

PATENT FEES FOR A SUSTAINABLE EU (COMMUNITY) PATENT SYSTEM

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ABSTRACT

The objective of this report is to suggest a sustainable fee structure for the EU patent, also known as Community patent and abbreviated as “COMPAT” in the remainder of this document. In particular, the following dimensions are investigated:

- Focus on pre-grant and post-grant (or renewal) fees;
- Illustrate the differences between Euro-Direct applications and PCT applications;
- Perform a break-even analysis based on unit-costs provided by the EPO;
- Suggest and simulate the effects of a cost reduction schedule for SMEs;

The new fee schedule proposed in this report would make the European patent system more attractive with lower costs for the EU patent relative to the current European patent covering only 6 Member States. At the same time, the new schedule provides a financially sustainable model for the system by preserving relatively high absolute fees but allowing for possibilities of fee reductions for SMEs/young innovative companies and public research organisations to facilitate entry to the patent system.

Disclaimers and acknowledgments:

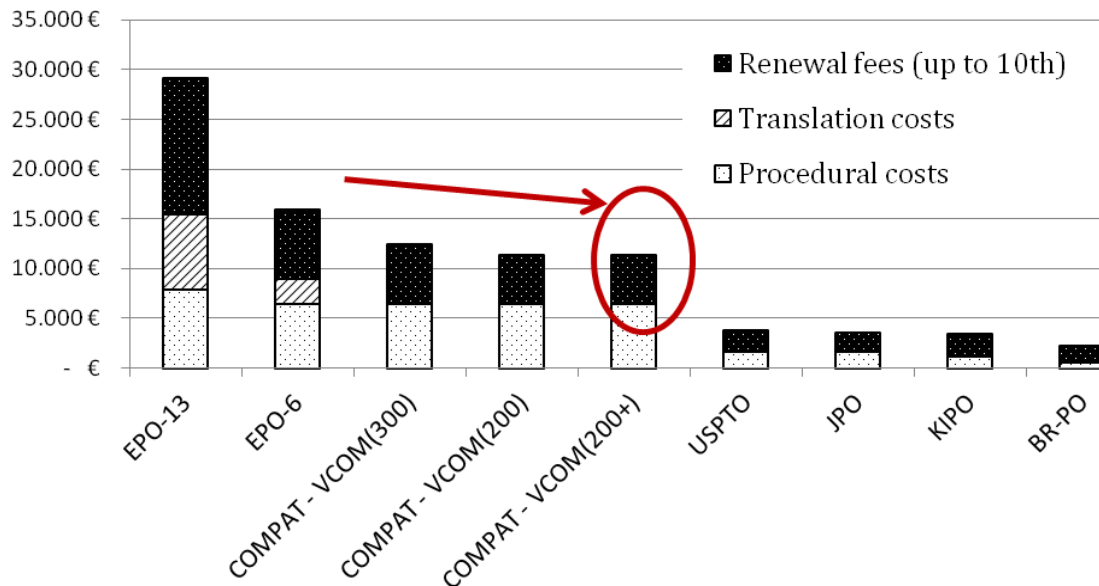
The simulations, proposals and ideas presented in this report are those of the authors and do not represent the views of the European Commission, the EPO, Bruegel or the ULB. The authors would like to thank the EPO for sharing information and data on a substantial number of requests.

1. INTRODUCTION: COST CONSEQUENCES OF THE CURRENT SYSTEM

The fragmentation of the European patent system reduces the effectiveness and the attractiveness of the European patent system, particularly through its prohibitive costs and the economic incongruities it generates (see van Pottelsberghe (2009) and Meyer and Pottelsberghe (2009)). Our recent work (Danguy and van Pottelsberghe, 2009) shows that these two failures could vanish with the implementation of the COMPAT (this term is used in the remainder of this document for the EU patent project).

Figure 1 shows the potential reduction in total patent fees (for ten years of protection) that would be achieved with the COMPAT. As compared to a current European patent validated in 13 countries, the cost would drop by about 65% (from EPO-13 to VCOM(200+)). When compared to a European patent validated in six countries (EPO-6), the reduction would be less marked, but still significant, from more than 15,000 EUR to about 11,000 EUR. These figures do naturally depend on the COMPAT having a similar pre-grant fee structure to the current European patent. Detailed fees of the COMPAT remain to be agreed.

FIGURE 1 - INTERNATIONAL COMPARISON OF PATENTING COSTS WITH COMPAT



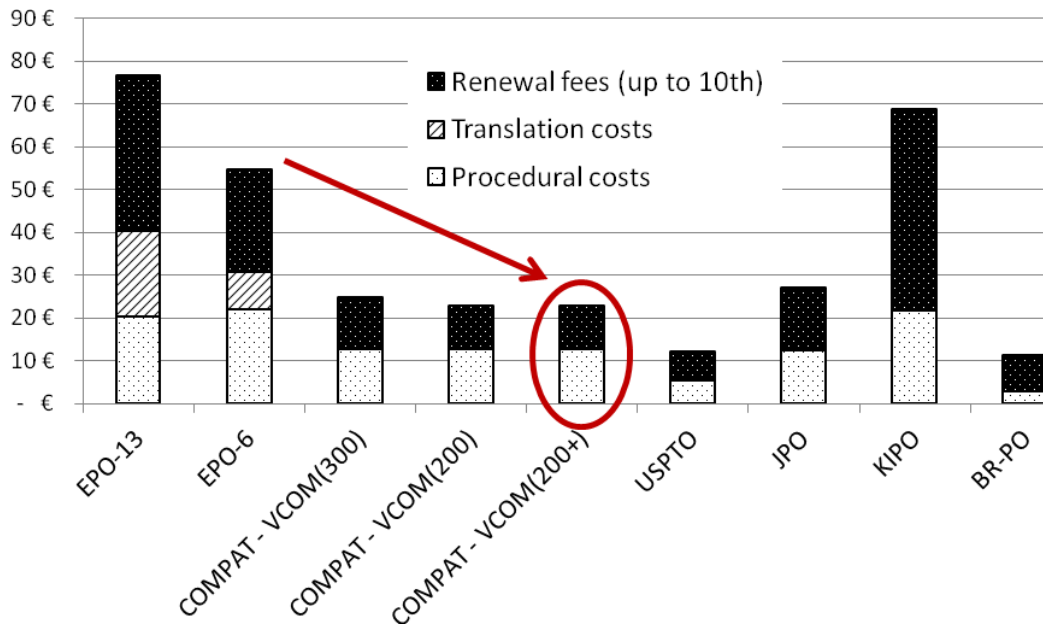
Source : Danguy and van Pottelsberghe (2009). EPO-13 and EPO-6 stand for a European patent validated in 13 and in 6 countries, respectively. COMPAT VCOM(200+) stands for the renewal fees suggested by Danguy and van Pottelsberghe (2009), starting at 600 EUR on year 6 and adding 200 EUR each year. From year 15 onwards an exponential trend is adopted. Figure 11 presents the COMPAT fee schedules.

But the real effect of the COMPAT does not appear properly in Figure 1 , because even if the absolute cost does not drop substantially from the average fees and translation costs paid for an average European patent (validated in six countries, EPO-6) to those paid for an average

COMPAT, there are still dramatic economies of scale which take place: a similar cost is paid but for an access to the entire EU market, composed of about 500 Million inhabitants. Therefore, a proper analysis of cost should also include a notion of “relative costs”, whereby the cumulated fees are divided by the population size covered by the patent. Relative fees are presented in Figure 2.

The COMPAT would induce a very significant drop in relative cost. It could actually become less expensive than Japanese or South Korean patents, in relative terms, although being still more expensive than the US patent.

FIGURE 2 - INTERNATIONAL COMPARISON OF PATENTING COSTS PER MILLION CAPITA



Source : Danguy and van Pottelsberghe (2009). EPO-13 and EPO-6 stand for a European patent validated in 13 and in 6 countries, respectively. COMPAT VCOM(200+) stands for the renewal fees suggested by Danguy and van Pottelsberghe (2009), starting at 600 EUR on year 6 and adding 200 EUR each year. From year 15 onwards an exponential trend is adopted. Figure 11 presents the COMPAT fee schedules.

The cost presented in Figures 1 and 2 reflect the current pre-grant and post grant (up to 10 years) cumulative fee schedules in Europe and other large national patent offices in the world. The next section assesses to what extent the fees in Europe contribute to cover the cost of performing search and examination services at the EPO. One should keep in mind that the pre-grant fees are received by the EPO, whereas post grant fees are collected by national patent offices that are member of the European patent convention. Half of these national post grant fees are then redistributed to the EPO.

2. CURRENT FEE SCHEDULE: BREAK EVEN ANALYSIS OF EUROPEAN PATENTS

This section analyses the extent to which the EPO fee income generated by the current European patents compensate for the cost of performing search and examination services. This incomes/costs analysis is performed for the two main routes used to file at the EPO: Euro-Direct applications and PCT applications. The former consist of priority filings directly filed at the EPO, or second filings filed at the EPO at most one year after the priority filing in a national patent office. Euro-PCT are applications that are filed at the WIPO under the PCT (Patent Cooperation Treaty) route, which provides applicants a 30 month period to decide on a potential application in other patent offices worldwide. PCT-international applications lead to the publication of a search report and non-binding opinion on patentability. Then after 30 months the applicant decides whether or not to file for an effective application at the EPO, in which case the file is called a “PCT-Regional application”, which then falls under the usual examination process.

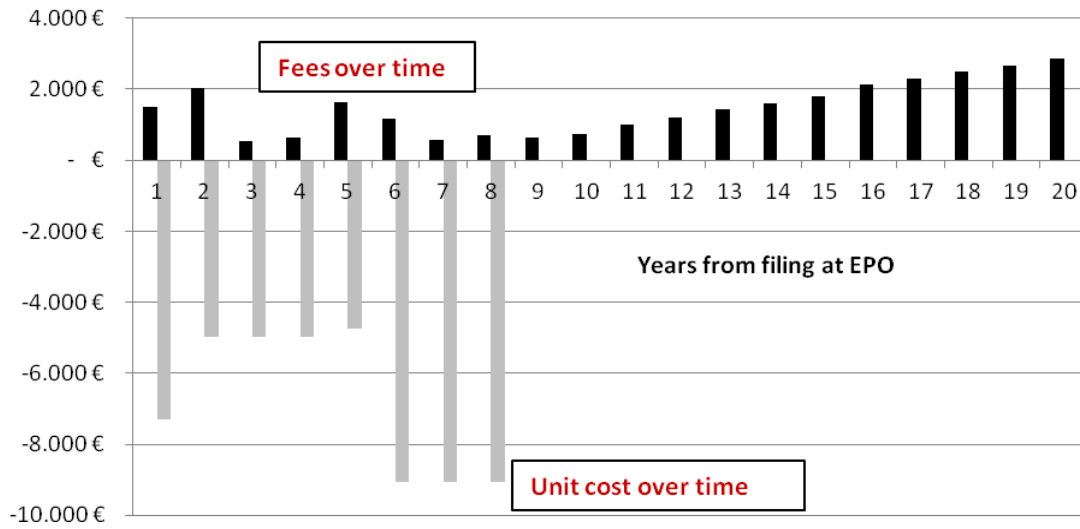
The simulations presented in the remainder of this document are performed for the total EPO applications, as well as for their two main “routes”: Euro-Direct and PCT

2.1 ANALYSIS FOR EURO-DIRECT APPLICATIONS (EP-DIRECT)

Figure 3 shows the total fees and unit costs that a patent would generate for 20 years of protection, including an appeal and an opposition. The patent is supposed to be granted at year 6 and to be validated in 6 countries (which is the average observed over the past 10 years). This ‘absolute’ representation reflects absolute amounts the EPO would receive/have to bear during the entire lifetime of a patent. It is important to keep in mind that these ‘absolute’ figures do not reflect the probabilities of survival, or the probabilities of opposition or appeal. The unit costs and fee income presented in Figure 3 would only occur for a patent enforced for 20 years and subject to an appeal and an opposition.

