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THE ECONOMICS OF INTELLECTUAL PROPERTY AND OPENNESS

The Tragedy of Intangible Abundance

Bartłomiej Biga

ROUTLEDGE

Focus

The Economics of Intellectual Property and Openness

This book focuses on the economic aspects of intellectual property (IP). It includes considerations of the wider category of intangible assets. However, the primary focus is devoted to patents which the author argues are the most vivid example of the Tragedy of Intangible Abundance (TIA).

TIA touches upon a key issue in the contemporary economy. On the one hand, there is an enormous supply of IP, yet, on the other hand, such an abundance does not necessarily solve existing issues but rather creates new ones as well. This book elaborates on the reasons for the emergence of TIA and its consequences. The author uses clear metaphors to explain very complex issues. The book provides a valuable and interdisciplinary analysis of the field and offers practical solutions. It is based on the data collected by the author during the qualitative research he conducted among a group of start-ups. It presents guidance on determining which instrument is the most efficient for a particular situation. It also provides arguments for decision-makers and their advisors as to why a more open approach towards intellectual property would be more beneficial under many circumstances in the contemporary economy. While universal issues are addressed, the author distinguishes the European perspective too.

The book is written in a clear and concise style and covers all of the crucial aspects of IP management. It will find an audience among scholars of economics and business.

Bartłomiej Biga is an Assistant Professor in the Public Economy and Administration Faculty of Cracow University of Economics, Poland.

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**The Economics
of Intellectual Property
and Openness**
The Tragedy of Intangible Abundance

Bartłomiej Biga

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About the author

In my capacity as a professional I convince people that economics is beautiful, law does not have to be boring, and a scientist may speak comprehensibly. I lecture at universities, cooperate with businesses, maintain a blog and a podcast, and work at the Analysis Centre of the Jagiellonian Club (a non-political association seeking to improve the world of politics). I primarily deal with intellectual property and other intangible assets, behavioural economics, and the economic analysis of law and digital economy.

I know that a couple of those issues sound either formidable or horribly boring. But let's give them a chance – they are not like that immanently by themselves! Too many people simply try to treat economics and law as the secret knowledge that is accessible to a limited number of people who miraculously managed not to fall asleep during (some) boring lectures or while reading (some) boring books.

Economics and law are beautiful, indeed, and may be useful. All of my professional engagements aim at proving that. I deliver knowledge from university to companies, politicians, and all those who enjoy learning what economics is all about. That does not obviously mean that all in economics is simple. Moreover, there are many mechanisms that (hardly) anyone understands, although it is fairly impossible to find an economist who would openly admit that.

I co-create the economic movement Open Eyes Economy that may be summarised as the movement away from the common style of thinking in business 'any income is good, any cost is bad'. My work is based not only on economics and law. I also try – as much as I can – to draw abundantly from psychology, sociology, or neurobiology. I advise strategies of intangible resource management that take advantage of business models based on widespread conditional disclosure.

I believe that knowledge popularisation requires an approachable form, hence the blogging, podcasting, or delivering lectures for varied listeners.

I am professionally engaged in five major fields in my capacity as a:

- university staff member (the Cracow University of Economics, the AGH University of Science and Technology, the SWPS University)
- co-creator of the economic equity movement Open Eyes Economy (oees.pl)
- think tank expert (the Analysis Centre of the Jagiellonian Club)
- mass media commentator for a range of radio and TV broadcasters, public and private)
- the author of the Practical Economics Blog (bartlomiejbiga.pl/blog) and the Non-obvious Knowledge Podcast (bartlomiejbiga.pl/wiedza)

My work focuses on the economic analysis of law and public policies – in theoretical terms (research), in practicable terms (implementation), and in terms of publicity (media).

I pay most of my attention to intellectual property – mainly copyright and patents. Majority of my research is conducted based on the economic analysis of law. It aims at searching for greatest effectiveness of legal regulations (the highest possible benefit-cost ratio).

