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The Structure of Patent Costs and Patent Offices' Funding: The (Missing) Link to Patent Quality

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Although each system, whether the USPTO, the EPO is working with a different approach in this respect; none of them works along a consistent decoupling of the patent office's funding from the number of patents granted. More financial resources – an essential part in achieving better patent quality – thus has to pass through more patent being granted. In other words, the office needing to decide on whether or not an invention should be granted a patent will have less income if it says the invention should not. This is a classic case of conflicts of interest; a case where wrong incentives appear. The paper advances essentially two points. First the funding of patent offices as well as how patent examiners are being assessed and rewarded should be disconnected from the number of patents granted. Second, the most cost-efficient and logical manner to do so – agreeing that innovation in the sense of patent law means should mean the same regardless of national borders – would be to implement an international agency responsible for checking the multilaterally agreed, basic requirements for patentability.

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I. Introduction

As patents grow in numbers, the functioning of the patent system is under increased scrutiny. The so-called inflation of patents and an increasing use of defensive patenting upsurge the need to analyse whether the system is still doing “what it’s being paid for”: incentivise innovation.

Many phenomena have been reported in the past decades to bring the system away from this original aim. The decrease in patent quality¹; an increased trend in the enforcements of patents (notably by the emergence of so-called ‘patent prospectors’ or more negatively ‘patent trolls’²); and an increasingly strategic use of the system³ are examples of this. One can also refer to the situation of ‘patent thickening’, where so many patents exist in one area that transaction costs to enter it are so high - be it to conduct research or start commercialising a given result - while simultaneously each and every patent holder has the power to block the venture; that one loses interest to entering the area.⁴ It subsequently also leads to suboptimal patent revenues for the patent holder, and is therefore a situation where everybody loses: the patent holder (less license revenue), his competitors (excluded from fruitful ventures) and society at large (less investment in R&D). The 2009 EC report on competition in the pharmaceutical sector calls patent ticketing a common practice in that sector.⁵ It also found that in certain cases patent ticketing led to the discontinuation of R&D projects:

“In total, the inquiry reveals at least 1,100 instances where the patents held by an originator company potentially overlap with the medicines, R&D programmes and/or patents held by another originator company for their medicine. In these cases originator companies might find their research activities blocked, with detrimental effects on the innovation process. In many cases originator companies managed to settle potential disputes, for instance through licensing arrangements. However, in approximately 20% of the 99 cases where a licence was requested, the requesting companies did not obtain a

1 See for instance M. Hirschey and V. Richardson, ‘Are Scientific Indicators of Patent Quality Useful to Investors?’, 11 *Journal of Empirical Finance* 1 (2004), pp. 91-107; and B. Hall (et al.), *Prospects for Improving U.S. Patent Quality via Post-grant Opposition*, NBER Working Paper N° W9731 (2003).

2 For instance: M.G. Reitzig, J. Henkel and C. Heath, *On Sharks, Trolls, and Other Patent Animals - ‘Being Infringed’ as a Normatively Induced Innovation Exploitation Strategy*, 2006, available at: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=885914 (last visited 22 May 2011).

3 For instance: M. Schilling, *Strategic management of technological innovation*, McGraw-Hill, New York, 2006.

4 For instance: C. Shapiro, ‘Navigating the Patent Thicket: Cross Licenses, Patent Pools, and Standard Setting, in Innovation Policy and the Economy’, in A.B. Jaffe, J. Lerner and S. Stern (eds), *Innovation Policy and the Economy*, volume 1, Cambridge US, MIT Press, 2001.

5 European Commission, *Competition inquiry into the pharmaceutical sector*, 8 July 2009, available at: <http://ec.europa.eu/competition/sectors/pharmaceuticals/inquiry/index.html> (last visited 22 May 2011), at p. 10.

licence. Reportedly, in several cases this led to the discontinuation of the R&D project or required additional efforts to go around the obstacles”⁶.

More generally, a counterproductive effect of patents due to both their quantity and their scope is often described as the ‘anti-commons effect’.⁷ Anti-commons distinguishes itself from the description of ‘patent thickets’ in indicating in its definition already where the solution is to be found:

*“a **coordination** breakdown where the existence of numerous rights holders frustrates achieving a socially desirable outcome” (emphasis added)⁸.*

Many of these phenomena are however hard to prove in a consistent manner and it is even harder to explain whether and how they influence innovation. After all, which type of innovations are we talking about, and how to measure innovation: high tech v. low tech; incremental innovation v. ‘breakthrough’ innovations; manufacturer innovation v. end-user innovation; innovation in small firms v. innovation from multinationals; innovation in which part of the world; innovation in which sectors; which technology?

Defensive patenting, where patents are being applied for or purchased just to prevent litigation - an active use of patents by competitors - is another, yet more tangible strategic use of the system. It goes along the inflation of patents and shows a use of the system which has little to do with incentivising innovation anymore. More means, money and strategic constructions, often via Non-Practising Entities (‘NPEs’), go into defensive activities:

“In early July, the bankrupt tech company Nortel put its 6,000 patents up for auction as part of a liquidation. A bidding war broke out among Silicon Valley powerhouses. Google said it wanted the patents purely to defend against lawsuits and it was willing to spend over \$3 billion to get them. That wasn’t enough, though.

The portfolio eventually sold to Apple and a consortium of other tech companies including Microsoft and Ericsson. The price tag: \$4.5 billion dollars. Five times the opening bid”.⁹

⁶ *Ibid.*, at p. 16.

