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Dr Kathleen Dermody
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Senate Economics References Committee
PO Box 6100
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By email - economics.sen@aph.gov.au

Dear Dr Dermody

Inquiry into the Australian Innovation System

Ernst & Young (EY) welcomes the opportunity to comment on the challenges facing Australia's innovation system.

The terms of reference of the inquiry are appropriately broad; however, the discussion below is focused on Australian fiscal policies used to support innovation. This approach is adopted as EY has particular experience in the operation of these policies (in particular, the R&D Tax Incentive).

In this submission we have set out our observations on the operation of fiscal policies in support of innovation and also the impacts that these policies can have on innovation. These comments have relevance for paragraphs (a), (b) and (j) of the terms of reference.

In summary, we conclude from a review of the current state of the Australian economy and various independent studies that Government support of innovation is a key strategy that will see the Australian economy through the challenging times that lie ahead. In particular, it is clear that cutting support for innovation for short term improvement in the state of the budget would erode Australia's long term productivity and economic growth. Far wiser would be to invest in Australian innovation to improve Australia's structural budget position. We also discuss the unique advantages that market based incentives possess.

Thank you, once again, for the opportunity to present our submission.

Yours sincerely

Robin Parsons
Partner - Research and Development Tax

Australia's Productivity Background

Productivity is a measure of how efficiently inputs, such as capital and labour, are used in the production of output.¹ Labour productivity is the output produced per unit of labour input, while multi-factor productivity takes into account the combined measure of labour and other inputs such as capital.²

The Productivity Commission's recent report has indicated that labour productivity grew by 2.2% from 2011-12 to 2012-13. Multi-factor productivity, however, decreased by 0.8% during the same time period.³ Most industries recorded negative multi-factor productivity growth in 2012-13, and such declines are concerning where it is not associated with investment in capital plant and equipment.⁴

Growth in Australian labour productivity has slowed, and multi-factor productivity has stagnated in the first decade of the new century.⁵ Australia's productivity performance in 2012-13 is on par with Canada and New Zealand but significantly worse than most other developed economies.⁶ Of additional concern is that the high growth economies, upon which the Australian economy has become increasingly dependent, are also showing a slowdown in multi-factor productivity, with China experiencing a zero growth rate.⁷

How can this trend be reversed? In certain sectors, productivity could be improved through policies which promote accurate price signals. For example, introduction of cost-reflective prices which vary by time of use would allow consumers of electricity to modify their behaviour, reducing the required capacity of electricity networks.⁸ (This would reduce capital investment, and thus increase measured multi-factor productivity). While effective price signals are part of the problem, reform should be directed toward remedying one of the key underlying issues: Australian workplaces suffer from an innovation deficit.⁹

*It is a widely held view that innovation is a key driver of increased productivity.*¹⁰

Research, development and innovation can increase productivity in several ways. Firstly, it can lead to the production of new goods and services which can enable a more effective use of existing resources. Secondly, it makes it easier to exploit the benefits of adapting other countries' technological progress. Thirdly, the gains derived from foreign R&D activities can increase domestic productivity directly through the learning of new technologies and productive processes, and indirectly through the imports of goods and services that have new technology incorporated.¹¹ Promoting innovation and creativity in Australian businesses is therefore a powerful way of curing low productivity – but this will require Government and businesses embracing a new phase of micro-economic reform.¹² In turn, gains in

¹ "Productivity Update – April 2014", Australian Government Productivity Commission.

² Ibid.

³ Ibid.

⁴ "Why we should approach claims of a productivity crisis with caution" <<https://theconversation.com/why-we-should-approach-claims-of-a-productivity-crisis-with-caution-26000>>.

⁵ "Productivity and Structural Change", 41st Australian Conference of Economists, Ben Dolman and David Gruen, Australian Treasury.

⁶ Above n1.

⁷ Above n4.

⁸ Above n1.

⁹ Above n4.