My majors and areas of scientific interest:

- economic analysis of law
- intellectual property law (protection of inventions and copyright law)
- effectiveness of public policies
- behavioural economics
- corporate intangible resources management
- digital economy

that in a situation where the Tragedy of the Anti-Commons is allowed to occur in some area, the actions of the government may also be doomed to failure. Therefore, his recommendations focus on preventing the separation of positive and negative ownership right bundles.

Those problems, when related to intellectual property, seem to be even more significant, because the basic goal of the legal regulations is to strive for the widest possible dissemination – the diffusion of innovation. The temporary monopoly is only a means to encourage creators to act and reveal the effects of their work. Due to the peculiarity of that type of activity, which is manifested primarily in the overbuilding and improvement of previous constructs, and due to the blurry boundaries of respective rights, the legal system, which focuses more on exclusion from usage than on positive ownership rights, must be called dysfunctional. A system whose fundamental function is dissemination must operate in the opposite direction.

1.4 Tragedy of Intangible Abundance

The Tragedy of Intangible Abundance is a description of a crucial problem in the contemporary economy. One may see a contradiction in the combination of the words ‘tragedy’ and ‘abundance’. However, the contradiction is only illusory. Its perception is the result of economists’ deeply rooted approach in which the essence of management is to combat scarcity. For many, permanent scarcity is the basic concept in economics, in the context of which economics is understood to make optimum use of scarce resources to satisfy unlimited human needs (as discussed in the Introduction chapter. In that sense, abundance cannot be associated with tragedy because the actual occurrence of abundance would mean the solution for this seemingly immanent tragedy.

The above reasoning worked well in an economy dominated by tangible assets. However, today, in the digital era, abundance (or even excess) is something completely natural. That is due to the possibility of non-competitive use of the same assets, due to the ease with which they can be copied. Access to intellectual resources may be – and often is – restricted mainly based on legal monopolies. However, that is an artificial state that must be created based on specific regulatory frameworks and a series of decisions and actions by entities possessing some intangible resources. Therefore, abundance in this sense does not need to be created and institutionally supported. It is a natural consequence of changes taking place in business.

12 *Tragedies in economics*

However, why abundance is seen in terms of tragedy needs to be clarified. There are four main reasons:

- 1 The supply of intellectual property is not tailored to demand.
- 2 Intellectual property law has become an area of the arms race.
- 3 The low quality of granted exclusive rights creates patent thickets and is a breeding ground for trolls.
- 4 Companies are trapped – in the face of ineffectiveness of intellectual property rights they patent more and more not to maximise benefits but to minimise losses.

1.4.1 The supply of intellectual property is not tailored to demand

A huge amount of intellectual property is being created in the contemporary economy. It cannot be denied that society also shows very high demand for it. The problem is that the demand only slightly coincides with what appears in circulation. That regularity may be observed even by analysing the pharmaceutical industry. The companies operating in this industry concentrate a significant part of their activities on simple painkillers / anti-inflammatory drugs, which do not differ much from one another and remedy mainly trivial, although common, ailments. The major difference between those products made by diverse manufacturers comes down to the trade mark since the composition is almost identical as is the active ingredient.

