

# **Duration of Patent Protection: Does One Size Fit All?**

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## **DURATION OF PATENT PROTECTION: DOES ONE SIZE FIT ALL?**

Andrew F. Christie<sup>1</sup> and Fiona Rotstein<sup>2</sup>

### **ABSTRACT**

The patent system has a ‘one size’ approach to duration of protection, in that all inventions are entitled to the same maximum period of grant: 20 years. This paper seeks to answer the question whether this ‘one size’ approach ‘fits all’ inventions. It does so by determining if the duration of protection is within the reasonable bounds of what might be considered optimal, when account is taken of the economic theory on duration, patentees’ practices regarding renewal of their patents and the legal features of the current system. It finds that the system on duration of patent protection currently in operation matches closely to what would be considered optimal.

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## 1. INTRODUCTION

The current system of patent protection has a ‘one size fits all’ approach to duration of protection. This is because the national patent laws of all developed countries provide patent protection for a maximum duration (20 years) that is common for all inventions, irrespective of the intrinsic value or merit of the invention and regardless of whether the invention is local or foreign in origin. The reason this duration is common to all inventions is because the *TRIPS Agreement*<sup>3</sup> mandates that “patents shall be available and patent rights enjoyable without discrimination as to the place of invention, the field of technology and whether products are imported or locally produced”.<sup>4</sup>

One way to ascertain whether this ‘one size’ of patent protection duration has the ability to ‘fit all’ inventions is to determine what is the optimum duration of patent protection and then compare that optimum duration with the duration of protection that the current patent system provides. If the duration of protection provided by the current system is within the reasonable bounds of what might be considered the optimal duration, then the answer to the question of whether one size fits all should be ‘yes’. If, however, there is a substantial divergence between what is optimal in theory and what is provided in practice, then we should conclude that the current one size system does not fit all inventions well.

In pursuit of the above, this short paper analyses the economic theory on optimum duration of protection, the real world practices of patentees and the legal practicalities of the current patent system. The economic theory on optimum duration of protection is reviewed in an attempt to identify the reasonable bounds of optimum duration. To determine the real world practices of patentees, data on patent renewals are evaluated to see what durations of protection are in fact utilised by patentees. The legislative structures of the current patent system are assessed to identify the extent to which the common duration of protection is subject to exceptions that accommodate the characteristics of individual inventions and/or the practices of individual patentees. Finally, a conclusion is drawn on the answer to the question whether the one size approach to duration of protection does in practice fit all inventions.

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<sup>3</sup> The *TRIPS Agreement* is the short name for the *Agreement on Trade-Related Aspects of Intellectual Property Rights*, which is Annex 1C to the *Agreement Establishing the World Trade Organization* 1994.

<sup>4</sup> *TRIPS Agreement*, Article 27(1).

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## 2. ECONOMIC THEORY

Under standard economic theory, the purpose of a patent is to provide the patentee with an exclusive right (a monopoly) over the invention.<sup>5</sup> The purpose of the monopoly is to allow the patentee to generate monopoly profits, and thereby to reward the inventor and provide an incentive for research and development. The reason an incentive is required for research and development is because the knowledge embodied in an invention has “public good” characteristics. This means that an invention may be the subject of “free-riding” (i.e. unauthorised competitive use) by third parties, with the consequence that the inventor is unable to appropriate the full benefit of the invention. This, in turn, will lead to under-creation of inventions, to the detriment of society as a whole. To avoid this outcome, a patent is made available for inventions that satisfy certain thresholds of merit. There are, however, costs to granting patents. These costs are the loss associated with the monopolistic behaviour of the patentee and the loss created by the reduction in improvements on the patented invention made by competitors of the patentee.

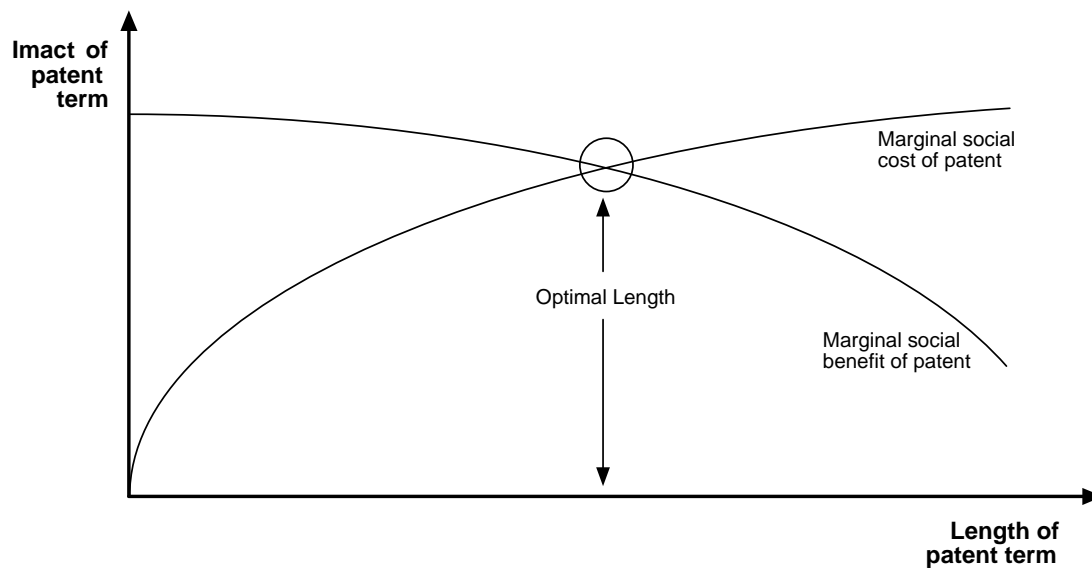
Standard economic theory holds that the optimal patent length is modelled by equating the marginal social benefit of a patent over time with the marginal social cost of the patent over time.<sup>6</sup> The marginal social benefit of a patent over time is the value of the incremental inventive activity generated by the patent in each time period. The marginal social cost of a patent is the value of the incremental harm to society resulting from the patent in each time period.