The unit costs essentially occur from year 1 to year 8 in the life of a patent. The peak observed from years 6 to 8 are the even split of opposition costs. The fee income follows the official fee schedule of the EPO, with filing fees, application fees, internal renewal fees, grant fees. Of the renewal fees generated by the national patent offices, 50% goes back to the EPO. The upward renewal fees trend reflects the fact that national renewal fees increase over time. The income/cost structure presented in Figure 3 occurs only for a small share of patents (those that are subject to opposition and renewed for up to 20 years in 6 countries). The patents which fall in the public domain earlier would logically have a different income (or cost) profile, and hence different net flows.

FIGURE 3 - ABSOLUTE INCOME/COST OF A EP-DIRECT PATENT VALIDATED IN SIX COUNTRIES AND RENEWED FOR 20 YEARS IN 6 COUNTRIES



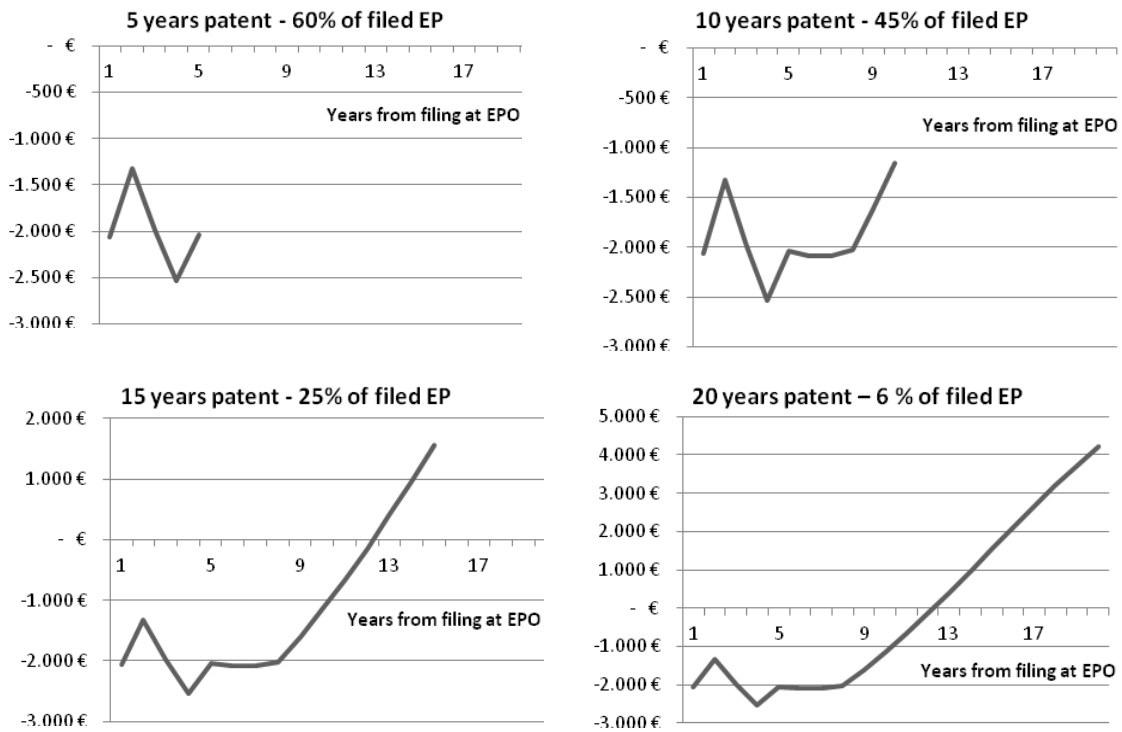
Source: The EPO provided information on unit costs (grey bars). Own computation was performed from raw data on fees (black bars). We assume an average (between paper and online version) filing fee [141€, based on the share of each type of filing in 2008], the average number of claims per patent [9% of filed patents paid on average 5*200€ as claims fee, 0.1% of filed patents paid on average 154*500€ as claim fee; Renewal fees are split between the EPO and NPO's [50%-50%], from year 6 onwards. The unit costs include handling, search, communications, examination, handling of grant. Cf. Table A.2 in appendix for the timing of each stage in the process.

Figure 4 shows the net income flows (fee receipts minus unit cost) according to the survival years of patents. For instance, a patent withdrawn after five years is associated with a net cumulated cost of 2,000 EUR for the EPO. A patent upheld for 10 years induce a net cumulated cost for the EPO of about 1,000 EUR. Patents start generating net income when being renewed at least until the 13th year. A patent upheld for 20 years would generate a net cumulated income of about 4,000 EUR. Only 25% of total applications are upheld for 15 years, and this percentage falls to 6% for 20 years patents. Empirical analysis of survival rates and their determinants are performed by van Zeebroeck (2008) and Danguy and van Pottelsberghe (2009).

The impact of the duration of a patent on the net cumulated cash flows it generates is illustrated as well in Figure 5. It clearly shows that a minority of patents, those that survive more than 13 years, and especially the 6% that are renewed up to the 20th year, compensate for the losses made on patents that are withdrawn from the EPO or that are renewed for a short period of time.

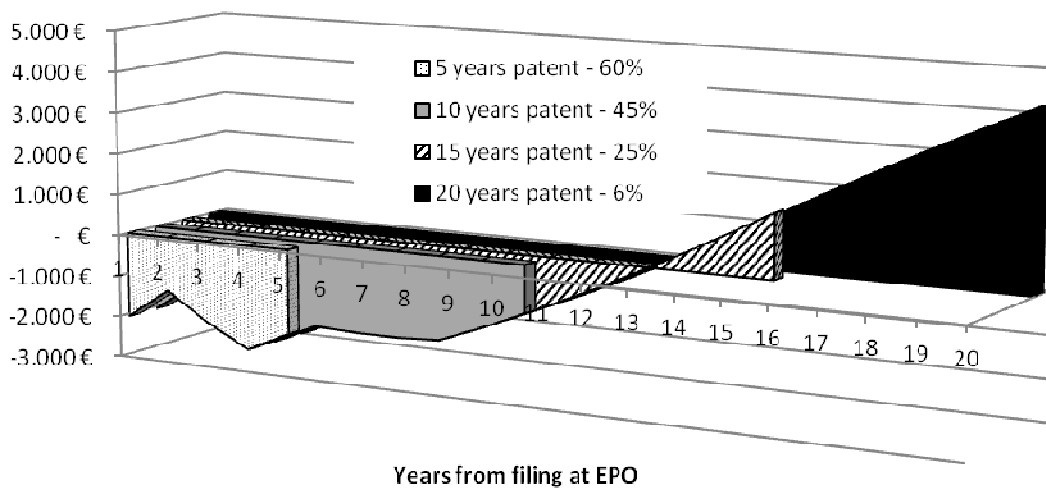
Figure 5 suggests that about 30% of the total patent applications filed at the EPO contribute to compensate for the net cumulated losses generated by the remaining 70% of patent applications.

FIGURE 4 – NET CUMULATED LOSS/INCOME AND PATENT DURATION MILESTONES



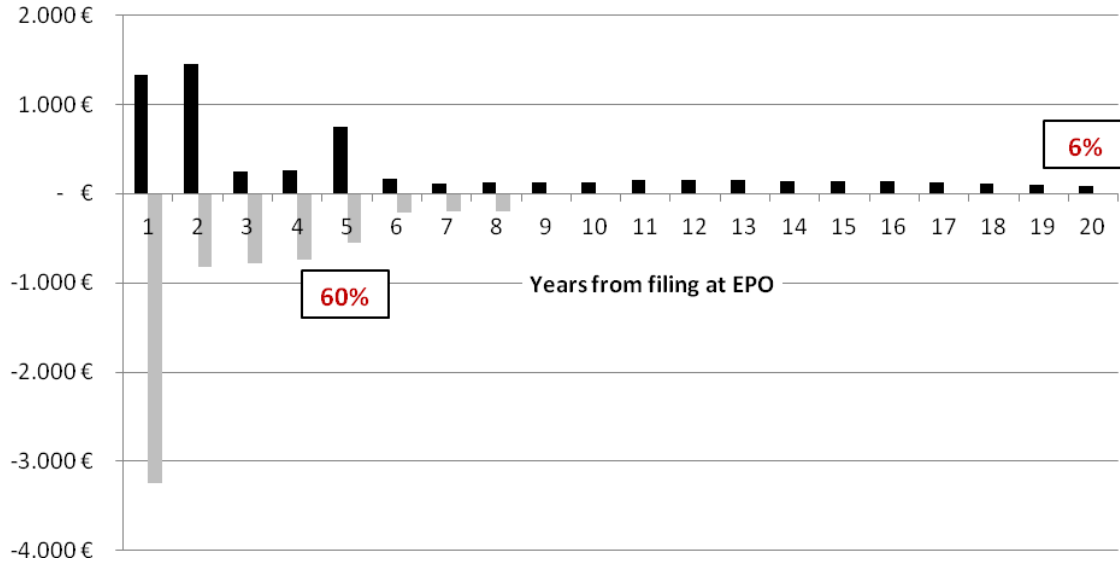
Source: own computation. Working hypotheses include probability of opposition and appeal and a discount factor equal to 5%. On average, 6% of granted patents are subject to an opposition, which takes 3 years for the EPO to decide on the case (internal cost was split on years 6-8). The number of appeal is 60% of the number of opposition cases. Since several decisions can be appealed, the related incomes/costs are split on the first 8 years. For the national renewal fees, it is assumed that an average European patent is validated in 6 countries on year 5, in 4 countries on year 15 and 2 countries on year 20 (cf. van Pottelsberghe and van Zeebroeck, 2008). A linear evolution is assumed between these 3 time references.