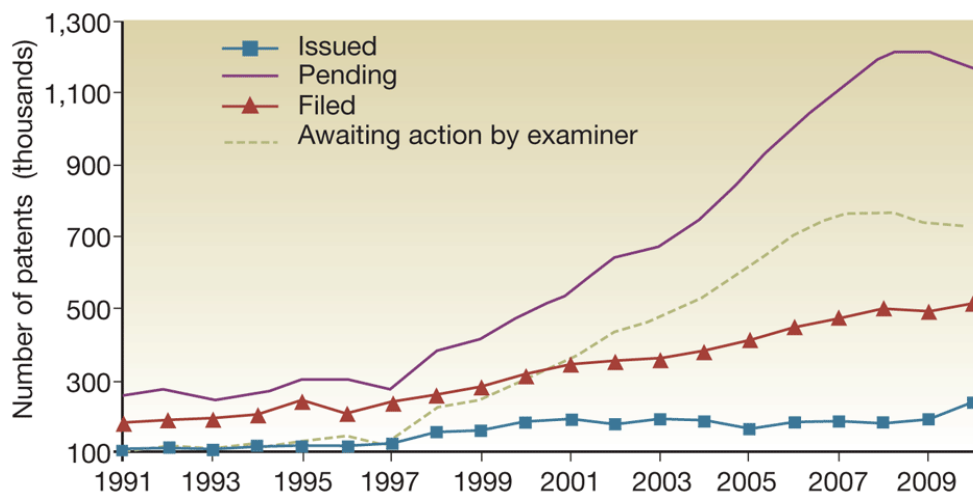
⁷ Alternative methods of protection and distribution have been proposed in this context. Jerome Reichman for instance suggests a liability regime to replace patent protection. The essential effect of such a system would be that one can no longer exclude third parties from access to technologies as is the case with the patent system, J. Reichman and K. Maskus, *The Globalization of Private Knowledge Goods and the Privatization of Global Public Goods*, Cambridge, Cambridge University Press, 2005. Similarly, the so-called creative commons approach, essentially rooted in copyright law, seems to increasingly influence patent law as well.

⁸ See: M.A. Heller and R.S. Eisenberg, ‘Can Patents Deter Innovation? The Anticommons in Biomedical Research’, 280 *Science* (1998), pp. 698-701; and A.B. Jaffe and J. Lerner, *Innovation and its discontents: How our broken patent system is endangering innovation and progress and what to do about it*, Princeton, Princeton University Press, 2007.

See also, from a competition law point of view: E. Teong See, ‘Revisiting Anticommons and Blockings in the Biotechnology Industry: A View from Competition Law Analysis’, 11 *Journal of World Intellectual Property* 3 (2008), pp 139-175.

It is fair to presume that patents that are only purchased for defensive matters are likely to be poor quality patents, or at least that they are not covering important contributions to the state of the art. What is mainly avoided by players acting along this scheme of defensive patenting is indeed the *unknowing* infringement of competitors' patents. However: what is society getting back from such patents? The level of defensive patent activities is indicative for the system's malfunctioning, and it roots in the inflation of patents. Patent inflation hereby has two components: the number of patents (and patent filings) on one side, and their voluminosity on the other.¹⁰

The number of patents and patent applications keep on rising¹¹. According to the WIPO, patent applications worldwide (covering around 110 patent offices) rose from 926 008 in 1985 to 1 907 915 in 2008. Over the same period, the actual grant of patents rose from 394 645 to 777 556. An estimated 6.7 million patents are in force across the world.¹² The graph below looks at patents awaiting examiner action, pending, filed and issued at the USPTO during 1991–2010 (in thousands), and captures this increase¹³.



9 Ron Bailey, When Patents Attack, <http://www.npr.org/blogs/money/2011/07/26/138576167/when-patents-attack> (last visited 22 May 2013).

10 See: Archontopoulos, E., Guellec, D., Stevnsborg, N., Van Pottelsberghe, B., and N. Van Zeebroeck, (2007), "When Small is Beautiful: Measuring the Evolution and Consequences of the Voluminosity of Patent Applications at the EPO", Information Economics and Policy, vol. 19, pp.103-132.

11 http://www.wipo.int/export/sites/www/freepublications/en/statistics/943/wipo_pub_943_2012.pdf.

12 Although it must be said the patent growth rate is slowing down in the past years. Statistics available at:

<http://www.wipo.int/ipstats/en/statistics/patents/>.

For an overview of patent granted, this USPTO link appears useful:

http://www.uspto.gov/web/offices/ac/ido/oeip/taf/cst_utl.htm.

13 Source: USPTO Performance and Accountability Reports.

Patent examiners are thus confronted to an ever increasing number of patents. Simply said: this brings a need for more patent examiners and thus for more funding for patent offices. Yet, in the funding structures a number of wrong incentives show. Each system works with a different approach in the funding of its patent office, yet none of them works along a consistent decoupling of the patent office's funding from the number of patents granted.

This paper offers a small and technical insight to this debate. It gives a theoretical analysis on how patent offices are being financed, how patent costs are structured and how this can influence patent quality and quantity – a more tangible parameter than 'innovation' at large. The hypothesis in this paper is that there is a structural, financial incentive for patent offices to grant patents, and that this goes at the deficit of patent quality while it supports patent inflation.

At the center of the analysis are three issues. First, the office needing to decide on whether or not an invention should be granted a patent will have less income if it says the invention should not. Second, patent quality calls for more financial means, but this has to go through granting more patents which then leads to patent inflation and – let's take this for granted – for weaker patent quality. Third, conflicts of interests appear and (at least theoretical) objectivity seems lacking. The paper discusses these issues and suggests alternative paths in order to strengthen patent quality and increase the system's neutrality:

- What are the financial incentives for patent offices in relation to granting patents?
- What are the governance structures of patent offices in this context and how do they affect the objectivity? Are there cases of conflicts of interest?
- How to alter structures and incentives identified as being counterproductive to patent quality?