¹⁰ See, for example, Cappelen, A., Raknerud, A., Rybalka, M., 2012. 'The effects of R&D tax credits on patenting and innovations.' Research Policy, vol. 41, pp. 334-345.

¹¹ "International R&D Spillovers, and Institutions", Coe, D., Helpman, E., NBER Working Paper 14069, National Bureau of Economic Research, Cambridge, MA.

¹² Above n4.

Australian living standards in the next decade will rely overwhelmingly on productivity improvements.¹³

Innovation as a key driver of productivity and economic well-being

The OECD's view is unambiguous; in a recent report it states:

*Undoubtedly the capability to innovate and to bring innovation successfully to market will be a crucial determinant of the global competitiveness of nations over the coming decade. There is growing awareness among policymakers that innovative activity is the main driver of economic progress and well-being ... there is a realisation that a co-ordinated, coherent, "whole-of-government" approach is required.*¹⁴

It is important in this context that Australia is not left behind. As noted by the same report, "even countries that have generally refrained from active industrial policy in recent years now seek new ways to improve the environment for innovation in order to boost productivity and growth".¹⁵

The role of public policy in nurturing a culture of innovation and a healthy innovation ecosystem

Government involvement in supporting R&D is important; and indeed, essential. Left to its own devices, the market will tend to under invest in R&D for two main reasons. Imperfect appropriability means that inventors are unable to entirely capture the flow of knowledge resulting from R&D activity. That is, because firms have difficulty in appropriating all of the benefits of innovation, the private rate of return to R&D is lower than its social return,¹⁶ and pure markets will tend to under allocate resources to R&D.

This is doubly problematic as the social value of innovation is large: the diffusion of knowledge plays a fundamental role in technological progress and economic growth.¹⁷ There are numerous spill overs to productivity (see above), health and wellbeing, and to the broader economy.

Secondly, the high risk associated with research activity discourages firms from engaging in these activities. As the social rate of return is higher than the private rate of return, governments should provide incentives to ensure that the socially desirable level of research and development is conducted by the private sector.¹⁸

Government intervention can also help change business cultures that are hostile to innovation. As mentioned above, this is a key challenge resulting in lowered productivity.

The importance of broad-based support for R&D

There are a range of ways the Government may support R&D and innovation in situations of market failure. Regardless of the method it is important that a broad based approach is taken. Innovation and R&D can be intensified by a range of government policies, including:¹⁹

¹³ Above n5.

¹⁴ "Innovation and Growth - Rationale for an Innovation Strategy ", OECD.

¹⁵ Ibid.

¹⁶ "The Impact of Public R&D Expenditure on Business R&D", Guellec, D., Van Pottelsberghe, B., 2003, Economics of Innovation and New Technology, vol. 12(3), pp. 225-243.

¹⁷ "Research and Development Fiscal Incentives in Australia: Impacts and Policy Lessons", Lattimore, R., in OECD, Policy Evaluation in Innovation and Technology: Towards Best Practices.

¹⁸ "Evaluating the impact of R&D tax credits on innovation: A microeconomic study on Canadian firms.", Czarnitzki, D., Hanel, P., Rosa, J. M., Research Policy, vol. 40, pp. 217-229.

¹⁹ Above n14.

- Fiscal incentives; and
- Expansion in public research, which can (amongst other benefits) support business sector research.

We will now examine these 2 broad methods of support of innovation by government, including an examination of the benefits to the community, government, businesses and the country.

1. Fiscal Incentives

Cost effectiveness

Recent OECD analysis has found that fiscal incentives can be effective in raising R&D, especially when firms face financial constraints.²⁰ Fiscal incentives generally take one of three forms:²¹ tax deferrals, tax allowances or (as per the Australian approach) tax credits. These approaches are often found to provide a stronger stimulus to business R&D as compared to direct government support.²² This may be because direct support is often used to further Government objectives,²³ rather than 'letting the market decide'.