FIGURE 5 – NET CUMULATED LOSS/INCOME OF EURO-DIRECT APPLICATIONS



In order to compute the effective net cumulated cash flows generated by an average European patent filed directly at the EPO (called EP-direct), the net cumulated cash flows presented in Figures 4 and 5 must be weighted by the probabilities of survival. This is shown in Figure 6, which presents the fee income and unit costs generated by the average patent filed at the EPO. The renewal fees are much smaller than in Figure 3 for instance, because only a small fraction of patents (about 6%) are renewed for 20 years.

FIGURE 6 - EFFECTIVE INCOME/COSTS OF AN AVERAGE EP-DIRECT APPLICATION

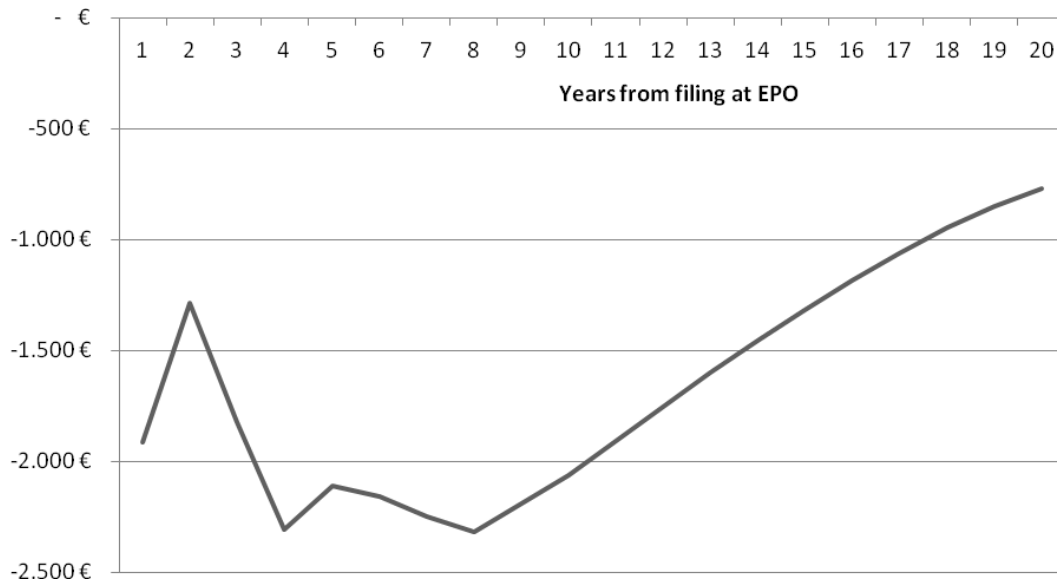


Source: The pre-grant maintenances rates are computed from the data on withdrawals at each stage of the grant process [source: EPO, year 2000 as a reference], see Lazaridis and van Pottelsberghe (2007) for an analysis of patent withdrawal/refusal at each stage of the granting process. The post-grant maintenance rates and the national renewal fees' income are those presented in Danguy and van Pottelsberghe (2009).

Figure 6 illustrates the incomes and the costs of an average Euro-direct application filed at EPO. Probabilities of survival (decreasing maintenance rates, low probability of opposition and appeal) and discount factor are taken into account, comparatively to the 'absolute value' of fees and unit costs presented in Figure 3. The fee income generated by the average patent slightly decreases with the age of the patent, as the maintenance rate is decreasing over time. The net cumulated cash flows can be computed from the data presented in Figure 6. They are presented in Figure 7.

With the current EPO pre-grant fee schedule and 50% of the NPOs' post-grant renewal fees, the EPO actually loses nearly 800 EUR per Euro-Direct patent application.

FIGURE 7 – EVOLUTION OF THE NET CUMULATED INCOME OF AN AVERAGE EUROPEAN PATENT FILED AT EPO OVER ITS LIFETIME



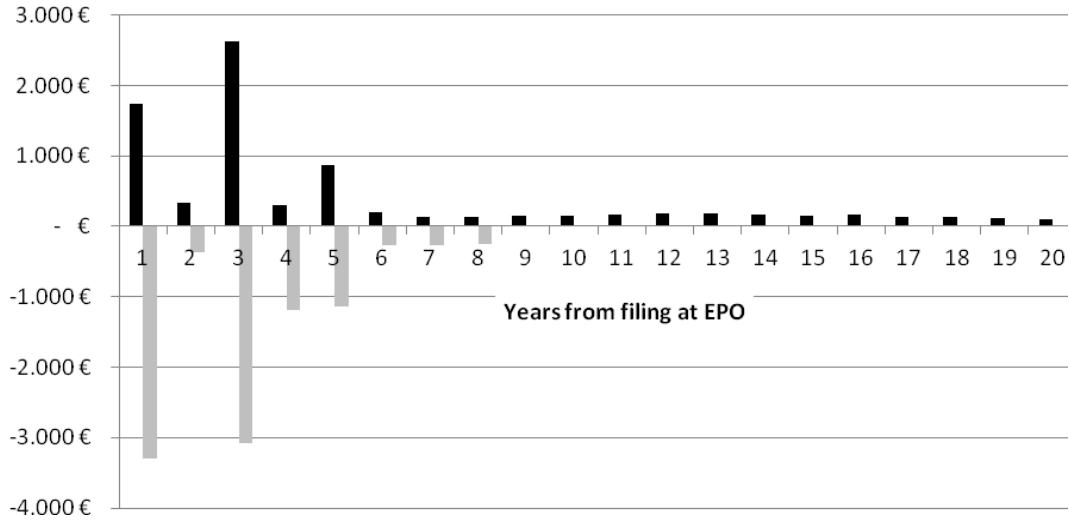
Source: cf. Figure 6. Net cumulated cash flows computed from the data (fee income-unit costs) presented in Figure 6.

2.2 ANALYSIS FOR PCT APPLICATIONS

The approach ‘per average patent’ is less straightforward with PCT applications than with the Euro-Direct applications. PCT international applications are treated by the EPO (whatever the office of application) when the applicant designated the EPO as Receiving Office (RO), International Search Authority (ISA) or International Preliminary Examination Authority (IPEA). Then, 30 months after the priority date they are potentially transferred for examination at the EPO. This is called the PCT Regional phase. In a nutshell, the EPO performs search reports for PCT International phase applications (which designate the EPO as ISA), and later performs substantive examination for the PCT that enter the regional phase. If the PCT Regional application that are filed at the EPO were not ‘searched’ by the EPO (ie, they chose another patent office as ISA) during the international phase, a search report is first produced by the EPO and then the substantive examination can take place. For the sake of simplicity, it is assumed that all the PCT applications searched by the EPO (i.e., the patents for which the EPO acted as ISA) constitutes the total number of Euro-PCT applications during the international phase.¹ Figure 8 presents the average unit cost and fee income associated generated by an average PCT filing.

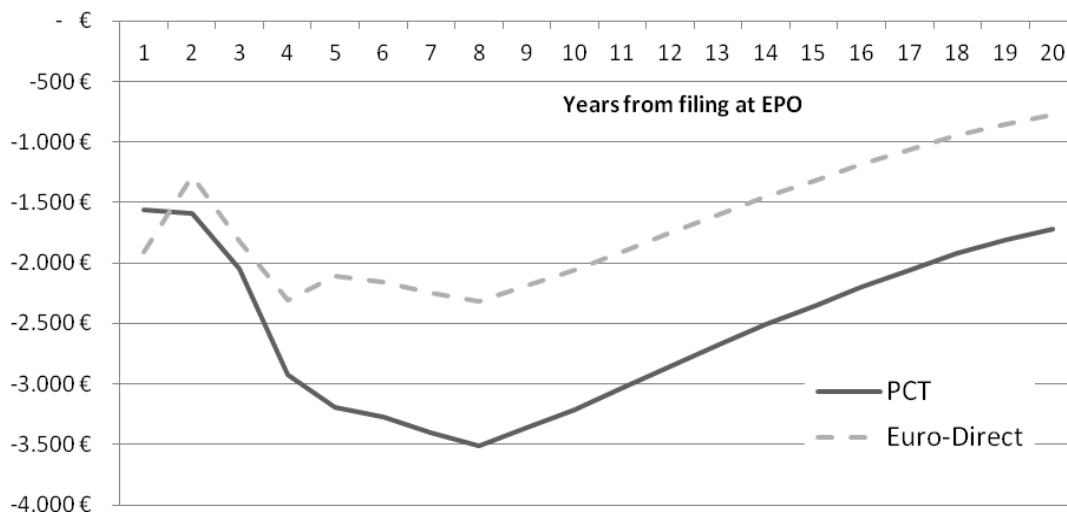
¹ In reality the EPO search 120% to 130% of the PCT applications filed at the EPO, because PCT applications filed in other patent offices tend to designate the EPO as ISA quite frequently. This is especially the case for PCT applications filed at the USPTO (cf. the statistical evidence presented in van Pottelsberghe, 2009).

FIGURE 8 - EFFECTIVE INCOME/COST OF AN AVERAGE PCT APPLICATION FILED AT EPO



Source: own computation based on EPO fees and EPO unit cost provided by the EPO. PCT International applications are associated to fees and costs which occur essentially during the years 1 to 3; they include all the patents for which the EPO was the ISA. For the PCT applications entering the regional phase, fees and unit cost are computed for years 3 to 20. Data on withdrawal rates were provided by the EPO assuming a higher grant rate for PCT applications than for EP-Direct (cf. Lazaridis and van Pottelsberghe, 2007) . The same timing as the one chosen for Euro-direct was adopted: grant at year 5, and renewal fees starting at year 6; cf. Table A.2 for details). There is no reduction for electronic filings because PCT international filing fees (paid to EPO) are transferred to WIPO, and no internal unit cost related to this task was accounted for. During the Regional phase, the patents with an international search report (ISR) performed by EPO do not have to pay any additional search fee and no additional unit cost is taken into account.