II. Patent office's financing and the structure of patent costs

Before going into the detail on the questions at the heart of this paper, the current way in which patent office' finance is organized needs to be take note of. This is essential to our analysis, yet we keep this section short for most of this information can simply be found on the websites of the relevant patent offices and has been largely documented in academic literature as well. We focus on the European Patent Office and the United States Patent and

Trademark Office. These are worldwide the most influential patent offices and both have a fundamentally different funding structure.

A. *Patent office's financing*

Different strategies have been taken around the globe when it comes to the funding of patent offices, and several options seem available. We focus, as mentioned, on the European and American Patent System.

The European Patent Office, to start with, is financed, as Article 37 of the European Patent Convention stipulates, by (a) by the Organisation's own resources; (b) by payments made by the Contracting States in respect of renewal fees for European patents levied in these States; (c) where necessary, by special financial contributions made by the Contracting States; (d) where appropriate, by the revenue provided for in Article 146 (taxes in case of additional tasks); (e) where appropriate, and for tangible assets only, by third-party borrowings secured on land or buildings; (f) where appropriate, by third-party funding for specific projects. In practice, the Office is self-financed in a direct manner (as opposed to the indirect, US system). Yet as an intergovernmental organisation, the EPO cannot become insolvent because according to the EPC its Contracting States are obliged to finance any deficit. Furthermore, it does not pay any taxes. The EPO works differently in managing its financial resources than the USPTO in the sense that the EPO owns substantial financial assets.¹⁴ In fact the EPO *manages* its finances whereas the USPTO cannot.

In the United States, the situation has recently changed after the enactment of the America Invents Act.¹⁵ Whereas before, the fees collected by the USPTO were directed into a general fund and then Congress decided how much would remain to the USPTO and how much would go to other programs and agencies; this so-called 'fee diversion' is no longer possible. There is now a reserve fund that collects the fees exceeding the amount accorded to the USPTO, and this is set aside for the exclusive future use by the USPTO.¹⁶ The figure below¹⁷ shows that the USPTO's budget requests were always below actual revenues for the fiscal years between 1993 and 2002, but above the revenues between 2003 and 2009. However, for 15 of the 20 years between

¹⁴ For concrete numbers:

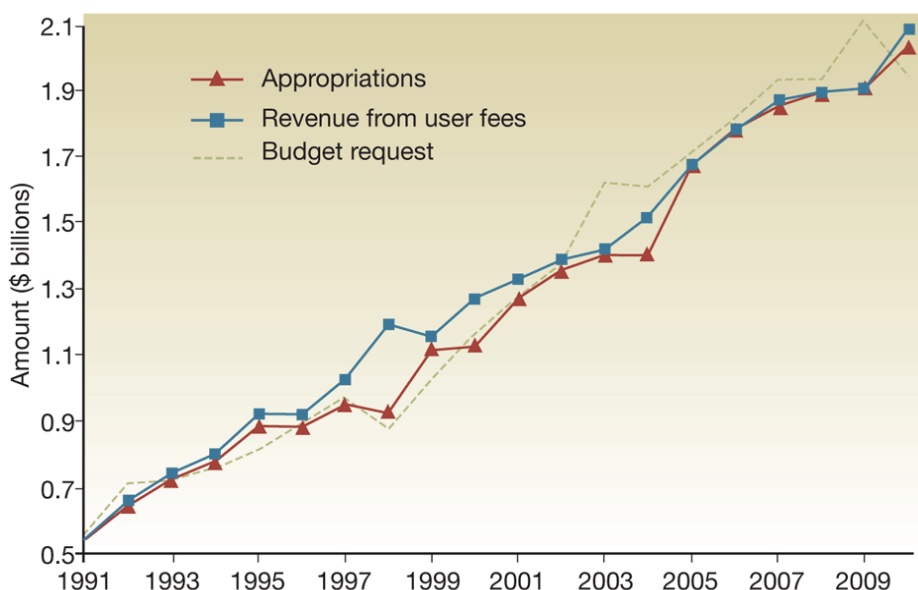
[http://documents.epo.org/projects/babylon/eponet.nsf/0/e0e217b1912e70ffc1257a30004048c7/\\$FILE/final_statements_11_en.pdf](http://documents.epo.org/projects/babylon/eponet.nsf/0/e0e217b1912e70ffc1257a30004048c7/$FILE/final_statements_11_en.pdf)

¹⁵ Signed into law on September 16, 2011: <http://www.gpo.gov/fdsys/pkg/BILLS-112hr1249enr/pdf/BILLS-112hr1249enr.pdf>.

¹⁶ <http://www.law.cornell.edu/uscode/text/35/42>.

¹⁷ Source: USPTO Performance and Accountability Reports.

1991 and 2010, appropriations to the USPTO have been consistently lower than its revenues from user fees.¹⁸



The USPTO thus (more than) regularly collects more than the allocation budget, yet cannot keep it and has only little decision power on this matter. In 2010, for instance, 71 million \$ of user fees was denied to the USPTO. In 2011, it amounted to almost 100 million US Dollar.¹⁹ However, there still is a linkage between the number of patents issued and the revenue at the end of the day.

