

**AUSTRALIA'S SECOND-TIER PATENT SYSTEM:
A PRELIMINARY REVIEW**

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1 Executive Summary

1.1 Purpose of this review

Australia has experienced two systems of second-tier patent protection. In 1979, Australia's inaugural second-tier patent was introduced — the petty patent. In the following two decades extensive reviews of the petty patent system were undertaken and, as a result, in 2001 it was replaced by a new second-tier patent system — the innovation patent. This review traces the history of both Australian second-tier patents, and analyses their operation. The main question addressed is whether the petty and innovation patent systems have met, or meet, the objectives for which they were introduced.

The review is divided into three parts. The first part traces the events, reviews and reports which led to the introduction of the petty patent system, and its successor, the innovation patent system. The second part of the review profiles the users of the standard, petty and innovation patents systems. This profile is established on the basis of an analysis of patent application data. In conclusion, the review examines the extent to which the differing objectives of the petty and innovation patent systems have been, or are being, met. This analysis is performed by comparing the information provided in the first part about the objectives of the various systems with the actual profile of the users in the second part. Conclusions are then made about the relative success of each second-tier patent system in meeting the objectives for which they were introduced.

1.2 The petty patent

In 1973, the Designs Laws Review Committee ('Franki Committee') found that there existed in Australia a need for 'a system that ha[d] most of the features of the existing patent system but which offer[ed], for a relatively short term, a form of protection that is inexpensive and easy to obtain and that is quickly obtainable'.¹ Such a system would encourage inventions of short commercial life.²

The Franki Committee recommended a particular form of second-tier patent. Ultimately this form was accepted and petty patents were introduced by the *Patents Amendment Act 1979* (Cth). Petty patent applications were not required to undergo compulsory substantive examination, were not subject to opposition prior to grant, could only contain a single claim and, if granted, led to protection for an initial one year term (with a possible extension of up to six years). The inventive threshold requirement for petty patents equalled that of standard patents. In an attempt to counter criticism of the petty patents system,³ the *Patents Act 1990* (Cth) — which

¹ Commonwealth, Designs Law Review Committee ('Franki Committee'), *Report Relating to Utility Models (Second Term of Reference)*, Parl Paper No 121 (1973) 12.

² *Ibid* 19.

³ Industrial Property Advisory Committee (IPAC), *Patents, Innovation and Competition in Australia: A Report to the Hon. Barry O. Jones, Minister for Science and Technology* (1984) 4.

repealed the *Patents Act 1952* (Cth) — introduced differing standards of novelty and obviousness, and also increased the number of permissible claims to three.

1.3 The innovation patent

Despite amendment, the petty patent remained the subject of criticism and this was perhaps in part due to the shift in perception as to what Australia needed. Whereas the emphasis had previously been on inventions of short commercial life, it shifted to incremental inventions of a lower level of inventiveness. Various reviews gave impetus to the Advisory Council on Intellectual Property's recommended change of the existing petty patent system to provide 'fast, limited monopoly protection for lower level or incremental inventions'.⁴ Accordingly, the *Patents Amendment (Innovations Patent) Act 2000* (Cth), amending the *Patents Act 1990* (Cth), introduced innovation patents mid-2001. Innovation patents provides a maximum eight year term, permit up to five claims, are not subject to opposition proceedings prior to grant, and are only subject to post-grant examination at the request of the patentee or third-parties. Perhaps most significantly, the threshold of inventiveness required of innovation patents is lower than that of petty patents. Innovation patents require only an *innovative* step.

1.4 Empirical analysis

In this review patent application data is employed to profile the users of the various patent systems. This profile is then compared with the objectives of the various second-tier patents. The analysis of patent application data establishes that the profile of users of second-tier patent systems is markedly different from that of the standard patent system. Also, the differences between the profile of petty and innovation patents are perhaps less substantial than might be anticipated given their differing objectives. Petty and innovation patents were both intended to appeal to domestic inventors, by being less expensive, quicker to obtain and, in relation to innovation patents, easier to obtain due to the lower threshold of inventiveness. The primary objective of the petty patent system was to provide a form of patent protection that was suitable for inventions of short commercial duration (yet of a high level of inventiveness). It was thought that this would increase the inventor's return on investment, and encourage greater innovation. Standard patent protection had proved unsuitable for this purpose because of the time and cost it involved. By comparison, innovation patents were intended to provide protection for minor and incremental inventions, which did not reach the level of inventiveness required for standard patent protection, but whose functionality could not be protected by designs legislation.

⁴ Advisory Council on Industrial Property (ACIP), *Review of the Petty Patent System* (1995) 5.

1.5 Profile of users of the petty patent

On the basis of the profile of petty patent users, it would appear that the objectives of the petty patent system were to some degree met. Domestic and individual users received greater representation among petty patent applications than standard patent applications. Accordingly, petty patents appear to have successfully advanced the interests of domestic innovation among inventors. Further, the technology groups represented among petty patent applications indicate that petty patents were successful in catering for industries where the commercial life of inventions is often short, although further research is required in order to conclusively link the applications in those technology groups with inventions of a short commercial life. The main foreign countries represented among petty and standard patent applicants differ to some extent. Why this is the case, and whether it is significant, is a question for future research.

1.6 Profile of users of the innovation patent

The evidence also suggests that innovation patents meet their objective of catering for individual inventors and domestic innovation. Further, a greater number of innovation patent applications are made compared with petty patent applications. Future research may examine the extent to which this is due to the lower inventiveness threshold, or the greater number of claims permitted which, in turn, may have led to a decrease in the attorney fees associated with an innovation patent application. The technology groups represented among petty and innovation patent applications are virtually identical. As in the petty patent system, countries in the Asia-Pacific region and developing countries are over-represented among the number of foreign users of the innovation patent system compared with the standard patent system.

1.7 Future research

On balance, the objectives of the innovation patent appear to be met. The next step required in a subsequent review of the innovation patent is an assessment of whether these objectives remain appropriate for Australia today and for Australia in the future. Countries considering the introduction or reform of a second-tier patent system may benefit from reflection on the Australian experience. The petty and innovation patents might provide blueprints for the shape such second-tier systems can take, which can be modified according to the particular objectives of those countries.

2 Introduction

Australia has experienced two systems of second-tier patents. In 1979, Australia's inaugural second-tier patent was introduced — the petty patent. Through-out the 1980s and the 1990s various reviews of the petty patent system were undertaken, and in 2001 a revised second-tier patent was instigated — the innovation patent — which supplanted the petty patent.

This review traces the history of both Australian second-tier patent systems, and analyses their operation. Its contents will inform our general understanding of the relationship between standard and second-tier patents in Australia. It will also provide a strong basis for the review of the innovation patent system planned to be undertaken within the first five years of its operation i.e. before the end of 2006.⁵ Accordingly, this review will be of particular interest to users of the Australian patent system. It is hoped that it will engage such users and provide a useful tool for the generation of discourse on the appropriateness of the present form of second-tier patent protection. In addition, to the extent that it documents the law reform processes and political climate which led to the introduction of the petty patent and later the innovation patent, it is hoped that the review will be of interest to foreign policy makers and users of foreign patent systems. Both types of Australian second-tier patents have been unique and characterise interesting options available to countries considering the introduction or reform of their second-tier patent systems.

It would be desirable to be able to assess whether second-tier patents generally advance innovation in Australia. Ideally one would examine whether the petty and innovation patent systems have led to a net increase in innovation. Such an analysis is, however, beyond the scope of this review, and perhaps even impossible. Instead, the main question addressed here is whether the petty and innovation patent systems have met, or meet the objectives for which they were introduced. The review is, therefore, principally descriptive. In order to answer the question whether the petty patent met, and the innovation patent meets the objectives for which it was introduced, the review is divided into three parts. The first part of the review traces the events, reviews and reports which led to the introduction of the petty patent system, and later the innovation patent system through which it was replaced. Accordingly, this part outlines the characteristics of the two systems. In addition, it clarifies the subtly differing objectives of the two forms of second-tier patents.

The second part of the review provides a profile of the users of the standard, petty and innovation patents systems. It contains an analysis of the standard, petty and innovation patent systems in Australia, on the basis of patent application data. This analysis helps profile the users of the various patent systems. Specifically, four areas of analysis are undertaken. In the first section the proportion of individual versus company applicants for each type of patent is analysed. In the second section an analysis is undertaken of the proportion of Australian versus foreign patent applicants. This is followed by an analysis of the country of origin of foreign applicants of patents. Finally the main technology groups represented by the various patent types are examined.

⁵ ACIP, above n 4, 63.

In conclusion, the review examines the extent to which the differing objectives of the petty and innovation patent systems have been, or are being, met. This analysis is performed on the basis of the information provided in the first part about the objectives of the various systems, in combination with the profile of the users in the second part. The profiles of the users of the patent systems are compared with the intended characteristics of the systems, so as to assess the relative success of each in meeting the objectives for which it was introduced.

3 The Australian patent system

3.1 The Australian standard patent system

Australia largely inherited its patent system from the United Kingdom, but this system has in recent decades developed independently of its British counterpart. Prior to the Australian introduction of a second-tier patent system, the relevant legislation concerning patents was the *Patents Act 1952* (Cth). In order for an invention to be patentable subject matter it was not allowed to have been published prior to the patent application being made, and needed to be new.

The current legislation governing patents is the *Patents Act 1990* (Cth). Now the subject matter of a patent needs to be a manner of new manufacture in accordance with the *Statute of Monopolies*, be novel, be non-obvious (i.e. evidence an inventive step over the prior art), be useful and not have been secretly used. A patent grants 'the patentee the exclusive rights, during the term of the patent, to exploit the invention and to authorise another person to exploit the invention'.⁶

An application for a standard patent must be accompanied by a specification in order to be granted. The specification contains the invention for which protection is sought, and the claims it contains demarcate the breadth of the exclusive rights to be received. It is the specification which is the consideration received by the public in return for the limited exclusive rights granted to the patentee. Standard patent specifications contain multiple claims. In Australia there exists the option of filing a provisional application that does not have to include any claims, but must fairly describe the invention. An associated complete application must be lodged within twelve months of the filing of the provisional application. The grant of a standard patent may be opposed by any person on the grounds set out in s59 of the *Patents Act 1990* (Cth). Opposition must be filed within three months of the notice of acceptance of a standard patent.

The term of a standard patent, while previously sixteen years, was increased to twenty years by the *Patent (World Trade Organisation) Amendment Act 1994* (Cth). The *Intellectual Property Laws Amendment Act 1998* (Cth) made it possible for patents concerning pharmaceutical substances to receive an extended term for up to five years. The term of a standard patent runs from the date of lodgement of the specification.

⁶ Section 13(1) of the *Patents Act 1990* (Cth). In the dictionary of the Act 'exploit' is defined as 'make, hire, sell or otherwise dispose of the product, offer to make, sell, hire or otherwise dispose of it, use or import it, or keep it for the purpose of doing any of those things; or (b) where the invention is a method or process—use the method or process or do any act mentioned in paragraph (a) in respect of a product resulting from such use'.

3.2 Introduction to the Australian second-tier patent systems

In recent years the existence of second-tier patent protection throughout the world has increased significantly in order to principally address the problem of access to patent protection.⁷ One of the main rationales behind second-tier patent systems is that such systems improve access to patent protection for individuals and small and medium enterprises (SMEs).⁸ In addition, the quick grant of a second-tier patent is thought to make such protection suitable for products with a short life-cycle.⁹ Second-tier patent systems have also been considered as “conceptual frameworks” for alternative intellectual property regimes for non-traditional subject matter, such as computer software.¹⁰

The common features of second-tier patents in comparison to standard patent protection are:¹¹

- Shorter term protection
- Lower requirements of inventiveness
- No substantive examination prior to grant
- Restricted number of claims
- Restricted technologies for which protection is granted

Australia has seen two systems of second-tier patents. The first such regime, the petty patent system, was introduced in 1979. Petty patents were replaced by innovation patents in 2001.

The development of Australian second-tier patent protection was a response to perceived deficiencies in patents and designs law. Prior to the introduction of petty patents it was thought that all inventions worthy of patent protection, were able to achieve it. However, there was an apparent need for quick, less expensive and more easily obtainable patent protection for inventions with a short commercial life. Once petty patents were introduced, however, it became apparent that they not so much served inventors, as manufacturers — the costs borne by inventors were prohibitive. It also became evident that existing designs legislation did not protect functional innovations — inventions which lacked the level of inventiveness required for patent protection, and whose functionality was not protected by designs law, concerned only with the protection of appearance. Accordingly, a gap was found to exist in the protection of minor and incremental innovations and inventions.¹² This led to the inception of the innovation patent regime. The following sections outline the primary features and objectives of both petty and innovation patents and address the developments which led to the introduction of the respective regimes.

⁷ Mark D. Janis, ‘Second Tier Patent Protection’ (1999) 40 *Harvard International Law Journal* 151, 151.

⁸ *Ibid* 178.

⁹ *Ibid* 194.

¹⁰ *Ibid* 204.

¹¹ *Ibid* 152; see also ACIP, above n 4, 14.

¹² ACIP, above n 4, 23.

3.3 Petty patents – Australia's initial second-tier patents

3.3.1 Objectives of the petty patent system

The objective of the petty patent system was to create a form of patent protection that was less expensive, easier and more quickly obtained than standard patent protection, and that would accordingly be used for inventions with a relatively short commercial life.¹³ The view was that the time and cost associated with a standard patent meant that in practice there was 'not a sufficiently quick and inexpensive and simple means of providing protection for the lower range of inventions, especially small articles having short commercial life-spans'.¹⁴ The petty patent system was primarily intended for Australian industry and inventors.¹⁵

The principal means by which the petty patent system aimed to achieve its objectives was through eliminating opposition proceedings prior to grant. This was intended to increase the speed of an application being granted and reduce expenses otherwise associated with opposition hearings. The restriction of a petty patent to one claim was intended to reduce patent attorney costs.

3.3.2 Franki Report 1973

In Australia, second-tier patent protection was largely initiated by the findings of the Designs Law Review Committee (the Franki Committee) in its *Report Relating to Utility Models*. The Attorney-General established the Franki Committee to review Australian designs legislation. Around the time of the review, the Patent Office had been under considerable pressure due to increasing patent application numbers. Faced by a similar situation, the German patent office had initiated a system of 'deferred examination'.¹⁶ Australia followed suit, and in 1969 the *Patents Act 1952* (Cth) was amended to also introduce a system of deferred examination, where examination occurred upon request of the applicant, but no later than five years after a patent application was made. The idea was put forward that utility model protection without substantive examination, such as existed in Germany, might be appropriate for the Australian situation. Accordingly, the second term of reference of the Franki Committee was:

*To consider and to recommend whether separate legislative provisions should be made in Australia with respect to utility models and, if it so recommends, the provisions that it thought should be included in that legislation.*¹⁷

The Franki Committee assessed whether there existed 'a need for a form of protection for lesser technological developments which have merit, but are not entitled to

¹³ Franki Committee, above n 1, 11.

¹⁴ IPAC, *Report on Proposed Petty Patents Legislation* (1978) 3.

¹⁵ C H Friemann, 'Petty patents as seen by the Australian Patent Office' (Paper presented at the Petty Patent Seminar, Melbourne, 27 November 1981) 1.