FIGURE 9 - EVOLUTION OF NET CUMULATED INCOME OF AN AVERAGE PCT APPLICATION FILED AT EPO OVER ITS LIFETIME



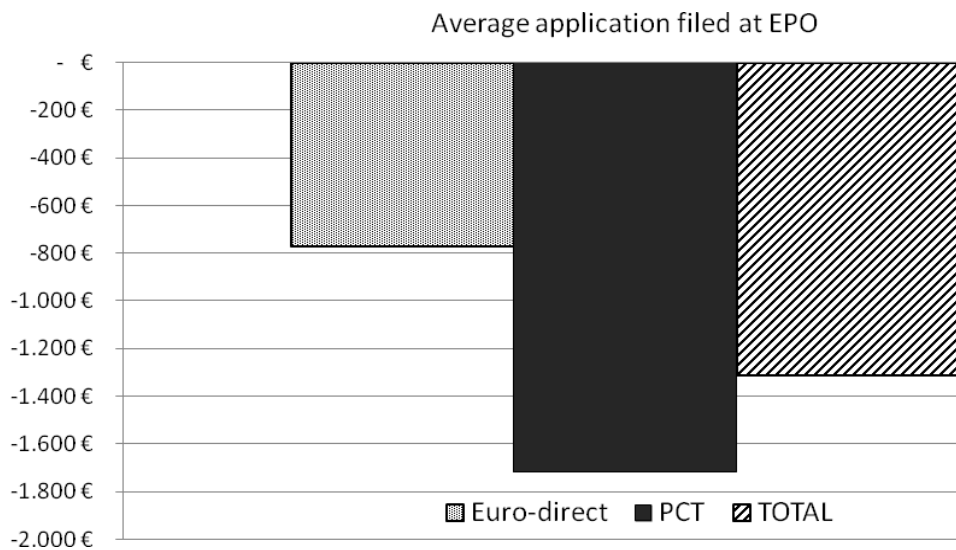
Source: cf. Figure 8 for the average cost/income associated with PCT filings and Figure 7 for the net cumulated income of Euro-Direct applications.

Figure 9 presents the net cumulated income generated by the average PCT applications and average Euro-Direct applications over their life-time.

With the current fee schedule the EPO loses about 1,700 EUR per PCT-international application.

From the cumulated cash flows presented in Figure 7 and Figure 9, it is straightforward to compute the net cumulated income associated with all EPO applications. This is presented in Figure 10 for the total EPO activity, PCT applications and Euro-Direct applications.

FIGURE 10 - NET CUMULATED INCOME GENERATED BY AN AVERAGE PATENT FILED AT EPO



Note: The bar 'total' is the weighted average of two routes – Euro-direct and PCT [the share of each route is computed from the number of applications at EPO in 2008].

Because PCT filings generate more work for the EPO (a relatively high proportion drops between the international phase and the regional phase, thanks to the quality of the international search report and the non-binding opinion), the net cumulated losses are much higher than the cumulated losses associated with Euro-Direct applications.

To some extent, Euro-Direct applications reduce (or compensate for) the losses associated with PCT applications.

3. THE ECONOMIC LITERATURE ON FEES

Before suggesting a new fee structure for the European patent system it is worth summarizing what the economic literature says on the optimal fee structure. A comprehensive survey is provided by de Rassenfosse and van Pottelsberghe (2010). It could be summarized as follows (the reader can refer to the paper for stylized facts and more detailed references):

- Two broad types of fees should be considered, pre-grant fees and post-grant (renewal) fees;
- The theoretical literature provides justification for both high and low fees (see Table 1), be they post-grant or pre-grant. The choice depends on the policy objective that is embedded in a patent system;
- From a detailed analysis of more than 30 national patent offices, it turns out that all combination can be observed (high entry fees and low renewal fees; or high fees over the whole process, or low fees, etc);
- The USA and Switzerland are amongst the few offices which opted for very low annual renewal fees, whereas Greece and Germany have relative high renewal fees, that follow a sharp exponential trend;
- Absolute and relative fees (either relative to GDP or to workers' wages) must be considered when analyzing the fee structure of a patent system;
- Over the past 200 years, the United-States have constantly reduced their relative fees (fees per wage, of fees per GDP per capita), making the patent system extremely 'affordable'.

TABLE 1 - THE ECONOMIC LITERATURE ON OPTIMAL FEE SCHEDULES

| | weaknesses | strengths |
|------------------------------|---|--|
| Application fees Low | Too many applications | Innovation friendly SME friendly |
| Application fees High | Barrier for SMEs Barrier for Innovation | Self-Selection Reduce backlogs Sustainability |
| Renewal fees Low | Many patents are maintained, no self correction | (incumbent) Business friendly |
| Renewal fees High | Not (incumbent) business friendly | Effective correction mechanism Sustainability |

Source: de Rassenfosse and van Pottelsberghe (2010).

High fees (pre- and post-grant) have the advantage of improving self-selection mechanisms, ensure sustainability of the system, and provide an effective correction mechanism. However, they might constitute a barrier to entry for small entities.

4. PROPOSALS FOR A NEW FEE STRUCTURE

This chapter puts forward a new fee schedule for the COMPAT. This new fees schedule must include both pre-grant fees that are controlled by the EPO and half the post-grant renewal fees that are currently being controlled by national patent offices. However, with the EU patent (or community patent, COMPAT), there would be only one main renewal fee schedule, managed by the EPO. The first sub-section summarizes the principles that were adopted to put forward a new fee schedule. Section 4.2 puts forward a new schedule for post-grant renewal fees associated with the COMPAT. Section 4.3 puts forward a new fee schedule for the pre-grant fee schedule (i.e., filing fees, search fees, examination fees, grant fees). The consequences for the patent system as a whole are illustrated in section 4.4.

4.1 PRINCIPLES: SUSTAINABLE AND 'SMOOTHER'

The following principles were adopted to put forward an acceptable fee structure:

- ***Financial sustainability***

The conclusions on an enhanced patent system in Europe put forward by the latest EU Competitiveness Council (2009) included sustainability conditions associated with the new system. It is therefore legitimate to measure the extent to which a new fee schedule would be financially sustainable. One could of course argue that the potential social benefits generated by the patent system (stimulating innovation) would justify a government backing of patent offices, especially if the fees do not cover for the cost of providing examination services.

Yet, one must keep in mind that sustainability, and high fees in general, have some theoretical support, especially if they contribute to reduce backlogs. An additional reason to sustain higher fees is related to the quality of the examination services. A high quality service would justify higher costs and hence fees. In this respect, higher fees are compatible with some of the theoretical considerations developed by the economic literature on patent fees.

- ***Reduce distortion effects***

Distortion effects occur if sharp and unjustified changes occur during the patenting process. The European system is particularly affected by such a change, when the EPO grants a patent. Paradoxically, the decision to grant is not particularly welcome by all applicants, as it is synonymous with a sharp increase in costs (the patent must be translated, validated and renewed in each desired member states). Van Pottelsberghe and François (2009) and van Pottelsberghe and Mejer (2010) have shown the cost consequences the system has on applicants. This European peculiarity makes the European system more expensive by 5 to 20 times the US system, depending on the number of countries chosen for protection. This partly

explains why about 10 percent of the patents granted by the EPO are actually withdrawn by applicants (see Lazaridis and van Pottelsberghe, 2007).

A patent system in general, and the COMPAT in particular, should avoid such sudden increase in costs, especially if they have nothing to do with the quality of the examination process (and hence its cost).

- ***Improve self-funding for short duration patents***

The previous chapter shows quite convincingly that in the current system the patents that are maintained for a few years only are heavily cross-subsidized by the patents maintained for a longer period. In addition, PCT applications are somewhat subsidized by Euro-Direct applications.

Whereas low entry fees are certainly to be praised because they make a patent system more affordable for companies with sharp financial constraints, the degree of cross-subsidization should be somewhat limited if a long term sustainability of the system is to be achieved. The previous chapter has shown that the EPO currently reaches cumulated losses, as the fees income generated by the average patent do not compensate for the cumulated unit costs.

- ***Keep cross subsidization for SMEs or YICs***

The companies which would obviously need more affordable conditions are SMEs and YICs (Young Innovative Companies). In this respect the future EU patent system could consider setting up SME-specific fees.

- ***Ensure a strong increase in renewal fees over time***

Patent systems constitute an equilibrium between the negative effect of monopolistic power (static inefficiency, because prices are too high) and the positive effect of a stimulation to innovate (dynamic efficiency). A sound balance must be chosen by policy makers and, as time goes, it is generally well accepted that renewal fees should go up more significantly, so as to provide an incentive to drop the patent in the public domain and reduce the static inefficiencies.

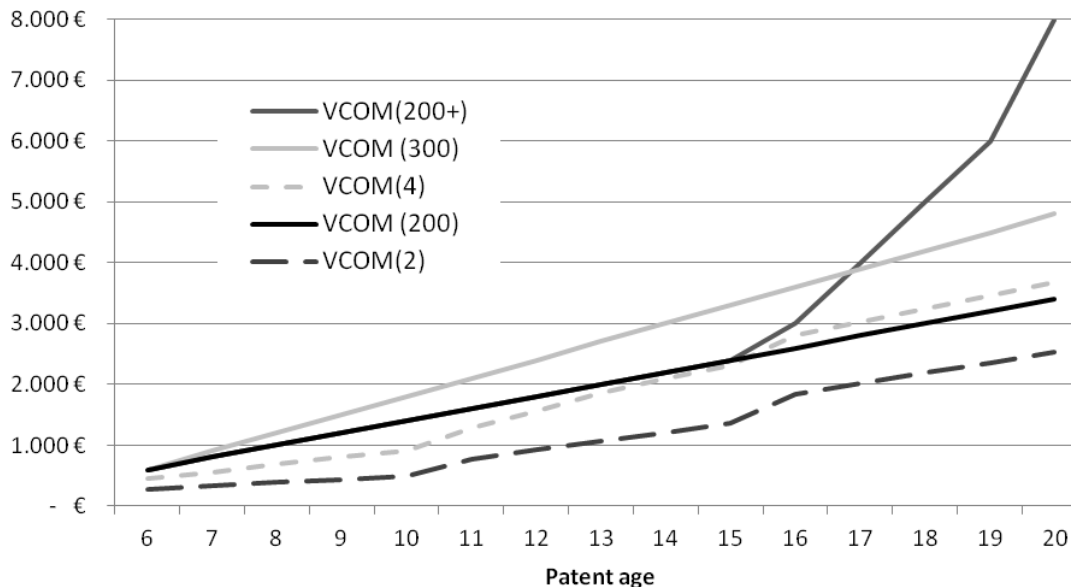
4.2 A POST-GRANT RENEWAL FEE SCHEDULE FOR THE COMPAT

As illustrated in Figure 11, different renewal fees schedules can be considered for the COMPAT. They have been investigated in-depth by Danguy and van Pottelsberghe (2009). The actual renewal fee schedule should be chosen with caution, because it is an important policy leverage in practice and more than a simple way to cover operating costs of patent offices.

One approach consists in summing up the renewals fees of the 2 or 4 (or more) most frequently designated countries (they would be called VCOM(2) and VCOM(4), respectively). An alternative – and somewhat simpler – methodology would consist in relying on a starting fee of € 600 on year 6 of the patent age and then add € x each consecutive year until the last year (20 years old patents). This is illustrated by the solid lines in Figure 11 (VCOM(200) and VCOM(300) represent annual increments of € 200 and € 300, respectively).