B. Patent costs and patent fees

On the fee side, it is observed that the EPO has decreased its fees in the past decades, whereas the USPTO has kept its fees stable. Nonetheless a patent at the USPTO in theory still costs 2 to 3 times as much at the EPO when one does not take into account litigation cost and various transaction costs made for the monitoring of patents for instance (e.g. patent landscaping, etc). Studies therefore show that:

“the European patent system is much more expensive than the US or Japanese patent systems. A European patent that is renewed for 20 years in 3 (13) EPC Member states costs more than EUR 40,000 (120,000), against about EUR 14,500 and EUR17,300 for the US patent system and the Japanese patent system, respectively. A European patent designating 13 countries appears

¹⁸ <http://www.nature.com/nbt/journal/v30/n2/full/nbt.2110.html>.

¹⁹ On the concrete USPTO budget: <http://www.osec.doc.gov/bmi/budget/10BIB/PTO.pdf>.

to be nearly 11 times more expensive than a U.S. patent if process and translation costs are considered.” (emphasis added).²⁰

Discussing costs and fees calls for many clarifications. Which ‘patent costs’ are we talking about? Patent fees, yes; but which patent fees: patent application filing fees; patent search fees; patent examination fees; patent post-allowance fees; patent extension of time fees; patent maintenance fees; miscellaneous patent fees; post issuance fees; patent trial and appeal fees; patent petition fees; patent service fees; patent enrollment fees²¹? On what do these fees depend: on the number of claims; on whether there is electronic filing or paper filing – and how to factor this in an analysis on the innovation or patent quality effect? How to find an average anyway, knowing that fees are different from one patent to another? Finally, what else is there but fees: translation costs; attorney costs (already in preparing the patent application); litigation costs; costs for patent landscaping; costs for examination; other costs – reminiscing that costs may be technology dependent as well?²² Much literature on optimal patent costs is available. Together with Van Pottelsberghe one can however read the complexity of patent cost evaluations:

“Evaluating the cost of a patent is a complex matter, especially for the purpose of an international comparison. For a single region, the cost of patent will depend on the size and technological complexity of the patent, on the chosen patent procedure, on the desired duration for the patent protection, on the quality of professional services and on the targeted geographical coverage (within the European patent system, once a patent is granted, it must be translated and validated in each targeted national patent office). In other words, any evaluation of the cost of a patent is tentative and must be considered as a broad average” (emphasis added).²³

Most recently a comprehensive study for the EPO has reported that investigated offices (the EPO + 6 patent offices in Europe) are considering high procedural fees to be politically unacceptable. The main income of the self-funded patent office comes from renewal fees²⁴, which serve to compensate for

20 Van Pottelsberghe, The cost factor in patent systems, CEB Working Paper N° 06/002, 2006, http://www.uni-lj.si/files/ULJ/userfiles/ulj/razis_razv_projekti/intelektualna_lastnina/%C5%A0tudija-The%20cost%20factor%20in%20patent%20systems.pdf (last visited 10 June 2013).

21 Cf. For instance: <http://www.uspto.gov/web/offices/ac/qs/ope/fee100512.htm>.

22 See Van Pottelsberghe, B., D. François, (2006), “The Cost Factor in Patent Systems”, *CEPR Discussion Papers*, no. 5944.

23 See: http://www.uni-lj.si/files/ULJ/userfiles/ulj/razis_razv_projekti/intelektualna_lastnina/%C5%A0tudija-The%20cost%20factor%20in%20patent%20systems.pdf

24 Baudry, M., and B. Dumont., (2006), “Patent Renewal as Options: Improving the Mechanism for Weeding out Lousy Patents”, *Review of industrial Organisation*, vol. 28, pp. 41-62; and Gans, J. S., King, S. P., and R. Lampe, (2004), “Patent Renewal Fees and Selffunding Patent Offices”, *Topics in Theoretical Economics*, vol. 4 pp.1-13.

low procedural fees (although the procedural costs are the highest – this is a construction to enable cheap, ‘democratic’ entry into patent applications and allows for inventors to commercialise before being charged high costs²⁵):

“The overall conclusions from this review can be summarised in the following two points:

(a) Even if all NPOs adopt a traditional fee policy based on low procedural fees, the relatively sophisticated procedural fees set by some offices indicate that they recognise the important role that procedural fees can play in shaping applicants’ behaviour.

*(b) The NPOs’ financing status influences fee policy. In the given sample of NPOs, renewal fees are more progressive over the years of patent lifetime with statefinanced NPOs than with self-funded NPOs”.*²⁶

Since national patent offices do rely on renewal fees but mostly in relation to patents granted at the EPO level, the direct financial incentive to grant a large number of patents exists rather at the regional, EPO level than at the national level.²⁷ However, since the members of the EPO administrative council also run national patent offices this distinction appears fairly irrelevant and rather point at a need to subject the administrative structures of the EPO to an objectivity test.

²⁵ “The paradigm ‘the more applications the better’ is the main rationale behind the traditional fee structure adopted by patent offices around the world: procedural fees are set very low in order to make the system widely accessible, and unsuccessful applications are subsidised by the renewal fees on successful applications. The validity of such a system relies upon the implicit assumption that patent offices have endless resources. However, the surge in patent filings experienced in the last decades suggests that the scarce resource is no longer patenting activity, but patent offices’ capacity to process patent applications.” ²⁵ Study for the EPO on the Economic Dimensions of the Fee Structure in the European Patent System, 2010, available at: [http://documents.epo.org/projects/babylon/eponot.nsf/0/D079F04A877906E7C1257A6F0058870E/\\$File/economic_dimensions_fee_structure_en.pdf](http://documents.epo.org/projects/babylon/eponot.nsf/0/D079F04A877906E7C1257A6F0058870E/$File/economic_dimensions_fee_structure_en.pdf) (last visited 1 June 2013).