The marginal social benefit curve is assumed to slope downwards, because the incentive effect of an additional period of monopoly protection falls over time. The marginal social cost curve is assumed to slope upwards, however, because the additional cost incurred by extending patent protection increases over time due to an absence of substitutable products (i.e. products that compete with the patented invention). In theory, the optimal patent length is found by identifying the time period in which the marginal social benefit in the period equals the marginal social cost in that period – that is, where the two curves cross. This principle is illustrated in Figure 1.

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<sup>5</sup> For an overview of the theory on the design of patent protection, see R. Lampe and A. Niblett (2003), ‘The Economics of Patent Design: A Select Survey’, IPRIA Working Paper No. 06/03, available at <http://www.ipria.org/publications/workingpapers/2003/ipria%20wp%2006-03.pdf>.

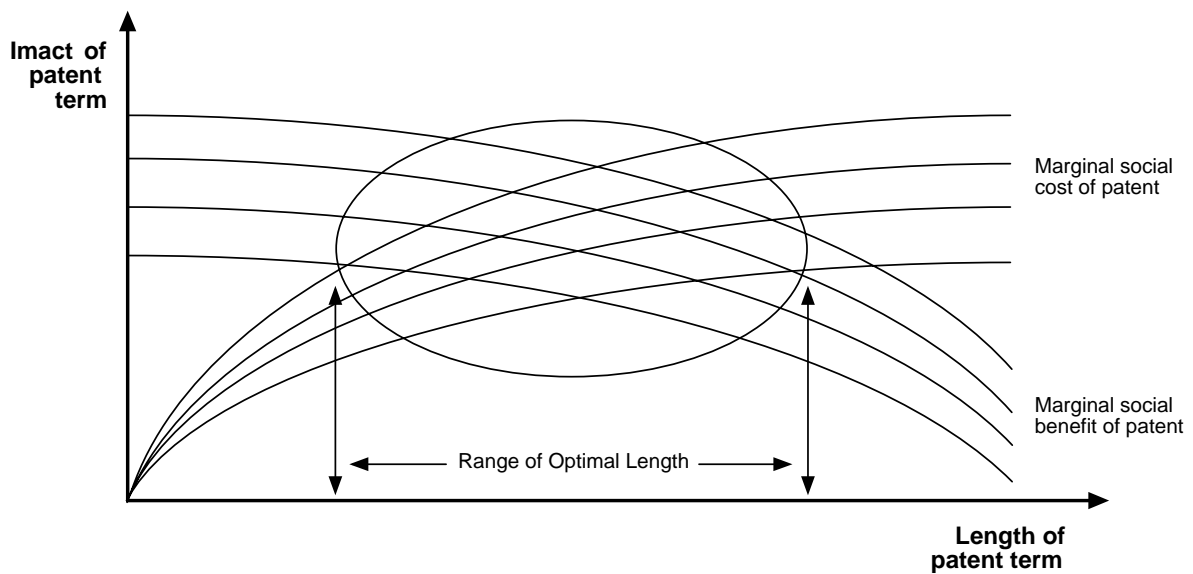
<sup>6</sup> See Lampe and Niblett (2003), n 5.



**Figure 1. Location of the optimal length of patent term**

Source: Authors

Knowing in theory how to determine the optimal duration of patent protection is one thing; actually determining it is another thing. To make the determination involves calculating the marginal social benefits and costs of a patent, which in turn requires making a number of assumptions the validity of each of which may be highly debateable. The reality is that it is not possible to know how, exactly, to draw either the curve of marginal social benefit or the curve of marginal social cost. At the very best, it might be possible to ascertain the bounds of such curves – in which case, the *range* of the location of the optimal patent length could be identified. This is illustrated in Figure 2.



**Figure 2. Range of locations of the optimal length of patent term**

Source: Authors

What follows is a very simplified account of the evolution of economic thinking on optimal patent duration. The purpose of providing this account is to identify the likely range of the location of the optimal duration of patent length.