Both the literature and some policy makers (see for instance the German renewal fee structure) provide economic justification for an exponential evolution of renewal fees, especially towards the end of a patent's life. The idea is to 'stimulate' firms to drop their patent in the public domain and enter into more competitive markets. This structure is illustrated in Figure 11 with the dark grey curve. At year 16 the increment jumps to € 500, then to € 1,000 at year 17; and to € 2,000 at year 19.

FIGURE 11 - POSSIBLE RENEWAL FEE STRUCTURES FOR THE COMPAT



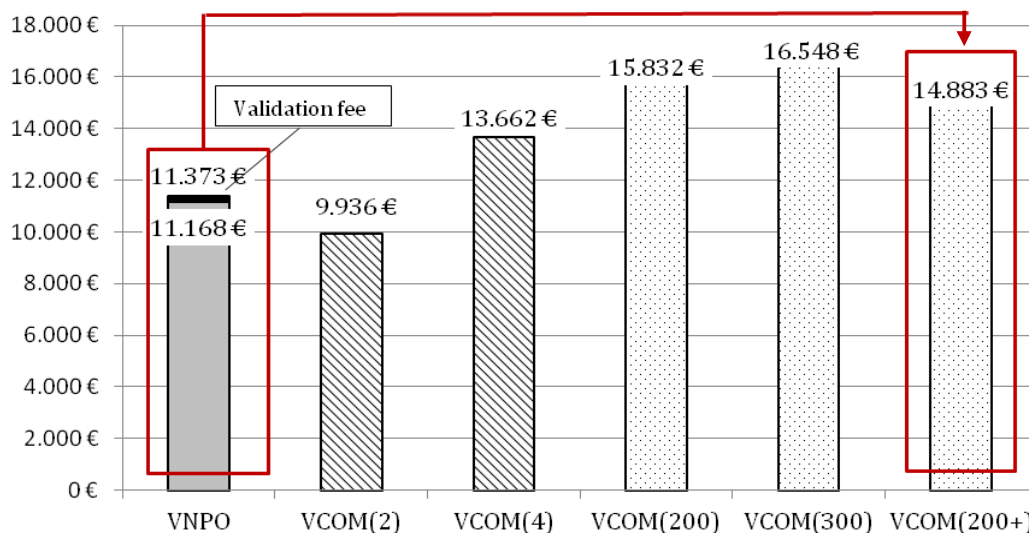
Source : Danguy and van Pottelsberghe (2009).

The VCOM(200+) fee schedule could be considered as fairly good choice, for four reasons. First, it fits to some of the arguments put forward by the economic literature on patent fees. It has a fairly high absolute value (higher than in all other large patent offices in the world, as illustrated in Figure 20), and follows an exponential trend to ensure an effective endogenous correction mechanism.

Second, despite its high absolute value, it becomes a competitive fee schedule when compared to the geographical area it would cover. With 500 million capita, the relative cost (see the cumulated fees per million capita presented in Figure 21) would be cheaper than in South Korea, and similar to the Japanese one. It would still be higher than in the USA, however.

Third, it would contribute to the financial sustainability of the system. The simulations performed by Danguy and van Pottelsberghe (2009) show that the large market coverage (and hence GDP level) would be associated with a somewhat higher maintenance rate in the system. This maintenance rate coupled with the VCOM(200+) fee structure would generate more renewal fee income for the system as a whole (patents would be renewed slightly longer). This is illustrated in Figure 12, which shows the total renewal fee income generated by the current system (VNPO) and the total renewal fee income generated by the COMPAT according to various fee schedules. It clearly appears that with all the VCOM fee schedule the COMPAT would generate at least the same amount as the current system does, and probably significantly more. With the VCOM(200+) fee schedule, an average patent granted by the EPO would generate nearly €15,000 (as compared with a bit more than €11,000 with the current system). Half this renewal fee income would be allocated to the EPO and the other half to the national patent offices. Table A.1. in the appendix shows the budgetary consequences for each national patent offices, according to various distribution keys.

FIGURE 12 - THE COMPAT RENEWAL FEES' INCOME WITH VCOM(200+) FEE SCHEDULE

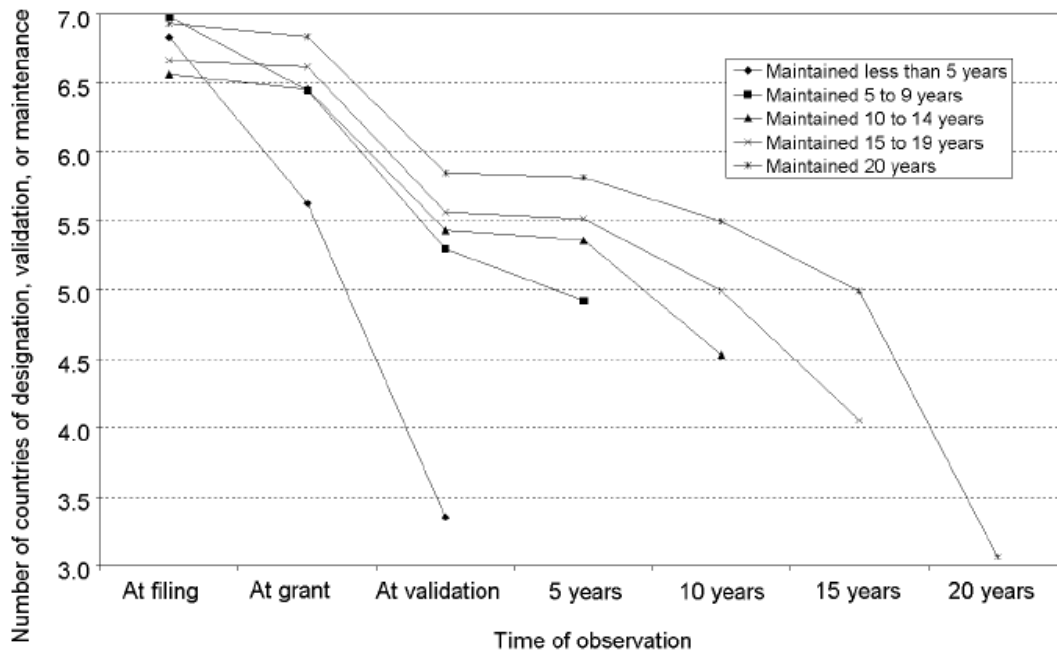


Source : Danguy and van Pottelsberghe (2009). Total renewal fee income generated by an average patent granted by the EPO over its entire lifecycle (from grant).

Fourth, the VCOM(200+) fee schedule is close to what the business sector seems to be ready to pay. Figure 11 shows that the VCOM(200+) fee structure, until the 15th year of the patent, is very close to the equivalent of a protection in four countries in the current system (the cumulative renewal fees in four countries is represented by the VCOM(4) fee schedule). In the current system applicants validate their patents in five to six countries on average, and van Pottelsberghe and van Zeebroeck (2008) show that 15 year old patents are still maintained in four countries (cf. Figure 13). In other words, the level of renewal fees would be similar to what is paid by an average patent (except translations) in the current system.

In addition, such a relatively low level of fees would limit the propensity to ‘game’ the system, whereby applicants targeting only a few countries would be tempted to stay in the current ‘European’ system for a protection in just a few countries. Indeed, it is well known that if a company wants to secure protection in three countries it is less costly to follow the national route. The “four” country solution crystallized by the VCOM(200+) fee structure should therefore be attractive to most applicants.

FIGURE 13 - AVERAGE GEOGRAPHICAL SCOPE OF EPO-GRANTED PATENTS AND DURATION PROFILE



Source: van Pottelsberghe and van Zeebroeck (2008, Figure 5), computed for the patents filed at the EPO between 1980 and 1985.

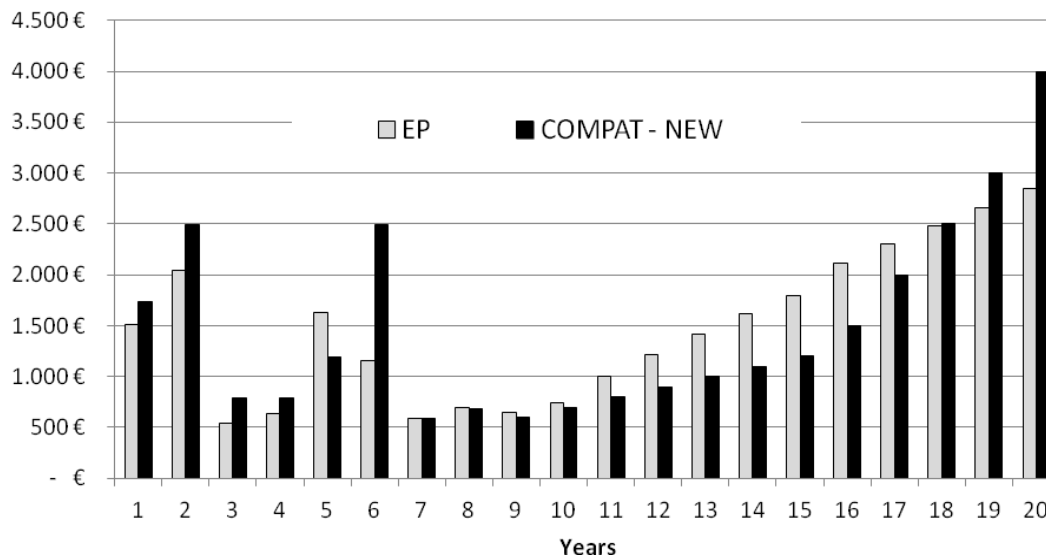
The proposed VCOM(200+) renewal fee structure for the COMPAT has the advantage of 1) being compatible with the economic literature, 2) being globally competitive in relative terms, 3) ensuring a financial sustainability for the system, and 4) matching what the business sector is paying in the current system.

4.3 A NEW PRE-GRANT FEE SCHEDULE FOR THE COMPAT

This sub-section puts forward a new pre-grant fee structure for the COMPAT. This exercise requires to distinguish PCT applications from Euro-Direct applications. The new fee structure is presented in Appendix Table A.2, for both pre-grant and post grant fees. The main factor which drove this proposal was that the financial viability of the system had to be secured. The new fee schedules for Euro-Direct applications and PCT applications are presented in Figure 14 and Figure 15, respectively. An important and logical aspect, which was not taken into account so far, is to ensure a regular increase of fees to cope with inflationary pressures (e.g., performing adjustments every other 3 years).

