

Submission to the Review of the National Innovation System

Sinclair Davidson
Tim Wilson

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The authors of this submission are Sinclair Davidson and Tim Wilson

Sinclair Davidson is Director of the States Policy Unit and a Senior Fellow at the IPA. He is also a Professor in the School of Economics, Finance and Marketing at RMIT University. He has published over fifty articles in academic journals including the *European Journal of Political Economy*, *Journal of Economic Behavior and Organization*, *Journal of Behavioral Finance*, and the *Cato Journal*. He has written extensively on taxation policy in Australia and is a regular contributor to public debate. His opinion pieces have been published in *The Age*, *The Sydney Morning Herald*, *The Financial Review*, *The Australian* and the *Wall Street Journal Asia*.

Tim Wilson is the Director of the IP and Free Trade Unit at the IPA. Tim previously worked as a consultant on international trade, intellectual property and environment policy for a Melbourne-based consultancy. He also worked for the Australian APEC Study Centre on international development programs; and was responsible for delivering the Australian government's program to build the logistical and policy capacity of the Vietnamese government to host APEC in 2006. He has also worked as a Senior Consultant for a strategic communications firm assisting companies and the government in developing their communication campaigns. Tim has also previously worked for a number of other state and federal Members of Parliament.



Introduction

Contrary to popular perception, government intervention in innovation does not work well. It is true that the US government has fostered a lot of innovation but that is largely due to civilian application of military R&D and NASA. Government subsidies and grants are likely to drive up wages of R&D specialists but not necessarily lead to more or better R&D.¹

Simple solutions to a perceived underinvestment in innovation are flawed. Simply relying on the university system to drive national innovation ignores the meagre record of university innovation in Australia. Spin-offs from university research in Australia have been poor.² Tax concessions *per se* are open to manipulation and allegations of tax avoidance/evasion. In an environment of low corporate taxation the value of the concession falls dramatically. Tax concessions also target ‘new-to-the-world innovations’ and discriminate against continual incremental innovation. While intellectual property is important for innovation, some proposals for strengthening intellectual property rights could give rise to ‘patent thickets’ whereby legal entrepreneurs stifle innovation.³

There is no magic bullet or formula that will deliver on-going sustainable innovation. The best government can do is provide a stable and coherent institutional and policy environment that will foster innovation as it develops and evolves in the private sector. While this type of argument lacks a dramatic solution to a pressing problem, nonetheless it is not a ‘do-nothing’ solution. As we set out below there are several reforms that could be undertaken that will enhance innovation in Australia in particular, and promote greater economic growth in general.



¹ Paul M. Romer, 2001, ‘Should the government subsidize supply or demand in the market for scientists and engineers?’, *Innovation Policy and the Economy*, vol. 1, MIT Press.

² See ABS cat. 8158.0, 2003, *Innovation in Australian Business*, and Sinclair Davidson, 2006, *Back to basics: Why government funding of science is a waste of money*, IPA Backgrounder

³ See Carl Shapiro, 2001, ‘Navigating the patent thicket: Cross licences, patent pools, and standard setting’, *Innovation Policy and the Economy*, vol. 1, MIT Press and Marc Gugliotti and Sinclair Davidson, 2004, Patents as an indicator of value in Australian biotechs, *Accounting Research Journal*. 17(2) 164 – 173.

Proposals

(1) Education

Innovation does not require a large cadre of research-trained university graduates. There is a disconnect between what universities understand as ‘research’ (the creation of new knowledge) and what private industry understands as ‘research’ (both the discovery of new knowledge, but also the application of previously known knowledge to a new problem – in other words ‘library’ research). Education needs to be aimed at the mastery and understanding of the extant body of knowledge – this implies that good and better teaching need to be subsidised or encouraged over research *per se*.⁴

(2) Tax

Tax concessions *per se* are likely to have a small effect on innovation. Lower overall tax rates are likely to stimulate innovative behaviour. The corporate tax rate should be reduced and the progressivity of the personal tax system also reduced. The benefits of lower personal income tax on entrepreneurial entry have been well documented in a range of careful US studies.⁵ Similarly, the benefits of low corporate tax rates on innovation and business entry have recently been estimated by the World Bank.⁶

