life) but, on the other hand, to innovations of a greater size – that is, the innovative product represents a greater step up the quality ladder. De Rassenfosse (2013) comes to similar conclusions from a slightly different approach: patenting seems to result in a trade-off between the quantity and the quality of innovation.

An increase in patent length increases the rate of innovation up to a certain level but, by increasing the patent length even further, its negative effect on the frequency of innovations will at a certain point exceed its positive effect on the size of innovations and therefore the rate of innovation will fall. Patent policy aiming at achieving the highest rate of innovation should consider the two countervailing effects. Encaoua et al. (2006) suggest that the social costs and benefits of innovation should also be considered in creating an optimal patent system and that such consideration may call for determining different degrees of protection. Park (2008) gives a good review of the theoretical literature suggesting an inverse-U relationship between IP strength and innovation. Based on theory, neither a too weak, nor a too strong IPP serves the objective of best stimulating innovation. A quite intuitive explanation for this is that the increased propensity of firms patenting as a result of stronger IPRs (Gallini et al, 2006) leads to the formation of a patent thicket, that Shapiro (2001, p. 120.) had described as “a dense web of overlapping intellectual property rights that a company must hack its way through in order to actually commercialize new technology.”

Empirical studies, however, do not find this inverse-U relationship between IP protection strength and innovation. Rather, what they do show is that strengthening IP in a country will foster innovation (Maskus (2012) reviews the results of both historical and cross-country studies). Furukawa (2010, pp. 5-6.), in his model, gives a possible theoretical explanation and

finds that “a desirable IPR policy varies according to the start-up cost of innovation. When the cost is reasonably high, very strong and very weak IPR policies both suppress innovation”, while otherwise “the relationship is globally upward-sloping”. Park (2008) nevertheless argues that, even if empirical studies find a strictly positive correlation between IPR strength and innovation in developed countries, the inverted-U relationship may still apply; the developed countries have simply not yet reached the level of IP protection where the negative effects of IP strengthening start to outweigh the positive effects.

2. Intellectual property protection in the international context

The strength of IPRs protection in a country influences the amount of resources to be devoted to research and development (R&D) in that country, which has an effect in turn on the level of innovation and growth (Aghion and Howitt, 2005). In the international context, differences in IPP schemes determine the spatial distribution of R&D activities as they divert potential investors to countries where it is more profitable to carry out those activities.

The strength of a given country’s patent protection is generally measured by the Ginarte-Park (GP) index (Ginarte and Park, 1997; Park 2008b). The GP index measures the strength of patent rights protection of countries on a 0-5 range² by taking the unweighted sum of 5 sub-indexes³ for patent protection. This is then generally regressed with different measures of innovation or technology transfer (Park and Lippoldt, 2008). There is a strong positive correlation between a country’s GP index and both its innovative input and output (Maskus, 2012). Results of other statutory and experience-based methodologies measuring the strength of industrial property rights and copyrights are strongly and positively correlated with the Ginarte-Park index (which itself is a statutory measure), so find Park (2008) and Park and Lippoldt (2008).

As for the GP scores, IP protection in the EU member states varied in 2005 (Park, 2008b) between 3.48 (for Malta) and 4.67 (for Germany and others). The 1.19 spread among the scores is not negligible in light of the introduction of the unitary patent system in the EU.

With patent protection, the basic question is what we intend and what we do not intend to remunerate. There is a general consensus that patents should provide a fair return on innovation – but what is exactly the innovation to be protected? Beside the patent length, patent width is also relevant as it determines how “far” another innovation from the protected

² GP=0 would mean no patent protection while GP=5 is the strongest possible patent protection.

³ Membership in international treaties, coverage, restrictions on patent rights, enforcement and duration of protection.

one should be. With narrow patents, even a slightly modified version of the original innovation can receive a patent without infringing on the original. In the case of wide patents, in contrast, the original patent blocks patentability for a rather wide range of potential future modifications, or even improvements (Denicoló, 2000). This latter problem is more prominent in the case of sequential innovation as an original patent holder may be able to collect returns from all (or lots of) subsequent improvements (Scotchmer, 1991).