It is generally considered that the foundational work in the area was that undertaken by Nordhaus (1969),<sup>7</sup> with subsequent interpretation by Scherer (1972).<sup>8</sup> According to Nordhaus, once a life of six or ten years has been reached, the level of welfare generated by the patent system is very insensitive to the life of the patent. However, for ‘small’ inventions (i.e. with percentage cost reduction less than 5%), the monopoly losses associated with the patent system are small (less than one-fifth of the gains from the invention).<sup>9</sup> The Nordhaus model thus demonstrates that the welfare loss of overly long patents is minimal, while the social cost of having a too short patent life is large. According to some commentators, this analysis provides the “main theoretical justification for the

<sup>7</sup> W. Nordhaus (1969), *Invention, Growth and Welfare: A Theoretical Treatment of Technological Change*, MIT Press, Cambridge. See also W. Nordhaus (1972), ‘The Optimum Life of a Patent: Reply’, 62(3) *The American Economic Review* 428.

<sup>8</sup> F. Scherer (1972), ‘Nordhaus’ Theory of Optimal Patent Life: A Geometric Reinterpretation’, 62(3) *The American Economic Review* 422.

<sup>9</sup> Nordhaus (1972), n 7.

existing long and broad degree of patent protection” provided by the current patent system.<sup>10</sup>

While the Nordhaus-Scherer model calculates the optimal patent term in the case of a small process invention by a monopolistic innovator with no actual or potential rivalry for the innovation,<sup>11</sup> Berkowitz and Kotowitz (1979<sup>12</sup> and 1982<sup>13</sup>) examine the optimal patent term in the case of competitive inventors. The Berkowitz-Kotowitz model leads to an optimal life in the vicinity of one-half to one year (depending on the parameter values assumed). The difference between this very short optimal patent life and the statutory duration of protection is so striking that McFetridge and Rafiquzzaman (1986)<sup>14</sup> as well as Beck (1986)<sup>15</sup> offer reasons for thinking that the optimal patent life is longer than the Berkowitz-Kotowitz model implies.

As Lampe and Niblett (2003) note,<sup>16</sup> the more recent theoretical work has shifted the focus from the optimal length of a patent to the optimal breadth or scope of a patent, as well as the optimal combinations of length and breadth.<sup>17</sup> According to Gilbert and Shapiro (1990),<sup>18</sup> the socially cost-effective way to achieve a given reward to innovators is to have infinitely-lived patents with the minimum market power (breadth) necessary to achieve this reward. In contrast, Klemperer (1990)<sup>19</sup> holds that patents that are wide in scope and short in

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<sup>10</sup> See, for example, Y. Kotowitz and P. Schure (2006), ‘The Optimal Patent Length’, University of Victoria, Canada, available at <http://economics.huji.ac.il/seminars/seminars%2005-06/schure.pdf>.

<sup>11</sup> Y. Kotowitz and P. Schure (2006), n 10, at 3.

<sup>12</sup> M. Berkowitz and Y. Kotowitz (1979), ‘Optimal patent design with free entry in the innovation market’, Working Paper no. 7921, Institute for Policy Analysis, University of Toronto, Toronto.

<sup>13</sup> M. Berkowitz and Y. Kotowitz (1982), ‘Patent Policy in an open economy’, 15(1) *The Canadian Journal of Economics* 1.

<sup>14</sup> D. McFetridge and M. Rafiquzzaman (1986), ‘The Scope and Duration of the Patent Right and the Nature of Research Rivalry’, 8 *Research in Law and Economics* 91.

<sup>15</sup> R. Beck (1986), ‘Comment: Does Competitive Dissipation Require a Short Patent Life?’, 8 *Research in Law and Economics* 121.

<sup>16</sup> Lampe and Niblett (2003), n 5, at 3.

<sup>17</sup> The concept of ‘patent breadth’ has been defined in various ways – the scope of a patent could be represented by the patentee’s ability to raise price, the probability of infringement, the impact on close product substitutes, the number of technology classifications of a patent, or the invent around costs: O. Granstrand (1999), *The Economics and Management of Intellectual Property*, Edward Elgar, Cheltenham, 90.

<sup>18</sup> R. Gilbert and C. Shapiro (1990), ‘Optimal patent length and breadth’, 21 *Rand Journal of Economics* 106.

<sup>19</sup> P. Klemperer (1990), ‘How Broad Should the Scope of Patent Protection Be?’, 21 *Rand Journal of Economics* 113.

duration can be preferred to patents that are narrow in scope and long in duration if wider patents discourage costly substitution away from the patented product to the inferior substitute product.