²⁶ Study for the EPO on the Economic Dimensions of the Fee Structure in the European Patent System, 2010, available at: [http://documents.epo.org/projects/babylon/eponot.nsf/0/D079F04A877906E7C1257A6F0058870E/\\$File/economic_dimensions_fee_structure_en.pdf](http://documents.epo.org/projects/babylon/eponot.nsf/0/D079F04A877906E7C1257A6F0058870E/$File/economic_dimensions_fee_structure_en.pdf) (last visited 1 June 2013).

See also the 2009 Roadmap on sustainable financing and fee reform, Submitted by President of the European Patent Office to the Administrative Council of the European Patent Office, available at: <http://www.suepo.org/public/ec09100.pdf> (last visited 5 June 2012).

²⁷ Study for the EPO on the Economic Dimensions of the Fee Structure in the European Patent System, 2010, available at: [http://documents.epo.org/projects/babylon/eponot.nsf/0/D079F04A877906E7C1257A6F0058870E/\\$File/economic_dimensions_fee_structure_en.pdf](http://documents.epo.org/projects/babylon/eponot.nsf/0/D079F04A877906E7C1257A6F0058870E/$File/economic_dimensions_fee_structure_en.pdf) (last visited 1 June 2013).

See also the 2009 Roadmap on sustainable financing and fee reform, Submitted by President of the European Patent Office to the Administrative Council of the European Patent Office, available at: <http://www.suepo.org/public/ec09100.pdf> (last visited 5 June 2012).

III. Conflicts of interest in patent offices and patent costs – the (missing) link to patent quality

At the heart of the patent system lies the idea that innovation should be incentivised. That is the only purpose of the system, since the idea of a ‘natural property right’ over intellectual activity is not widely accepted. However, are the incentives inside of the system in line with this aim? What makes a patent office successful? Is it whether it contributed to innovation; and then to global innovation or to local innovation? Given the complexity of such a measurement – it is in fact questionable whether this is measurable at all – it is likely that more down-to-earth factors will decide on whether a patent office is considered to function well; certainly looking from the insight perspective.

For a long time, success was measured simply by the number of patents issued: patent activity was and still is an indicator of innovative activity in a given country. The number of patents issued still is a factor in the yearly calculations on countries’ competitiveness by most bodies conducting such studies. An innovative country is one with many patents, and a successful patent office is one that issued many patents. Now we all know that this is a wrong statement and that patent quality is now on most agencies’ agendas. Yet, are the incentives for the patent offices already adapting to this change as well?

A. *The patent quality debate*

Starting with the United States Patent and Trademark Office, one can see that it now has patent quality as its ‘strategic goal’ number one (“Optimize Patent Quality and Timelines”).²⁸ The USPTO also no longer measures patent quality by the final rejection and allowance compliance rate²⁹ combined with the in-process compliance rate³⁰ - a fairly limited set of elements – but uses a more complete metric composed of 7 factors.³¹ There is however no link established

28 This includes six objectives: Objective 1: Re-Engineer Patent Process to Increase Efficiencies and Strengthen Effectiveness Objective 2: Increase Patent Application Examination Capacity; Objective 3: Improve Patent Pendency and Quality by Increasing International Cooperation and Work-Sharing; Objective 4: Measure and Improve Patent Quality; Objective 5: Improve and Enhance the Patent Appeal and Post-Grant Processes; Objective 6: Develop and Implement the Patent End-To-End Processing System (To be found on: http://www.uspto.gov/about/stratplan/ar/2010/mda_02_03.html (last visited 13 May 2013)).

29 The correctness of the examiners overall determination of the patentability of the claims.

30 The quality of the actions taken during the course of examination.

31 „The newly added factors measure: (1) the quality of the examiner’s initial search, (2) the degree to which the first action on the merits follows best examination practices, (3) the degree to which global USPTO data is indicative of compact, robust prosecution, and (4) the degree to which patent prosecution quality is reflected in the perceptions of the examination corps as measured by internal quality surveys”.

See the Adoption of Metrics for the Enhancement of Patent Quality Fiscal Year 2011, http://www.uspto.gov/patents/init_events/qual_comp_metric.pdf (last visited 13 May 2013).

to the internal funding structure and patent quality. In the United States, this is perhaps more logical than elsewhere since the USPTO's funding is less directly connected to the number of patents granted as compared to other systems.

Turning to the European Patent Office one can see that it was ranked first for patent quality among the world's five largest patent offices in a 2011 survey of corporate and private practice IP professionals conducted jointly by Thomson Reuters and Intellectual Asset Management (IAM) magazine.³² However the study analyses 'perceived patent quality' and is therefore perhaps of less value than is being announced on the Office's website. The EPO indeed seems to be reacting in a slower manner than the USPTO, still setting 'priorities for investigation' in 2012³³ whereas a year earlier, the matter of patent quality was even mentioned by the G-8 in their official statement:

*"Renewing our support for the principles of the patent system, we attach great importance to its promotion and development. We encourage increased international action to strengthen patent quality, and call for improved diffusion of patent information, particularly critical for SMEs and research centres. We support transparency in technology markets and call for the improvement of market places for trading rights."*³⁴

The EPO however now has issued and 'Handbook of Patent Quality Procedures'³⁵ and recently, the Economic and Scientific Advisory Board (ESAB), the advisory board to the EPO, published its findings from a number of high-level workshops held on the issue of patent quality at the EPO. The report offers an interesting bridge to our paper and the next sections since it mentions that costs are a real issue for some inventors and innovative firms.³⁶ However, the ESAB does not consider that there is an urgent need for a

32 "According to the survey, 74% of in-house counsels thought that the quality of patents granted by the EPO is "excellent or very good" (up from 71% last year), with 62% of the private practice attorneys sharing this view (up from 56% last year). The Japan Patent Office came in second with 57% and 43% respectively, followed by the United States Patent and Trademark Office (50% and 37%), the Korean Intellectual Property Office (34% and 24%) and the State Intellectual Property Office of the People's Republic of China (23% and 13%)" (emphasis added).