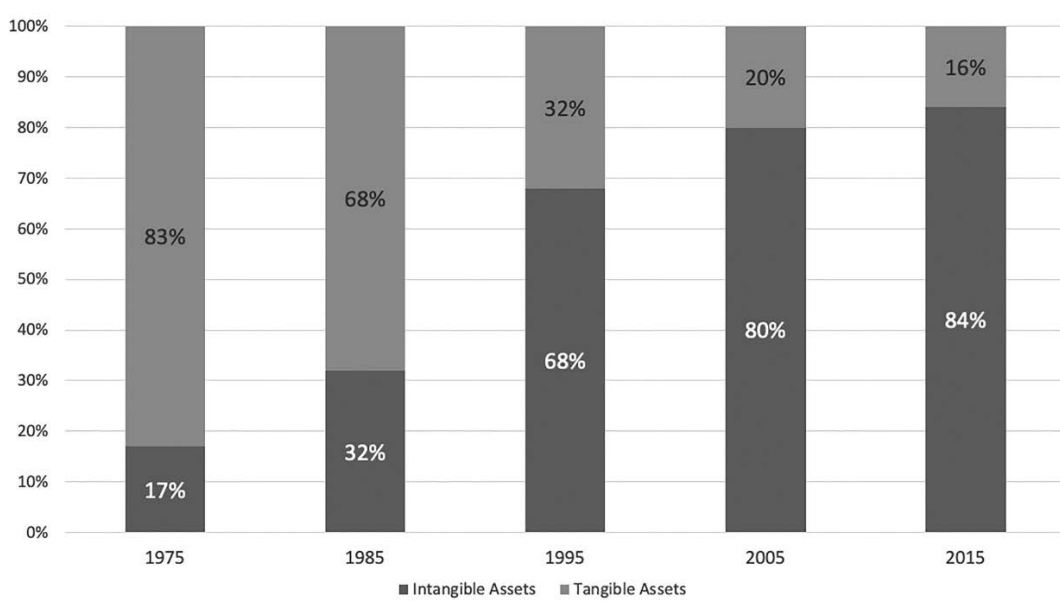
Investments in promoting a specific pharmaceutical product of a given type are very profitable for those companies. However, this is done at the expense of research on completely new categories of pharmaceuticals the market for which, even if they are to remedy the most serious diseases, is incomparably smaller, and the process of creating and obtaining regulatory approvals may be long and unpredictable. So, we have a huge supply of intellectual property (in this case mainly related to anti-inflammatory drug trademarks) but many serious health problems remain unresolved (demand side).

On the one hand, it is plausible to state that this is a standard demand-supply response. Painkillers/anti-inflammatory drugs are bought much more often, so the appearance of a corresponding supply is obvious. However, money ‘dissipating’ for those activities does not convert into improvements among the sick. Only new, innovative pharmaceutical products may bring about a major change. They are obviously created but that process is slowed down because a significant part of the resources of the pharmaceutical sector is directed elsewhere (for trademark marketing).

That observation is confirmed by the analysis of more cross-sectoral data. As the estimates arising from the Intangible Asset Market Value Study (Graph 1.1) show, a very dynamic increase in the percentage share of intangible resources in the value of the largest American companies has been observed in consecutive decades.

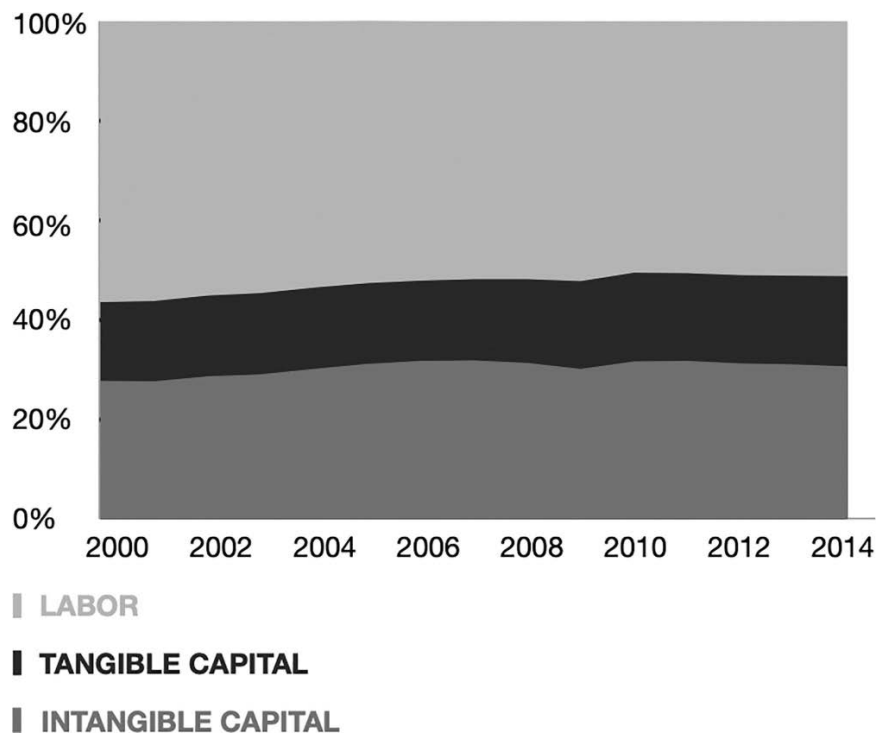
It is worth comparing this data with the estimates of the World Intellectual Property Organization (WIPO) regarding the value added of products sold worldwide (Graph 1.2). This study admittedly covers a much shorter period and is not limited to the 500 largest American companies, and therefore the possibilities for comparing data are very limited. However, it is possible to observe that, unlike the percentage share of intangible resources in the value of companies, the percentage share of intangible resources in the value of goods sold does not increase but remains stable. That statement is true regardless of how we treat the WIPO category ‘work’ – i.e. whether we include it in tangible or intangible resources – because this component also remains at a similar level.