In Australia, the R&D Tax Incentive is the most important Government initiative to support business R&D. Various studies have been conducted which support the importance of tax incentives^{24, 25}. Generally, econometric studies apply a 'benefit-cost' analysis, which compare the amount of business R&D induced for each dollar of tax revenue forgone. In doing so, they seek to determine whether an R&D incentive is a more effective way to achieve a given level of R&D subsidy, or whether it would be cheaper for governments to fund R&D directly.²⁶

The evidence indicates that, on average, tax incentives can increase private research spending by an amount equal to the loss in tax revenue.²⁷ It appears that the response to an R&D tax credit tends to be fairly small at first, but increases over time.²⁸ A cross country survey of nine OECD countries on tax changes and R&D spending over a 19 year period (1979-1997) found that tax incentives are effective in increasing R&D intensity. This relationship held, even allowing for permanent country-specific characteristics, world macro shocks and other policy influences. An estimated 10% fall in the cost of R&D stimulates just over a 1% rise in the level of R&D in the short-run, and just under a 10% rise in R&D in the long-run.²⁹

Business conducted R&D has a high 'spill-over' – that is, the social return from additional business R&D is very high. The evidence suggests that the magnitude of R&D spill-overs may be quite large, with social rates of return significantly above private rates. These positive social externalities strengthen the net positive impact of the R&D Tax Incentive, as it is effective in stimulating additional business R&D.

²⁰ Above n14.

²¹ "Tax Incentives for Research and Development: Trends and Issues", OECD <
<http://www.oecd.org/dataoecd/12/27/2498389.pdf>>.

²² Above n14.

²³ Ibid.

²⁴ "Supporting growth in innovation: enhancing the R&D Tax credit." HM Treasury, 2005, London, UK.

²⁵ "How Important is Business R&D for Economic Growth and Should the Government Subsidise It?" Griffith, Rachel, 2000, The Institute for Fiscal Studies, London, UK.

²⁶ "How effective are fiscal incentives for R&D? A review of the evidence.", Hall, B.H., Van Reenen, J., 2000, Research Policy, vol. 29, pp. 449-469.

²⁷ Above n21.

²⁸ Above n26.

²⁹ "Do R&D tax credits work? Evidence from a panel of countries 1979-1997.", Bloom, N., Griffith, R., Van Reenen, J., 2002, Journal of Public Economics, vol. 85, pp. 1-31.

Administrative ease

One of the key concerns with government support of innovation is to ensure that its effectiveness is not diminished by overly complicated or administratively burdensome approaches.³⁰ Broad-based programs which allow businesses to make a decision about their own R&D, and have clear guidelines (based on law) are a great way to achieve this, as indicated in a recent OECD study:

*Clarity, consistency and predictability are essential to assist enterprises in making R&D Investment decisions partly on the basis of tax Incentives.*³¹

Schemes which are overly complex or are constantly changing deter investments into R&D projects for two main reasons. Firstly, complex schemes with excess compliance documentation required to access credits add significant administration cost, burdening smaller firms especially. The compliance costs in Canada for example were found to equal 15% of the R&D Tax credit value on average for small firms, compared with 5.5% for large firms.³² Clarity and simplicity however encourages small firms to make R&D investment decisions by providing confidence that they can qualify for R&D tax incentives without having to risk significant time and expenditure into the qualification process itself. The second major deterrent to R&D investment is consistency and predictability. Firms are less likely to invest in R&D projects with a continually changing playing field whereas studies have shown that consistent R&D incentives over a long time period are more effective.³³

In general, the Australian R&D tax system achieves this (though there is always some tension in the system between balancing public accountability without overburdening businesses). Programs which involve direct or discretionary support can often become administratively burdensome to both Governments and applicants, and can diminish the effectiveness of any incentive programs.