Given that inventions build on each other, an obvious limitation of the above literature is that it assumes the underlying environment is static. The most recent theoretical work considers the case of sequential innovators. This includes game-theoretical modelling of patent races among competitors.<sup>20</sup>

Economists have also turned their mind to renewal fees and patent durations. They make the point that renewal fees tend to weed out patents whose economic benefit has expired. For example, Pakes (1986) states: “Assuming that renewal decisions are based on economic criteria, agents will only renew their patents if the value of holding those patents over an additional year exceeds the cost of renewal.”<sup>21</sup> Studies by Scotchmer (1999)<sup>22</sup> and Cornelli and Schankerman (1999)<sup>23</sup> show that the socially optimal patent system involves increasing renewal fees over time. Cornelli and Schankerman also show that optimal renewal fees should rise much more with patent length than existing (French, German and UK) fee schedules. According to Gans, King and Lampe (2004), however, the socially optimal approach may not be suitable when patent offices are required to be self-funding.<sup>24</sup>

Based on this brief review of the economic theory on patent duration, the following observations may be made:

1. There is an optimal duration of patent protection, and this occurs when the marginal social benefit of a patent in a time period equals the marginal social cost of that patent in that time period.
2. The welfare loss of overly long patents is minimal, while the social cost of having a too short patent life is large.
3. Depending on assumptions, the optimal duration of a patent is likely to lie in the range from 1 year to infinity.

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<sup>20</sup> Ryan and Lampe (2003), n 5, provide a good review of the more recent work.

<sup>21</sup> A. Pakes (1986), ‘Patents as Options: Some Estimates of the Value of Holding European Patent Stocks’, 54(4) *Econometrica* 755, 755. See also Z. Griliches (1998), *R&D and Productivity: The Econometric Evidence*, The University of Chicago Press, Chicago, 310.

<sup>22</sup> S. Scotchmer (1999), ‘On the Optimality of the Patent Renewal System’, 30(2) *The RAND Journal of Economics* 181.

<sup>23</sup> F. Cornelli and M. Schankerman (1999), ‘Patent Renewals and R&D Incentives’, 30(2) *The RAND Journal of Economics* 197.

<sup>24</sup> J. Gans, S. King and R. Lampe (2004), ‘Patent Renewal Fees and Self-Funding Patent Offices’, 4(1) *Topics in Theoretical Economics* 1147.

4. To ensure that the duration of patent protection is not longer than socially optimal, there should be provision for renewal fees and the size of these fees should increase over time.

It follows from these observations that it is not possible to know with any certainty what, exactly, is the optimal duration of protection. This should not be considered surprising, given the number and the complexity of the variables (and, hence, the assumptions) that are relevant to determining optimal duration under the various models that have been proposed. It is, therefore, helpful to turn to consider the real world practices of patentees when it comes to duration of patent protection.

### 3. REAL WORLD PRACTICES

A good way to determine the real world practices of patentees is to observe their behaviour. With regards to duration of patent protection, we can observe the practices of patentees by looking at patent renewal data. All major jurisdictions have a patent system in which the grant of a patent must be maintained by regular renewals, which involve the payment of a fee. Typically, the amount of the renewal fee increases with each subsequent renewal.<sup>25</sup>

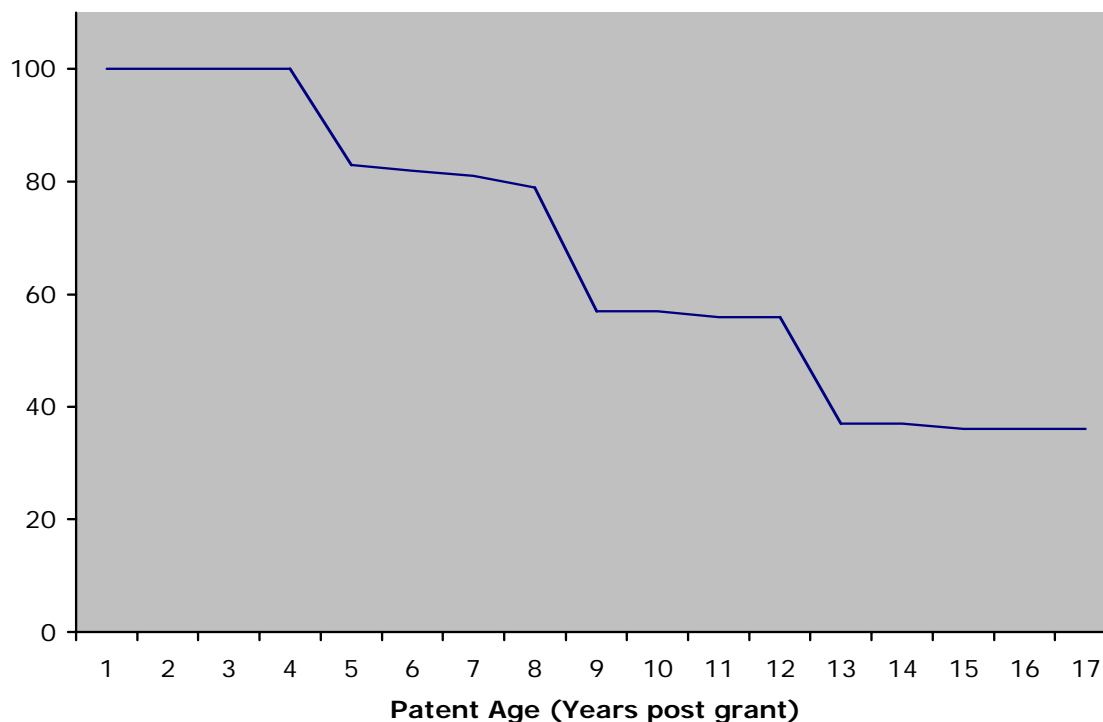
According to Lemley (2001) using renewal data for US patents in 1998, nearly two-thirds of all issued US patents lapse for failure to pay maintenance renewal fees before the end of their term, and nearly half of all patents are abandoned in this way before their term is half over.<sup>26</sup> Figure 3 is a graph of the renewal data cited by Lemley, showing the percentage of patents renewed in the relevant