¹⁶ IPAC, above n 3, 2.

¹⁷ Franki Committee, above n 1, 7.

protection under the designs legislation and are not patentable because they do not involve a sufficient inventive step'.¹⁸ It established that there was no gap in the industrial protection available in Australia¹⁹ - all inventions which merited protection could achieve it.²⁰ However, the Franki Committee *did* find that there was a need for quick and less expensive protection which could be easily obtained for inventions with a short commercial life.²¹ In this regard design registration was inadequate, as design registration merely protected the aesthetics and not the functionality of a design.²² Standard patent protection also did not adequately cater for inventions of a shorter commercial life. The deferred examination procedures for standard patent applications were insufficient for many inventors, as inventors often required a patent before a manufacturer would consider investing in its production.²³ It was thought that 'the grant of patent rights for smaller inventions was too slow, too expensive and too difficult with the result that the inventors of such inventions were either unable to exploit their inventions commercially themselves or to interest manufacturers in doing so'.²⁴

On the basis of its finding that there was scope for further protection of technological developments, the *Franki Report* recommended the introduction of a system of petty patents by amendment to the then existing patents legislation.²⁵ The Franki Committee found that what was needed was '...basically, a system that has most of the features of the existing patent system but which offers, for a relatively short term, a form of protection that is inexpensive and easy to obtain and that is quickly obtainable'.²⁶

The recommended petty patent system was intended to cover subject matter as defined in s6 *Patents Act 1952* (Cth).²⁷ The patent application would not undergo compulsory substantive examination, nor opposition proceedings prior to grant, but the Commissioner would maintain the discretion to examine the validity of a patent application. The scope of a patent was to be contained in a single claim and the term of protection was to be one year, with the possible extension for a maximum of six years. The *Franki Report* recommended that during the initial year of a petty patent

¹⁸ IPAC, above n 3, 2.

¹⁹ It was viewed that this 'gap' had led to the introduction of utility model protection in Germany (see Franki Committee, above n 1, 9).

²⁰ *Ibid.* This was similar to the negative finding of the Banks Committee, which assessed whether second-tier patent protection should be introduced in the United Kingdom.

²¹ ACIP, above n 4, 19; see also T D Mandeville, D M Lamberton and E J Bishop, *Economic Effects of the Australian Patent System – A Commissioned Report to the Industrial Property Advisory Committee* (1982) 11.

²² For a discussion of the inadequacies of design registration for the protection of inventions see also Australian Law Reform Commission, *Designs*, Discussion Paper No 58 (1994) and Report No 74 (1995).

²³ Franki Committee, above n 1, 11.

²⁴ IPAC, above n 3, 3.

²⁵ Two alternatives to additional patent protection were considered. First, the possibility of including provisions for additional protection in the designs legislation was discussed. However, this was rejected because it was thought that the purpose of designs legislation was of a different nature, namely the 'protection for feature of shape, configuration, pattern or ornament applicable to articles and not for inventions': Franki Committee, above n 1, 13. Second, it was considered that additional protection could be introduced by offering protection against copying only. However, it was thought that monopoly rights were appropriate in this instance, rather than protection from copying.

²⁶ *Ibid.* 12.

²⁷ *Ibid.* 8; see also ACIP, above n 4, 19.

the public should be able to inform the Commissioner of matters affecting its validity. In this way unwanted monopolies would not be permitted. The level of inventiveness which the Franki Committee recommended for a petty patent was that of standard patents,²⁸ and those eligible to apply for one would be eligible to apply for the other, but not for both.²⁹

The *Franki Report* suggested that the cost of, and time involved, in infringement proceedings might be lessened by virtue of the single claim associated with a petty patent. The petty patent system seemed to offer an alternative which would neither inhibit an ordinary tradesman, nor a manufacturer, and at the same time would not greatly increase the workload of the Patent Office.³⁰

3.3.3 Report on Proposed Petty Patents Legislation 1978

On the basis of the *Franki Report* a Bill was drafted which incorporated the recommendations made in that Report, so as to implement the petty patent system. However, it did not receive unqualified support from stakeholders. In order to assess the validity of criticisms made of the draft Bill, it was referred to the Industrial Property Advisory Council (IPAC) for consideration.³¹

The primary criticism of inventors and patent attorneys was that the level of inventiveness was too high to adequately assist inventors.³² It was thought that the *Franki Report* recommendations would mainly assist small manufacturers.³³ On the other hand, the manufacturers' concern was that there would be a low incidence of validity of petty patents given the absence of compulsory examination, and that industry would accordingly incur greater costs, because it would need to perform its own examinations.

In general, IPAC supported, and to some extent added to the findings of the *Franki Report*. IPAC did not recommend that the inventive threshold for petty patents be lowered, but it did recommend the exclusion of anything which would inhibit the later introduction of a lower threshold. Further, IPAC recommended that the draft Bill be amended to increase the 'obligation imposed upon the Commissioner to refuse to accept applications for petty patents which are capable of being demonstrated to be bad for lack of novelty'.³⁴

²⁸ The options considered were distinctions between major and minor inventions, and between inventions which were obvious or clearly obvious: see Franki Committee, above n 1, 16.

²⁹ *Ibid* 19.

³⁰ *Ibid* 14.

³¹ IPAC's terms of reference were 'to consider the draft Bill and advise the Minister whether there are valid objections to the Bill as drafted, whether it is practicable to resolve those objections and whether any changes to the Bill would be desirable': IPAC, above n 3, 1.

³² *Ibid* 4.

³³ *Ibid* 4-5.

³⁴ *Ibid* 6-7.

3.3.4 The petty patent system

The *Patents Amendment Act 1979* (Cth) introduced Australia's original second-tier patent system by amending the existing patents legislation, and was operative from 1 July 1979. The principal means by which the petty patent system aimed to cater for inventions of short commercial life was through eliminating opposition proceedings prior to grant. Although apparently not the intention of the legislature, in practice petty patents underwent a full-examination prior to grant.³⁵

Petty patents received an initial one year term of protection from the date of sealing, with a maximum term of six years from the date on which the patent application was lodged. During the initial year of a petty patent, evidence pertaining to grounds of invalidity could be brought by third parties to the Commissioner. It was thought that this would increase the likelihood of a petty patent being valid, in part to counter the lesser examination procedures of petty patents compared with standard patents.

Provisional applications could not be made for petty patents until the *Petty Patents Act 1990* (Cth) took effect. However, prior to this, a provisional application could be lodged for a standard patent, and once a complete standard patent application was made, a divisional could be made from that application for a petty patent. In this way the earlier priority date, based on the provisional application, could be claimed for a petty patent. Unlike many forms of second-tier patent protection, the subject matter for which petty patents were permitted was identical to standard patents.³⁶ Further, the requirements of patentability were also initially identical. At its introduction the petty patent regime only allowed for one claim in the petty patent specification. Prior to the grant of a petty patent, a petty patent application could be converted to a standard patent application. Given the restricted examination procedures, the time in which such a conversion could occur was limited.

Like standard patents, petty patents could be applied for via the Patent Co-operation Treaty route. However, as petty patents were generally intended for the exploitation of inventions specifically within Australia, international protection through the PCT route was generally of little interest.³⁷

³⁵ Section 50 of the *Patents Act 1990* provided that 'the Commissioner must consider the patent request and the complete specification and, for that purpose, may make such investigations as the Commissioner thinks fit', to determine whether or not 'there is a lawful ground of objection'. In practice this amounted to an examination of the application, even though it appears it was not the intention of the legislature that it be so: See Staniforth Ricketson, *The Law of Intellectual Property* (1984) [47.56].

³⁶ For example, many utility models only cater for minor mechanical and electrical inventions, and accordingly require only a lower level of inventiveness.

³⁷ According to World Intellectual Property Organization data, through-out the duration of the petty patent system only thirteen petty patents were granted, which were applied for using the PCT route: see World Intellectual Property Organization, *25 Years of Industrial Property Statistics (1975 – 2000)* <http://www.wipo.int/ipstats/en/publications/25_years/index.htm> at 20 March 2004.

3.4 Reviews of the petty patent system – Towards the innovation patent

3.4.1 Petty Patents Seminar 1981

In 1981 a seminar was held in Melbourne by the Victorian Chamber of Manufacturers in conjunction with IPAC and the Australian Patent Office, to assess the success of the petty patent system. The primary advantage of the petty patent system was viewed as the speed with which protection was obtained. On average, ninety per cent of granted petty patents were granted within three months of being filed.³⁸

Although the petty patent system received support, criticisms were also voiced. The petty patent system was criticised for not serving the people for whom it was originally intended.³⁹ The patent attorney costs associated with a petty patent was comparable to standard patents, and thus prohibitive, as utmost care was required when drafting the single claim upon which the validity of the petty patent depended.⁴⁰ The single claim also made it difficult to enforce a petty patent. If the claim was too broad the patent would be invalid for obviousness or want of novelty, and if it was too narrow a potential infringer could escape liability for infringement. The six year term of petty patents was criticised for being too short to truly provide an incentive for a potential manufacturer to invest.⁴¹

3.4.2 Patents, Innovation and Competition in Australia 1984

In response to concern about the role of patent protection in Australia, IPAC commissioned a two year study into the economic implications of the Australian patent system.⁴² This study found the benefits of the patent system to be 'so tenuous and subtle and the overall benefit/cost ratio ...negative, [such that] there is no economic justification for extending patent monopolies'.⁴³ In contrast, a subsequent economic review of the Australian patent system performed by IPAC, *Patents,*

³⁸ ACIP, above n 4, 15. Also, speaking on behalf of Vulcan Industries, K J Croagh, then Managing Director of Vulcan, acknowledged that it was the speed of protection which had led Vulcan to utilise the petty patent system. He stated that '[t]he great benefit we have with the petty patent is that we have a patent we can quote to potential infringers immediately on putting our latest product on the market', and he found this to be preferable to a provisional application which could be opposed: K J Croagh, 'Petty Patents for the Industrial User' (Paper presented at the Petty Patent Seminar, Melbourne, 27 November 1981) 3.

³⁹ A representative of the patent attorney profession summarised the problems with the system by stating that petty patents were excellent in extremely *rare* circumstances only, circumstances where 'the inventor can manufacture and distribute in large quantity and in short time, where he knows the extent of novelty, where the product is likely to be a craze rather than a steady seller, and/or where there is a substantial risk of infringement': Charles Sandercock, 'Petty Patents and the Emperor's New Clothes' (Paper presented at the Petty Patent Seminar, Melbourne, 27 November 1981) 5. To some extent this seems to be precisely the situation for which the petty patent was intended, the reality was, however, that inventors were rarely in the position to commercially manufacture their inventions themselves.

⁴⁰ See e.g. Sandercock, above n 39, 2.

⁴¹ See e.g. Allen Koster, 'The Private Inventor and Petty Patents' (Paper presented at the Petty Patent Seminar, Melbourne, 27 November 1981) 3.

⁴² Mandeville et al, above n 21.

⁴³ Ibid 213.

Innovation and Competition in Australia, recommended change, but continued use of the patent system. The report found that '[w]hile the economic effects of the patent system may be modest, the transition costs of withdrawal from the international system might be much larger'.⁴⁴ Accordingly it recommended 'changes with a view to achieving a more favourable cost/benefit margin, emphasising the particular needs of Australia while not losing sight of the international context of the system'.⁴⁵

The most pertinent recommendation contained in the IPAC report was the introduction of a two-tier system of patent protection with *differing* standards of novelty and obviousness.⁴⁶ The report recommended that standard patent applications be assessed against the prior art base of the world, compared with an Australian prior art base for petty patents. IPAC also recommended that the maximum number of claims of a petty patent be increased to three, that a provisional specification procedure be introduced for petty patents, and that no one invention be the subject of both a standard and petty patent.⁴⁷

The *Patents Act 1990* (Cth), operative from 1 May 1991, repealed the *Patents Act 1952* (Cth). It incorporated the recommendations made in IPAC's *Patents, Innovation and Competition in Australia*. Specifically, the *Patents Act 1990* (Cth) differentiated between the assessment of novelty for standard and petty patents. It changed the prior art base for standard patents to include publications available through-out the world,⁴⁸ and public disclosures and acts in Australia, whereas the relevant prior art base used to assess novelty for petty patents remained domestic (i.e. publications, public disclosures and acts in Australia). It was thought that this represented 'a sensible distinction between a patentee which is an export-oriented company ... and a smaller company whose ambitions are more restricted to the domestic market'.⁴⁹ The *Patents Act 1990* (Cth) also increased the number of permissible claims of a petty patent to a maximum of one independent claim with two dependent claims.

3.4.3 The Role of Intellectual Property in Innovation 1993

Among other things, in the 1993 report *The Role of Intellectual Property in Innovation* the Prime Minister's Science and Engineering Council (PMSEC) was advised that the petty patent system did not provide 'limited term protection for lower levels of invention such as small scale incremental advances in existing or newly adapted technologies'.⁵⁰ The report suggested the two main reasons for this were the absence of differentiation between the level of inventiveness required of standard and petty patents, and the relatively short term (six years) for which petty patents were granted. Accordingly, it recommended lowering the standard of inventiveness required for petty patent protection, as well as an extension of the term of a petty

⁴⁴ IPAC, above n 3, 1.

⁴⁵ Ibid preface.

⁴⁶ Ibid 4.

⁴⁷ Ibid 6.

⁴⁸ The Hon. Barry O. Jones, MP, Minister for Science and Technology, Second Reading Speech, Patents Bill 1989 (Cth), 1 June 1989.

⁴⁹ Ibid.

⁵⁰ Prime Minister's Science and Engineering Council (PMSEC), *The Role of Intellectual Property in Innovation* (1993) 70.

patent to ten years.⁵¹ While these recommendations were not adopted during the term of the petty patent, they were perhaps borne in mind when consideration turned to the innovation patent.

3.4.4 Review of the Petty Patent System 1995

In August 1995, the Advisory Council of Intellectual Property (ACIP)⁵² released its *Review of the Petty Patent System*. The review was issued in response to the aforementioned report to PMSEC. The ACIP review was the first 'separate and comprehensive review of the petty patent system since its introduction in July 1979'.⁵³ ACIP's terms of reference were to review:

the role of petty patents in Australia's industrial property system and their contribution to economic and technological development in Australia; and

*the effectiveness and efficiency of a petty patent system in meeting its objectives with particular regard to small and medium business enterprises.*⁵⁴

ACIP was prompted to look at the issue of whether functional innovations received adequate protection through the existing standard and petty patent systems, subsequent to a discussion paper and report by the Australian Law Reform Commission (ALRC) on designs legislation.⁵⁵ In its report, the ALRC had commented that there existed a gap in the protection of function.⁵⁶ It noted that

*Designers may make a relatively large innovative leap in the function of a product, yet a competitor may copy that innovation, make relatively small changes to the appearance of the product and escape infringement proceedings. When the real innovative leap is functional rather than visual, this gap significantly reduces the worth of design protection.*⁵⁷

However, as Australian designs legislation protected appearance rather than functionality, the ALRC recommended that '[t]he new designs legislation should continue to focus on the visual appearance of a product'.⁵⁸ It recommended that

*ACIP should take the new designs legislation recommended in this report into account in its review of the petty patent system. ACIP should address any gap in the protection of function in its recommendations for reform of the petty patent system.*⁵⁹

⁵¹ Ibid.