The R&D Tax Incentive contributes to innovative working cultures

In addition to directly resulting in new knowledge, processes or products, R&D also enhances technology transfer (that is, "absorptive capacity"). R&D enhances absorptive capacity by facilitating the imitation of the discoveries and inventions of others. By actively engaging in R&D, workers acquire knowledge and skills enabling them to more easily understand and assimilate the discoveries of others.³⁴

This represents an often underappreciated benefit of R&D tax incentives. A survey of the Australian R&D Tax Concession system conducted by the Department of Industry Tourism and Resources focused on the concept of "behavioural additionality". The department considered the difference in firm behaviour resulting from government intervention, which included both long terms effects on company behaviour and short term impacts on the R&D activity or project. The department explained its approach on the basis that government subsidies have impacts extending well beyond a single project and traditional input-output evaluations do not fully measure for these effects. The conclusions of the study included that:³⁵

³⁰ "Achieving innovation and global competitiveness through research and development tax incentives: lessons for Australia from the UK." McKerchar, M., Hansford, A., 2012, 24th Annual Conference of the Australasian Tax Teachers Association, Sydney.

³¹ Above n21.

³² "The Federal System of Income Tax Incentives for Scientific Research and Experimental Development". Finance Canada, 1998.

³³ Above n21.

³⁴ "Mapping the Two Faces of R&D: Productivity Growth in a Panel of OECD Industries.", Griffith, R., Redding S., Van Reenen, J., 2004, The Review of Economics and Statistics, vol. 86, no. 4, pp. 883-895.

³⁵ "How R&D Assistance Influences Company Behaviour", Department of Industry Tourism and Resources, Canberra.

- The majority of firms surveyed reported changes in behaviour as a result of utilising the R&D tax concession: 86% of firms reported changes during the R&D project, while 98% of firms reported long term behavioural change; and
- The tax concession resulted in a strong impact on firm behaviour including enhanced commitment to R&D, changes to R&D management, changes to business strategy and encouraging new collaboration with companies. The concession also had a high impact on product commercialisation and the encouragement of new collaboration with universities.

The study also noted that firms that accessed the R&D Tax Concession may be starting from a lower R&D management experience base (as compared to those which access grants).

The R&D Tax Incentive is therefore likely to be highly effective at promoting an innovative firm culture. As part of the R&D Tax Incentive claim process, the R&D activities undertaken become – at least for a short while – the centre of attention of those in leadership positions across a firm- from entrepreneurs to workers, from management to the C-suite. The R&D Tax Incentive also requires collaboration between different employees or participants who may not, in the usual course of things, work closely with one another (for example, the finance and engineering functions). In some cases, companies accessing the R&D Tax Incentive put in place procedures which capture potentially eligible activities, and in so doing encourage the search for innovative solutions to problems.

As noted above, Australian firms suffer a dearth of innovation; changing this culture will unlock the productivity gains that will carry Australia's future increase in living standards. One of the R&D Tax Incentive's great strengths is that it is industry agnostic – it will contribute to innovative work cultures throughout the economy. Improvements in productivity will come from innovative practices driven through improvements in managerial practices, organisational change as well as inventions.³⁶

As a final point, it should be noted that this enhanced ability to understand and utilise knowledge generated by others even operates between countries, so there is an important spill-over at the global level from more advanced to less advanced countries. There is empirical evidence to suggest that countries which are lagging behind the productivity frontier but heavily invest in R&D catch up particularly quickly. That is, increased R&D would have positive impacts on both rates of innovation and technology transfer – which would have benefit for some Australian industries that lag behind the technological cutting edge.

This objective is reflected in the IR&D Board guidelines of 1995, which state that the R&D Tax Concession was designed in part to develop “a greater capacity for the adoption of foreign technology”. Further benefits can be achieved through a broad based system- governments should be wary of only rewarding glamorous claims of R&D that is ‘new to the world’. More mundane adoption of foreign R&D to the Australian context can drive out-sized improvements in Australia's productivity.