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<sup>25</sup> See, for example, the patent renewal fees of the Australian Patent Office, available at <http://www.ipaustralia.gov.au/pdfs/news/Patents%20Fees%20Changes%20-%20Updated.pdf>; of the European Patent Office, available at [http://www.european-patent-office.org/epo/new/supp\\_01\\_09\\_tab.pdf](http://www.european-patent-office.org/epo/new/supp_01_09_tab.pdf); of the United States Patent Office, available at <http://www.uspto.gov/web/offices/ac/qs/ope/fee2007february01.htm#maintain>; of the Japan Patent Office, available at [http://www.jpo.go.jp/quick\\_e/index\\_tokkyo.htm](http://www.jpo.go.jp/quick_e/index_tokkyo.htm); and of the State Intellectual Property Office of the People's Republic of China, available at [http://www.sipo.gov.cn/sipo\\_English/zlsq/rhsqpct/200512/t20051230\\_63684.htm](http://www.sipo.gov.cn/sipo_English/zlsq/rhsqpct/200512/t20051230_63684.htm). The current pattern of renewal fees has also applied historically, see Pakes (1986), n 21; and M. Schankerman and A. Pakes (1986), 'Estimates of the Value of Patent Rights in European Countries During the Post-1950 Period', 96(384) *The Economic Journal* 1052.

<sup>26</sup> M. Lemley (2001), 'Rational Ignorance at the Patent Office', 95 *Northwestern University Law Review* 1495, 1503.

year, by the age of the patents.<sup>27</sup> The line is stepped, because in the US maintenance renewal fees are due at 3.5, 7.5 and 11.5 years after the patent is granted.



**Figure 3. Percentage of US patents renewed, by age of patent, 1998**

source: Lemley (2001), Table 3

Data on patent renewals in other countries suggest that the renewal rates in the US are higher than in other developed countries. For example, according to Lanjouw (1993)<sup>28</sup> and Schankerman (1998)<sup>29</sup> fewer than 50% of German and French patents are maintained for more than 10 years respectively.<sup>30</sup> The Australian data tell a somewhat similar story: approximately 50% of all patents

<sup>27</sup> It seems that Lemley (2001) uses the phrase ‘age of the patent’ to mean the number of years since the grant of the patent, see Lemley (2001), n 26.

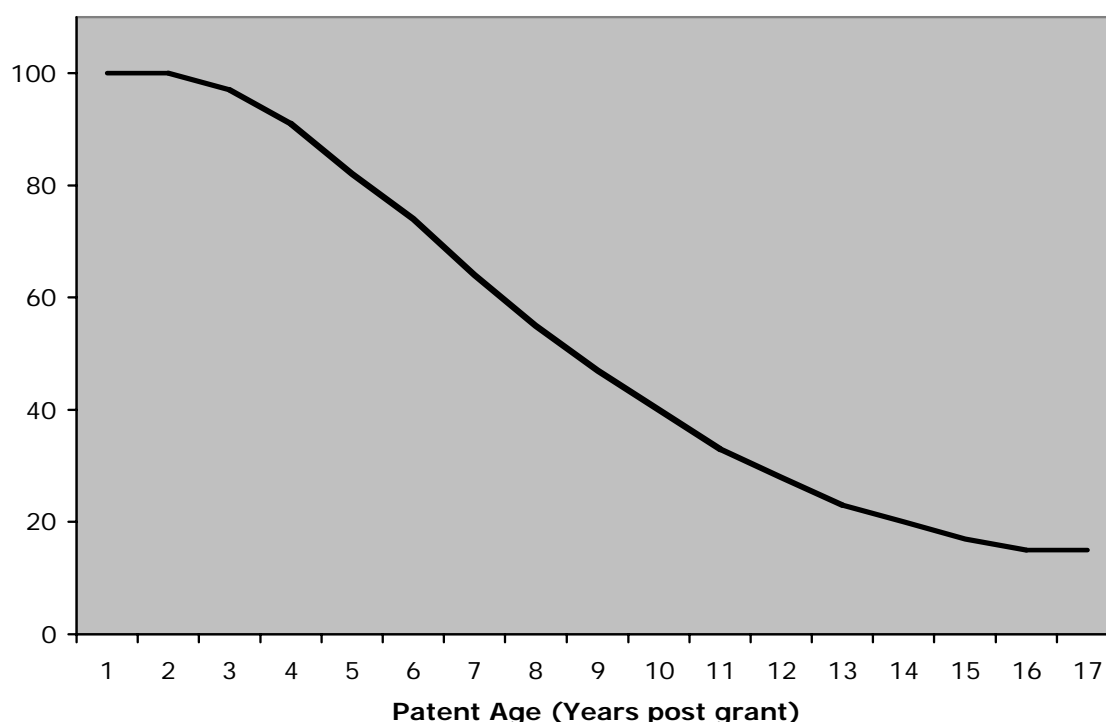
<sup>28</sup> J. Lanjouw (1993), ‘Patent Protection in the Shadow of Infringement: Simulation Estimations of Patent Value’, Mimeograph, Department of Economics, Yale University, cited in T. O’Donoghue, S. Scotchmer and J-F Thisse, ‘Patent Breadth, Patent Life and the Pace of Technological Progress’, 7(1) *Journal of Economics and Management Strategy* 1, 2.