⁵² The Industrial Property Advisory Committee is the predecessor of the Advisory Council on Intellectual Property.

⁵³ ACIP, above n 4, iii.

⁵⁴ Ibid 4.

⁵⁵ ALRC, above n 22.

⁵⁶ ALRC, *Designs*, Report No. 74 (1995) [3.49].

⁵⁷ ALRC, *Designs*, Discussion Paper No. 58 (1994) [5.18].

⁵⁸ ALRC, above n 56, Recommendation 4.

⁵⁹ Ibid, Recommendation 5.

ACIP found the 'petty patent system was not providing protection for incremental innovations'.⁶⁰ It wrote

*[t]he 'gap' relates to functional innovations that are not sufficiently inventive under the present standard or petty patent system to warrant protection, and are not protectable under the designs system which protects the appearance of articles, but not 'the way they work'. Provision of protection for these incremental innovations will encourage Australian individuals and businesses to invest in the development and marketing of their 'good ideas' in the domestic market.*⁶¹

Accordingly, ACIP recommended that the existing second-tier patent system be changed to provide 'fast, limited monopoly protection for lower level or incremental inventions'.⁶² This new 'innovation' patent system would require a lesser level of inventiveness than petty patents.⁶³ One recommendation was that innovation patents might be found not to be novel 'if an innovation varies from a previously publicly available article, product or process, only in ways which make no substantial contribution to the effect of the product or working of the article or process'.⁶⁴

Other recommendations pertaining to the new innovation patent were:

- Increased term of protection of eight years⁶⁵
- Maximum of five claims
- Substantive examination only upon request by applicant or third party⁶⁶
- No opposition proceedings prior to grant
- Same prior art base as standard patents
- Lesser degree of inventiveness required
- Priority obtainable from provisional applications
- Retention of divisional practice⁶⁷
- Possibility of conversion, prior to grant, of an innovation patent to a standard patent⁶⁸

⁶⁰ ACIP, above n 4, iii.

⁶¹ Ibid 5.

⁶² Ibid.

⁶³ Ibid 6.

⁶⁴ Ibid 32.

⁶⁵ Of surveys undertaken, 36% of respondents had noted that the term of protection was too short. It was thought that an increased term of protection would increase the incentive to innovate, because the returns for innovative activity would be greater, and in addition it would increase the ease of re-sale: see Ibid 36.

⁶⁶ See Appendix. As implemented, substantive examination of innovation patents may also be undertaken at the direction of the Commissioner for Patents.

⁶⁷ Divisional applications involve the filing of a petty patent as a divisional application of a complete patent application for quick protection, in order to be able to bring a product onto the market and threaten infringement proceedings, or in order to achieve financial support which will only be given once a patent is granted.

⁶⁸ There already existed a method of 'converting' after grant, which was not officially sanctioned. It was possible to file a standard patent application as a divisional application of a granted petty patent (which had to be done within three months of the petty patent being granted). When the date of acceptance of the standard patent was close, the petty patent would then be forfeited. Section 104 *Patents Act 1990* (Cth) allows an application for a standard patent to be converted, prior to grant, to an

- Possibility of concurrent standard and innovation patent protection for the one invention⁶⁹

In its *Review of Intellectual Property Legislation under the Competition Principles Agreement* the Intellectual Property and Competition Review Committee offered its full support for ACIP's recommendations.⁷⁰

3.5 Innovation patents – Australia's subsequent second-tier patents

3.5.1 Objectives of the innovation patent

The innovation patent system is intended to fill the 'gap' that existed with regard to minor and incremental innovations. It offers a quick, less expensive and simple form of protection to 'encourag[e] individuals and small to medium-sized businesses to realise their good ideas'.⁷¹ It is thought that the innovation patent will particularly assist individuals and SMEs obtain patent protection, and protection for a sufficiently long period to encourage investment in innovation.

3.5.2 The innovation patent

The innovation patent system was introduced in mid-2001 as a result of the ACIP *Review of the Petty Patent System*. The *Patents Amendment (Innovation Patents) Act 2000* (Cth) amended the existing *Patents Act 1990* (Cth) to accommodate the innovation patent system. The majority of features of the innovation patent were adopted from ACIP's recommendations. Accordingly innovation patents have a maximum eight year term, cover no more than five claims, are not subject to opposition proceedings prior to grant, and are only subject to substantive examination at the direction of the Commissioner, or after grant at the request of the patentee or a third party. The threshold level of inventiveness is lower.⁷² Innovation patents cannot be filed through the PCT route.

innovation patent application, and vice versa. However, an amendment to an innovation patent application is not permissible where it would have the effect of converting a divisional innovation patent application made under s 79C *Patents Act 1990* (Cth) to an application for a standard patent: s 102(2B) *Patents Act 1990* (Cth).

⁶⁹ This recommendation was, however, not implemented. See s 64 *Patents Act 1990* (Cth).

⁷⁰ Intellectual Property and Competition Review Committee ('the Ergas Committee'), *Review of Intellectual Property Legislation under the Competition Principles Agreement* (2000) 16.

⁷¹ Announcement of the Minister for Science and Technology in February 1997, cited in Janis, above n 7, 171. It should be noted that while the cost of receiving an innovation patent is less than the cost of applying for a standard patent, the enforcement of an innovation patent necessitates examination. It may be that the cost of enforcing innovation patents prevents some people from applying for them.

⁷² To be a patentable invention for the purposes of an innovation patent, an invention must involve an innovative step: s 18(1A)(b)(ii) *Patents Act 1990* (Cth); as opposed to the inventive step required of standard patents: s 18(1)(b)(ii) *Patents Act 1990* (Cth). An invention is understood to evidence an innovative step 'unless the invention would have been obvious to a person skilled in the relevant art, in light of the common general knowledge as it existed in the patent area before the priority date of the relevant claim': s 7(4) *Patents Act 1990* (Cth).

The Government rejected ACIP's proposal that dual protection in the form of both a standard and innovation patent should be allowed, as it saw 'no reason for the same invention to be granted rights under both systems'.⁷³

The prior art base applicable to standard patents is also applicable to innovation patents. At the time of the introduction of the innovation patent system this prior art base comprised documents publicly available anywhere in the world, as well as domestic acts. Since the *Patents Amendment Act 2001* (Cth) the prior art base has been extended to include publications *and* acts which have taken place anywhere in the world.

Patentable subject matter for the purpose of innovation patents is the subject matter for which standard patent protection is available, with the exception of inventions concerning plants and animals and processes for the generation of plant and animals.⁷⁴ Inventions concerning plants and animals are, however, capable of innovation patent protection where such inventions are microbiological processes or products of such processes.⁷⁵

Innovation patents have been available to the public since May 2001, at which point the petty patent system became inoperative, except for a few transitional matters.

⁷³ Australian Government, *Introduction of the Innovation Patent: Government Response to the Recommendations of the ACIP Report 'Review of the Petty Patent System'* (1997), Recommendation 11 <http://www.dcita.gov.au/Article/0,0_1-2_12-3_143-4_15997,00.html> at 12 October 2004.

⁷⁴ Section 18 *Patents Act 1990* (Cth).

⁷⁵ Section 18(4) *Patents Act 1990* (Cth).

3.6 Comparison of the key characteristics of standard, petty and innovation patents

The table below provides a comparison of the key characteristics which define, and which differentiate between standard, petty and innovation patents. It is intended to provide a useful reference point to return to through-out the review.

	Standard Patent	Petty Patent	Innovation Patent
Objective	To encourage greater inventive activity through the grant of limited monopoly rights ⁷⁶	To provide less expensive and quicker patent protection, and thereby to encourage inventions of a short commercial life	To provide less expensive, simpler and quicker patent protection, and thereby to encourage minor and incremental innovations
Initial legislation	<i>Patents Act 1903</i> (Cth)	<i>Patents Amendment Act 1979</i> (Cth)	<i>Patents Amendment (Innovation Patent) Act 2000</i> (Cth)
Inventive threshold	Inventive step ⁷⁷	Inventive step	Innovative step ⁷⁸
Prior art base	Originally domestic; extended to publications available through-out the world; ⁷⁹ now publications and acts through-out the world ⁸⁰	Domestic ⁸¹	Same as for standard patents ⁸²

⁷⁶ There exist various rationales for such monopoly rights, including the natural-law thesis (now largely superseded); reward-by-monopoly thesis; monopoly-profit thesis and exchange-for-secrets thesis: See H I Dutton, *The Patent System and Inventive Activity During the Industrial Revolution 1750-1852*, Manchester University Press (1984) 17, cited in Sam Ricketson and Megan Richardson, *Intellectual Property: Cases, Materials and Commentary* (1998, 2nd edition) 553.

⁷⁷ Section 18(1)(b)(ii) *Patents Act 1990* (Cth), as defined in s7(2) *Patents Act 1990* (Cth).

⁷⁸ Section 18(1A)(ii) *Patents Act 1990* (Cth), as defined in s7(4) *Patents Act 1990* (Cth).

⁷⁹ This extension was brought about by the *Patents Act 1990* (Cth).

⁸⁰ Schedule 1 *Patents Act 1990* (Cth) definition of 'prior art base'. This extension was brought about by the *Patents Amendment Act 2001* (Cth) and, as the prior art base required of innovation patents is the same as that of standard patents, it equally extended the prior art base of innovation patents.

⁸¹ However, given modern communication, in practice there was no real difference between domestic and worldwide standards for published documents.

⁸² Schedule 1 *Patents Act 1990* (Cth) definition of 'prior art base'.

	Standard Patent	Petty Patent	Innovation Patent
Substantive examination prior to grant	Yes	Yes ⁸³	No ⁸⁴
Number of claims	Multiple ⁸⁵	Originally 1 claim. Later 1 independent claim and up to 2 dependent claims ⁸⁶	Maximum of 5 claims ⁸⁷
Provisional application	Yes ⁸⁸	Yes ⁸⁹	Yes ⁹⁰
Divisional application	Yes ⁹¹	Yes ⁹²	Yes ⁹³

⁸³ Section 50 *Patents Act 1990* (Cth) and see discussion at above n 35.

⁸⁴ Substantive examination may be undertaken after grant, at the direction of the Commissioner for Patents or at the request of the patentee or third-party: s 101A *Patents Act 1990* (Cth).

⁸⁵ Section 40(2)(b) *Patents Act 1990* (Cth).

⁸⁶ The possibility of up to two dependent claims was introduced by the *Patents Act 1990* (Cth).

⁸⁷ Section 40(2)(c) *Patents Act 1990* (Cth).

⁸⁸ Section 29(2) *Patents Act 1990* (Cth). An associated complete specification must be filed within twelve months of the provisional application having been filed: Regulation 3.10 *Patents Regulations 1991* (Cth).

⁸⁹ The ability to make a provisional application in respect of a petty patent became available once the *Patents Act 1990* (Cth) came into effect. However, even prior to this, a provisional application could be lodged for a standard patent and once the complete standard patent application was made, a divisional could be lodged for a petty patent (so as to receive the earlier priority date of the provisional).

⁹⁰ Section 29(2) *Patents Act 1990* (Cth). An associated complete specification must be filed within twelve months of the provisional application having been filed: Regulation 3.10 *Patents Regulations 1991* (Cth).

⁹¹ An application for a standard patent can be made as a divisional application based on an earlier complete standard or innovation patent application, where that application is still in force: s79B *Patents Act 1990* (Cth). A divisional application of this kind must be made prior to the grant of the initial standard or innovation patent: Regulation 6A.1 *Patents Regulations 1991* (Cth). During the existence of the petty patent system, an application could be made in respect of a standard patent as a divisional of a complete standard or petty patent application, where that application was still in force: s39(1) *Patents Act 1990* (Cth), prior to amendment through the *Patents Amendment (Innovation Patent) Act 2000* (Cth).

⁹² An application for a petty patent could be made as a divisional application based on an earlier complete standard or petty patent application, where that initial application was still in force: s39(1) *Patents Act 1990* (Cth), prior to amendment through the *Patents Amendment (Innovation Patent) Act 2000* (Cth). A patentee could also make an application for a petty patent as a divisional of an already sealed petty patent, in accordance with s39(2) *Patents Act 1990* (Cth), prior to amendment through the *Patents Amendment (Innovation Patent) Act 2000* (Cth).

⁹³ An application can be made for an innovation patent as a divisional application of a complete standard or innovation patent application, where that application is still in force: s79B *Patents Act 1990* (Cth). A divisional application of this kind must be made before the grant of the initial standard or innovation patent: Regulation 6A.1 *Patents Regulations 1991* (Cth). A patentee can also make an application for an innovation patent as a divisional of an already sealed innovation patent, in accordance with s79C *Patents Act 1990* (Cth), but such a divisional application must be made within one month of certification of the initial innovation patent: Regulation 6A.2 *Patents Regulations 1991* (Cth).

	Standard Patent	Petty Patent	Innovation Patent
Opposition proceedings	Yes ⁹⁴	No ⁹⁵	Only post-grant ⁹⁶
Availability of PCT route⁹⁷	Yes ⁹⁸	Yes ⁹⁹	No
Subject matter	No express exclusions, except human beings, and the biological processes for their generation ¹⁰⁰	As for standard patents	As for standard patents, with the additional express exclusion of inventions concerning plants and animals and processes for the generation of plant and animals ¹⁰¹
Typical time until grant	2–4 years from filing ¹⁰²	90% granted within 3 months from filing ¹⁰³	2-3 months from filing ¹⁰⁴

⁹⁴ Section 59 *Patents Act 1990* (Cth).

⁹⁵ However, in the initial year third-parties could inform the Commissioner for Patents of matters affecting the validity of a petty patent.

⁹⁶ Only after examination and certification: s 101M *Patent Act 1990* (Cth).

⁹⁷ The Patent Co-operation Treaty (PCT) allows for a system whereby one international patent application can be made in respect of patents sought in multiple countries ('designated countries') which are member states of the PCT. The filing of such an international application with an International Searching Authority has the effect of filing individual applications in each designated country. When such applications enter the 'national phase' (approximately 18 months after the initial application is made), they are processed separately in each designated country. The primary advantage of the PCT application route is that it streamlines the initial filing of patent applications in PCT member states.

⁹⁸ Section 88 *Patents Act 1990* (Cth).

⁹⁹ Section 88(2) *Patents Act 1990* (Cth), in accordance with arts 43 and 44 of the *Patent Co-operation Treaty*, prior to being excluded in respect of innovation patents by Schedule 1 para 4 of the *Patents Amendment (Innovation Patents) Act 2000* (Cth).

¹⁰⁰ Section 18(2) *Patents Act 1990* (Cth).

¹⁰¹ Section 18 *Patents Act 1990* (Cth). However, inventions concerning plants and animals are capable of innovation patent protection where such inventions are microbiological processes or products of such processes: s18(4) *Patents Act 1990* (Cth).

¹⁰² IP Australia, *The Patents Guide: The Basics of Patenting Explained* (2002)

<<http://www.ipaustralia.gov.au/pdfs/patents/patentsguide.pdf>> as at 10 October 2004, 11.