R&D Tax Incentives keep innovators in Australia

R&D Tax Incentives (as opposed to other more direct forms of Government investment in R&D) can also have the advantage of acting as an attractant to foreign investment. That is, foreign companies may choose to locate or invest in R&D in Australia in preference to a country that fails to offer (or offers a less attractive) tax incentive.³⁷

In recognition of the importance of innovation to advanced industrial economies, many other countries utilise tax incentive schemes intended to encourage additional R&D, including: Austria, Belgium, Brazil, Canada, China, France, Germany, Hungary, India, Ireland, Israel, Japan, Malaysia, Mexico, Netherlands, Russia, Singapore, South Africa, South Korea, Spain, the United Kingdom and the United States. While

³⁶ Above n14.

³⁷ Above n26.

it is reassuring that Australia is in good company, it is also clear that the Government must continue striving for innovation policies which are world best practice in order that foot-loose R&D is not relocated overseas, or not done in Australia.

R&D Tax Incentives have broad reach

Tax incentives have the advantage of covering all types of companies, irrespective of size, funding arrangements, or sector of the economy to which the company belongs. In addition, the tax incentives allow corporations to decide which projects to fund according to what they believe will succeed in the market. Tax incentives are also relatively flexible and can serve to advance the different R&D objectives of various types of companies and sectors of the economy simultaneously.³⁸ This distinguishes R&D Tax Incentives from other forms of innovation support, which require the Government to 'pick winners' and support particular firms irrespective of the potential existence of superior technology being developed elsewhere in the market.

Recent developments in the Australian R&D tax incentive regime

It may be argued that the recent reduction in the R&D Tax Incentive percentage introduced by the Australian Government in the 2014/15 budget has been justified by a reduction in the corporate rate of Tax. The justification may be considered fair as the changes in rates for the R&D Incentive and the corporate tax rate are essentially the same – 1.5%.³⁹ However, it has been noted that the 1.5% loss in R&D Incentive has come into effect from 1st July, 2014, one financial year prior to the reduction in the corporate rate of Tax planned for the financial year beginning 1st July, 2015, and that additional levy's on companies (eg. the proposed 1.5% parental leave levy) may also have an impact. This move goes against the points mentioned earlier on predictability and consistency encouraging R&D investment decisions from small and large firms.

In addition, given the myriad advantages of R&D tax incentive style regimes around the world, it is disappointing that the Australian Government has recently communicated its intention to exclude companies with assessable incomes over \$20bn from accessing the tax incentive. It is likely that if this change comes to pass, it will contribute to a stifling of innovation in Australia. Certain types of innovation can only be undertaken by large companies. For example, large companies are more willing to undertake highly complex and integrated R&D projects. They may also have a greater appetite for risky projects, as they have an increased ability to supply to a greater number of customers should they succeed. They are also able to take advantage of large scale supply chains and infrastructure. Large companies may also possess greater expertise in the commercialisation of new technologies into products and services. Large global companies also have the unique ability to move resources to Australia to facilitate rapid knowledge transfer and a more highly skilled Australian workforce.

This change also has the potential to jeopardise R&D collaboration and the innovation ecosystem; a major party that is no longer incentivised may withdraw from R&D - adversely affecting the entire R&D project. This will have a far greater multiplier effect across all participants in the collaboration - not just the denied entities. This is just another stumbling block in the development of "innovation hubs" which are well established as a pathway to enhanced R&D outcomes. Large companies are able to provide the scale and resources necessary to anchor the location of innovation hubs within Australia, which cannot be achieved by a group of smaller participants.

Larger multinational corporations which will be excluded by the proposed changes are the very ones who have the flexibility to choose where to locate their R&D; they will likely relocate their Australian

³⁸ "Impact of Fiscal Incentives to R&D: Evaluating the Effects of the "PDTI" in Brazil.", Avellar, A. P., 2009, Third Conference on Micro Evidence on Innovation in Developing Economies 2009, Rio de Janeiro.