<sup>29</sup> M. Schankerman (1998), ‘How Valuable is Patent Protection? Estimates by Technology Field’, 29(1) *The RAND Journal of Economics* 77.

<sup>30</sup> On analysis of an earlier data set, Pakes (1986) reports that only 7% of French and 11% of German patents are maintained until the end of the statutory period, see Pakes (1986), n 21, cited in T. O’Donoghue, et al, n 28.

have lapsed within 8 years of their grant, while about 20% are alive at the end of the statutory period of protection.<sup>31</sup>

Taking into account the various data on patent renewals in different countries derived over a number of years,<sup>32</sup> the following crude generalisation may be made: on average, only 50% of all patents will be alive eight years after grant and only about 15% of all patents will survive for the full standard statutory period of protection. This generalisation is illustrated in the hypothetical survival rate curve shown in Figure 4.



**Figure 4. Generalised typical patent renewal rates**

source: Authors

<sup>31</sup> IP Australia, 'P50(2002) Lifetimes for Australian patents', available at <http://www.ipaustralia.gov.au/about/statistics.shtml#lap>.

<sup>32</sup> For other data on patent renewals, see R. Levin, et al (1987), 'Appropriating Returns from Industrial Research and Development', 3 (Special Issue) *Brookings Papers on Economic Activity*, 783; E. Mansfield (1984), 'R&D and Innovation: Some Empirical Findings', in Z. Griliches (ed) *R&D, Patents and Productivity*, University of Chicago Press, Chicago; Pakes and Schankerman (1984), 'The Rate of Obsolescence of Patents, Research Gestation Lags, and the Private Rate of Return to Research Resources', in Griliches (ed) *R&D, Patents and Productivity*, University of Chicago Press, Chicago.

This generalisation is, of course, general – it does not differentiate between patents in different technology sectors or in different industry sectors. The data on renewal rates that are disaggregated for technology or industry sector show that there are noticeable differences across sectors.<sup>33</sup> Pakes and Simpson (1989),<sup>34</sup> for example, have analysed renewal data in Finland and Norway from the 1960s and 1970s by *industry* sector. Those data show that patents for inventions in the drugs and medicines sector and the lumber, wood and paper sector had the highest renewal rates, followed by patents for inventions in the machinery sector, the chemically-related sector, the food products sector, and the primary metals sector. At the end of the statutory period of protection, the average renewal rates for the various industry sectors range from 5% to 20%.