¹⁰³ ACIP, above n 4, 15.

¹⁰⁴ IP Australia, above n 102.

	Standard Patent	Petty Patent	Innovation Patent
Application fees (not including attorney fees which account for the largest component of a patent application)	\$800 for complete standard patent application (paper form) plus request for examination, plus acceptance ¹⁰⁵	\$445 for a complete petty patent application (paper form) plus request for examination ¹⁰⁶	\$470 for complete innovation patent application (paper form) plus request for examination ¹⁰⁷
Term	Currently maximum of 20 years from date of lodgment of specification ¹⁰⁸	Initial 1 year term from date of sealing. Possible extension of up to a maximum of 6 years	Initial 1 year term from the date of sealing. Possible extension of up to a maximum of 8 years

Table 1 Comparison of the key characteristics of standard, petty and innovation patents

¹⁰⁵ Schedule 7, Part 2 *Patents Regulations 1991* (Cth). IP Australia also estimates the cost of an Australian standard patent, including attorney fees, as between \$5,000 and \$8,000, with maintenance fees for a 20 year period being an additional \$8,000: See IP Australia, above n 102, 22.

¹⁰⁶ Schedule 7, Part 2 *Patents Regulations 1991* (Cth), prior to amendment in respect of innovation patents through [122], [123] and [124] of the *Patents Amendment Regulations (No.1) 2001 No. 98* (Cth).

¹⁰⁷ Schedule 7, Part 2 *Patents Regulations 1991* (Cth).

¹⁰⁸ Prior to the passing of the *Patents (World Trade Organisation) Amendment Act 1994* (Cth), the term was a maximum of sixteen years. Following the passing of the *Intellectual Property Laws Amendment Act 1998* (Cth), there is the possibility of a 5 year extension for pharmaceutical patents.

4 Empirical analysis of Australian second-tier patent systems

4.1 Introduction

In this chapter the use of both Australian standard and second-tier patent systems is depicted on the basis of empirical data.¹⁰⁹ This analysis allows us to profile the users of the various patent systems. It is the resulting profiles which, in part 5, will be compared with the objectives of the second-tier patent systems to assess the relative success of both petty and innovation patents.

Here, second-tier patents are first situated in the context of the broader Australian patent system. This is achieved through an examination of annual standard and second-tier patent application numbers. Second, data on the use of the petty and innovation patent systems are analysed in detail according to applicant type (company or individual), country of origin (Australian¹¹⁰ or other) and technology type of the claimed invention, and this information is compared with data on the use of standard patents. This analysis establishes that the profile of the users of the standard patent system differs from the profile of the users of the second-tier patent system.

4.2 Methodology

4.2.1 Patent applications as a proxy for innovation

Standard, petty and innovation patent applications have been used as a proxy for innovation. For the purpose of this paper *innovation* means creative activity by which inventions, products and processes, which are new to Australia if not the world,¹¹¹ come into existence, irrespective of the commercial success of such activity. Patent applications can be viewed as a proxy for innovation, because a patent will only be sought if the applicant believes both that the subject matter of the patent application is patentable — it involves either an innovation or invention — and that investing in legal protection will increase the appropriability of the commercial benefits associated with the innovation. This means the applicant believes that s/he is innovating.

¹⁰⁹ It would be desirable to establish the *effect* that the petty patent and innovation patent systems have had on Australian innovation. However, an analysis of this kind is beyond the scope of the paper. Causality cannot be established, merely observations made.

¹¹⁰ 'Australian' for the purposes of a patent application means that the application is one in which the address of the applicant is within Australia.

¹¹¹ Because the prior art base for petty patents was domestic, only standard and innovation patents can be understood to concern innovation which is definitely new to the world.

4.2.2 Patent applications as an imperfect proxy for innovation

It is important to note, however, that patent applications are not a perfect proxy for innovation. There are many reasons for this.¹¹² Among them is the fact that creative activity which is not intended to reap commercial rewards is unlikely to be the subject of a patent application. Further, some innovators will rely on producing products better, or more quickly, than their competitors to recover the costs of innovative activity, rather than seeking legal protection for this purpose. This is not to mention the use of patents for strategic purposes devoid of any consideration of innovation.¹¹³

In addition, patent applications from overseas are not purely indicative of innovation occurring within Australia, because the creative process involved will generally have occurred elsewhere. However, it is arguable that the disclosure of such inventions and innovations by way of the patent specification improves the basis of innovative activity within Australia. To this extent, it may be viewed as part of the Australian innovation process.

4.2.3 Use of patent application data

Statistics on patent *applications* were utilised for the present analysis, as opposed to patent *registrations*. The rationale for this was two-fold. First, the registration of a standard patent occurs on average four years after the provisional application is filed, and can take as long as eight years from the initial filing.¹¹⁴ Hence, the registration statistics for standard patents are generally indicative of previous, not current, innovative activity. Second, patent applications are arguably a better proxy for innovative activity than patent registrations. As mentioned above, we can assume that patent applicants believe they are involved in innovative activity. The mere fact that they may not have achieved the level of innovation or inventiveness required to receive a patent is not indicative of the contrary.¹¹⁵

4.2.4 Time period of data analysis

All data used as the basis of analysis have been received from IP Australia, the federal government agency responsible for granting rights in patents, trade marks and designs. Unless otherwise specified, the data used in this paper are:¹¹⁶

¹¹² For a discussion of some of the imperfections of patents as a proxy for innovation, see Paul H Jensen and Elizabeth Webster, 'Examining Biases in Measures of Firm Innovation' (Working Paper No 05/04, Intellectual Property Research Institute of Australia, 2004) 16-19.

¹¹³ See, eg, Carl Shapiro, 'Navigating the Patent Thicket: Cross Licenses, Patent Pools and Standard-Setting' (Working Paper No CPC00-11, Competition Policy Center, University of California, Berkeley, 2000).

¹¹⁴ Information provided by IP Australia.

¹¹⁵ Also, as opposed to patent sealings, patent applications are independent of the Patent Office's examination rate (see Mandeville et al., above n 21, 68).

¹¹⁶ The period from 1979 onwards was selected because this is the year in which the petty patent system was introduced in Australia. To the extent that it was available, current data was sought. Innovation patent data from 2001 has been used, because the system was introduced then. Given that the innovation patent has been in existence for less than three years, the data available is limited.

- Standard patent¹¹⁷ applications from 1979 to 2001
- Petty patent applications from 1979 to 2001 (i.e. the life of the system)
- Innovation patent applications from 2001 to 2003 (i.e. from inception to date)

Additional data were sourced from IP Australia to provide more recent data on standard patent applications.¹¹⁸ Given that these data were retrieved by different means than those used to retrieve all other data utilised, their use in this paper has been restricted to the analysis of second-tier patent applications in the context of total Australian patent applications.

4.3 Second-tier patent systems in the Australian patent context

4.3.1 Introduction

In this section second-tier patent applications are placed in the context of the complete Australian patent system, in order to assess their significance. Second-tier patent application numbers are compared to standard patent applications numbers. It is found that both second-tier and standard patent applications have generally increased with time. Further, although second-tier patent applications account for only a small portion of total patent applications, this portion is by no means negligible and is generally increasing.

4.3.2 Observations

The number of standard, petty and innovation patent applications made per year from 1981 to 2004 is presented in Figure 4.1. Since 1981 there has been a general increase in standard and total patent applications, with a small decrease in standard patent applications between 1990 and 1993, possibly due to economic conditions at the time.

The data set for petty patent applications from 1979 to 1985 is incomplete. This is partly because the electronic database PatAdmin was first used in 1985 and all other information available was back-captured. In addition, data collection has been more extensive since IPAC recommended more accurate data collection in its review *Patents, Innovation and Competition in Australia* (1984).

¹¹⁷ Total standard patents applications here are defined as non-PCT and PCT applications that have entered the national phase, but *not* other PCT applications.

¹¹⁸ The absence of data from 2001 on standard patent applications is due to the changeover from an Adabas database ('PatAdmin') to an Oracle database ('PAMS') which IP Australia is undergoing. Detailed information on standard patent applications over time is at present unavailable from PAMS. Raw standard patent application statistics were, however, combined from both PatAdmin and PAMS data in order to provide recent standard patent application data. This information has been utilised to analyse the general relationship between second-tier patent systems in Australia and total patent applications only. It differs in a minor way from other data provided by IP Australia on standard patent applications from 1979. This difference is because the data was captured through differing searches. The more recent data involved only very limited search criteria. By contrast, the extra search criteria used to retrieve all other data increased the likelihood that duplicate records were created. For example, there may be multiple applicants for one application, where one is an individual and one is a company, and the search will create two records for this application. Hence, the data utilised here, which has been retrieved in more detail, often slightly exceeds the data retrieved through more limited searches.

The most dramatic increase in total patent applications occurred between 1993 and 2000. This corresponds to an increase in patenting through-out the world which occurred in the past decade.¹¹⁹ Since 1986 the number of second-tier applications has generally increased.

Recently the number of standard patent applications made has been relatively constant. In 2001, 22 742 standard patent applications entered the Australian patent system. In 2004, 22 824 such applications were made.

At the same time, innovation patent applications have increased, and have continued to constitute a greater proportion of total patent applications. The transition from the petty patent system to the innovation patent system in 2001 has been associated with a significant increase in second-tier patent applications. From 1998 to 2004 second-tier patent applications more than doubled. As a result, innovation patents now generally account for a larger portion of total patent applications than did petty patents. Whereas in 1992 petty patents constituted 2.7% of total patent applications, in 2004 innovation patent applications constituted 4.6% of total patent applications.

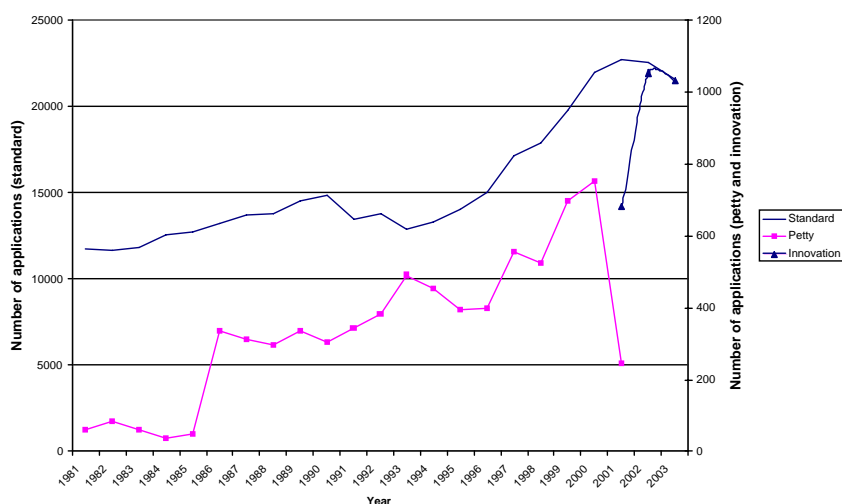


Figure 4.1 Standard (1981-2004), petty (1981-2001) and innovation (2001-2004) patent applications¹²⁰

Source: *IP Australia data*

¹¹⁹ In 2002 more than 850 000 patent applications were filed in Europe, the United States and Japan . This represented an increase of 250 000 since 1992: see OECD, *Patents and innovation: Trends and policy challenges* (2004) <<http://www.oecd.org/dataoecd/48/12/24508541.pdf>> at 20 March 2004, 7.

¹²⁰ Standard patent application data used here was received from IP Australia, and in order to receive the most recent data, figures from 2001 to 2003 were sourced from both IP Australia's PatAdmin and PAMS databases. This data was retrieved through a different search than that performed to retrieve the petty and innovation patent data. It is likely that more doubling-up has occurred in relation to the petty and innovation patent data than the standard patent data, because the searches undertaken were more complex: See above n 118. In order to compare like with like in the coming sections, the recent data on standard patent applications has not been used.

4.4 Individual versus company applicants

4.4.1 Introduction

In this section the proportion of patent applications made by individuals is compared with the proportion made by companies. This comparison is undertaken in respect of standard, petty and innovation patents. As standard patent *application* fees are slightly higher than second-tier patent application fees, one might expect a larger proportion of individuals among second-tier patent applicants.

The strength of this presumption is, however, mitigated by the fact that the *attorney* fees associated with the preparation of a second-tier patent application were not necessarily lower than those associated with the preparation of a standard patent application. A high degree of precision was required in drafting the limited number of claims permitted of second-tier patents. This was arguably responsible for the fact that professional patent attorney fees for petty patent applications often equalled those for standard patent applications.¹²¹

It should be noted that some data retrieved in relation to an individual or company concerns joint applications made by both individuals and companies. Accordingly, the proportion of standard, petty and innovation patent applications made by individuals may be slightly overstated. However, such data generally only accounts for less than 1% of total applications.

¹²¹ ACIP, above n 4, 15.

4.4.2 Standard patents

From 1979 to 1987 the proportion of individual applications for standard patents generally increased, after which point it stabilised until 1994. At this time applications for standard patents made by individuals constituted 16–17% of all applications. From 1994 to 2001 this proportion has been decreasing. In 2001 individual applications were only 13% of total applications. This decline in standard patent applications made by individuals has coincided with a rapid increase in PCT applications, which are mainly made by companies, and gradual decrease in non-PCT applications.

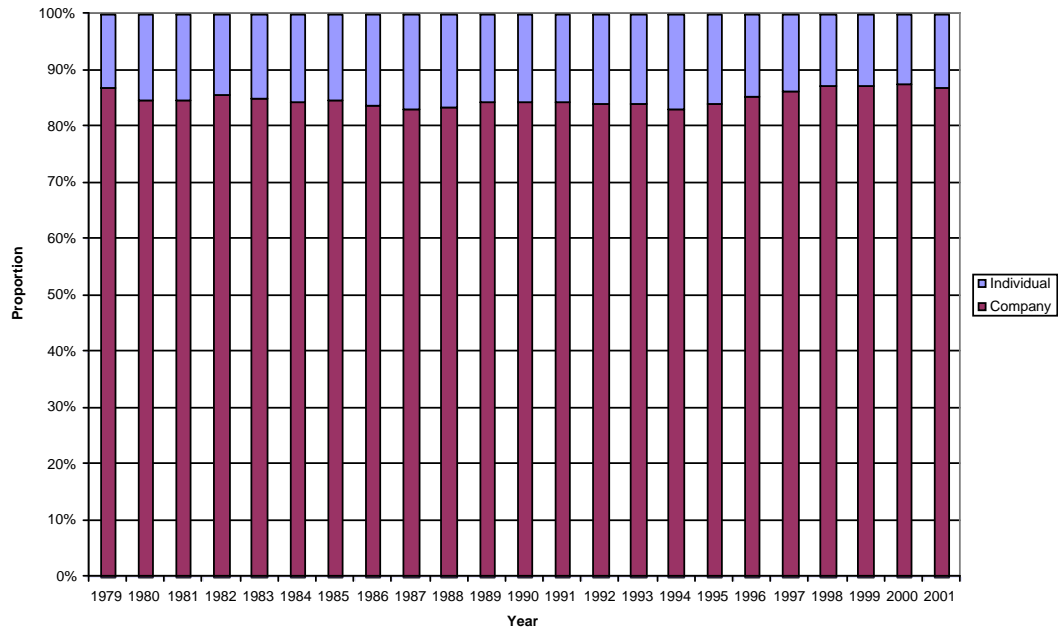


Figure 4.2 Company versus individual standard patent applications (1979-2001)

Source: *IP Australia data*

4.4.3 Petty patents

From 1979, the proportion of individual petty patent applications generally increased, until 1989, after which this proportion by and large decreased. In 1989 individual applications constituted 84% of total petty patent applications, whereas by 2001 the proportion of petty patent applications made by individuals was only 51%.