(3) Freedom of entry and exit and access to limited liability

Most innovation is likely to occur in large organisations. Small start-up firms, however, still have an important role to play. Public policy should be aimed at simplifying the regulatory burden in establishing and maintaining small business. In particular we argue it should be easier for individual entrepreneurs to access limited liability provisions. In particular Australia should consider a South African innovation known as Close Corporations. This type of business structure is a hybrid between a sole proprietorship and a company.⁷ In addition, the role of the bankruptcy system may be important in stifling innovation by increasing levels of risk-aversion.

(4) Venture Capital

A major problem for small start-up firms is access to venture capital. While Australia does have a large financial market and large amounts invested in superannuation it is not clear that super funds should be invested in high risk activities (after all super exists to fund retirement when individuals are risk-averse). It is important to understand the myth of time diversification when advocating superannuation investment into innovation. Paul Samuelson has shown that it is not the case that investors should invest in risky

⁴ See William Baumol, 2005, ‘Education for innovation: Entrepreneurial breakthroughs versus corporate incremental improvements, *Innovation Policy and the Economy*, vol. 5, MIT Press

⁵ See the collection of studies in Joel B. Slemrod (ed), 2000, *Does Atlas shrug? The economic consequences of taxing the rich*. Harvard University Press.

⁶ See Simeon Djankov, Tim Ganser, Caralee McLiesh, Rita Ramalho, Andrei Shleifer, 2008, The effect of corporate taxes on investment and entrepreneurship, Working paper, available at http://www.economics.harvard.edu/faculty/shleifer/files/tax_011008.pdf

⁷ Additional details can be found at http://www.cipro.co.za/products_services/close_corps.asp

assets simply because they have a long time horizon.⁸ In other words, superannuation should not be viewed as a source of cheap finance for high risk investment projects.

Investment in superannuation is highly tax advantaged and this may well crowd out other forms of investment. To the best of our knowledge this has not been investigated in Australia. To some extent it is a value judgement as to whether this is desirable or not.

(5) A national innovation database

There has been a lot of discussion in industry consultations about the need for a national innovation database. The argument put forward for a national innovation database is that the government has a role to assist in face-lifting ideas, technology and innovators to promote innovation.

Australia already has the ground work completed for a national innovation database through IP Australia's AusPat system.⁹ A standard principle for a patented invention (including product or method) is the obligation of public disclosure. AusPat provides for a searchable database of patented inventions. While AusPat does not include details for non-patented inventions or copyrighted works (such as computer software), it does provide the foundations for a national innovation database.

However, it is questionable whether there would be any significant benefits in developing a national innovation database. Innovation is not constrained to the technology within individual nations. Innovation is achieved through ideas and technology sourced both domestically and internationally. In any form of intellectual property, protected technology is often built on existing technology or an existing technology is included as a component of a newly innovated technology. It is rare that innovations built on existing technology are limited to those within a particular country. Instead they are often the result of bringing together technologies from numerous countries. Building a national innovation database will encourage myopia from Australian inventors on the potential best sources for the technology to;

- create new technology
- improve existing technology; or
- license components to be included in technology.

Additionally, it is questionable what benefit the Australian government could play as a facilitator. There are already a number of international innovation databases that fulfil this role.¹⁰



⁸ The literature in this area is highly technical. Layperson accounts can be found in Jack Duval, 2006, The myth of time diversification: Analysis, application, and incorrect new account forms, PIABA Bar Journal, available at <http://www.johnduval.com/MythofTime1.pdf>. Also see Mark Kritzmman, 1995, *The portable financial analysts: What practitioners need to know*. Irwin.

⁹ Found at <http://www.ipaustralia.gov.au/auspat/>

¹⁰ See for example, the ZIM Innovation Database at http://www.iges.de/about_iges/zim/methods/index_eng.html