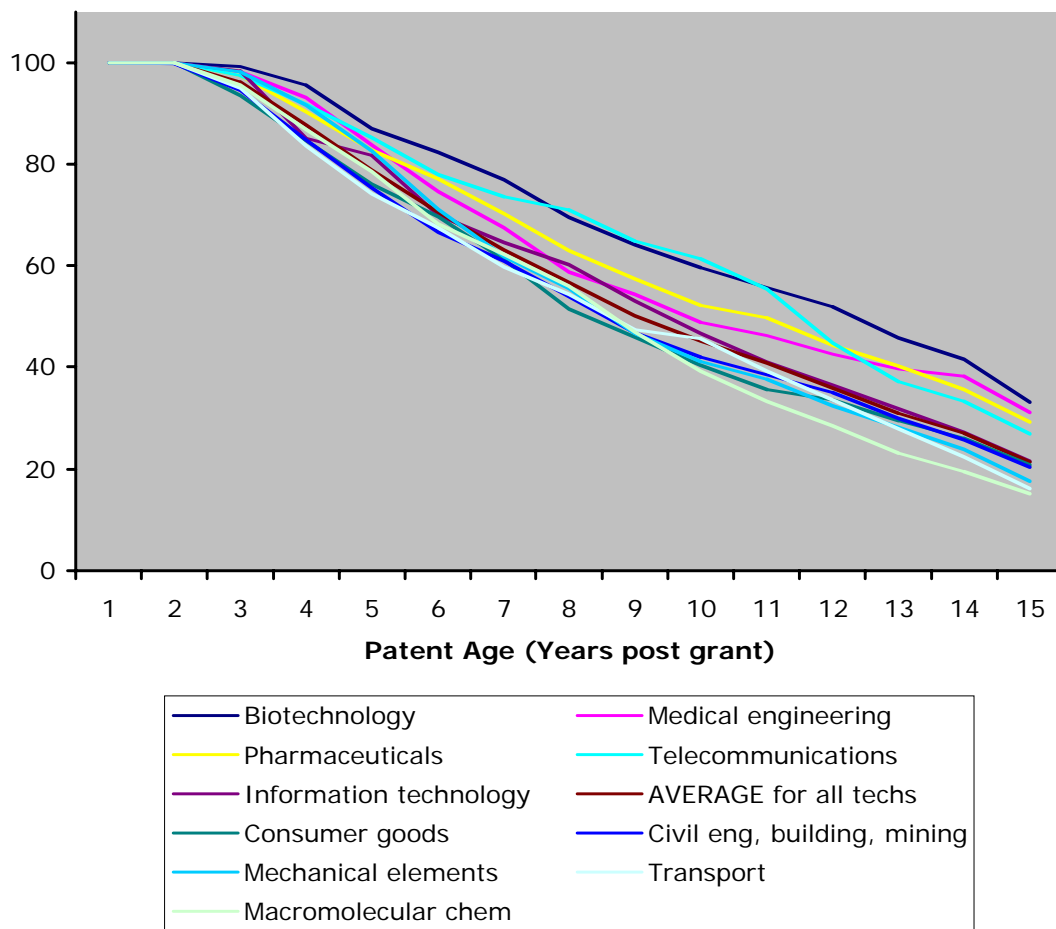
The Australian patent office has data on renewal rates disaggregated by *technology* sector, which are illustrated in Figure 5.<sup>35</sup> The patents with above-average renewal rates are in the biotechnology, medical engineering, pharmaceuticals and telecommunications sectors, while the patents with below-average renewal rates are in the macromolecular chemical, transport, mechanical elements, and civil engineering/building/mining sectors. The renewal rates at the end of the statutory period of protection for the various industry sectors range from 15% to 23%.

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<sup>33</sup> See, for example, B. Fikkert and M. Luthria (1996), 'Estimates of Private Value of Patent Protection in India', mimeo, University of Maryland; J. Lanjouw (1998), 'Patent Protection in the Shadow of Infringement: Simulation Estimations of Patent Value', 65 *The Review of Economic Studies* 671; and M. Schankerman (1998), n 29.

<sup>34</sup> Pakes and Simpson (1989), 'Patent Renewal Data', *Brookings Papers on Economic Activity – Microeconomics* 331, 391.

<sup>35</sup> IP Australia, 'P51(Mar06) Cumulative Mortality of Standard Patents by Technology', available at <http://www.ipaustralia.gov.au/about/statistics.shtml#lap>.



**Figure 5. Technology differences in renewal rates, Australia, 1990<sup>36</sup>**

source: IP Australia

Generalising, once again, it may be said that the patents with the highest renewal rates tend to be for inventions in the high-technology sectors (e.g. bio/medical/pharmaceutical), while the patents with the lowest renewal rates tend to be for inventions in the low-technology sectors (e.g. transport/mechanical/metals).

Based on this brief review of the data on patentees' use of the patent renewal system, the following observations may be made:

1. Patentees of all major jurisdictions maintain the protection of a patent by paying renewal fees at regular intervals, and these renewal fees increase over time.

<sup>36</sup> The boxed legend for the lines of the graph, when read from left to right, identify the technology sectors in order from highest to lowest renewal rates.

2. Only a small minority of patentees choose to utilise the maximum duration of protection provided by the patent system.
3. The majority of patentees choose to have a duration of protection that is no greater than about half the maximum duration available.
4. Patentees of inventions from different industry and technology sectors opt for different durations of protection for their inventions.

#### **4. FEATURES OF AN OPTIMAL SYSTEM**

By drawing together the observations made on the basis of the economic theory and the evidence of patentee's real world practices, it may be concluded that an optimal system of duration of patent protection would have the following features:

1. There would be a limit on the duration of protection (i.e. a fixed maximum duration), because a patent creates social costs as well as social benefits, and these social costs increase over the duration of the monopoly protection provided by a patent.
2. The fixed maximum duration of protection would err on the side of being longer rather shorter than the likely optimal duration, because the welfare loss from overly long patents is minimal, while the social cost of having a too short patent life is large.
3. The fixed maximum duration of protection would be greater than eight years after the grant of the patent, because at least half of all patentees opt for at least this period of protection in practice.
4. Subject to the fixed maximum period, patentees would be allowed to choose the duration of protection on an invention-by-invention basis, because only a minority of patentees desire the maximum period and the preferred duration of protection varies across industry and technology sectors.
5. Over the course of the fixed maximum period, the grant of a patent would be maintained by the payment of regular renewal fees that increase over time, because this ensures that the duration of protection is not longer than socially optimal.
6. It would be possible to adjust the maximum duration of protection on a case-by-case basis, to take account of the fact that it is not possible to know with any certainty what, exactly, is the optimal duration of protection for any particular invention.