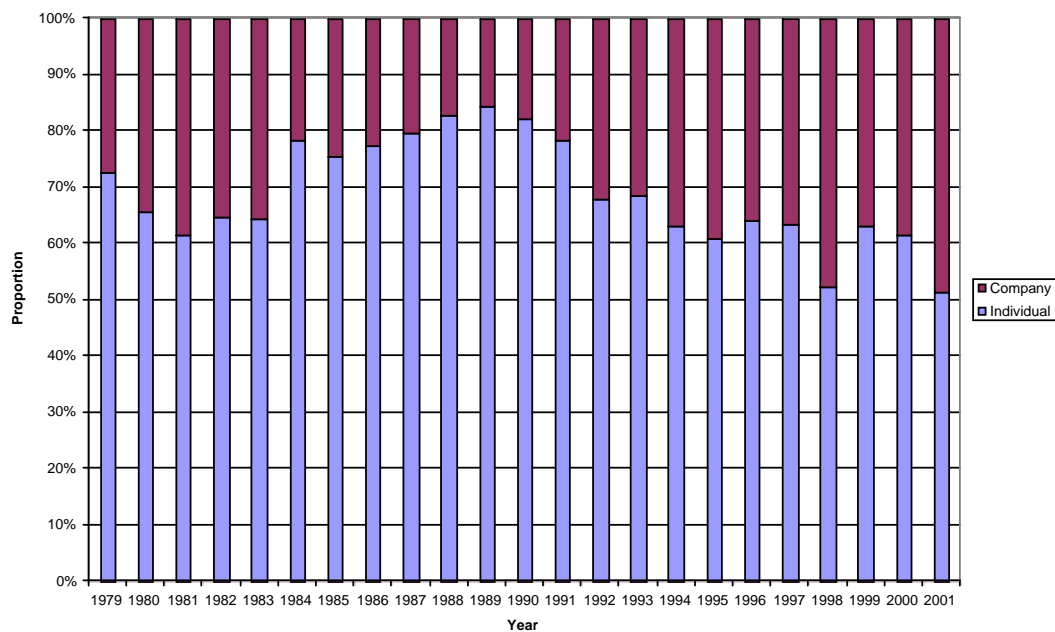


Figure 4.3 Company versus individual petty patent applications (1979-2001)

Source: *IP Australia data*

4.4.4 Innovation patents

In 2001, individual applications constituted 66% of total innovation patent applications. In 2003, the proportion of innovation patent applications made by individuals was 68%. Thus, there appears to be no trend as to growth or decline in the proportion of individual applications made for innovation patents.

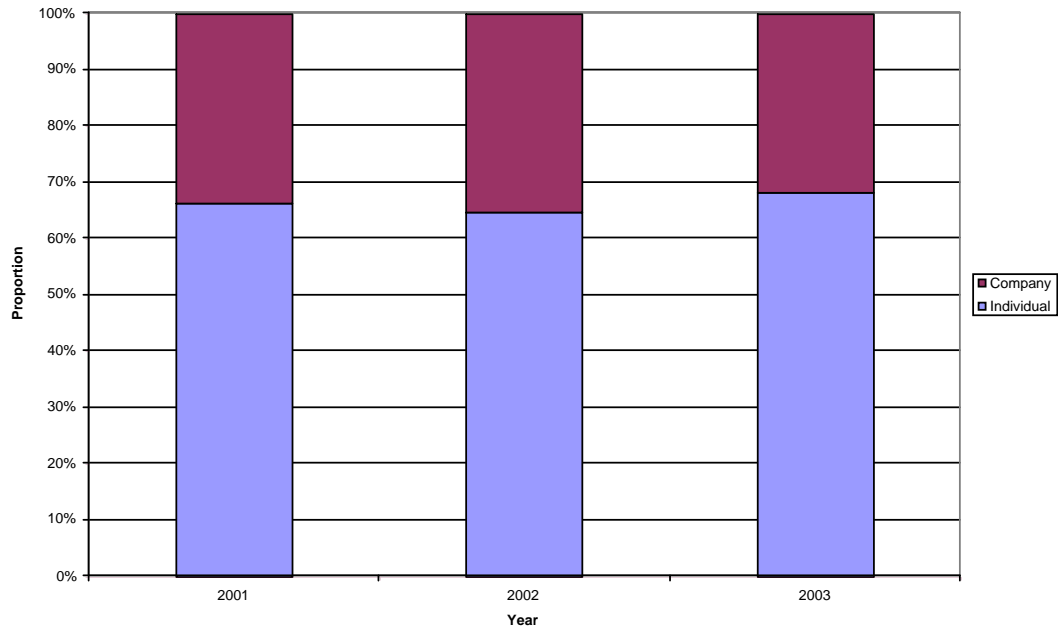


Figure 4.4 Company versus individual innovation patent applications (2001-2003)

Source: *IP Australia data*

4.4.5 Average proportion of individual versus company applications

The average proportion of company versus individual patent applications over the relevant time periods is depicted in Figure 4.5.

Averaged from 1979 to 2001, the proportion of standard patent applications made by a company was 85%, and the remaining 15% of applications were made by individuals.

From 1979 to 2001, the average proportion of petty patent applications made by a company was 31% of total petty patent applications. The remaining 69% of applications were made by individuals. This contrasts markedly with standard patent applications. The proportion of total petty patent applications made by individuals is more than four times greater than this proportion in relation to standard patent applications.

Averaged from 2001 to 2003, 66% of innovation patent applications were made by individuals and 34% of applications were made by companies.

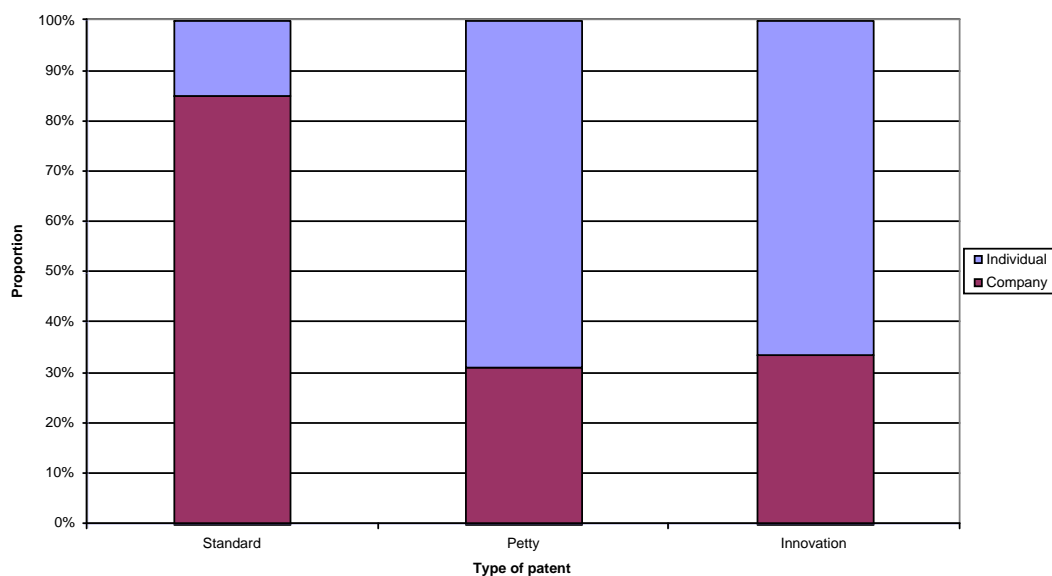


Figure 4.5 Average proportion of company versus individual patent applications: Standard and petty patents (1979-2001), innovation patents (2001-2003)

Source: *IP Australia data*

4.5 Australian versus foreign applicants

4.5.1 Introduction

In this section we compare the proportion of Australian applicants to foreign applicants in respect of standard, petty and innovation patents. The rationale behind this analysis is to assess — albeit in a non-conclusive way — whether second-tier patents specifically serve domestic industry. If this is the case, it might suggest that the perceived domestic need for second-tier patent protection, which prompted the introduction of both the petty and innovation patent, was real and has to some extent been met.

One might expect that, where an individual or company is seeking patent protection in Australia and overseas, that party would apply for a patent through the PCT application route. PCT applications offer a simpler application process in multiple states, which accordingly reduces the cost of applying. PCT applications concern standard patents. The flip side of this expectation is that it is likely that innovation patent applications are made in relation to inventions for which only domestic protection is sought. Such protection is presumably most likely to be sought by Australian parties.

Thus, we would expect a higher proportion of domestic applicants among second-tier patent applicants than among standard patent applicants. The analysis in this part suggests that this might indeed be the case.

4.5.2 Standard patents

The annual proportion of Australian versus foreign standard patent applications from 1979 to 2001 is illustrated in Figure 4.6. Australian applications are decreasing as a proportion of total standard applications. In 1994, Australian applications accounted for 14% of total standard patent applications, however, this proportion has been in gradual decline as the number of overseas PCT national phase entries has increased. In 2001, Australian applications made up only 10% of total standard patent applications.

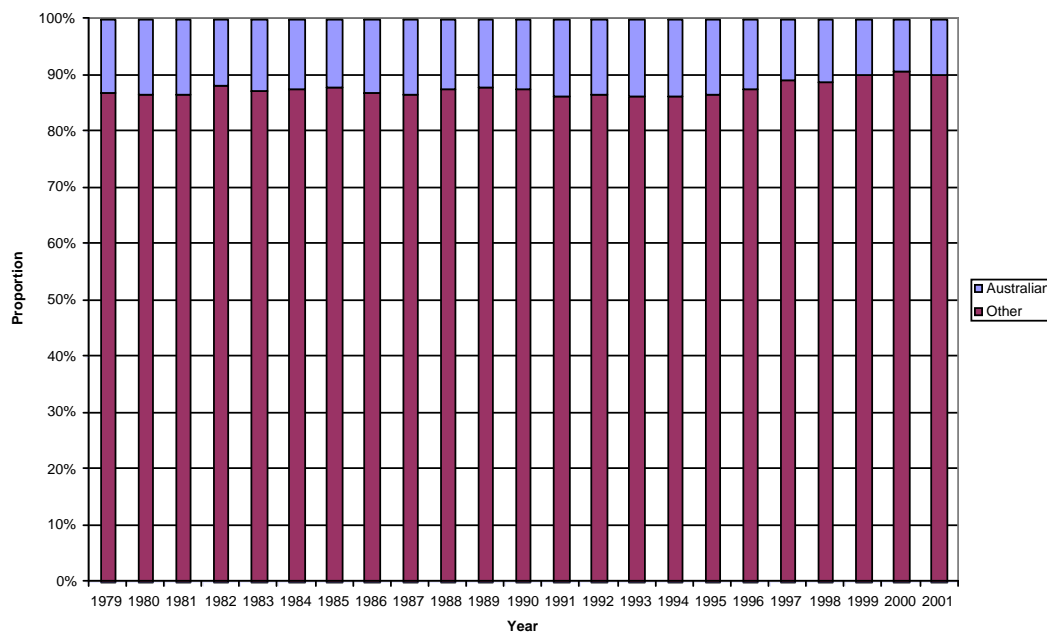


Figure 4.6 Australian versus foreign standard patent applicants (1979-2001)

Source: *IP Australia data*

4.5.3 Petty patents

Although the majority of petty patents applications from 1979 to 2001 were Australian, this proportion generally decreased from 1983.¹²² Then, Australian applications accounted for 100% of total applications. When the petty patent system concluded in 2001, Australian applications represented a significantly reduced 79% of total petty patent applications.



Figure 4.7 Australian versus foreign petty patent applicants (1979-2001)¹²³

Source: *IP Australia data*

¹²² It should be noted that when data was retrieved for petty patent applications according to country some years showed no country of origin. Those years were 1979 (2 applications), 1980 (1 application), 1983 (1 application), 1985 (1 application), 1986 (180 applications), 1987 (158 applications), 1988 (20 applications). For the purpose of the analysis of proportion of Australian versus foreign applicants, these patent applications were excluded.

¹²³ See above n 122

4.5.4 Innovation patents

The innovation patent system is predominantly utilised by Australian companies and individuals. It is worth noting that at the inception of the innovation patent system, Australian applications dominated total innovation patent applications with a greater majority than did Australian applications at the conclusion of the petty patent system (87% as opposed to 79%).

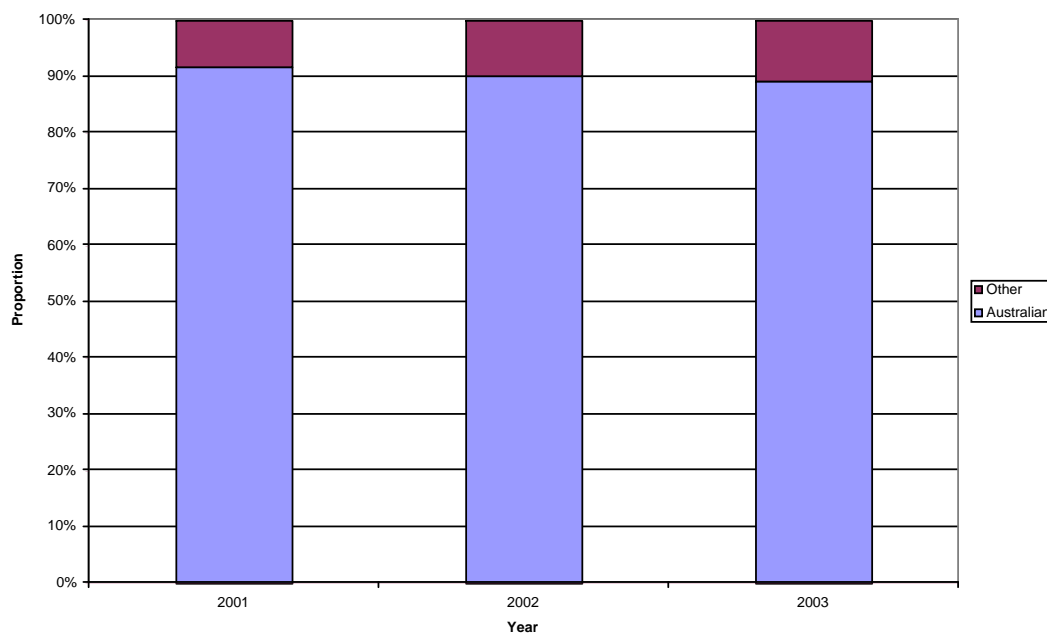


Figure 4.8 Australian versus foreign innovation patent applicants (2001-2003)

Source: *IP Australia data*

4.5.5 Average proportion of Australian versus foreign applicants

As depicted in Figure 4.9, from 1979 to 2001 Australian standard patent applications accounted for 12% of total standard patent applications, and foreign applications made up 88% of this total. In stark contrast to applications for standard patents, the average proportion of Australian to foreign petty patent applications during this period was 87% to 13%.¹²⁴ Essentially, as far as petty patent applications are concerned, the proportion of Australian versus foreign patent applicants is the inverse of standard patents.¹²⁵ The average proportion of Australian applications for innovation patents is relatively stable and equals that of petty patents. As shown in Figure 4.9, Australian applications for innovation patents account for 87% of total applications, with the remainder coming from other countries.