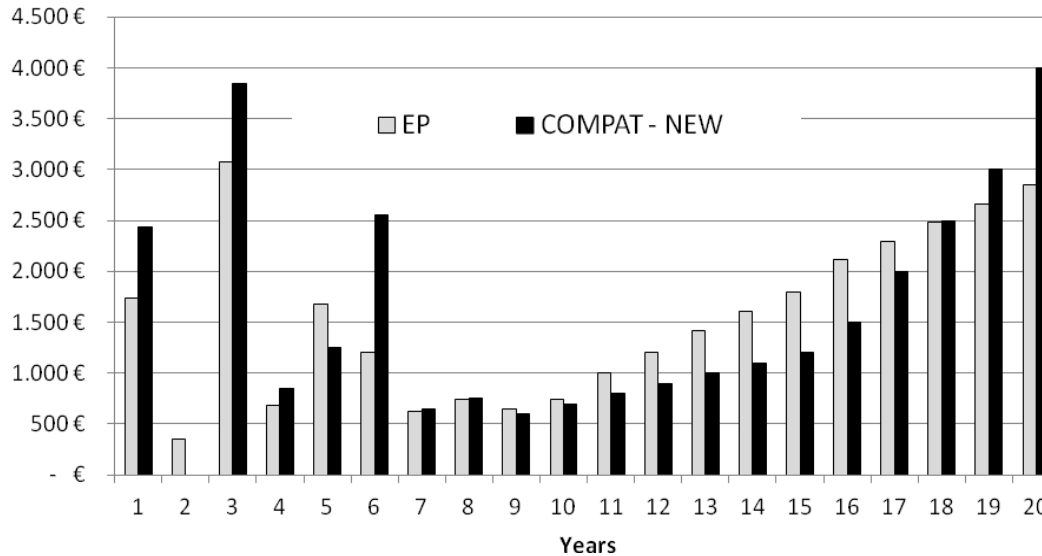
The main changes (largest increase in fees) occur in the early stages of the process, and are more pronounced for PCT applications (search fees increase from € 1,700 to € 2,500); than for Euro-Direct applications (search fees increase from € 1,050 to € 1,400). Examination fees would also increase from € 1,405 to € 1,800). Note that the preliminary examination (in the PCT route) is supposed to disappear, to the benefit of a non-binding opinion automatically provided with the PCT search report. Therefore the fees and unit cost related to the preliminary examination disappear in the COMPAT applications that follow the PCT route. All other pre-grant stages (maintenance rates, probability of opposition & appeal, discount factor, other incomes/costs) are supposed to be the same as for the current European patents. The translation costs are not included in this exercise. To the best of our knowledge, no agreement has been reached so far. We therefore opted for the idea that the EPO would secure machine translation at no additional cost for the applicants, as explained in Danguy and van Pottelsberghe (2009).

FIGURE 14 - ABSOLUTE FEES FOR EURO-DIRECT APPLICATIONS



Note: cf. Table A.2 in appendix. These absolute fees correspond to what the EPO receives for a 20 years patent's lifetime, with appeal and opposition; only half the renewal fees are taken into account (the other half goes to national patent offices); the fees for EP are those of a patent validated and renewed in six countries.

FIGURE 15 - ABSOLUTE FEES FOR PCT APPLICATIONS



Note: cf. Table A.2 in appendix. These absolute fees correspond to what the EPO receives for a 20 years patent's lifetime, with appeal and opposition; only half the renewal fees are taken into account (the other half goes to national patent offices); the fees for EP are those of a patent validated and renewed in six countries.

4.4 BUDGETARY AND COST CONSEQUENCES

The new fee schedule should be analyzed like in section 2.1, with the probability of survival of patent applications at each stage of their life time. It is still expected that only a few patent would make it until their 20th year. Figure 16 and Figure 17 show the effective 'average' income and costs for the EPO for Euro-Direct applications and PCT applications, respectively. The broad income is different from the one presented in section 4.3, because the older the patent is, the lower is its maintenance (or survival) rate.

The evolutions of net cumulated income (or loss) of the COMPAT filed under the Euro-Direct route or the PCT route are illustrated in Figure 18. With the new fee structure the two curves are much more similar than in the current system, where PCT applications generate much more losses than Euro-Direct applications (cf. Figure 9). With the new fee schedule, the average COMPAT would become 'break-even' around the year 17 or 18. The total cumulated income generated by the COMPAT with the new fee structure and the European patent with the current fee structure are compared in Figure 19. It clearly appears that with the new fee schedule the net cumulated income becomes positive, and is even higher for PCT applications than for Euro-Direct.