In the Schumpeterian view, innovation and technological change are far more relevant drivers of competition and competitive advantage than price competition. Therefore, broad IP protection should be encouraged to foster innovation. Schumpeter suggests that attention should be paid to the misuse of that protection (Beutel, 2004). Misuse is linked to market power – a phenomenon that connects IPP and antitrust.

When patents appear as competitive advantage in the competitive environment, firms might start to use patents strategically: patenting whenever possible, and using their patent portfolios against competitors in whatever way possible. The evident strategic reason behind patenting is protection against competition. Nevertheless, in the knowledge-based economies of the 21st century where products and processes are becoming more and more complex and coordination is crucial, there is another, complementary but equally important strategic objective of patenting: these can be used as tools in negotiation and cooperation with other firms (Bureth et al, 2007).

3. The evolution of an IPRs protection system in the EU

Regarding the EU, the original idea was integration through the elimination of restrictions on trade (Goyder and Albors-Llorens, 1992). Nevertheless, Article 36 of the Treaty of Rome had provided an exception to this general rule for national intellectual property, originally in order to achieve a balance between free trade and national interests in ensuring the returns on investments in IP (Somorjai, 1992). The Community used to have a protectionist response to trade from outside because, at that time, the European common market was far from being ready.

Nevertheless, the second half of the 20th century witnessed a shift from “simple” manufacturing towards processes with greater value added through the application of new technologies. In 2010, 1.4 million small and medium-sized enterprises (SMEs) employing 8.5 million people operated in the creative industries across the EU. Most of the new European jobs over the years 2000-2010 were created in the knowledge-based industries where employment increased by 24%, compared to an overall 6% increase for all other industries

(Brinkley and Lee, 2006). Thus, intellectual property-based industries account for an above-average potential for growth and job creation in Europe (EC 2010).

Beyond the benefit of yielding economic growth, innovation is also indispensable in addressing the huge challenges that humankind is facing: to ensure food security, to cope with climate change, to handle demographic changes, and to preserve and/or improve citizens' health (EC 2011). These trends have also called for an EU with unitary IP laws.

Although the number of patents and other patent-based indicators are not widely considered as providing a correct picture about the competitiveness of a certain country or economic area (Van Pottelsberghe de la Potterie and De Rassenfosse, 2008), a common and unified patent system can contribute to the easing of collecting returns on investments in R&D. IP policies can foster patenting activities but, in our view, this has not been the main driving force behind the development IPRs regulation in the EU. The lack of an effective and unitary patent system had not merely been inducing inefficient processes but appeared as an obstacle for European firms, especially young innovative companies (without any significant market power so in need of IPP) in exploiting their development potential in the European dimension and thus contribute to the overall competitiveness of the EU. Until 2014, the parallel national and European systems, with multiple validations and high administrative costs⁴ (Abramowitz, 2003) resulting in high levels of uncertainty, hindered the growth and funding prospects of actors involved in R&D.⁵ For that reason, EU level regulation had to be improved, in accordance with member states.

Accordingly, national laws authorized under the original Article 36 were no longer desired, nor any barriers obstructing the establishment of a truly common internal market. Moreover, in respect of IPP, the growing importance of a common regulation has eventually been acknowledged by member states in order to maintain or improve the EU's competitiveness at the global level, where a lot has to be done (WEF, 2014).

4. The introduction of a European system of IPRs

The early discussions on whether to create a single European market for IP focused on the Treaty's exception concerning the protection of "industrial and commercial property". Somorjai (1992) made a distinction between the terms referring to patent, trademark, and copyright property rights. The term "intellectual property" was originally used in the

⁴ Abramowicz identifies financing, administrative, litigation and rent-seeking costs that all affect prize.

⁵ The processes introduced through the case of the pharmaceutical sector in (ECORYS, 2009).

discussion of American law while the term “industrial and commercial property” was used in the discussion of Community law.