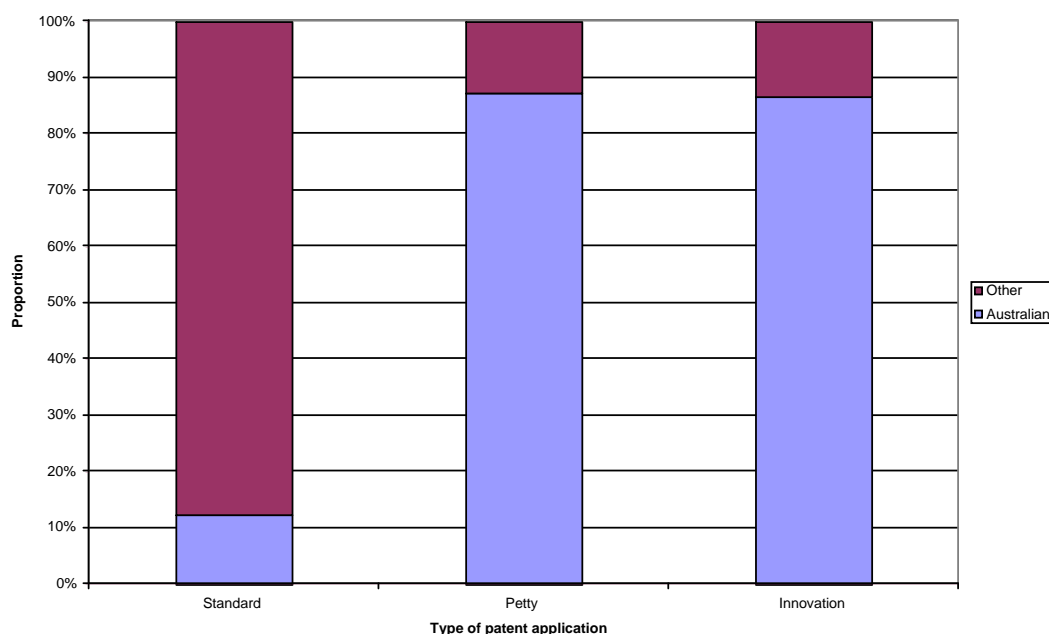


Figure 4.9 Average proportion Australian versus foreign patent applications: Standard and petty patents (1979-2001) and innovation patents (2001-2003)

Source: *IP Australia data*

¹²⁴ See above n 122.

¹²⁵ It should be noted that, although the data-set is incomplete for petty patents up until 1985, it is unlikely to present an erroneous Australian to foreign ratio.

4.6 Country of origin of foreign applicants

4.6.1 Introduction

This section is made up of two parts. In the first part, the five countries from which the most foreign standard, petty and innovation patent applications are made are listed. In the second part, the ratio of the representation of a particular country as a portion of total foreign representation for second-tier patents relative to standard patents is assessed.

Given that the level of inventiveness required of petty patents equalled that of standard patents, it would not be surprising if there existed a degree of commonality between the foreign country applicants for both these patents. Further, one might expect the representation of foreign countries among petty and innovation patents to differ, due to the lower level of inventiveness required of innovation patents.

The data analysis in this part, however, does not evidence a substantial divergence between the countries represented among petty and innovation patent applications. Rather, four of the 'top 5' countries represented among petty and innovation patent applications were the same, and only their respective proportions differed. These countries were Taiwan, the United States of America, New Zealand and Great Britain.

4.6.2 'Top 5' foreign countries

This section compares the foreign countries from which patent applications are made. The average representation of each country as a proportion of total foreign standard, petty or innovation patent applications over the given time period was calculated. The five most represented countries for each patent type were then compared.

4.6.2.1 Standard patents

As mentioned in part 4.5.5, averaged from 1979 to 2001, foreign standard patent applications accounted for 88% of total standard patent applications. The top five foreign countries from which standard patents were applied during this period were:

- United States of America
- Japan
- Great Britain
- Germany
- France

The average proportion of foreign standard patent applications, for which the top five countries accounted, from 1979 to 2001, is represented in Figure 4.10. In total, applications for standard patent applications from the top five foreign countries account for 78% of all foreign standard patent applications.

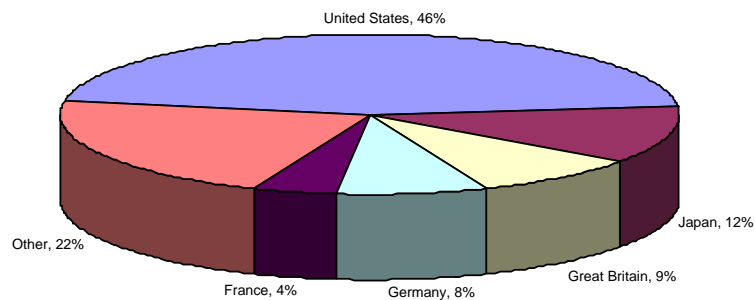


Figure 4.10 Average 'top 5' foreign countries for standard patent applications (1979-2001)

Source: *IP Australia data*

4.6.2.2 Petty patents

As mentioned in part 4.5.5, averaged from 1979 to 2001, foreign petty patent applications accounted for just 13% of total petty patent applications.¹²⁶ The top five foreign countries from which petty patents were applied during this period were:

- Taiwan, Province of China
- United States of America
- New Zealand
- Great Britain
- Germany

Compared with the top five foreign countries for standard patent applications, Japan and France are not represented, and instead Taiwan and New Zealand are, and Taiwan is even positioned before the United States.

The average proportion of foreign petty patent applications for which the top five countries accounted, from 1979 to 2001, is represented in Figure 4.11. In total, applications for petty patent applications from the top five foreign countries account for 60% of all foreign petty patent applications.

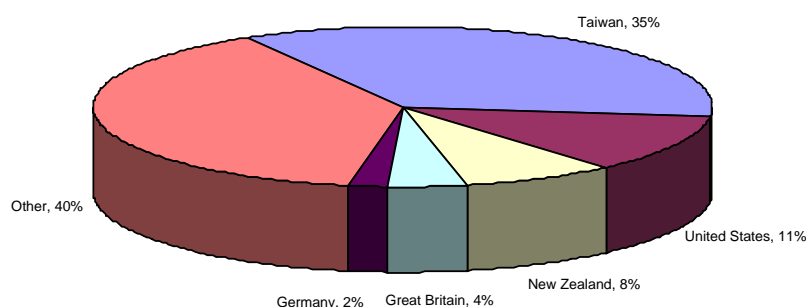


Figure 4.11 Average 'top 5' foreign countries for petty patent applications (1979-2001)

Source: *IP Australia data*

¹²⁶ In the data used, 6% of petty patent applications were recorded as having no country of origin.

4.6.2.3 Innovation patents

As mentioned in 4.5.5, averaged from 2001 to 2003, foreign innovation patent applications accounted for just 13% of total innovation patent applications. The top five foreign countries from which innovation patents were applied during this period are:

- Taiwan
- United States of America
- New Zealand
- Great Britain
- China

The five foreign countries from which most foreign innovation patent applications originate are the same as for petty patent applications, except that in fifth place Germany is replaced by China.

The average proportion of foreign innovation patent applications for which the top five countries accounted, from 2001 to 2003, is represented in Figure 4.12. In total, applications for innovation patent applications from the top five foreign countries account for 81% of all foreign petty patent applications.

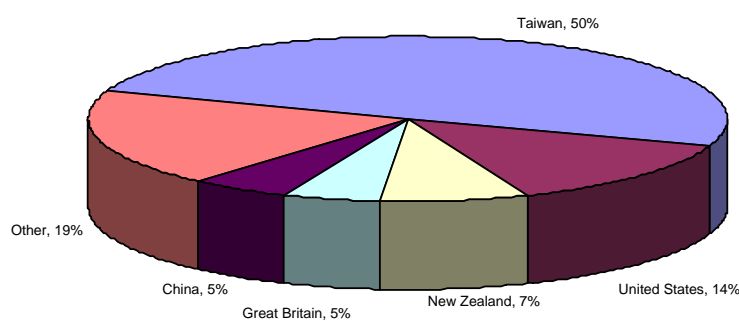


Figure 4.12 Average 'top 5' foreign countries for innovation patent applications (2001-2003)

Source: *IP Australia data*

4.6.3 Country use ratios

4.6.3.1 Methodology

In this section foreign applications were examined for the purpose of analysing which foreign countries utilise the Australian second-tier patent system, and in what proportion they use the system relative to their usage of the standard patent system. This information is of interest as it informs our understanding of the extent to which the users of the different patent systems vary. It is also relevant to assess whether the specific countries served by Australian second-tier patent systems differ from those served by the standard patent system. To the extent that this is the case, it might be a by-product of both the petty and innovation patents being designed specifically for the needs of domestic innovators.

The average annual number of applications made by a given country over the relevant time period was calculated.¹²⁷ Only countries considered *substantial users* of the Australian patent system were analysed. Countries from which an average of one or fewer applications originated for petty patents,¹²⁸ innovation patents¹²⁹ or standard patents¹³⁰ were deemed to be *insubstantial users* of the Australian patent system. Such countries were excluded on the basis that they were not regular users of *all* forms of the Australian patent system.

Here the ratio of country representation as a portion of total foreign representation for second-tier patents relative to standard patents is assessed.¹³¹ For this purpose the average proportion of petty patent applications made by country X as a proportion of total foreign petty patent applications was calculated. This was then divided by the average proportion of standard patent applications made by X as a proportion of total foreign standard patent applications.

¹²⁷ As mentioned previously, this time period was 1979 to 2001 for standard and petty patents, and 2001 to 2003 for innovation patents.

¹²⁸ Foreign countries from which petty patent applications were made, where between 1979 to 2001 the annual number of such applications was one or fewer, are Anguilla, Netherlands Antilles, Angola, Argentina, Austria, Belgium, Brazil, Bahamas, Switzerland, Chile, Czechoslovakia, Denmark, Spain, Finland, Fiji, France, Hong Kong, Hungary, Indonesia, Republic of Ireland, Israel, India, Italy, Japan, Republic of Korea, Sri Lanka, Malaysia, The Netherlands, Norway, Papua New Guinea, Russian Federation, Sweden, Singapore, Turkey, Ukraine, British Virgin Islands, Vanuatu and South Africa.

¹²⁹ Foreign countries from which innovation patent applications were made, where from 2001 to 2003 the annual number of such applications was one or fewer, are Argentina, Brazil, Canada, Switzerland, Spain, France, Greece, Indonesia, Republic of Korea, Nigeria, The Netherlands, Papua New Guinea, Paraguay and Thailand.

¹³⁰ The only foreign country from which standard patent applications were made, where from 1979 to 2001 the annual number of such applications was one or fewer, was Romania.

¹³¹ This was calculated as:

$$\text{Ratio} = \frac{\text{Av. country X applications among av. total foreign second-tier applications}}{\text{Av. country X applications among av. total foreign standard applications}}$$

The country data available for standard patents covered a different time period from innovation patent application data (See section 3.2.4 for the time period covered). Although this is less than ideal, the resulting country ratios are unlikely to have been varied substantially.

Generally it can be said that countries fit into one of three categories:

1. Countries represented substantially more among foreign second-tier patent applications than among standard patent applications;
2. Countries represented neither substantially more nor substantially less among foreign second-tier patent applications than among foreign standard patent applications;
3. Countries represented substantially less among foreign second-tier patent applications than among standard patent applications.

4.6.3.2 Analysis

Ratio of petty patents to standard patents according to country

The ratio of standard to petty patent applications from each foreign country is depicted in Table 4.1.

Taiwan, China and New Zealand are all substantially more represented among foreign petty patent applications than foreign standard patent applications. New Zealand commands a proportion of foreign country applications for petty patents that is 6.28 times greater than this proportion for standard patents. Two non-OECD regions, Taiwan and China, command an even greater representation among foreign applications for petty patents relative to standard patents, with respective ratios of 90.43 and 12.14.

Among the countries which fall into category two are South Africa, Canada and Great Britain. Canada and Great Britain are represented to a lesser extent among foreign country applications for petty patents than standard patents, but the difference is relatively minor (0.69 and 0.49 respectively). Similarly, South Africa is only slightly over-represented among foreign petty patent applications (1.51).

Two OECD countries, the United States of America and Germany, can be said to fit into category three. They are on average four times less represented among foreign petty patent applications than standard patent applications. Whereas 46% and 8% of foreign standard patent applications originate in the United States and Germany respectively, only 11% and 2% of foreign petty patent applications originate there (see 4.6.2.1 and 4.6.2.2).

Category	Country	Ratio of petty to standard patents
1	Taiwan	90.43
	China	12.14
	New Zealand	6.28
2	South Africa	1.51
	Canada	0.69
	Great Britain	0.49
3	United States of America	0.25
	Germany	0.23

Table 4.1 Ratio of foreign petty to foreign standard patent applications (1979-2001)

Source: *IP Australia data*

Ratio of innovation patents to standard patents according to country

The ratio of standard to innovation patent applications from each foreign country is depicted in Table 4.2.

More foreign countries are substantial users of the innovation patent system than the petty patent system. There were eight foreign substantial users of the petty patent system, whereas from 2001 there have been 14 substantial users of the innovation patent system.

More foreign countries are substantially over-represented among foreign innovation patent applications relative to foreign standard patent applications than among foreign petty patent applications. Taiwan, China and New Zealand are joined by the Bahamas, the Russian Federation, Hong Kong and Singapore and in category one in relation to innovation patent applications. Notably, the proportion of foreign applications for innovation patents commanded by Taiwan is more than 127 times larger than the proportion of Taiwanese standard patent applications as a proportion of all foreign applications. Whereas less than 1% of foreign standard patent applications are made by Taiwanese companies and individuals, 50% of foreign innovation patent applications originate in Taiwan.

Among the countries which fall into category two — countries that are neither neither substantially more nor substantially less represented among foreign standard and innovation patent applications — are Denmark, South Africa, Israel and Great Britain. As was the case among petty patent applications, Great Britain is represented to a lesser extent among foreign countries from which applications for innovation patents originate than standard patents, but by a rather small proportion (0.58). Conversely, Israel is slightly over-represented among innovation patent applications when compared with standard patents (1.66), as are South Africa (2.31) and Denmark (2.88).

In relation to foreign innovation patent applications, the United States of America (0.3) and Germany (0.10) are joined by Japan (0.07) in category three. They are countries that are substantially under-represented among foreign innovation patent applications in comparison to standard patent applications. On average, the United States commands only 14% of foreign innovation patent applications, and neither Germany, nor Japan, are among the top five countries from which foreign innovation patent applications originate.