FIGURE 16 - EFFECTIVE INCOME/COST OF AN AVERAGE COMPAT-DIRECT FILED AT EPO

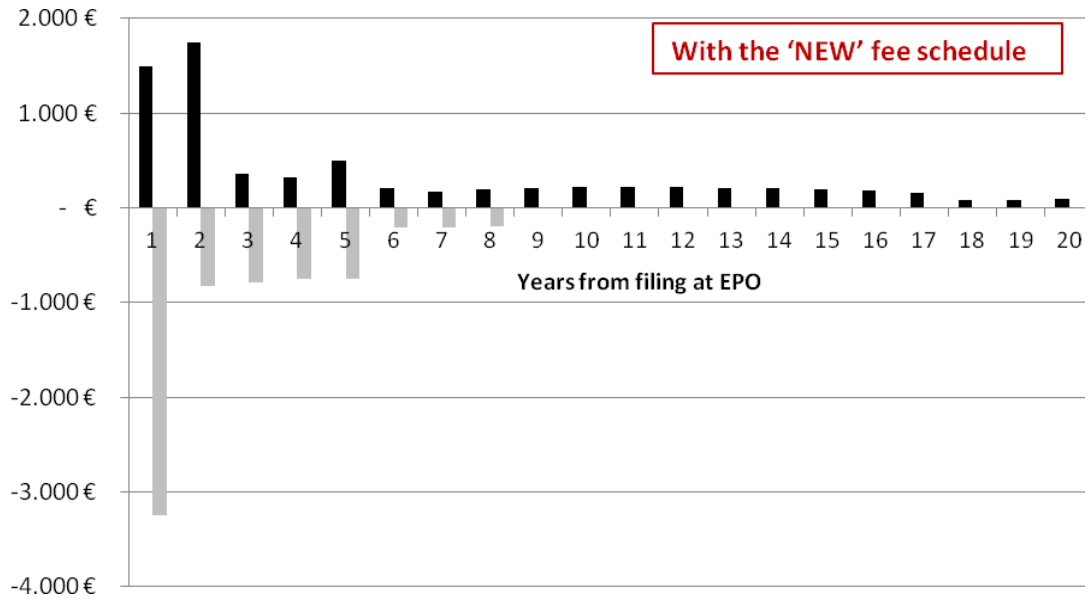


FIGURE 17- EFFECTIVE INCOME/COST OF AN AVERAGE COMPAT-PCT FILED AT EPO

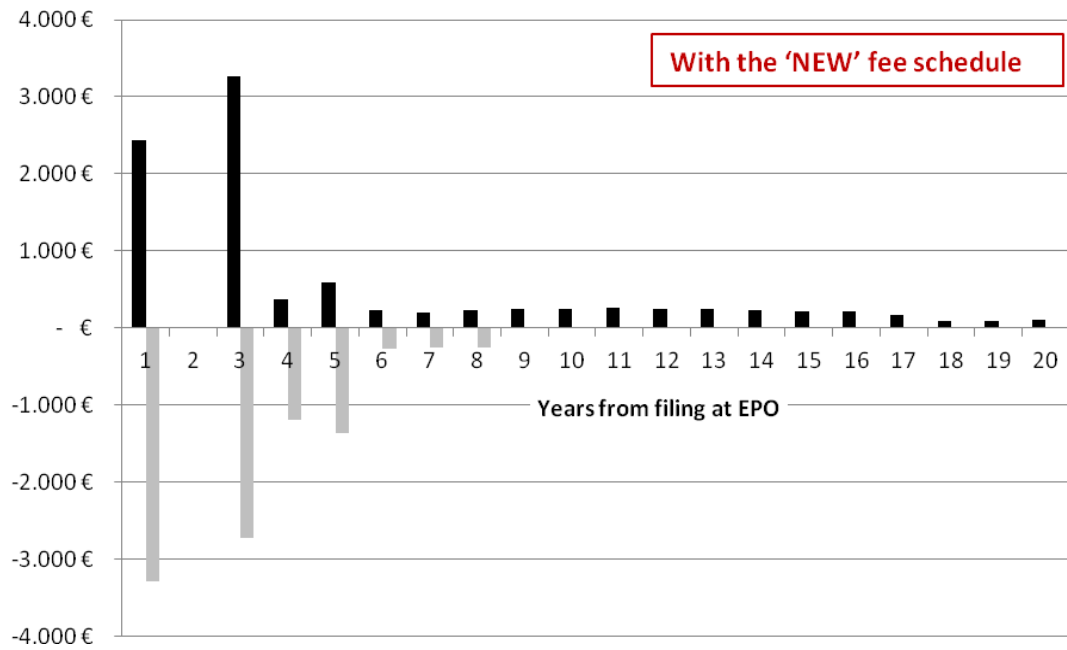


FIGURE 18 - EVOLUTION OF NET CUMULATED INCOME OF AN AVERAGE COMPAT FILED AT THE EPO OVER ITS LIFETIME

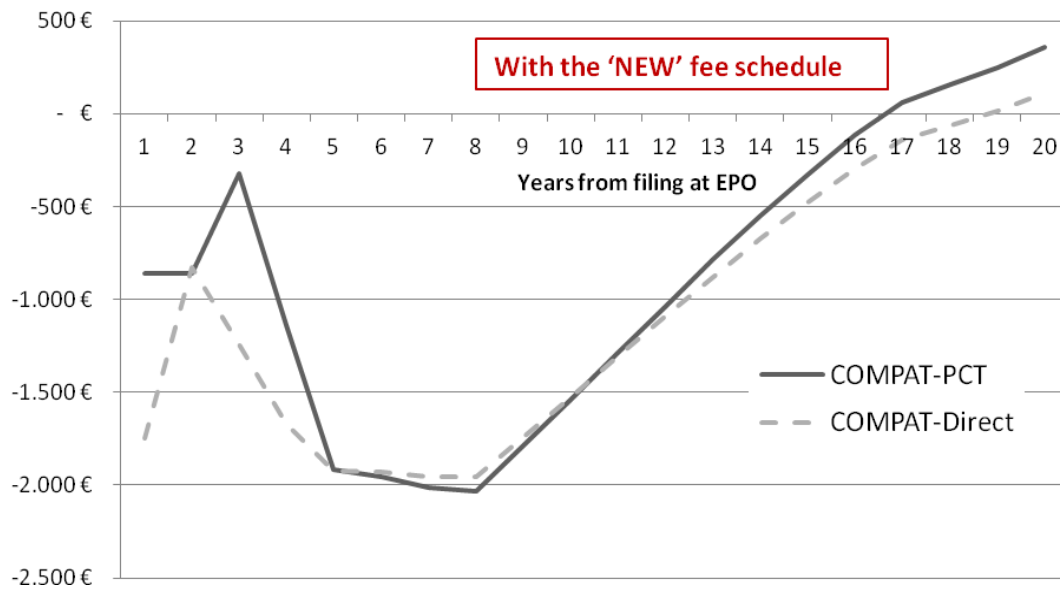
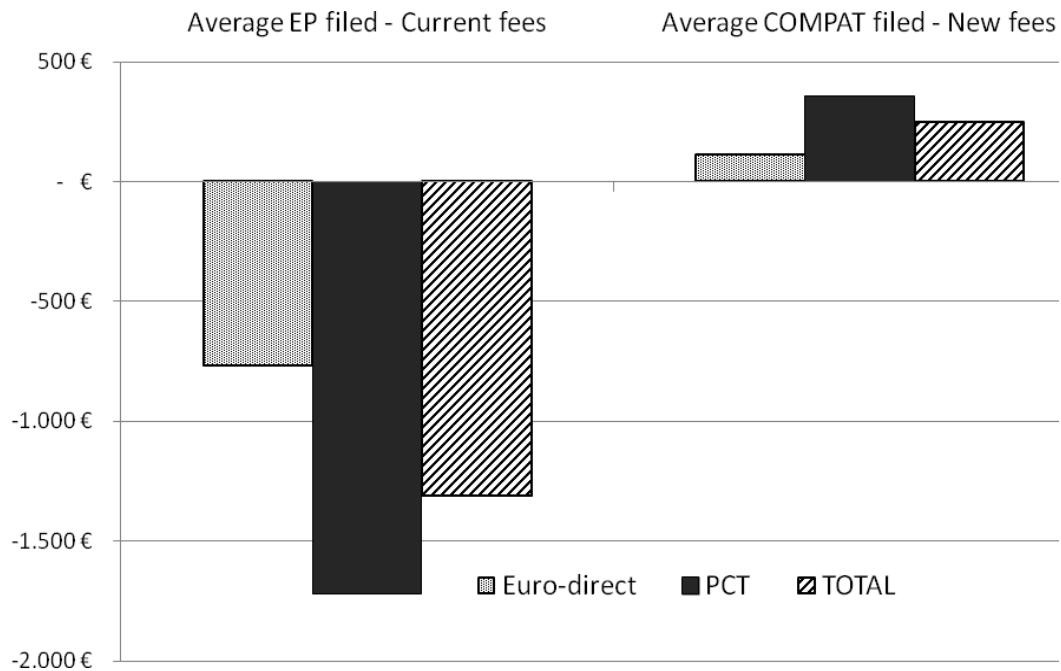


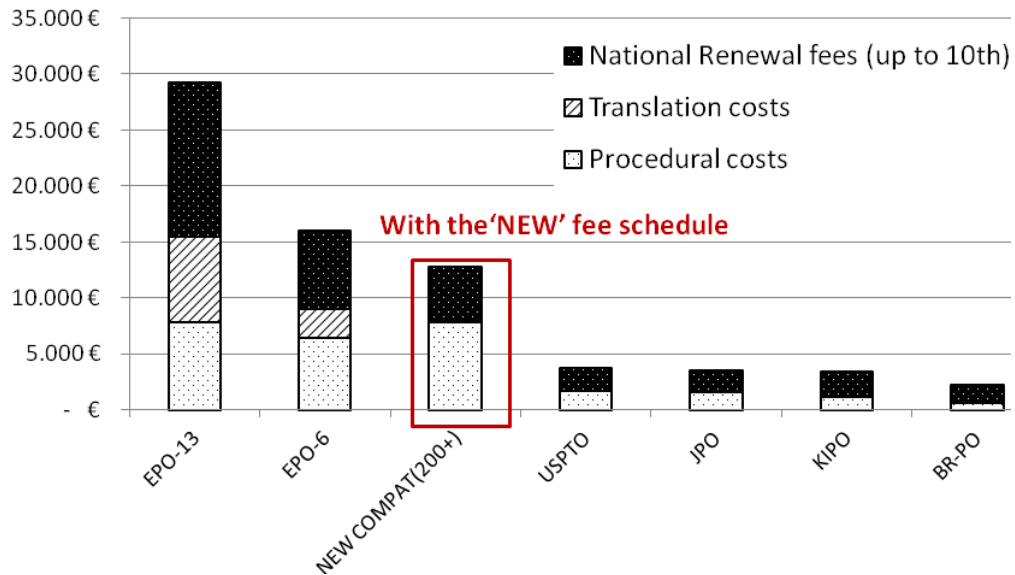
FIGURE 19 - NET CUMULATED INCOME: ACTUAL EP VS. NEW COMPAT



With the new fee schedule put forward in this report, the net cumulated income of the COMPAT becomes positive, and is even higher for PCT applications than for Euro-Direct

In terms of cumulated costs, the COMPAT would be associated with a similar level of fees than in the current system with a protection in 'only' six countries (cf. Figure 20). However, in terms of relative cost the creation of the COMPAT would drastically change the position of Europe. Indeed, Figure 21 shows that with the new fee schedule, the COMPAT would become, in relative terms (cost per million capita), much cheaper than the patents in South Korea or Japan, but still more expensive than in the USA.

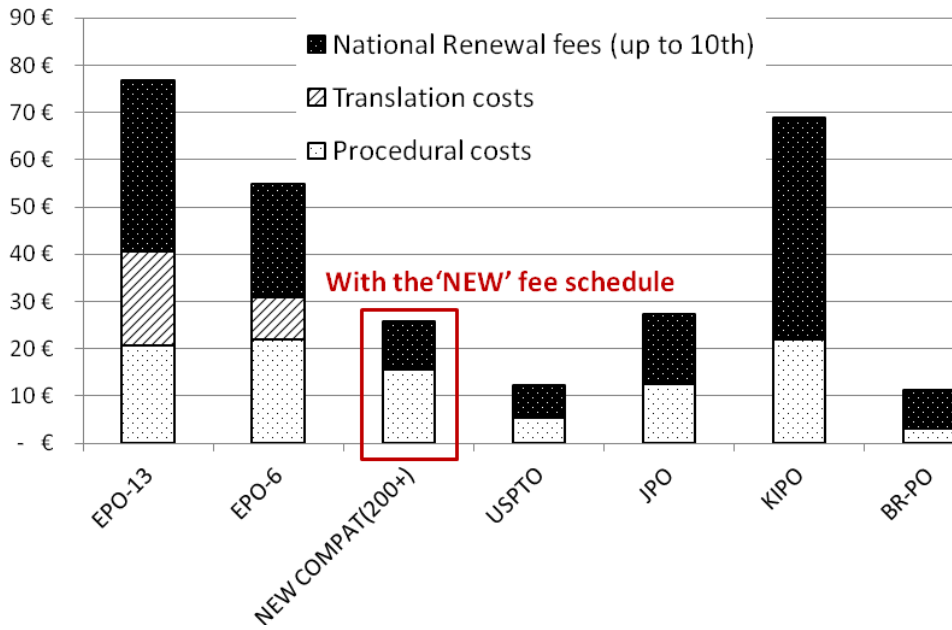
FIGURE 20 - INTERNATIONAL COMPARISON OF PATENTING COSTS WITH THE NEW FEE SCHEDULE



Note: procedural costs include the internal renewal fees paid at the EPO

With the new fee schedule put forward in this report, the absolute cost (cumulated fees for 10 years of protection) would be similar than in the current system, but the relative cost (cost per million capita) would drive the European patent system towards a much more competitive position, thanks to a large market composed of 500 million inhabitants

FIGURE 21 - INTERNATIONAL COMPARISON OF RELATIVE PATENTING COSTS WITH THE NEW FEE SCHEDULE (FEE PER MILLION CAPITA)



5. POTENTIAL SMES/YICS PROVISIONS

Despite the much lower relative cost (with respect to the market reach provided by the COMPAT), it could still be argued that high absolute fees, especially at entry stage, might constitute a barrier to entry for small enterprise or young innovative companies (YICs).

Although most regional governments provide some sort of financial support to technology-based firms which aim at entering the patent system, it might be appropriate to substantially reduce entry fees for these companies, as patents are often their main and only asset. Since the USPTO and the Japan Patent Office already provide 50% fee reductions for SMEs, a similar move in Europe could be seen as a convergence towards other important patent systems.

For the practical implementation of a fee reduction, if ever decided for the European patent system, an in-depth analysis of the US and Japanese experience would have to be performed, so as to make as effective as possible. The following suggestions have the advantage of providing more affordable conditions to SMEs while reducing the negative effect on the patent office income:

- **A 50% reduction could be put in place for SMEs and/or YICS, only for pre-grant fees (Year 1 to 5),** and as long as the patent is not sold or licensed;
- SMEs or YICS would sign a 'status' document that allows for the reduction and would reimburse the difference if the patent is sold or licensed;;
- An option could be to install a pay-back (of previous fee reductions) by SMEs or YICS after grant if the patent upheld beyond year 6.

A 50% fee reduction for SMEs could be set for entry fees, with an eventual pay-back process if the patents are sold, licensed, or maintained for more than 6 years.

Adopting such a provision for SMEs would affect the quantitative simulations shown in Figures 16 to 19. The overall effect on the EPO of applying the 50% fee reduction to SMES/YICs on an "average COMPAT-Direct" and an "average COMPAT-PCT" are shown in Figures 20 and 21..

Working hypotheses are needed to perform such simulations. First, it is assumed that 15% of all applications are filed by SMEs. This is a conservative assumption, knowing that academic patenting is fluctuating under 5% of total applications, and that SMEs have a lower propensity to rely on strategic filing, hence limiting their IP investment to key patents. In addition, the following hypotheses:

- 50% fees reduction during Y1-Y5 (the first five year of applications, up to the grant)
- 50% of reductions are paid back to EPO at Y6 (i.e., the sixth year after the priority application)

- No change in the maintenance rates. Even though lower pre-grant fees and the limited reliance on strategic patenting would lead to a higher maintenance rate during Y1-Y5, it is assumed that the factors pushing the maintenance rate higher would be mitigated by the pay-back in Y6.

Figures 22 and 23 clearly show that a SMEs specific fee schedule would reduce the income of the EPO and would therefore delay the break-even date. Nevertheless, the cumulated income associated with the total number of patents filed at the EPO seems to be very close to the break-even.