The EU’s regulation used to be far from what is common, linear and integrated. Common regulation in the field of industrial property rights started with the harmonisation of national trademark laws by the EU Trademark Directive in 1989, with Council Directive 89/104/EEC of 21 December 1988 to approximate the laws of the Member States relating to trademarks. The first phase of Community regulation can be considered as traditional, aiming at harmonizing member states’ legislation in order to avoid barriers to internal trade flows. But harmonization in itself did not lead to a single market. The failure has particularly been evident with regard to patents.⁶ The first such effort was the adoption of European Patent Convention in 1974. But, since then, a truly unified regulation and common conditions of protection were missing, which had a negative impact on European competitiveness, as discussed earlier. Until the recent launch of the common patent regulation, it had been too expensive and too complex to obtain and enforce patent protection overall Europe for the majority of the companies concerned.

Large part of the work was carried out in the course of 2011, resulting in the 2012 adoption of the regulations creating the ‘unitary patent package’.⁷ The package consists of three elements. The first one is the ‘unitary patent’ itself, a Europe-wide patent protection created by regulation. The second element is the so called ‘language regime’ providing the simplified and more economic background of the unitary patent. These two regulations together replace the earlier complex patent validation conditions and are to have a direct positive impact on competitiveness as the prices to be paid for European patents have become much lower.⁸ Last but not least, the third element of the new system is an EU-level agreement on setting up a

⁶ “A patent is a legal title that can be granted for any invention having a technical character provided that it is new, involves an inventive step and is susceptible of industrial application. A patent gives the owner the right to prevent others from making, using or selling the invention without permission. Patents encourage companies to make the necessary investment for innovation, and provide the incentive for individuals and companies to devote resources to research and development.” Definition from the official website of the European Commission, see: http://ec.europa.eu/internal_market/indprop/patent/index_en.htm (accessed on 15/05/2014)

⁷ The final approval by the European Parliament occurred in December 2012. The package consists of the Regulation (EU) No 1257/2012 implementing enhanced cooperation in the area of the creation of unitary patent protection and of Regulation (EU) No 1260/2012 implementing enhanced cooperation in the area of the creation of unitary patent protection with regard to the applicable translation arrangements.

⁸ Before 2014, a European patent cost around 36,000 EUR, of which the majority was spent for translation and other costs (e.g. fees of local patent offices and costs for local patent agents) linked to validation. From 2014 on, thanks to the first two elements of the new system, the costs have decreased to a competitive level of 5,000 EUR. See www.epo.org and http://ec.europa.eu/unitedkingdom/press/press_releases/2011/pr1138_en.htm (both accessed on 03/07/2014)

single patent jurisdiction, the 'Unified Patent Court' (UPC). This Court will have exclusive competence for unitary patents and will, by its own decisions, provide legal certainty for undertakings, thus avoiding the risk of parallel court proceedings with different outcomes, reducing litigation costs and shortening the time needed to resolve patent disputes (Müller, 2011).

It has all been adopted in the framework of enhanced cooperation of 25 EU member states (all but Italy and Spain), and started working in 2014. The European efforts in favor of a unitary patent system cannot be regarded anything else but positive. Even if so, we must add that the EU is merely catching up to other major markets (e.g. the United States of America, Japan or China) that already have their single regulations and patent jurisdictions in place.

5. Unitary patent system – who gain?

With the unitary patent, IP protection in some EU countries (with originally lower levels of protection) will be strengthened. The major question related to this is what effects it is going to have in these countries. The North-South trading models are applied for countries of different IPP strengths, with a developed, highly protective, innovative Northern country, and a developing, less protective, imitative South. The models argue that a strengthening of the Southern IPP discourages imitation of foreign developing technology but, at the same time, encourages local innovation (Chen and Puttitanum, 2005; Van Pottelsberghe de la Potterie and De Rassenfosse, 2008). At low levels of economic development, when a country's technological level is low, the imitation effect is stronger than the innovation effect and thus it is desirable to lower IPP. At higher levels of economic development and technology, however, the innovation effect is stronger, and strengthening IPP is advantageous for the Southern country. As for the EU, the countries that have lower and higher levels of IPP are eventually not as much different from each other as those in the North-South models so stronger IP protection, in their case, is expected to increase innovation just as it would in the developed countries. Investigating the issue from a different viewpoint, Sleuwaegen and Boiardi (2014) argue that, at the regional level, inspirations are more decisive although they also mention policy and institutions among the main influencing factors. All in all, it is not clear whether the less developed EU member states will start attracting resources for innovation from the more developed ones but, according to the North-South trade theory's implications, that may well occur.