<http://www.epo.org/news-issues/news/2011/20110628.html> (last visited 13 May 2013).

33 "Patent thickets, patent fees and patent quality: Advisory Board sets priorities for investigations": <http://www.epo.org/news-issues/press/releases/archive/2012/20120124.html> (last visited 13 May 2013).

34 G-8 Deauville Declaration: http://ec.europa.eu/commission_2010-2014/president/news/speeches-statements/pdf/deauville-g8-declaration_en.pdf (last visited 23 April 2013).

35 Handbook of quality procedures before the EPO, March 2012, 1st Edition, [http://documents.epo.org/projects/babylon/eponet.nsf/0/45c8bcf3d8593a00c12579a50052bd6a/\\$FILE/Handbook_of_quality_procedures_en.pdf](http://documents.epo.org/projects/babylon/eponet.nsf/0/45c8bcf3d8593a00c12579a50052bd6a/$FILE/Handbook_of_quality_procedures_en.pdf).

36 Recommendations for improving the patent system 2012 Statement by the EPO Economic and Scientific Advisory Board, February 2013, [http://documents.epo.org/projects/babylon/eponet.nsf/0/835DA6DA218CB760C1257B2C004E809E/\\$FILE/ESAB_statement_en.pdf](http://documents.epo.org/projects/babylon/eponet.nsf/0/835DA6DA218CB760C1257B2C004E809E/$FILE/ESAB_statement_en.pdf) (last visited 23 April 2013).

fundamental patent fee reform though for some “fine tuning without making the European patent system more complex”:

“As fees at national level are heterogeneous, consistent and harmonised fee policies at European level could help to avoid low-quality applications, reduce complexity and discourage certain patent filing practices. Furthermore, the EPO could consider changing the timing of specific procedural fees to steer applicant behaviour, provided those changes do not further complicate the system. Any change to the existing fee structure should have a clear rationale, and beware of unintended consequences. Wherever possible, fee changes should be accompanied by cost-benefit analysis beforehand, and an impact assessment afterwards.”³⁷

Summarizing, for both the USPTO and the EPO, the matter of patent quality does not appear linked to the offices’ respective funding structure, or at least this has not considered as an angle worth to investigate. Costs and fees are discussed in this context but not considered worth much attention. The question addressed in this paper may therefore in fact be considered irrelevant, but it could also be filling a research gap. Let’s go back to our initially identified issues and take them up one by one.

B. The wrong incentives

It was mentioned before that a number of issues appear as striking conflicts of interest when looking at the way patent offices’ are funded, when considering objectivity standards taken for granted today. It is also observed that this mainly applies to the EPO, although a clear decoupling of the office’s income from the number of patents granted is not available in any self- or even state-funded patent office.

First, the office needing to decide on whether or not an invention should be granted a patent will have less income if it says the invention should not. The financial incentives for the office appear wrong; looking at the need to grant patents only to true contributions to the state of the art only and looking at patent inflation. In fact, this is almost a classical example of a conflict of interest. In times of patent inflation and patent thickets, ‘more patents = more income’ does not appear as a sane starting point. An easy grant of patents without the criteria for patentability having been checked properly furthermore moves the costs away from fees to litigation costs, to private actors, to competitors or so to say ‘innocent’ bystanders. As a result, costs on society are high.

³⁷ Ibid at p. 4.

Second, patent quality calls for more financial means, but this means granting more patents; which then leads to patent inflation and thus to weaker patent quality. This issue builds on the previous, of which it shows the larger implications and in this case in fact a vicious circle.

C. Enhancing patent quality by adjusting the financial incentives?

Having identified these theoretical obstacles, counterproductive incentive structures, two questions appear:

- To what extent are the described conflicts really impacting the inflation and quality of patents: is there empirical evidence or are there intrinsic reasons to address them?
- How to redress the situation, if the prior question is answered positively?

The hypothesis in this paper is that there is a structural, financial incentive for patent offices to grant patents. A causal link to the inflation of patents has however not been demonstrated, and this is up for further research by non-lawyers. Against the relevance of our hypothesis however appears that also at state-funded patent offices the inflation of patents is measurable. On the other side, it must be said that the funding of these offices is not really decoupled from the number of patents they grant since this is still used as the basis for their budgetary requests.

Empirical evidence may thus not be available, yet a theoretical analysis of this matter gives clear results. The importance of getting incentive structures right, the importance of theoretical objectivity can hardly be at doubt, certainly not in the aftermath of events such as the recent banking crisis. Conflicts of interest, whether resulting in empirically measurable downsides or not, have to be avoided or remedied.

Hence continuing the analysis, the question appears how to go about it. In the next sections, different options are considered.

1. Higher fees?

Rassenfosse, in 2011, has established an empirical link between the rise of patents in number and the evolution of fees. It is unclear to what extent it is contradictory to Van Pottelsberghe's results – yet having computed entry fees and fees up to the grant for a period ranging from 1980 to 2007 from Europe (EPO), the US (USPTO) and Japan (JPO) and assuming applicants were large entities, he came to a conclusion that:

“The empirical exercise confirms that fees can actually be taken as a factor influencing the propensity to patent, and hence can be considered as an effective policy leverage by policy makers.... About 20% of the growth of patent applications at the EPO in the mid-1990s can be attributed to the fee policy adopted over that period... Whether an increase in fees is socially desirable remains an open question. To the best of our knowledge, there exists no study that explicitly looks at this issue.”³⁸

It is clear that low entry fees opens the system to a low-cost strategic use of applications, which are recognized to increasingly offer economic advantages using amongst others the uncertainty created over whether or not there will be a patent over the subject at stake. We follow the Study for the EPO on the Economic Dimensions of the Fee Structure in the European Patent System to explain that there are several economic rationales calling for a welfare-enhancing use of procedural fees in this context. Several negative externalities on society appear when considering strategic patent applications. They absorb the office’s resources which could otherwise be used in relation to patent applications truly aimed at obtaining a patent and thereby create legal uncertainty. Furthermore, they fuel a loop in which competitors are incentivised or even obliged to proceed in a similar manner in order to remain competitive.

