



Patent Box
Discussion paper on policy design

The Treasury

August 2021

Executive Summary

The University of Melbourne welcomes the opportunity to respond to the Treasury's Discussion paper on the design of a patent box scheme.

The proposed introduction of a patent box is one of a number of Australian Government initiatives aimed at increasing the level of innovation and commercialisation in Australia's economy and supporting greater collaboration between research and industry. The University of Melbourne welcomes the Government's recognition of the economic benefits delivered through Australia's research capability.

A patent box scheme may be a useful component in a broader framework of support for research and commercialisation in Australia. If properly designed, such an incentive may attract some additional R&D activity at the later stages of the commercialisation pipeline. However, a patent box will, at best, have only a small impact on the overall level of R&D activity in Australia's economy. Moreover, it may come at a substantial cost to the budget in the form of foregone tax revenue, particularly if used as a means of tax avoidance for companies with little R&D presence in Australia. In short, there is a risk that the costs of a patent box scheme exceed the benefits it is intended to deliver.

In the comments below we identify four specific limitations of a patent box as a lever for driving R&D activity:

1. The initiative is targeted at the far end of the innovation cycle: the key problems lie earlier in the commercialisation pipeline.
2. Companies benefitting from the patent box scheme may have conducted the R&D outside of Australia.
3. A patent box scheme is at risk of being misused by companies that register patents that are not tied to real economic activity.
4. The proposed tax rate under a patent box is not competitive internationally.

Notwithstanding these limitations, there may be some benefit to introducing a carefully designed tax incentive to encourage investment in medical and biotechnology research. In addition to expanding on the above points, the following submission responds to a selection of the consultation questions included in the Treasury's Discussion paper. These responses are limited to the questions addressing the eligibility settings for IP entering the patent box, the targeting of medical and biotechnology, and the definition of R&D.

For further information, or to discuss the submission, Professor Mark Hargreaves, Acting Deputy Vice-Chancellor (Research) can be contacted at dvc-research@unimelb.edu.au.

Recommendations

General comment on the patent box proposal

The University of Melbourne recommends that the Australian Government:

- recognise the limitations of a patent box as a driver of additional R&D activity in the Australian economy.
- commit to measures that directly address the key challenges in Australia's research and innovation system, including a collaboration premium in the R&D Tax incentive.
- expand the patent box scheme to other sectors (outside of medical technology and biotechnology) or make clear why it is only open to specific types of R&D in certain sectors.

Eligible IP to enter the patent box

The University of Melbourne recommends that the Australian Government:

- use already available search tools to identify patents in all jurisdictions whose claims overlap with the relevant patent of interest.
- recognise the challenges relating to differences in patent arrangements between jurisdictions.

Targeting medical and biotechnology

The University of Melbourne recommends that the Australian Government:

- guarantee access to the patent box scheme for companies registered as manufacturers of medical equipment, and to companies providing scientific, technical or research services.
- Institute a patent-level test rather than an income streaming test for classifying individual patented inventions.
- consult key peak organisations when developing definitions that limit access to the scheme, including the Therapeutic Goods Administration, the Medical Technology Association of Australia, MTPConnect and AusBiotech.
- ensure that the scheme's scope is broad enough that it incentivises medical device and software development, research into the diagnosis of human disease, and potential biotechnology growth fields such as plant technology.

Definition of R&D

The University of Melbourne recommends that the Australian Government:

- use existing legal frameworks for the R&D tax incentive for the purposes of the patent box scheme.
- recognise that the vast majority of R&D in the medical and biotechnology sectors occurs after patenting.
- apply a proportional tax concession in cases where only part of the eligible R&D has been conducted in Australia.

Comment on the patent box proposal

There are potential benefits to introducing a concessional tax rate on profits associated with patented products in the medical and biotechnology sectors, and in other sectors. For example, if properly designed, the incentive has the potential to attract additional pre-clinical and clinical research to Australia, thereby adding value to Australia's health and medical research system and to the economy.

However, even a well-designed patent box scheme will have only a small impact on Australia's innovation ecosystem. A patent box will not address the major factors that have constrained Australia's performance relating to research commercialisation and the level of R&D intensity among Australian businesses. A 2015 report from the Office of the Chief Economist reviewed patent box policies from other countries, and found that while the introduction of a patent box in Australia would likely increase the number of patent applications, there are "no solid theoretical or empirical grounds for claiming that patent box regimes induce more innovation."¹ More than this, there is a danger that a patent box ends up coming at a much higher cost (in the form of lost tax revenue) than initially estimated.

Specifically, the University of Melbourne identifies the following limitations either with a patent box as a general policy proposal, or with the specifics of the proposal as outlined in the Discussion Paper:

1. The initiative is targeted at the far end of the innovation cycle: the key problems lie earlier in the commercialisation pipeline.

The initiative is targeted at the far end of the innovation cycle, providing a tax break to companies in a position to profit from medical and biotechnology innovations. This is not where the major problem lies: it is typically much earlier in the commercialisation pipeline where potential new products struggle for investment i.e. at the point where innovations come out of the "research pathway" and are seeking to enter the "commercial development pathway". A patent box is unlikely to deliver any real benefit for Australian start-ups, noting that it typically takes 5-10 years for these to become profitable, with most failing to do so at all.