It is worth assessing the expected effects of the unitary system. As a first effect, the number of patent filing will surely increase due to the dramatic reduction of patenting fees. According to

the study carried out by De Rassenfosse and Van Pottelsberghe de la Potterie (2008) on the role of patenting fees, a 10% reduction in fees would result in an increase of 3-5% in patent filings.⁹ The reduction induced by the new system largely exceeds this rate as it is in fact more than 85%. Secondly, the unitary European patent will provide a more effective protection of invention and stronger patent rights.¹⁰ Strengthening patent protection will also raise the value of innovations simply due to higher protection, in several countries.

We expect that the new system will consequently stimulate R&D and investment in innovation helping to boost growth in the EU. It will be advantageous in particular for those investors that are most affected by the deficiencies of the current system, including SMEs. On the other hand, the costs of further developments and further utilizations will rise. Although a country's (or the EU's) industrial structure is mostly considered as a condition, structural changes may also be induced in the longer run, in favor of those industries that largely operate with IPRs.

A further possible effect of the unitary patent system not at all to be neglected can be a restructuring of R&D and innovation activities within the EU. We assume that, due to the more economic unitary system providing the same level of protection all over the EU, it will be worth recalculating the costs of research (human capital and infrastructure) and thus considering moving such activities within the EU's borders in case costs can be further reduced that way. Of course, such investment decisions are influenced by other factors as well, e.g. the level of researchers' knowledge, level of cooperation and networking (WEF 2014b), development of research infrastructure, government incentives, etc. In an optimal situation, the unitary patent system could slow down or even reverse brain drain within the EU, which is indeed a European interest.

Nevertheless, not all actors win with the new system. For those companies that are not involved in businesses related to R&D and innovations, increased patent filings will mean growing patent burdens and increasing costs of patent utilization. Although the solving of cases will be easier and more effective under the Unified Patent Court, US experiences show that, by the unified and stronger patent protection, a rising number of patent disputes can be expected.

⁹ For an in-depth discussion of the role of fees on patenting behaviour see De Rassenfosse and Van Pottelsberghe de la Potterie (2007).

¹⁰ This is measured by the Ginarte-Park index discussed above.

6. IPP and competition regulation in the EU

IPP and competition regulation in the EU have evolved independently although both are eventually aiming at promoting innovation and growth. Even though neither of the two instruments is able to maintain enough incentives to promote growth by themselves, there are also conflicts among them. The conflict seems to be endless (not only in Europe). As Carrier (2009, p. 71.) says, “[t]he marriage between IP and antitrust has suffered stormy periods”, and mutual distrust is traceable between the two areas as IP gives a right to exclude while antitrust scrutinizes those rights. The relation between IPP and competition regulation is subtle and complex, and calls for the balancing between the different forms of competition, rather than allowing a clear choice (Turner, 2010).

The most evident manifestation of the conflict is the exclusive right offered by IPRs, which is a reward to the innovator but the very same condition, from competition policy aspects, is considered as a barrier to entry, a competition distorting action. Hildebrand (2002) classifies IPRs among the non-natural entry barriers. As Anderman (2007, p. 2.) points out, one general contradiction between the two policies arises from the fact that the task of competition authorities is to protect competition as a public interest while IPR is the “exercise of a private property right”. There is another major difference between the two regulation systems: while competition policy’s aim is to ensure competition *in* the market, IPR maintains the possibilities of competing *for* a market, at least as long as the protection ensured by IPR lasts. Forrester (2007) points out that IPR is a modern right and, as such, has emerged legislatively. According to the legislator’s logic, IP is an asset, therefore, protection is justifiable. And the European Commission has in fact been aware that innovation needs private investment and so incentive conditions. Kovacic (2005) draws the attention to the analytical challenges when assessing industries in which IPRs serve as an important source of competitive advantage. Such industries are most often characterized by technological dynamism, which makes the definition of the relevant market and the measuring of market power extremely difficult. Also, there are several interdependences among technological development, market mechanisms, institutions and regulation outside competition regulation (e.g. sectoral legislation).