A first possible scenario would thus indeed be to charge higher entry fees in the hope to provoke a ‘natural selection’: shaky patent applications would no longer be made since the costs of it are too high. Another scenario would also enhance renewal fees, additionally ‘taxing’³⁹ elder innovation and counting on a reduction of patents while keeping the patent office’s funding at similar levels than before. This would enable the devotion of more resources to the analysis of less patent applications and thus increase patent quality. Furthermore, while decreasing the number of patents it would also work against so-called patent thickets and render access to innovation cheaper:

³⁸ Full text: “The empirical exercise confirms that fees can actually be taken as a factor influencing the propensity to patent, and hence can be considered as an effective policy leverage by policy makers. The sharp drop in fees orchestrated by the EPO, in both absolute and relative terms, and the stable, though very inexpensive, fee policy of the USPTO, combined with the negative and significant price elasticity of demand for patents, certainly did contribute to the observed increase in patent filings. About 20% of the growth of patent applications at the EPO in the mid-1990s can be attributed to the fee policy adopted over that period. Part of the solution to the current backlog crisis would therefore be to adopt a more stringent fee policy... Whether an increase in fees is socially desirable remains an open question. To the best of our knowledge, there exists no study that explicitly looks at this issue. A useful extension to the present work would thus be to investigate whether higher fees weed out low quality patents.”

³⁹ This also brings us to discuss the legal nature of entry fees. Are they a tax imposed for correcting the negative externalities imposed on society? Are they a payment for the service of the patent office?

“EPO and national patent fee policies are not coordinated across Europe. However, there is a shared preference in Europe for a ‘traditional patent fee policy’ that is characterized by low procedural fees, designed to make the system widely accessible and to promote innovation, and progressively increasing renewal fees to induce patent holders to give up their patent rights and to subsidise examination costs incurred for unsuccessful applications.

In a time of increasing patent applications, many of which will never be granted, and of increasing backlogs at patent offices, the traditional patent fee policy looks questionable. It is questionable, too, whether low entrance fees to the patent system are an appropriate way to foster innovation.”⁴⁰

However, these scenarios presuppose many correlations and causalities that are not evident or easy to measure here: more expensive patents will lead to less applications and hence less patents; this will lead to a better quality of patents; less patents will also lead to greater accessibility of inventions; greater accessibility would lead to more innovation. Furthermore, this would come with a range of downsides especially for financially less powerful innovators which for instance may continue to face (defensive) patenting activities from wealthy entities while not being able to do so themselves. Fewer patents may also lead to less income for innovators.

Also, the main effect on innovation of increasing fees would thus be found in discouraging certain inventors from applying for a patent. There does not appear be a strong reason for this. What must be achieved is to make sure only true inventions are being granted a patent, while this possibility should be open to as many as possible. Patents should be open to inventors without financial hurdles leading to discrimination. The impact of fees on patent applications will indeed be different for small, medium or large enterprises. Raising patent fees may mean excluding the weaker, leading to more concentration and less competition. Otherwise, flanking measures correcting this effect must be advanced along an eventual increase in costs. Today, SMEs have reduced fees in the USA and Japan, but large firms still account for the most important share of applications.

Most importantly, the hypothesis presupposes that raising patent costs would lead to fewer applications and in the end thus also to fewer patents, which is however uncertain. Even with more expensive patents, patent offices may be tempted to still grant patents as easily as before because the paradox remains that their income depends on the grant of patents. Furthermore, the actual fees only are a small portion of the costs of a patent application, mainly composed

⁴⁰ Study for the EPO on the Economic Dimensions of the Fee Structure in the European Patent System, executive summary, 2010, available at: [http://documents.epo.org/projects/babylon/eponot.nsf/0/D079F04A877906E7C1257A6F0058870E/\\$File/economic_dimensions_fee_structure_en.pdf](http://documents.epo.org/projects/babylon/eponot.nsf/0/D079F04A877906E7C1257A6F0058870E/$File/economic_dimensions_fee_structure_en.pdf) (last visited 1 June 2013).

by attorney fees, and this is technology specific. The risk thus exists that the only effect of increasing patent fees would be ... to increase patent fees. Finally, wouldn't more expensive patents simply lead to an increase in the use of other protection tools such as secrecy and in fact lead to more opacity and difficulties in accessing innovation?⁴¹

What must be achieved for is better quality in a neutral system enabling a diversity of players to apply. The rest should follow. The temptation to apply for patent protection and strategically use the value of patent applications will decline once it is clear that patents are not granted easily. When patent quality is assured, then patents will be granted for what is considered genuine innovation, leading to a selection regardless of financial means of the applicant. Enhancing fees will not alter the incentive structures to issue patents of the offices themselves, and is likely to have little effect on the actual costs in the end.