That justifies the conclusion that although intangible resources appear to an increasing extent and constitute an increasingly important component of companies (Ocean Tomo’s study), it does not translate into an increased share in creating the value of goods sold (WIPO study). Thus, there is an increasing supply of them, but it does not respond to reported demand. That leads to the conclusion that



Graph 1.1 Components of S&P 500 market value.

Source: Ocean Tomo (2015).



Graph 1.2 Value added as a percentage of the total value of all products manufactured and sold worldwide.

Source: World Intellectual Property Organization (WIPO) (2017).

enterprises have a problem with commercialising intellectual property or that a large part of generated/reported intellectual property is intended to be used for speculating on the company's valuation.

1.4.2 Intellectual property law has become an area of the arms race

The analysis of the strategies of the largest companies that base their operations on intangible resources indicates that intellectual property law is less and less used for the purposes for which it was created, since in a typical situation legal protection of intellectual property was to encourage the creation and disclosure of the discoveries. Its purpose was to protect smaller and weaker creative entities. The awarded monopoly was to allow sales for a time at a price much higher than marginal costs, which was supposed to allow the creator to reward the expenditure on creating the invention/work. For the general public, this was supposed to be a guarantee of ensuring a high supply of intellectual property in exchange for a temporary limitation in accessibility resulting from the legal monopoly that has been granted.