FIGURE 22 - EVOLUTION OF NET CUMULATED INCOME OF AN AVERAGE COMPAT FILED AT EPO OVER ITS LIFETIME, INCLUDING SME-SPECIFIC FEES

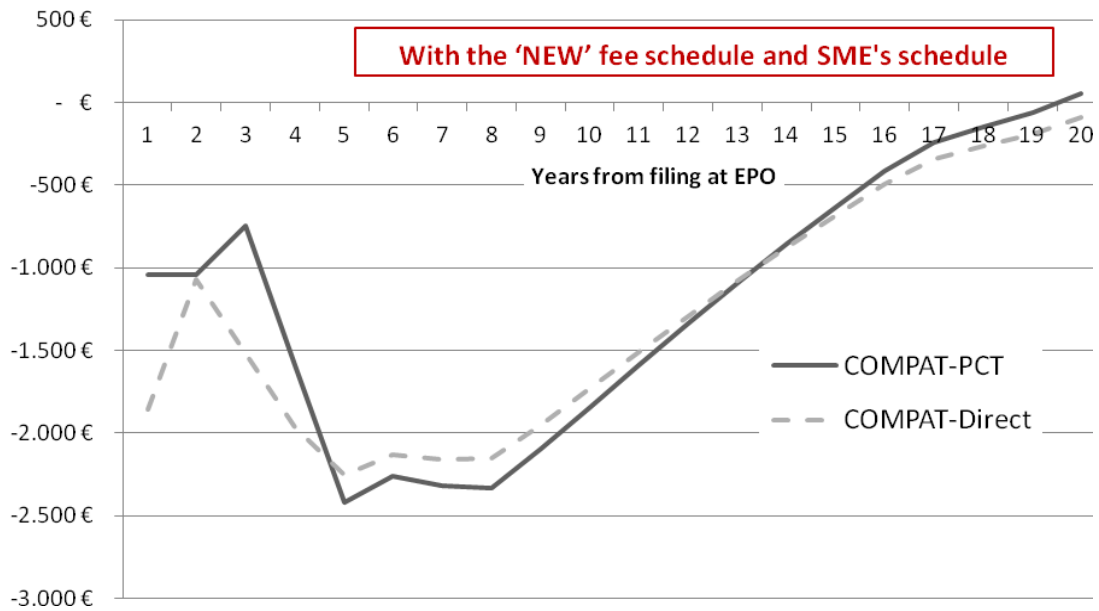
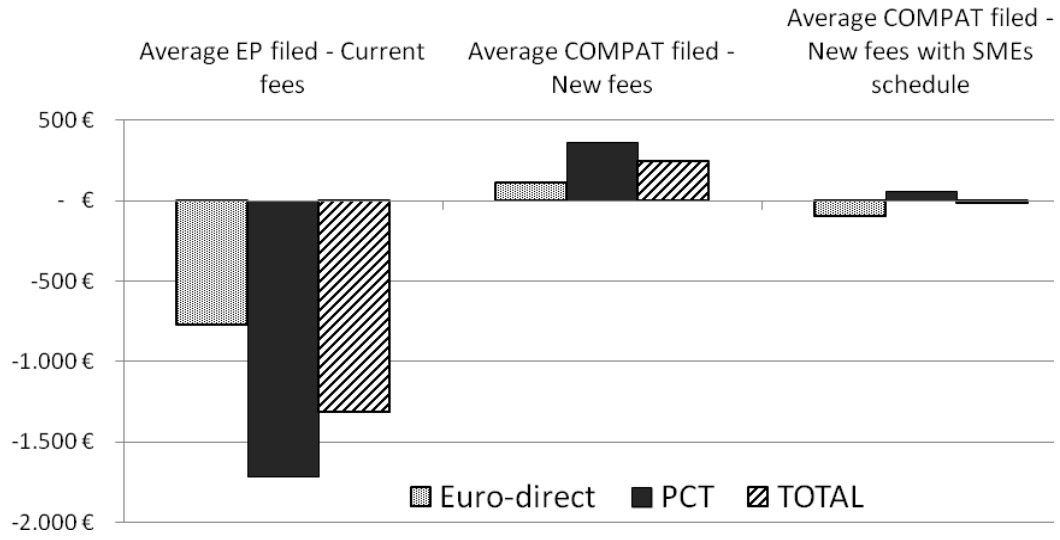


FIGURE 23 - NET CUMULATED INCOME: ACTUAL VS. NEW COMPAT WITH SME'S FEES SCHEDULE



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APPENDIX

TABLE A. 1 - NPO'S RENEWAL FEES INCOME UNDER EP AND COMPAT WITH THE VCOM(200+) RENEWAL FEE SCHEDULE

| | VNPO € | Level (€) | | | | Relative net differences (%) | | | |
|-----------------------|-----------|-----------|------|------------|------|------------------------------|-----|------------|-----|
| | | Proposed | GDP | Population | R&D | Proposed | GDP | Population | R&D |
| EPO | 5686 | 7441 | 7441 | 7441 | 7441 | 31 | 31 | 31 | 31 |
| Germany | 2386 | 1957 | 1483 | 1236 | 2032 | -18 | -38 | -48 | -15 |
| France | 802 | 819 | 1155 | 953 | 1309 | 2 | 44 | 19 | 63 |
| United Kingdom | 597 | 729 | 1222 | 915 | 1175 | 22 | 105 | 53 | 97 |
| Netherlands | 332 | 551 | 345 | 246 | 320 | 66 | 4 | -26 | -4 |
| Austria | 227 | 424 | 164 | 125 | 218 | 87 | -27 | -45 | -4 |
| Italy | 576 | 677 | 946 | 888 | 581 | 18 | 64 | 54 | 1 |
| Spain | 230 | 454 | 628 | 669 | 408 | 97 | 173 | 190 | 77 |
| Sweden | 111 | 260 | 200 | 137 | 405 | 135 | 81 | 23 | 265 |
| Denmark | 71 | 193 | 141 | 81 | 187 | 173 | 98 | 14 | 164 |
| Belgium | 88 | 201 | 202 | 159 | 206 | 129 | 130 | 81 | 135 |
| Ireland | 55 | 104 | 113 | 65 | 80 | 88 | 104 | 17 | 44 |
| Finland | 70 | 104 | 107 | 80 | 199 | 49 | 52 | 14 | 184 |
| Portugal | 31 | 127 | 99 | 159 | 54 | 302 | 216 | 406 | 71 |
| Greece | 21 | 112 | 136 | 168 | 42 | 424 | 539 | 690 | 98 |
| Luxembourg | 13 | 37 | 22 | 8 | 19 | 193 | 70 | -41 | 53 |
| Hungary | 15 | 67 | 58 | 152 | 31 | Δ | Δ | Δ | Δ |
| Cyprus | 10 | 45 | 9 | 12 | 2 | Δ | Δ | Δ | Δ |
| Estonia | 5 | 52 | 8 | 20 | 5 | Δ | Δ | Δ | Δ |
| Czech Republic | 17 | 60 | 73 | 155 | 61 | Δ | Δ | Δ | Δ |
| Romania | 6 | 89 | 62 | 325 | 15 | Δ | Δ | Δ | Δ |
| Slovakia | 8 | 52 | 28 | 81 | 7 | Δ | Δ | Δ | Δ |
| Bulgaria | 6 | 60 | 16 | 116 | 4 | Δ | Δ | Δ | Δ |
| Slovenia | 4 | 30 | 20 | 30 | 17 | Δ | Δ | Δ | Δ |
| Lithuania | 1 | 52 | 15 | 51 | 7 | Δ | Δ | Δ | Δ |
| Latvia | 0 | 45 | 10 | 35 | 4 | Δ | Δ | Δ | Δ |
| Poland | 3 | 119 | 174 | 572 | 52 | Δ | Δ | Δ | Δ |
| Malta | 0 | 37 | 3 | 6 | 1 | - | - | - | - |

Note: Δ represents a large and positive difference due to recent EPC membership and/or small size.

Source: Danguy and van Pottelsberghe (2009)

TABLE A.2 - NEW FEE SCHEDULE: COMPAT-DIRECT AND COMPAT-PCT

| Routes | Stages of the grant process | Current fees | New fees | Unit Cost | Timing | |
|---------------------------------|----------------------------------|------------------|----------------|------------------|--------|-------|
| COMPAT-PCT COMPAT-Direct | International Search | 1.700 € | 2.500 € | 3.293 € | Y1 | |
| | <i>(Preliminary examination)</i> | <i>(1.675 €)</i> | | <i>(3.732 €)</i> | Y2-Y3 | |
| | Search | 1.050 € | 1.400 € | 3.293 € | Y3 | Y1 |
| | Examination | 1.405 € | 1.800 € | 3.732 € | Y3-Y5 | Y2-Y4 |
| | Internal Renewal fee Y3 | 400 € | 600 € | | Y3 | Y3 |
| | Internal Renewal fee Y4 | 500 € | 600 € | | Y4 | Y4 |
| | Internal Renewal fee Y5 | 700 € | 600 € | | Y5 | Y5 |
| | Grant & Translation | 790 € | 400 € | 400 € | Y5 | Y5 |
| | Opposition | 670 € | 2.000 € | 15.195 € | Y6-Y8 | Y6-Y8 |
| | Appeal | 1.120 € | 1.500 € | 31.935 € | Y3-Y8 | Y1-Y8 |
| | Renewal fee Y6* | 694 € | 600 € | | Y6 | Y6 |
| | Renewal fee Y7 | 884 € | 800 € | | Y7 | Y7 |
| | Renewal fee Y8 | 1.105 € | 1.000 € | | Y8 | Y8 |
| | Renewal fee Y9 | 1.294 € | 1.200 € | | Y9 | Y9 |
| | Renewal fee Y10 | 1.494 € | 1.400 € | | Y10 | Y10 |
| | Renewal fee Y11 | 2.007 € | 1.600 € | | Y11 | Y11 |
| | Renewal fee Y12 | 2.419 € | 1.800 € | | Y12 | Y12 |
| | Renewal fee Y13 | 2.841 € | 2.000 € | | Y13 | Y13 |
| | Renewal fee Y14 | 3.224 € | 2.200 € | | Y14 | Y14 |
| | Renewal fee Y15 | 3.586 € | 2.400 € | | Y15 | Y15 |
| Renewal fee Y16 | 4.233 € | 3.000 € | | Y16 | Y16 | |
| Renewal fee Y17 | 4.599 € | 4.000 € | | Y17 | Y17 | |
| Renewal fee Y18 | 4.967 € | 5.000 € | | Y18 | Y18 | |
| Renewal fee Y19 | 5.324 € | 6.000 € | | Y19 | Y19 | |
| Renewal fee Y20 | 5.704 € | 8.000 € | | Y20 | Y20 | |

Note: * The current renewal fees from Y6 are those of a patent validated and renewed in 6 countries.