2. Decoupling income from quantity?

An option addressing the root of issue of counterproductive incentives at patent offices would to decouple the office's income from the number of patents granted. It appears logical to split the examination and its fees from the decision to grant the patent and the fees related thereto. The decision is simple: renewal fees should not go to the patent office. At least, the income stemming from these fees should not be connected to the office's budget. In such a mixed system, the office's budget could be made dependent on the number of examinations that are conducted, but not on the number of patents granted. The patent office should be judged upon, and funded by, the quality of its examination. This option is so to say a USPTO+ option.

It is to some extent similar to what happens at the WIPO for instance. Here, patents are not actually being granted yet the WIPO is nonetheless financed through administrative and examination fees. In fact, the WIPO generates

⁴¹ Cf. 41 Study for the EPO on the Economic Dimensions of the Fee Structure in the European Patent System, executive summary, 2010, available at: [http://documents.epo.org/projects/babylon/eponot.nsf/0/D079F04A877906E7C1257A6F0058870E/\\$File/economic_dimensions_fee_structure_en.pdf](http://documents.epo.org/projects/babylon/eponot.nsf/0/D079F04A877906E7C1257A6F0058870E/$File/economic_dimensions_fee_structure_en.pdf) (last visited 1 June 2013).

"29 Applicants' sensitivity to filing and search fees is very limited. The overwhelming majority of applicants who file with the EPO are willing to pay a relatively high price for a service which is not perceived to be closely substitutable by the national grant procedures.

30 Therefore, in order for these fees to have a tangible sorting effect, they would have to be substantially increased. However, such a change is not recommended because it would impose an entry cost which would be prohibitively high for some applicants, while the benefits are likely to be uncertain. There is no guarantee that the reduction in the number of filings that would result from higher filing and search fees would translate into a significant reduction in patent backlogs."

nearly 90 percent of its annual budget through its international registration and filing activities.⁴²

However, at the domestic level, this option partly brings us back to the previous. Reminiscing that patent office's mainly rely on renewal fees, but that the true costs for them are made in the pre-grant phase, procedural fees would likely have to be enhanced to ensure a stable income and enough funding for a qualitative check. Yet, in that case the question of social costs comes back and the Ping-Pong game starts all over again.

What seem to be needed are options where the revenue of patent offices stemming from non-examination matters should be subtracted from the patent offices control and their incentive structures. Creativity is needed here. Perhaps, one would have to take things back to the basics and wonder what would be the most efficient way of organising patent examinations globally: the next section.

3. A single, international examination?

Taking the matter a step further, perhaps the most radical, but also the most logical option when considering transaction costs and the universal nature of innovation, would be to have a single, internationally valid patentability check. That this would lead to a dramatic save in transaction costs does not need further explanation. Today, either examinations are done almost from scratch in each patent office; or the patent office does not actually check but instead leaves the matter up to invalidity procedures: to third party opposition. It is clear that neither of these options are satisfactory.

An internationally recognized body⁴³ would be responsible for checking the basic patentability along the criteria of novelty, inventiveness and industrial application; along the TRIPs minimum standards (which would then have to be defined precisely, but are already harmonized to a large extent today). That office would not be rewarded on any other basis but the examination fees and the national patent offices could come to enhance this activity in taking over the validation and administrative follow-up of the patent in their country, including the renewal procedures. It may also still be responsible for checking country specific requirement such as the ordre public and morality exceptions.

⁴² The remainder comes from contributions by Member States. WIPO has an annual income of over 300 million Swiss francs.

⁴³ In this scenario, utopian to some extent, the WIPO could be designated, on the basis of its PCT experience, as a body which can decide on patentability.

Examination fees would be set at a level high enough to ensure income for a qualitative check, and hence be higher than those at national patent offices today, but the application would only have to pay this once. Part of the renewal fees could then also serve to finance the international body, which in the end carries the bulk of the work, and thus to keep examination fees low. Alternatively, part of the renewal fees could also go to a fund responsible for technology transfer licenses to developing and least developed countries.

This breaks the circle of subjectivity and would dramatically lower the transaction costs of the patent system worldwide.

IV. Conclusion

Starting from the paradox that patent offices have a financial interest in granting patents, it was looked at how the funding structures of patent offices can influence patent quality. A clear lack of theoretical objectivity shows: the judge (the patent office) has a direct financial interest in judging in a certain manner (granting the patent). Against the background of so-called patent inflation and an increasingly strategic, defensive use of the system; the need to analyse this incentive structure appears.

Patent offices are either state- or self-funded. Mixed types exist as well, such as the USPTO. However, there is a linkage between the number of patents issued and the revenue of the office in each of these types.

There are several avenues one could think of to remedy the inflation of patents and for instance cases of defensive patenting. Increasing fees, especially procedural (pre-grant) fees can be considered in this context. This would work against the tendency to 'apply and see', as well as against the tendency to make use of the value of the application status. However, this would come with considerable social costs and furthermore have a predictably small impact since fees only constitute a minor part of the actual costs for the applicant.

In light of the discussed negative incentive structure at the patent offices, a more fundamental approach of decoupling the office's budget/income from the number of patents granted appears logical. However, this brings the issue that the bulk of most patent offices' income stems from renewal fees (post-grant) and that this money is needed to ensure a qualitative examination (pre-grant). Different funding structures must thus be thought of; a more fundamental change may be needed.

From a global perspective and given the nature of innovation - which one can assume is relatively free from to cultural factors but can be measured by a universally accepted standard - the possibility appears to create an international body responsible for checking patentability along the criteria of novelty, inventiveness and industrial application; along the already harmonised TRIPs minimum standards. National patent offices would then enhance this activity in dealing with validation and administrative follow-up of the patent in their country, including the renewal procedures. They may also still be responsible for checking country specific requirements such as the ordre public and morality exceptions. This appears as the most difficult, but also the most fundamental, efficient option.