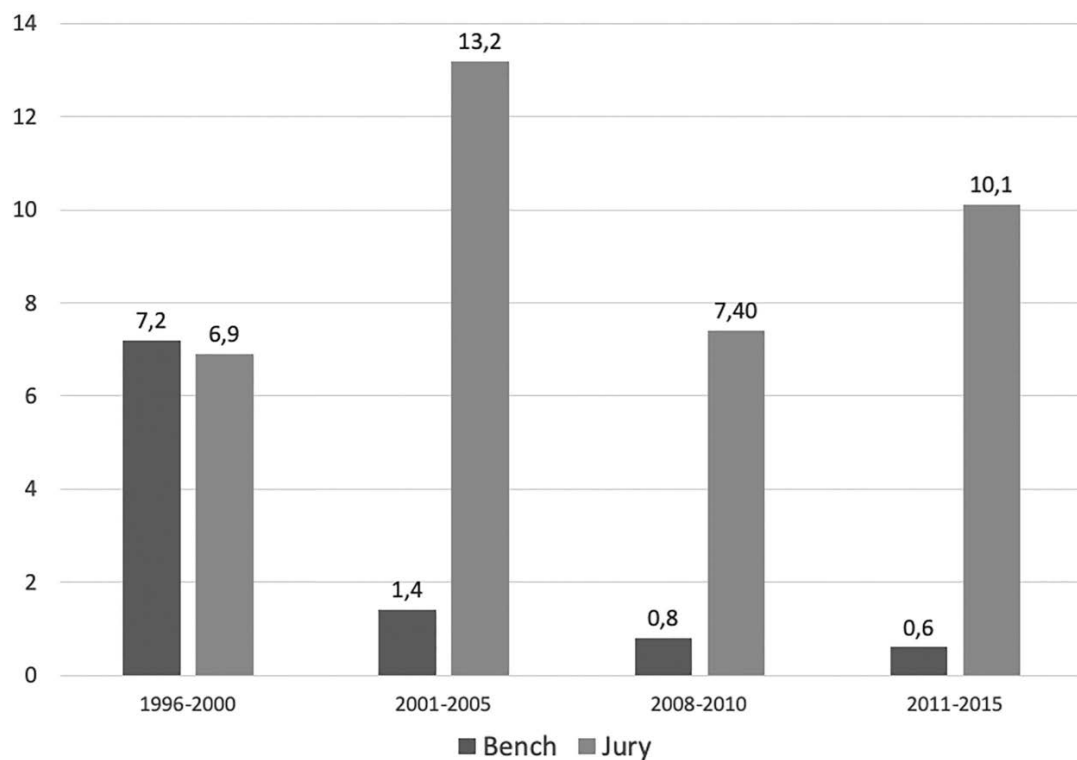
Nowadays, however, the greatest players in the digital world have turned this area into an arms race. Patents in this sense are primarily to act as a deterrent. Therefore, companies accumulate those exclusive rights not only to exercise such exclusive rights to sell innovative products but also to discourage other players from bringing the case to court against them (Drahos, 2017). This is done by increasing the arsenal of patents that may be utilised in a counterclaim lawsuit. This was the main intention of Google's takeover of Motorola – the most important asset was a comprehensive patent portfolio that allowed Google to protect Android against possible allegations of infringement of the exclusive rights of iOS created by Apple.

Therefore, just like in the Cold War, a significant part of the arsenal is intended only to deter the opponent, and ultimately for the purpose of a strategic counter-offensive. As the study (Lemley & Shapiro, 2005, pp. 75–98) shows, only a few per cent of patents are used commercially. Actual conflicts, when taking into account the volume of patents granted (over a million per year), are relatively rare. Only 1.5% of patents are subject to litigation, and only 0.1% reaches the final judicial stage.

Another aspect by which the arms race metaphor may be adequate is the fact that 46% of disputes end with patent annulment. So this means that much of the 'arsenal' turns out to be dummy munitions. However, when it comes to a dispute and the weapon (patent) turns out to be real and effective, then the range of destruction is very large (even nuclear). The study conducted by PWC (Barry, Arad, Ansell, Cartier, & Lee, 2016) shows that average damages awarded in the cases of intellectual property in the US amount to several million dollars (Graph 1.3).

1.4.3 The low quality of granted exclusive rights creates patent thickets and is a breeding ground for trolls

The Tragedy of Intangible Abundance is even greater because today's system does not solve existing problems (inadequacy of supply to demand) but, in many cases, deepens or even creates new ones. The abundance of patents means the creation of patent thickets, which in a number of industries strongly impede or even, according to some (Gurgula, 2017; Yuan & Li, 2020), prevent one from entering the market. And this is not about creating an exit barrier model ensuring a temporary monopoly to commercialise a particular construct, which is the essence of the domain of law at issue. Intellectual property law in this case, instead of stimulating innovation, curbs its development,



Graph 1.3 Median damages award (in \$M): bench vs jury decisions.

Source: Barry et al. (2016, p. 5).

allowing for oligopolisation of significant areas – much broader than it would appear from the sum of the scopes of protection under respective exclusive rights.

The problem is not only the number of patents granted but also their excessively low quality. Unrestricted observance of the requirement of non-obviousness for patentability as well as approval of imprecise patent claims (mainly based on functional claims) means that the limitations on respective exclusive rights are blurred. Therefore, it is one thing to enter the strongly patented market in which one can still pave one's way bypassing the patent-protected areas relatively successfully, rather than – which is the case now – break through the thicket that not only leaves little safe space but also the scopes of respective patents overlap.