2. Companies benefitting from the patent box scheme may have conducted the R&D outside of Australia.

As proposed, the R&D contributing to an eligible patent may have been conducted outside of Australia. Since IP is typically very mobile, and since most R&D expenditure in medical and biotechnology innovations occur after patenting, there is a risk that a patent box fails to drive an increase in investment in R&D activity within Australia.

3. A patent box scheme is at risk of being misused by companies that register patents that are not tied to real economic activity.

There is a significant risk that a patent box represents a tax avoidance opportunity. The 2015 Office of the Chief Economist's report found that most of the additional patent applications that occur as a result of a patent box "are likely to be opportunistic (i.e. inventions that would previously have been kept secret will be patented) and will not be tied to real economic activity". The resultant loss in tax revenue may be significant. Since government support for research and innovation is finite, measures that fail to deliver their intended benefits come at the expense of programs more likely to deliver positive outcomes.

4. The proposed tax rate under a patent box is not competitive internationally.

The proposed 17 per cent tax rate is not competitive with patent box regimes in other countries (e.g. the UK's patent box provides a 10 per cent rate). Therefore, the incentive is unlikely to be sufficiently

¹ De Rassenfossé, G. (2015). *Patent Box policies*. Office of the Chief Economist, Commonwealth of Australia.

compelling for large companies with an established international presence, notwithstanding the aim of attracting mobile IP to Australia.

The aim in identifying these limitations is two-fold. Firstly, it is important to design the tax concession so that misuse is limited and so that the cost to the budget is justified by additional R&D activity. Secondly, since a patent box will at best only impact on one part of Australia's innovation system, it is important that this scheme does not sideline other measures that would directly address the areas where Australia is underperforming.

The 2016 expert review of the R&D Tax Incentive recommended a collaboration premium for R&D conducted with publicly-funded research institutions, finding that this would address the modest levels of collaboration between Australian universities and industry and help to break down the cultural barriers between the two sectors. Other measures include support for knowledge-brokering skills to facilitate the exchange of ideas between research and business and better leveraging the benefits of research precincts. The University of Melbourne outlined these measures in its written response to the University Research Commercialisation consultation.²

There is a further question as to why the proposed concessional tax rate is to be applied only to the medical and biotechnology sectors. To the extent that the patent box scheme genuinely incentivises additional R&D activity, there are no clear grounds for excluding sectors that would benefit from the scheme. Assuming the program's design provides confidence that the limitations identified above can be addressed, the Government should either expand the scheme to other sectors or make clear why it is only open to specific types of R&D.

Recommendations

The University of Melbourne recommends that the Australian Government:

- recognise the limitations of a patent box as a driver of additional R&D activity in the Australian economy.
- commit to measures that directly address the key challenges in Australia's research and innovation system, including a collaboration premium in the R&D Tax incentive.
- expand the patent box scheme to other sectors (outside of medical technology and biotechnology) or make clear why it is only open to specific types of R&D in certain sectors.

² https://about.unimelb.edu.au/_data/assets/pdf_file/0021/245118/University-Research-Commercialisation-consultation-UoM-response.pdf

Response to consultation questions

Eligible IP to enter the patent box

2. Are patents applied for by medical and biotechnology companies with domestic R&D operations generally Australian standard patents?

Medical and biotechnology companies with domestic R&D operations would almost exclusively apply for patents through the Patent Co-operation Treaty (PCT) rather than directly through an Australian complete patent application. Entry into subsequent national phase jurisdictions (including Australia) would be a decision based on the relevant country of manufacture, markets and competitors. In some cases, there may be sufficient benefit to be gained by the presence of an Australian standard patent to support local manufacture and market sales. However, it is important to note that since an Australian Standard patent will only give coverage in Australia, and since this is a relatively small market, this is often not very valuable.

3. In instances where an invention is patented in other jurisdictions but not in Australia, is there a way of judging whether the scope of claims in these patents would be substantially similar to the scope of claims in a standard patent that would have been granted in Australia?

In broad terms, a freedom to operate (FTO) search identifies existing patents in all jurisdictions whose claims overlap with the patent of interest. All companies in this sector would ideally conduct an FTO search and analysis, but it is typically done after filing a provisional patent. Furthermore, IP Australia already offers an international-type search report to outline patentability for a provisional application in addition to the international search report at the PCT stage. The international search report from foreign jurisdictions may provide some limited indication of the scope of claims that would have been granted in Australia. Notwithstanding the capacity to identify existing patents in other jurisdictions, there remain challenges relating to differences in arrangements between jurisdictions:

- Despite decades of attempts at international harmonisation, there are significant differences in the treatment received in patent jurisdictions around the world. These include differences in local patent legislation, prevailing common law interpretations, examination practices and individual patent examiner preferences.³
- The eligibility of certain patentable subject matter varies between country, particularly in the medical and biotech area. For instance, patents for methods of medical treatment are permitted in Australia but not in many other countries. Recent examples of high-profile court cases involved the examination of methods of medical treatment, nucleic acid gene sequences, human cloning methods and methods of diagnosing human disease.
- The scope of granted patent claims, unity of invention and support/enablement requirements vary between jurisdictions, and also year by year as the law and technology develop in each country at different rates. For instance, unity objections incorporated within restriction requirements from the US patent office are generally regarded as the most stringent.