Schumpeter had already highlighted the importance of market power in utilizing IPRs. Anderman and Kallaugher (2006) claim that the threat of efficiency reduction is only present in cases where the owner of IPRs disposes over significant market power. Rubinfeld and Maness (2005) warn about the powerful IP holder: such firms may assert their IP rights aggressively, possibly with the strategic objective to leverage market power from one market

to other markets. They may maintain or create barriers to entry inappropriately, or encourage collusive behavior.

As for the EU, the conflict between IPP and competition regulation has recently come to the forefront again, with the unitary patent system put in place. At the same time, we can also see efforts aiming at finding the balance between them.

Overall, the most important task in the EU now is to create and enforce an IPR legislation that is in line with, or even controlled by, competition regulation. This latter aspect is relevant in ensuring that the IPR system is not providing too wide and too long-lasting protections that may eventually obstruct innovation and/or restrict competition. That would be counterproductive as it would build up new impediments to development and growth, instead of diminishing or eliminating the existing ones.

7. R&D's and IPRs' intersections with exemption from prohibition on restrictive agreements in EU competition regulation

EU competition regulation, as a thumb rule, prohibits all behaviors that aim at or result in the restriction of competition.¹¹ However, there are exceptions from this general (but thus not absolute) prohibition.¹² The legitimacy of exceptions stem from the European conviction that competition is one of the tools to reach the objectives of integration but it is not the sole one (Pelkmans 2001). The approach also implies, of course, that there is a conflict of objectives in the different EU policies (Van den Bergh, 2007).

At the level of primary law, the Single European Act of 1986 was the first to formulate the need to harmonize R&D objectives with common competition policy by stating that “[t]he Community’s aim shall be to strengthen the scientific and technological basis of European industry and to encourage it to become more competitive at international level. (...) In the achievement of these aims, special account shall be taken of the connection between the common research and technological development effort, the establishment of the internal market and the implementation of common policies, particularly as regards competition and trade.”¹³

¹¹ Article 101(1) and Article 102 of the Treaty on the Functioning of the European Union. Official Journal of the EU, C115, 9 May 2008, pp. 49-199.

¹² Article 101(3) of the Treaty on the Functioning of the European Union and the block exemption regulations, accessible at <http://ec.europa.eu/competition/antitrust/legislation/legislation.html> (accessed on 07/07/2014)

¹³ http://ec.europa.eu/economy_finance/emu_history/documents/treaties/singleeuropeanact.pdf (accessed on 03/04/2014)

R&D and IPRs have two obvious intersections with the system of exemptions from prohibition on restrictive agreements in EU competition regulation: the cases of R&D agreements (above a certain threshold in size and market share) and technology transfer agreements. We hereby only mention that state aid on R&D is a further intersection (thoroughly investigated by Nicolaides, 2013); however, we now only concentrate on how (classical) competition regulation and IPRs protection affect market phenomena and firm behaviour. The attitude to the two types of agreements differs significantly. First of all, R&D agreements fall under the category of horizontal cooperation agreements, an ‘evergreen’ dilemma of European competition regulation. As the Commission states, “co-operation is of a ‘horizontal nature’ if an agreement is entered into between actual or potential competitors. (...) Horizontal co-operation agreements can lead to substantial economic benefits. (...) On the other hand, horizontal co-operation agreements may lead to competition problems. (...) The Commission, while recognizing the benefits that can be generated by horizontal co-operation agreements, has to ensure that effective competition is maintained.”¹⁴ The Commission, in its practice, has strived for handling the dilemma by weighing the pro-competitive and anti-competitive elements of an agreement, case by case, applying the so-called ‘more economic approach’¹⁵, combining legal and economic knowledge. For R&D agreements, anti-competitive elements may include the reduction or slowdown of innovation as a result of cooperation, or the introduction of anti-competitive market coordination leading to higher prices. R&D agreements also affect competition through the ways in which the results of the cooperation are exploited – immediately as they are realized, and in longer term.