Category	Country	Ratio of innovation to standard patents
1	Taiwan	127.16
	Bahamas	111.66
	China	38.26
	Russian Federation	19.39
	Hong Kong	15.09
	Singapore	11.80
	New Zealand	5.79
2	Denmark	2.88
	South Africa	2.31
	Israel	1.66
	Great Britain	0.58
3	United States of America	0.30
	Germany	0.10
	Japan	0.07

Table 4.2 Ratio of foreign innovation (2001-2003) to foreign standard patent applications (1979-2001)

Source: *IP Australia data*

4.7 Technology groups of applications

4.7.1 Introduction

This section analyses the technology groups under which standard, petty and innovation patents fall. Patent applications are classified according to the Office of Science and Technology (OST) classification through which each particular International Patent Classification (IPC) subclass is mapped to a more general OST technology group. The average representation of each technology group as a proportion of total standard, petty or innovation patent applications over the given time period was calculated. The five most represented technology groups for each patent type were then compared.

Petty patents were intended to cater for individual inventors and SMEs whose inventions were of short commercial value, and for whom standard patent protection had been too costly or time consuming. As this was a different subset of inventors from that for which the standard patent system catered, one would expect the technology groups represented among standard and petty patent applications to differ to some degree.

Innovation patents, which replaced petty patents, require a lesser level of inventiveness. One would, therefore, expect there to be a greater number of innovation patent applications than petty patent applications, as has been found to be the case (see Figure 4.1). However, one would not necessarily expect a shift in the technology groups represented from one form of second-tier patent to the other. Although the bar of inventiveness was lowered, it was lowered in respect of all technology areas.

The results of this analysis support these expectations. While the technology groups represented among second-tier patents differ from those represented among standard patents, the shift from the petty to the innovation patent did not bring about further significant change in the representation of the various technology groups. This representation is largely the same for both petty and innovation patents.

4.7.2 Standard patents

The top five technology groups for standard patents are all knowledge-intensive areas, which is perhaps not surprising given the high level of inventiveness necessary in order to receive standard patent protection. These technology groups are:

- Organic fine chemicals
- Pharmaceuticals, cosmetics
- Medical engineering
- Telecommunications
- Analysis, measurement, control

The average proportion of total standard patent applications for which the top five technology groups accounted, from 1979 to 2002, is represented in Figure 4.13.

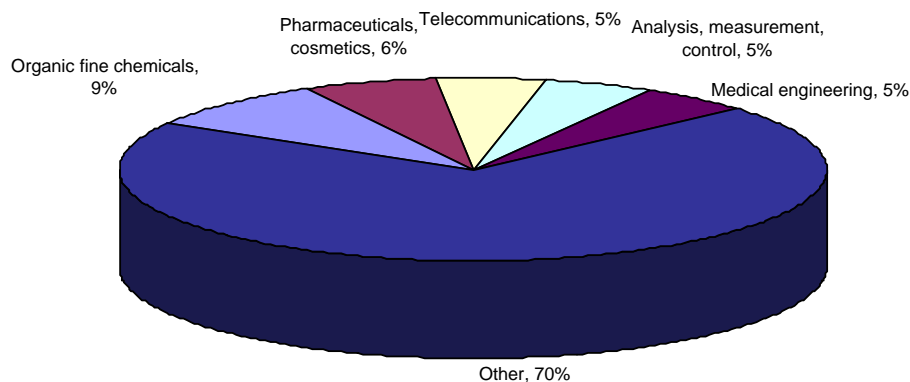


Figure 4.13 Average 'top 5' technology groups for standard patents (1979-2002)

Source: *IP Australia data*

4.7.3 Petty patents

None of the technology areas for which standard patents are predominantly sought appeared within the top five technology groups for petty patents. Instead, the five most represented technology groups for petty patent applications were:

- Consumer goods & equipment
- Civil engineering, building, mining
- Handling, printing
- Agriculture & food machinery
- Transport

These are all industries in which products may have short life cycles.

The average proportion of total petty patent applications for which the top five technology groups accounted, from 1979 to 2001, is represented in Figure 4.14.

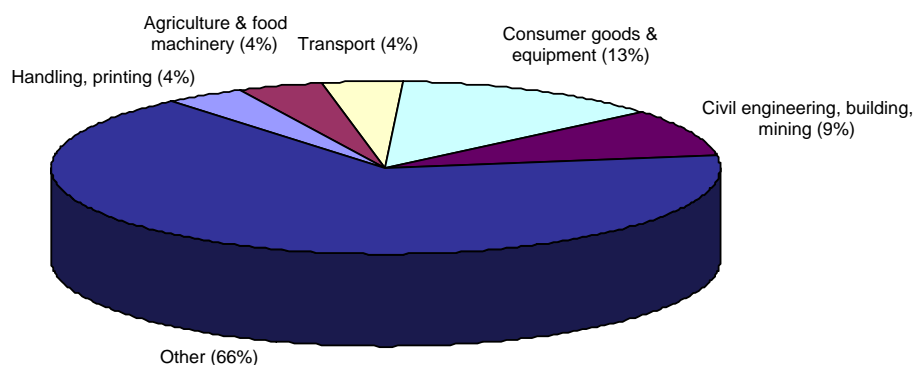


Figure 4.14 Average 'top 5' technology groups for petty patent applications (1979-2001)

Source: *IP Australia data*

4.7.4 Innovation patents

Applications for innovation patents are largely made in relation to the same technology groups as petty patents, albeit in different proportions. The most commonly represented technology groups for innovation patents from 2001 to 2003 were:

- Consumer goods & equipment
- Civil engineering, building, mining
- Transport
- Information technology
- Handling, printing

These are all industries in which products may have short life cycles.

The average proportion of total innovation patent applications for which the top five technology groups accounted, from 2001 to 2003, is represented in Figure 4.15.

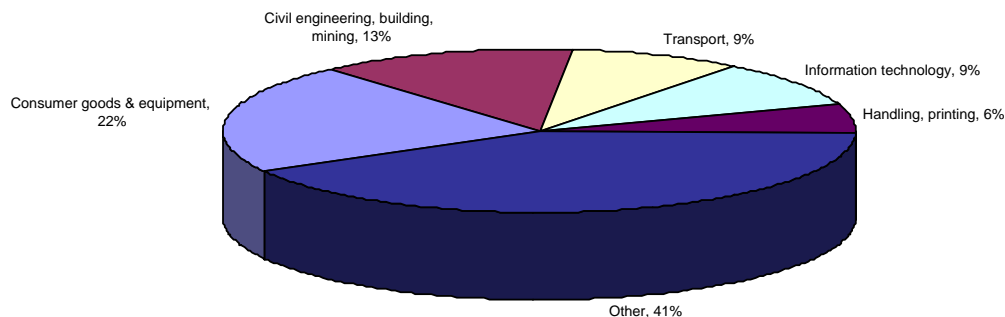


Figure 4.15 Average 'top 5' technology groups for innovation patents (2001-2003)

Source: *IP Australia data*

Whereas the top five technology groups account for 30% and 34% of standard and petty patent applications respectively, they account for 59% of innovation patent applications.

5 Conclusion

In this final section, the effectiveness of the petty and innovation patent systems is considered. The reasons for, and criticisms of, the petty and innovation patent systems in Australia were evaluated earlier in this paper. An empirical analysis was undertaken so as to situate Australian second-tier patents in the Australian patent context, as well as to profile the users of the various patent systems. Here, the extent to which the objectives of the petty and innovation patent systems have been met is assessed. For this purpose the respective objectives of the two systems are restated, and tentative conclusions are extracted from the user profiles of the various patent systems. No judgement is made as to whether the monopoly powers conferred by second-tier patent systems cause a net increase or decrease in innovative activity. Only the *use* of the patent systems is examined in light of the objectives of the petty and innovation patent systems.

5.1 Objectives of the petty and innovation patent systems

The objective of the petty patent system was to provide a form of protection for inventions with a relatively short commercial life.¹³² It was thought that this would encourage individual inventors and SMEs to seek patent protection even if the subject of their patents was only likely to reap rewards for a relatively short time period. Inventors were expected to receive a greater return on their investment, and be encouraged to undertake further innovation. Accordingly petty patents were less expensive, easier to obtain and more quickly obtained than standard patent protection, the corollary being that the term of patent protection was shorter. Prior to the introduction of the petty patent system it was felt that there was 'not a sufficiently quick and inexpensive and simple means of providing protection for the lower range of inventions, especially small articles having short commercial life-spans'.¹³³

The objective of the innovation patent system is subtly different. The innovation patent was introduced to cater specifically for a perceived gap in patent protection for minor and incremental innovations, inventions the functionality of which could not be protected through designs legislation.¹³⁴ Like petty patents, innovation patents were also intended to be less expensive and quicker to receive than standard patents. In addition, the inventiveness threshold for innovation patents was reduced to render lesser innovations patentable. It is thought that the innovation patent will particularly assist individuals and SMEs obtain patent protection, and protection for a sufficiently long period to encourage investment in innovation.

Both the petty and innovation patent systems were intended to encourage greater domestic innovation.

¹³² Franki Committee, above n 1, 11.

¹³³ IPAC, *Report on Proposed Petty Patents Legislation* (1978) 3.

¹³⁴ ACIP, above n 4, 5.

5.2 User types

Both the petty and innovation patent systems were intended to cater specifically for individual inventors. A breakdown of applications according to individual and company applicants suggests that petty and innovation patents have, indeed, appealed specifically to individuals.

Petty patents were introduced to provide less expensive protection for inventions of short commercial value, in particular for inventors. It was thought that a less expensive form of patent protection would assist inventors, because patent protection would be more accessible to them. In turn, inventors would be placed in a better position to enter into contracts with manufacturers for the commercialisation of their inventions. Accordingly, one would anticipate greater representation of individuals among petty patent applicants than standard patent applicants, and this was the case. From 1979 to 2001 individuals constituted 69% of petty patent applicants, as opposed to only 15% of standard patent applicants (see Figure 4.5).

The petty patent was, however, criticised during the course of its existence for not adequately serving those for whom it was initially introduced. Short term protection was of little value to potential manufacturers, and, as mentioned in 3.4.1, the single claim became so important that drafting it was as costly a task as drafting a complete standard patent specification.¹³⁵ Perhaps these problems with the system played a part in the declining representation of individuals among petty patent applicants in the latter years of its existence. By the time of its cessation in 2001 only 50% of petty patent applications were made by individuals.

A greater proportion of innovation patent applications are made by individuals than was the case in the latter years of the petty patent system. As previously mentioned, innovation patents were intended to assist individual inventors by lowering the inventive threshold requirement in order to allow incremental and minor innovations to receive patent protection. From 2001 to 2003 individuals have on average represented 66% of innovation patent applications (see Figure 4.5). Perhaps the longer term (eight years), the increased number of permitted claims, and the lower costs have in fact rectified some of the deficiencies of petty patents insofar as they served individual inventors.¹³⁶

5.3 Domestic versus foreign use

An analysis of whether applicants for patents are Australian or foreign suggests that, relative to standard patent applications, second-tier patents are utilised more by domestic inventors and innovators, for whom they were primarily intended, than foreign inventors. Generally there exists an inverse relationship between Australian

¹³⁵ See, eg, Appendix 1: Case Study B.

¹³⁶ This proposition receives support from various case studies, where innovation patents were viewed as being of particular value for innovators with little capital backing. See, eg, Appendix 1: Case Studies A and B. In these case studies, Companies A and B stated that they would encourage backyard inventors with little start up capital to apply for innovation patents, because innovation patents are less expensive and quicker to obtain than standard patents, and this increases the ease of commercialisation.

and foreign standard and second-tier patent applications. The proportion of foreign standard patent applications approximates the proportion of Australian second-tier patent applications. Averaged from 1979 to 2001, Australian applicants constituted 87% of total petty patent applicants,¹³⁷ although the proportion of Australian to foreign applicants dwindled in the latter years of the existence of the petty patent system. Similarly, the average proportion of Australian innovation patent applicants from 2001 to 2003 was also 87%. It would appear that the characteristics of petty and innovation patents appeal to domestic innovators, these characteristics being the less expensive, more quickly obtained patent (which is subsequently of shorter duration than standard patent protection) and, with regard to innovation patents, the lesser requirement of inventiveness.

It is also likely that data concerning second-tier patent applications relate to innovations for which the party applying is not seeking protection overseas, and in the majority of cases innovators who exclusively seek protection within the Australian market will be Australian innovators. Assuming that the majority of foreign applicants for Australian patents also seek to profit from their inventions in other countries, they will be likely to use the PCT application route.¹³⁸ Although the PCT application route was available for petty patents, the delay involved apparently negated the positive effect of the quicker grant process — the primary advantage of petty patents. Only very few PCT applications were made for petty patents.¹³⁹ PCT applications cannot be made for innovation patents.

5.4 Origin of applications

The differing objectives of petty patents and innovation patents would suggest that the foreign countries from which applications for these forms of patent protection originate might differ. *A priori*, one might think that the foreign countries from which petty patent applications originate are likely to be those from which standard patents originate, because the same level of inventiveness was required for both.¹⁴⁰ On the other hand, one might expect, *a priori*, a higher representation of foreign countries involved in lower level innovation to be among the countries from which innovation patents originate, because the inventiveness threshold for innovation patents is lower than for standard patents. Data on actual petty and innovation patent applications establish, however, that these differing expectations are not met. Instead, it appears that, typically, the characteristics of both the petty and innovation patent systems appeal to innovators in the same countries.

As mentioned in part 5.3, there generally exists an inverse relationship between the proportion of domestic and foreign applicants for standard and second-tier patents. In addition, of those applications for standard and second-tier patents that originate from outside Australia, there is only limited commonality between the 'top 5' foreign

¹³⁷ See above n122.

¹³⁸ As the case studies illustrate, the same is true of Australian innovators who intend to exploit their innovation in countries other than Australia: See Appendix 1.

¹³⁹ See WIPO, above n 37.

¹⁴⁰ This assumption presumes that the characteristics of petty patents appeal equally to innovators in all countries engaged in patent protection — that in all such countries there is equal inventive activity of only short-term commercial value.

countries. Three of the 'top 5' foreign countries from which standard patent applications originate are represented among the 'top 5' foreign countries from which petty patent applications originated (the United States, Great Britain and Germany). This is the case for only two of the 'top 5' foreign countries from which innovation patent applications originate (the United States and Great Britain).

Also notable is the fact that a disproportionate amount of foreign users of the second-tier patent systems come from countries in the Asia-Pacific region and lesser-developed countries. It would appear that the less expensive and quicker protection of second-tier patents appeals to innovators in those countries. The fact that the analysis presents similar results for both petty and innovation patents suggests that the lower threshold of inventiveness is not relevant in this respect. A more detailed analysis of why second-tier patents appeal to countries in the Asia-Pacific region and lesser developed countries is beyond the scope of this review, but it is an area which lends itself to future research.

Several countries which have more recently engaged in knowledge-intensive innovation, particularly within Asia, are substantially *over-represented* among petty patent applications relative to standard patent applicants (notably China and Taiwan). As far as innovation patents are concerned, China and Taiwan are joined in this category by Singapore, Hong Kong the Russian Federation and the Bahamas. Whereas standard patent applications from Taiwan account for less than one per cent of all foreign standard patent applications, Taiwanese innovation patent applications make-up 50% of all foreign innovation patent applications.