³ See CHRISTIE, A., Dent, C. and Liddicoat, J 2016, 'The Examination Effect: A Comparison of the Outcome of Patent Examination in the US, Europe and Australia,' *The John Marshall Review of Intellectual Property Law*, vol.16 pp. 21-43.

Recommendations

The University of Melbourne recommends that the Australian Government:

- use already available search tools to identify patents in all jurisdictions whose claims overlap with the relevant patent of interest.
- recognise the challenges relating to differences in patent arrangements between jurisdictions.

Targeting medical and biotechnology

4. *What is the best approach to provide certainty around access to the regime for the medical and biotechnology sectors?*

Certainty around access to the patent box scheme can be achieved by guaranteeing access to companies that are registered as manufacturers of medical equipment and to companies providing scientific, technical or research services.

The University argues that a 'patent level test' is preferable to an 'income streaming test'. A patent level test provides an independent classification of the outcomes of the research expenditure, thereby offering greater certainty than an income streaming test. Patents are routinely classified by patent examiners using a highly sophisticated and evolving technology-based system. These can be linked to industry sectors, noting the existing concordance established between the International Patent Classification (IPC) and NACE industry codes (for the classification of economic activities in the European Community).⁴ The usage of this type of system would allow rapid launch and interpretation of the scheme.

5. *What are the core concepts/applications that need to be covered by any definition of the medical and biotechnology sectors for the purpose of defining access to the patent box?*

The University of Melbourne suggests engaging key peak organisations in developing definitions that limit access to the scheme, including the Therapeutic Goods Administration, the Medical Technology Association of Australia, MTPConnect and AusBiotech. The Therapeutic Goods Administration definition of a "medical product" offers a basis for use in the patent box scheme.

A significant challenge is ensuring that the scope of the scheme is wide enough that it incentivises valuable forms of medical research that might be excluded on a narrow definition. The medical device and medical software sectors are equally deserving of the proposed tax concession as pharmaceuticals or vaccine development. Similarly, the patent box scheme should encourage investment in medicinal chemistry and radio-imaging.

The diagnosis of human disease is a critical aspect of any health care system but is not well supported by the patent system. The patent box will need to be aware that limitations imposed by foreign jurisdictions such as the USA on certain patent areas have a globally negative affect on investment in research and corresponding engagement in the patent system.

For the biotechnology sector, it is important that definitions are broad enough so that they incentivise R&D activity in potential growth areas e.g. plant biotechnology. AusBiotech could be consulted on these definitions.

⁴ https://ec.europa.eu/eurostat/ramon/documents/IPC_NACE2_Version2_0_20150630.pdf

Recommendations

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- Institute a patent-level test rather than an income streaming test for classifying individual patented inventions.
- consult key peak organisations when developing definitions that limit access to the scheme, including the Therapeutic Goods Administration, the Medical Technology Association of Australia, MTPConnect and AusBiotech.
- Ensure that the scheme's scope is broad enough that it incentivises medical device and software development, research into the diagnosis of human disease, and potential biotechnology growth fields such as plant technology.

Definition of R&D

13. Is the existing legal framework for the R&D tax incentive appropriate for determining R&D conducted in Australia for the purposes of the patent box? Do companies already collect this type of data and report it to the Government in some way (such as for the R&DTI)?

14. To what extent are the R&D expenses of Australian patented inventions not entirely the subject of R&DTI claims?

The legal framework for the R&D tax incentive is appropriate for the purposes of the patent box. Companies already maintain records of R&D activities for the purpose of providing evidence to support claims and to respond to possible future audits.

There will be significant overlap between the R&D expenses of Australian patented inventions and R&D tax incentive claims. However, there are certain activities like market research (customer interviews required for design of product), IP research (freedom to operate, patentability landscape etc.) that go into development of a patented product/service, but may not be eligible for R&D tax incentive.

13. How significant is the role of R&D that occurs after a patent has been applied for? What portion of an invention's total R&D would this typically account for in the medical and biotechnology sectors?

The vast majority of R&D in the medical and biotechnology sectors occurs after patenting. For the patent box scheme to be effective, its design needs to be sensitive to this point ensuring that eligible IP is not just patented in Australia but also developed in Australia. In circumstances where the R&D associated with a patented idea has been carried out partly in Australia and partly overseas, a proportional tax concession should apply by evaluating the percentage of R&D expenditure in Australia along the entire development rather than as an expense prior to patenting. This approach to defining eligible expenditure will encourage more collaborative R&D in Australia. Failure to establish a link between the proposed tax concession and actual R&D conducted in Australia will likely lead to companies benefitting from the scheme for patent IP despite the relevant R&D activity occurring elsewhere.

Recommendations

The University of Melbourne recommends that the Australian Government:

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