On the other hand, cooperation in R&D may also yield efficiency gains, especially if capacities and skills complement one another in firms’ cooperation. Not adventitiously, such cooperation schemes may also contribute to the wider dissemination of knowledge across the internal market of the EU, thus potentially giving impetus to further innovation. Joint use of capacities and skills may yield cost efficiency. Cooperation may also contribute to minimizing losses on investments in innovation. Nevertheless, R&D agreements continue to be kept under strict scrutiny by the Commission.

¹⁴ European Commission: Guidelines on the applicability of Article 101 of the Treaty on the Functioning of the European Union to horizontal co-operation agreements, 2011/C 11/01, Brussels.

¹⁵ “The ‘more economic approach’, as a shorthand, may be taken as an approach that attempts to replace a mechanical, form-based approach to the interpretation of the relevant notions of competition law (‘restriction of competition’; ‘abuse’) for an approach that is oriented towards a careful examination of how competition works in particular markets and how a certain business strategy or behaviour affects the competitive process and thereby (consumer) welfare.” (Roth, W-H., 2007. p. 37.)

There is a rather different approach to technology transfer agreements¹⁶ in the EU (which are practically contracts where IPRs are sold to other market actors) as the Commission considers these as mostly favorable (Anderman and Kallaugher, 2006). The regulation on technology transfer agreements¹⁷ emphasizes that such cooperation fosters economic efficiency, reduces parallelism in R&D activities, promotes innovation, and encourages its dissemination, thus enhancing competition further. According to the Commission's relevant Guidelines¹⁸, “[e]ven restrictive license agreements mostly also produce pro-competitive effects in the form of efficiencies, which may outweigh their anti-competitive effects.”

8. Concluding thoughts

As the classic question asks (Samuelson and Nordhaus, 1985, p.744.): what proportion of the cake do we have to waive in order to be able to divide the cake more righteously?¹⁹ For the case of competition regulation and IPRs, the question can be interpreted as follows: what is the size of the efficiency loss that we have to bear in order to create an environment for innovation that is both encouraging and protective, and ensuring or even fostering competition at the same time?

There is another conflict between the approaches of whether to protect competition itself, or the competitors. Competition regulation targets the former while IPP is in favor of the latter. In competition regulation, competition is a public good but innovation fostered by IPP may also have pro-competitive effects while ensuring the profitability of investments in innovation at the same time.

Regarding the EU, the main question in relation to the introduction of the new IPRs system is what effects it will have on the internal economic processes. In our view based on the theory of optimal patents, a possible effect may be that some R&D activities will be relocated to other regions or countries of the EU where human capital costs less. If so, that would in fact mean the unlocking of so far unused potential capacity reserves, thus serving the overall

¹⁶ The Commission defines technology transfer as the following: “The concept of ‘technology’ covers patents and patent applications, utility models and applications for utility models, design rights, plant breeders rights, topographies of semiconductor products, supplementary protection certificates for medicinal products or other products for which such supplementary protection certificates may be obtained, software copyright, and know-how. (...) The concept of ‘transfer’ implies that technology must flow from one undertaking to another.” European Commission: Guidelines on the application of Article 101 of the Treaty on the Functioning of the European Union to technology transfer agreements (2014/C 89/03)

¹⁷ Commission Regulation (EU) No 316/2014 on the application of Article 101(3) of the Treaty on the Functioning of the European Union to categories of technology transfer agreements (L 93/17)

¹⁸ European Commission: Guidelines on the application of Article 101 of the Treaty on the Functioning of the European Union to technology transfer agreements (2014/C 89/03)

¹⁹ The exact quote goes as “How much of the social pie is being sacrificed in order to divide it more equally?”

competitiveness of the EU. For the countries in the periphery of the EU, it may be an outstanding opportunity to seize for their own benefit, but also for the benefit of the whole of the EU, as it would result in performing better in the global arena. However, such internal potentials can only be liberated if there is a supportive and sufficiently developed institutional environment at the member states' level – an issue that neither IPP, nor competition regulation addresses.

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