Those circumstances ensure that attempts to set up specific business operations are exposed to enormous risk. However, this state of affairs feeds the patent trolls (by some authors Non-Practising Entities – NPE – to avoid the negative connotation of the term 'troll'). Those entities are specialised blackmailers. They come into possession of low quality patents – often cheap, non-specific, which do not have large

commercial potential, but the aforementioned imprecision allows one to effectively block large projects of other players.

When creating more complex innovative projects – such as smart-phones or operating systems – thousands of constructs are taken advantage of. Therefore, a troll equipped with a patent of indistinctly applied boundaries has considerable room for alleging infringement of its intellectual property and demanding millions in damages. Moreover, even when the likelihood of effective enforcement of such demands in court is assessed to be very low, large companies often buckle under this blackmail. For them, even the risk of delaying the launch of a product (until the court settles the case) would entail much greater losses than compensation paid to a troll. Furthermore, in the face of the imminent unpredictability of court decisions regarding intellectual property, one cannot rule out a troll winning, which in extreme cases could even lead to a ban on sales.

RPX (RPX Corporation, 2019) estimates the direct cost of patent trolls for the US economy to equal \$ 7.4 billion, out of which 57% account for legal fees and 43% for settlement and compensation. According to those estimates, the percentage share of litigation filed in the US in the field of intellectual property is approx. 70%. Other estimates are much more conservative (19%), which, however, also shows the considerable scale of the problem.

1.4.4 Companies are trapped – in the face of ineffectiveness of intellectual property rights they patent more and more not to maximise benefits but to minimise losses

The Tragedy of Intangible Abundance is a trap. Many companies patent more and more, not to maximise benefits but to minimise losses. Only 5% of patents generate revenue earned from licence fees (Lemley & Shapiro, 2005). It obviously does not mean that the remaining 95% of patents are useless for an enterprise. They may actually be used only within that one enterprise. However, the enterprises that decided to conduct an in-depth audit of their patents find that a relatively small number of them were actually useful.

The tragedy of this trap therefore arises from the need to incur costs in relation to the huge number of patents, out of which only a small part is used for business purposes. As the unpublished pilot studies conducted as part of Open Eyes Economy show, in many cases entrepreneurs do not take into account the possibility of basing their business strategies on a different model of managing intangible resources. The following mental shortcut is common: if you have something that may be patented/registered and you are considering

to market products based on intellectual property, you apply for legal protection (patent, design, trademark, etc.).

At this point, it is important to mention the costs of patenting, which are very high. Therefore, in case a patent turns out to be useless and an enterprise renounces from paying the patent maintenance fees after a couple of years, it will only cut the costs of a progressive maintenance fee payable to Patent Offices. Initial costs (including, above all, preparation of the application form, patent purity search) will therefore simply be sunk costs. A more detailed analysis of those aspects is provided in Chapter 3.

In summary, the Tragedy of Intangible Abundance describes a rather bizarre situation. Partial elimination of the economics of scarcity and consequent replacement with the economics of abundance has not only failed to address classic management concerns but in many cases it has deepened them and brought about new ones. The Tragedy of Intangible Abundance also shows that the supply-demand mechanism alone does not lead to a clearly better satisfaction of needs – so as to speak of a level that could be expected in terms of the current abundance of resources.

In addition, in the digital world, legal methods of protecting intellectual property developed centuries ago have proven extremely ineffective. Attachment to them, resulting from the hasty extrapolation of constructs appropriate for tangible assets to intangible resources has caused deepening dysfunctions to be left outstanding. However, it seems that their scale has already become so large that the motivation to take measures to limit the Tragedy of Intangible Abundance is so strong that in the near future more and more intense attempts to break this trap should be expected. The only course of action is shifting towards more open constructs, which is elaborated upon in Chapter 4.

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