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## 5. FEATURES OF THE CURRENT SYSTEM

All developed countries have a patent system in which there is a common fixed maximum duration of protection. The common fixed maximum duration is 20 years from the date of filing of the application for a patent.<sup>37</sup> This period has been commonly adopted because the *TRIPS Agreement* mandates that the “term of protection available shall not end before the expiration of a period of twenty years counted from the filing date”.<sup>38</sup> Although this provision sets a minimum period of protection, countries have chosen to adopt this period as the maximum period of protection.

The patent systems of developed countries provide patentees with the entitlement to choose, subject to minimum and maximum periods, the duration of protection actually granted to their inventions. The minimum period of protection is the duration of the initial grant, which is usually in the vicinity of three to five years.<sup>39</sup> Thereafter, the grant is maintained only upon payment of the renewal fees. In the situation where it is no longer worthwhile for the patentee to maintain the patent, the patentee will not pay the next renewal fee when it falls due, and the patent will thereby lapse.

In developed countries, more than one renewal fee must be paid if the full period of patent protection is to be obtained. In some countries renewal fees are payable annually, while in other countries they are payable less regularly.<sup>40</sup> Although there are differences in when renewal fees commence and how frequently they are due, the feature common to developed countries is that the size of the renewal fee increases over time.

The patent system of most developed countries has flexibility for adjusting the maximum duration of protection on a case-by-case basis. There are, in particular, two mechanisms commonly found in national patent laws that provide just this sort of flexibility. The first mechanism allows the government to extend the maximum term of protection available for inventions that will have a comparatively short period of exclusivity in the marketplace due to government intervention. Many countries apply such a mechanism to

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<sup>37</sup> In the United States, for example, see 35 U.S.C. §154(a)(2).

<sup>38</sup> *TRIPS Agreement*, Article 33.

<sup>39</sup> For example, the initial duration is 3.5 years in the United States, and 5 years in the United Kingdom and Australia.

<sup>40</sup> The United Kingdom and Australia are countries where renewal fees are due annually. In the United States, by contrast, renewal fees are payable 3.5, 7.5 and 11.5 years after the grant of the patent.

pharmaceutical products, in recognition of the fact that the requirement for government regulatory approval to market pharmaceuticals limits the effective life of the patent monopoly.<sup>41</sup> This mechanism is, therefore, a means by which the maximum duration of patent protection can be *increased* on a case-by-case basis.

The second mechanism allows governments to permit persons other than the patentee to use a patented invention prior to the expiration of the patent without the consent of the patentee, where the national interest so requires. Many countries have adopted this mechanism to permit the compulsory licensing of patents where, for example, the patentee has engaged in anti-competitive behaviour or where there is national emergency that requires use of the patented invention.<sup>42</sup> The practical effect of a compulsory licence is that the patentee loses the exclusive right (the monopoly) to the invention – hence, the granting of a compulsory licence is, in effect, a means by which the maximum duration of patent protection can be *reduced* on a case-by-case basis.

## 6. CONCLUSION

It will be seen from the above analyses that the current system of duration of patent protection matches very closely to the optimal system. The current system provides a maximum duration of protection – 20 years – which is greater than eight years after the grant of the patent, and almost certainly errs on the side of being longer rather than shorter than the optimal duration of protection. Furthermore, the current system allows patentees to choose the duration of protection (subject to the maximum), by providing an optional renewal mechanism. Under that mechanism, the size of the renewal fee increases over time. Finally, the current system provides mechanisms whereby the maximum duration of protection can be either increased or decreased on a case-by-case basis.

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<sup>41</sup> In the United States, for example, the *Drug Price Competition and Patent Term Restoration Act of 1984* (“the Hatch-Waxman Act”) provides pharmaceutical patents with an extension of term equal to 50% of the time devoted to the clinical testing phase plus 100% of the time spent obtaining approval under the *Federal Food, Drug and Cosmetic Act*: 35 USC §156(c) and (g)(B).

<sup>42</sup> See, for example, ss 48A and 48B of the United Kingdom *Patents Act 1977*. The entitlement of countries to legislate for such compulsory licences is expressly provided in Article 31 of the *TRIPS Agreement*.

It seems clear, therefore, that the duration of protection provided by the current system is within the reasonable bounds of what might be considered the optimal duration of protection. Accordingly, the answer to the question of whether the one size duration of patent protection fits all inventions should be 'yes'.

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**IPRIA Working Papers**


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<b>No.</b>	<b>Title</b>	<b>Author(s)</b>
<b>04/07</b>	Duration of Patent Protection: Does One Size Fit All?	<i>Christie / Rotstein</i>
<b>03/07</b>	The Impact of Uncertain Intellectual Property Rights on the Market for Ideas: Evidence from Patent Grant Delays - Update	<i>Gans / Hsu / Stern</i>
<b>02/07</b>	Lawyers' Decisions In Australian Patent Dispute Settlements: An Empirical Perspective	<i>Dent / Weatherall</i>
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