Certain OECD countries with a long history of knowledge-intensive innovation are substantially *under-represented* among petty patent applicants (notably Germany and the United States). This trend continues and becomes exacerbated among innovation patents, where Japan joins Germany and the United States in this category.

In addition, petty and innovation patent applications from New Zealand constituted a much larger portion of foreign applications than standard patent applications from New Zealand. It is likely that the cultural-historical connection between Australia and New Zealand is responsible for the over-representation of New Zealand among the countries from which foreign second-tier patent applications originate. The historical connection and proximity of New Zealand to Australia permit an awareness of legislative development in Australia arguably unmatched by any other country. In addition, the geographic proximity of New Zealand to Australia, and the utilisation of the petty and innovation patent systems by New Zealand innovators, would suggest that certain innovations are being developed specifically for the Australian market.¹⁴¹

Also worth noting is the fact that there exist more foreign countries that are *substantial* users of the innovation patent system, than of the petty patent system. This possibly reflects the fact that the lower threshold of inventiveness for innovation

¹⁴¹ Where an innovator wishes to seek protection in various countries, for the sake of simplicity s/he might apply for a standard patent in Australia through the PCT route. There is no equivalent for innovation patents, which would suggest that applicants for innovation patents do not necessarily seek similar protection elsewhere i.e. the innovations/inventions concerned may only be intended for the Australian market.

patents has made the Australian patent system accessible to a larger number of economies.

5.5 Technology groups of applications

An analysis of the data according to technology group illustrates that second-tier patent systems in Australia have been and continue to be used in relation to technology types other than those in relation to which standard patents are sought. There is no commonality between the 'top 5' technology groups for which standard patent applications are made and the 'top 5' technology groups for which petty and innovation patent applications are made. Compared with petty and innovation patents, the top five technology groups for standard patents might be considered as knowledge-intensive areas (organic fine chemicals; pharmaceuticals and cosmetics; medical engineering; telecommunications; and analysis, measurement and control). It is plausible, although it cannot be concluded on the basis of this review, that standard patent protection is sought in knowledge-intensive industries, because those industries are concerned with global markets, and PCT patent applications are the easiest means to achieve international patent protection.

Petty patents were applied for in relation to technologies other than those for which standard patents were sought, and for virtually the same technology groups as innovation patents (the following four groups were common to the 'top 5' technologies for both petty patents and innovation patents: consumer goods and equipment; civil engineering, building, mining; handling, printing; transport). This would suggest that, while the differing threshold of inventiveness for innovation patents may be responsible for an increase in second-tier patent application numbers, it has little, or no bearing on the subject matter for which second-tier patents are sought. Certain specific characteristics of second-tier patents, such as the speed with which they are granted and the lesser cost, appear to suit specific technology areas, and these technology areas are similarly represented among innovation patent applications.

More information would be necessary in order to assess whether the objectives of the petty and innovation patent systems have been met on the basis of technology group data. For example, it would be relevant to know whether inventions within the 'top 5' technology groups for petty patents, such as the category of consumer goods and equipment, generally have a shorter commercial life than inventions for which standard patent protection is sought. One might speculate that inventions in this category tend to be 'fad' inventions, which have only limited commercial value, in which case the primary objective of the petty patent system might to some extent have been met. In relation to innovation patents, it would be necessary to establish whether the inventions for which innovation patents are sought can be said to be minor and/or incremental. The difference in the technology groups represented by standard and second-tier patents is an area worthy of further exploration.

The presence of information technology among the 'top 5' technology groups for innovation patents is, perhaps, because this is an area in which the quick grant of a patent is particularly relevant, in order to speedily prevent competitors from copying

processes. Developments in information technology occur at such a rapid pace that the value of the quick protection offered by innovation patents is arguably heightened.¹⁴²

5.6 Concluding observations

Petty patents were intended to provide less expensive patent protection for inventions of short commercial duration — patent protection that was quicker and easier to obtain than standard patent protection. Innovation patents were equally intended to provide less expensive, quick and easily obtainable protection, but for minor and incremental inventions, which previously received protection from neither patent nor designs law. Both the petty and innovation patent systems were intended to cater for domestic inventors.

On the basis of the profile for petty patent users, it would appear that — at least to some extent — the objectives of the petty patent system were met. There was a higher representation of domestic users and individual users (although this waned in the latter years of the system) among petty patent applicants than among standard patent applicants. Accordingly, petty patents appear to have successfully advanced the interests of domestic innovation among inventors. Further, the technology groups represented among petty patent applications suggest that the petty patents were successful in catering for industries in which inventions of short commercial life were prevalent, although further research would be necessary to establish that the actual inventions concerned fit this description. Interestingly the foreign countries principally represented among petty patent applicants differ to some extent from such countries represented among standard patent applicants. The reason for, and relevance of, this might be the subject of further exploration.

Similarly, the evidence suggests that, as intended, innovation patents cater for individual inventors and domestic innovation. Further, a greater number of innovation patent applications are made compared with petty patent applications. This may be for various reasons. Future research might examine the extent to which it is due to the lower inventiveness threshold, or the greater number of claims permitted which, in turn, may have led to a decrease in attorney fees associated with an innovation patent application.¹⁴³ The technology groups represented among petty patent applications are virtually identical to those represented among petty patent applications. Further research needs to be undertaken to examine whether the inventions protected are indeed of a minor and/or incremental nature. Countries in the Asia-Pacific region and developing countries are over-represented among the small number of foreign users of the innovation patent system, as they were in the petty patent system.

Perhaps the next step required in a subsequent review of second-tier patents in Australia, and specifically a review of the innovation patent, is an assessment of whether the objectives of the innovation patent system, which, on balance, appear to be met, remain appropriate for Australia today and for Australia in the future. For those countries contemplating the introduction of a second-tier patent system, or the reform of an existing second-tier patent system, this analysis of the Australian

¹⁴² See, eg, Appendix 1: Case Study C for anecdotal evidence of this.

¹⁴³ Sandercock, above n 39, 2.

experience will hopefully provide valuable information upon which the particular characteristics of that patent might be based, according to the specific objectives of that country.

Appendix 1: Case Studies

Here the experiences of three Australian companies in relation to the Australian patent system are documented. The responses to questions asked during these case studies highlight some of the considerations of companies when deciding whether to utilise second-tier patent systems.

All three companies that participated in the case studies were selected on the basis that they were users of the Australian patent system. In addition, these particular companies were chosen because they represented a cross-section of company sizes, market orientations and technologies. Semi-structured interviews were conducted with senior managers from each particular company.

Questions were asked as to whether the company had ever used the Australian patent system, whether it had used either form of the second-tier patent system, what it considered when making the choice between standard and second-tier patent protection for its innovations, and what role the market orientation of the company played (i.e. whether PCT applications were more desirable when the market orientation was global). We anticipated that the answers to these questions would illustrate what companies perceive to be the advantages and disadvantages of the respective forms of patent protection, as well as the factors that play a role in a company choosing to apply for a particular form of patent protection.

Company A

Tool Production Company

Company background

Company A is a small Australian R&D company which was incorporated in 1989. It specialises in developing tools. At any one time it produces between 40-50 types of tools.

From its inception, Company A has had a substantial export business. The principal markets for export are the United States and Europe.

At one point, Company A employed 30 staff, but it has downsized in the past year to 18 employees. This downsize is largely due to a decision by the Company to reduce its R&D budget, and invest more money marketing existing products. It is intended that this downsizing of staff and R&D is temporary.

Use of intellectual property

Presently Company A uses standard patents to protect its inventions, both in Australia and overseas. Company A applied for its first standard patent in 1989. Over the past 5 years, Company A has on average applied for three standard patents per year.

Company A never utilised the petty patent system. Company A was unaware of the existence of the petty patent system at the time it was in operation. It has no innovation patents and although it is considering using the innovation patent system in the future.

IP Strategy

Company A's current strategy is to delay patent costs as long as possible through secrecy, then to file for patents in a couple of countries. Company A uses standard patents as marketing and negotiation tools when making deals with foreign companies for the sale or licensing of a particular product. These patents are later allowed to expire as their main purpose is to finalise the business dealings with other companies and are rarely enforced against imitators because of cost.

Use of the innovation patent system

Until now the standard patent system has fulfilled the needs of Company A. Given that standard patents are also filed overseas, Company A has generally found it simplest to file for a standard patent in Australia as well. However, it is considering filing for innovation patents in relation to some new inventions, where protection in Australia is of particular relevance.

Company A considers that the innovation system is particularly good for 'backyard' inventors who have little start up capital and only require protection in Australia. For

this reason, Company A recently advised an inventor of a new type of gardening tool to be manufactured for sale within Australia to obtain an innovation patent.

Does the IP system meet Company A's needs?

Company A thinks that the IP system within Australia has been successful in meeting its needs. However, Company A was concerned with the expense of obtaining protection at an international level, and felt that the high cost of obtaining this protection and enforcing it was a major factor in reducing its growth.

For example, in Germany alone Company A spent \$100 000 in relation to a patent dispute which spanned 10 years. Company A won the legal proceedings that established its patent had been infringed. However, it had to 'cut its losses' because the cost of prosecuting the offending company was too great.

Due to these types of expenses incurred, Company A has recently begun to question the value of patent protection in overseas jurisdictions. Company A is contemplating design registration as an alternative to patent protection, as most copies of Company A's products are direct imitations for which design registration would be adequate.

General comments

As noted above, Company A has recently cut back on R&D expenditure. Company A noted that this was in part due to the high cost of obtaining patent protection for new ideas, especially in jurisdictions other than Australia. Shareholders are reluctant to spend money on patents, preferring to spend money on marketing existing products.

Summary of Company A

Company A's current strategy is to keep inventions secret until patent protection is sought. Thus far, Company A has not utilised either of the Australian second-tier patent systems. However, it is considering filing for innovation patents in relation to certain new inventions where protection in Australia is of particular relevance. Company A views innovation patents as preferable for inventors with little financial backing where protection is only sought within Australia. In relation to overseas patents, Company A is in the process of assessing whether design registration is a less expensive and more enforceable alternative to standard patents.

Company B

Mechanical Engineering Company

Company background

Company B is an Australian manufacturing company incorporated in 1952. It is an Australian subsidiary of a USA based company and employs approximately 50 people. Company B has a substantial export business, and exports approximately 55% of its production to the United States and Europe.

IP Strategy

Company B uses standard patents to stop competitors copying products, or producing products which have the same end benefit for users. Hence, Company B patents the main invention and inventions similar to the main invention. Company B very rarely patents inventions in other countries, due to the high expense of obtaining patents in foreign jurisdictions and later enforcing them. It only does so where a particular invention is 'very strong'. Its main concern is preventing foreign companies copying its products and selling them in Australia.

Company B did not use the petty patent system when it was in place. It did consider using the petty patent system, but decided that petty patents were not useful because they cost as much and required the same level of inventiveness as a standard patent, while the term of protection offered was much shorter.

Company B also uses design registration and innovation patents, as discussed in further detail below.

Use of the innovation patent system in Australia

Company B uses innovation patents as 'defensive tools' to prevent competitors from copying products. One of Company B's main concerns is that foreign companies will copy its products, manufacture them overseas, and sell them in Australia. Innovation patents are sufficient to prevent this kind of copying.

Company B uses innovation patents because they are less expensive and quicker to obtain, and have a lower inventive threshold than standard patents. These advantages outweigh the disadvantage of a shorter term.

There are two particular instances where Company B will apply for an innovation patent:

1. When it does not think it would satisfy the requirements of a standard patent due to the higher inventive threshold; or
2. When it wishes to enter the market quickly, and is not prepared to wait for a standard patent to be issued, for example, when it is important for commercial reasons to be able to state that a product is patented.

Company B initially feared that the lower threshold for inventiveness of an innovation patent would mean that people would seek to patent ideas that were already widely used in industry, and then serve infringement notices on other businesses using those ideas. However, this has not occurred in practice.

Sometimes inventors come to Company B with their idea, but have not yet obtained any protection for it. Company B advises inventors to obtain an innovation patent, as they are much less expensive to obtain and cost is often an important factor for inventors without much capital. Company B has found that most inventors have never heard of the innovation patent system.

Use of design system

Company B has registered the design of several products. Sometimes design registration will be used on its own, and sometimes in conjunction with another form of protection. For example, if Company B has a design registration for a product with a particular shape, it may later discover a new way of using the product. In this case, Company B will apply for an innovation patent, because the new idea will not have the inventive step required for a standard patent and the idea of how to use the product cannot be protected by design registration.

General comments about the IP system in Australia

Company B is mainly concerned with protecting its products in Australia, and is happy with the level of protection provided by the Australian IP system.

Company B commented that the cost of enforcing an innovation patent is the same as for the enforcement of a standard patent, despite the shorter term offered by innovation patents. Company B also observed that patent rights are very expensive to enforce, and beyond the means of many small and medium businesses.

Summary of Company B

Company B is content with its present strategy of patent protection, and has utilised the first and second-tier patent systems, and design registration to protect its products. It views innovation patents as a less expensive and quick way to obtain protection for products within Australia. Company B rarely applies for patent protection outside Australia.

Company C

Manufacturing Company

Company background

Company C is an Australian manufacturing company incorporated in 1998, which employs 40 people. It derives its income from a process that it developed and patented. Company C has a substantial export business, and exports its product to Russia, Indonesia and New Zealand. It also has subsidiaries in the United States, the United Kingdom and South Africa.

IP Strategy

Company C uses patents to protect its products from being copied both in Australia and overseas.

Internationally, Company C has patents in Russia, the United States, the United Kingdom and South Africa. Currently, Company C currently has an innovation patent protecting its product in Australia. It has also applied for a standard patent using a claim for a similar process.

Company C does not use the design system, and did not use the petty patent system when it was in place. It has always preferred to use patents, which it views as company assets, in addition to being a means of protecting inventions. Patents also ensure that the company receives a return on its R&D expenditure.

Use of the innovation patent system in Australia

Company C was one of the first companies in Australia to be granted an innovation patent. Innovation patents are usually not examined prior to grant, but Company C requested examination and certification immediately.

Company C became aware of a competitor utilising substantially the same process as its patented process. It then sought to bring an infringement action against its competitor. Legislation requires that an innovation patent be certified before legal proceedings for infringement can be brought. As Company C had already had its innovation patent certified, no delay was involved. It brought a successful application for infringement. The competitor was restrained from continuing to use its infringing process.

Company C views innovation patents as a quick and effective way to protect its products. Having the protection of the innovation patent has allowed Company C to discuss the product with prospective buyers, who are often much larger companies, without the fear of its idea being copied.

General comments about the IP system in Australia

Company C is very happy with the IP system in Australia and the level of protection it provides. However, internationally the company has found patents very expensive and time consuming to obtain.

Summary of Company C

Company C is pleased with its present strategy of patent protection and with the level of protection provided by the IP system in Australia. It views innovation patents as a cost effective method of obtaining protection for its products in Australia. Company C has also used its innovation patent to prevent competitors infringing its process. Company C was able to bring proceedings in relation to its innovation patent more quickly than it would have been, had such proceedings involved a standard a patent, because of the time required to receive a standard patent. Company C also has several patents internationally, which have proved expensive and time consuming to obtain.