³⁹ "Federal Budget 2014 – R&D Tax Incentive and Grant Funding." KPMG, 2014 <

<http://www.kpmg.com/AU/en/IssuesAndInsights/ArticlesPublications/federal-budget/Documents/budget-2014-brief-resource-development-tax-incentive-grant-funding-v2.pdf>>

activities off-shore to locations with more attractive tax based incentive schemes. Of additional concern is that, as the R&D incentive is a critical attractant to foreign investment, it is crucial that the scheme is not modified to exclude large multinationals looking to spend R&D dollars.

There is no logical basis for excluding large companies from accessing the incentive, and no other regime in the world does so. Large companies are still subject to the market failures which justify government intervention, experience internal competition for capital and perform different R&D to smaller players. Disincentivising these apex innovators is likely to harm Australia's innovation ecosystem, and long term productivity and economic growth as a result. In turn, this will reduce government receipts in the long run thereby contributing to the structural deficit.

2. Direct support

Governments may also conduct R&D activities directly (for example, through public laboratories or universities) or stimulate private R&D directly through grant funding. Innovation is heavily reliant on the stock of basic knowledge, which is contributed to by education and science.⁴⁰

As governments are able to choose the types of projects to fund through grant funding or by carrying out R&D directly, they are able to directly fund long-run exploratory projects and the development of research infrastructure. These types of investments are less likely to be selected by expanded private funding induced by a tax incentive, but are desirable because of their high rate of social return.⁴¹ Grants can also encourage collaboration – for example, by making collaboration with universities or research institutions a requirement for funding.⁴²

However there are risks with direct support R&D programs, especially in a private sector context- they often involve governments (and more specifically lay bureaucrats) attempting to “pick winners”, they can be subject to the vagaries of year to year funding cycle, they can be very narrow in applications, decisions about R&D direction can be constrained by grant requirements rather than following a scientific process, and the discretionary nature of direct support can mean that costs associated with administration and application can be high. They often do not provide the broad based, industry directed, R&D that can be supported by an R&D Tax Incentive.

Both direct public funding and tax incentives have a role to play in a broader government strategy to encourage a more innovative Australian society. R&D tax incentives are relatively good strategies for accelerating R&D spending by firms, but have little effect on the allocation of R&D resources across different fields of research. On the other hand, direct funding can be tailored to meet specific market failures, and can be targeted to fields of research with a high level of public spill-over but which are not favoured by private spending (for example, research in theoretical sciences).

⁴⁰ Above n14.

⁴¹ "Is public R&D a complement or substitute for private R&D? A review of the econometric evidence.", David, P. A., Hall, B. H., Toole, A.A., 2000, Research Policy, vol. 29, pp. 497-529.

⁴² Above n16.

Patent boxes

Equally important as stimulating innovation in the form of R&D is the need for Australian businesses to commercialise the results of their R&D in Australia. For this reason, it is prudent that patent box regimes similar to those recently introduced in the United Kingdom be considered.

A patent box regime results in a reduced rate of taxation on profits from products incorporating Australian patents. The intent is to encourage the commercialisation – not just the development – of know-how and intellectual property in Australia. This regime needs to be carefully considered with differences between the Australian and other economies which utilise Patent Boxes (eg. UK), as well as the implications for tax revenue leakage, but may represent a powerful tool in encouraging greater innovation, and especially in cultivating and capturing some of the benefits that come after R&D by capturing an increased level of commercialisation.

Promoting innovation in the current economic environment

Governments of all persuasions must be careful not to make decisions which improve near term budgetary figures while impairing the longer term (and more important) structural deficit.

Does Australia have the funds to spend on encouraging innovation? This is not an easy question to answer – by its very nature R&D requires an investment now for potential future benefits, and there is often only limited payback in the near term. Indeed as highlighted above, this is in part one of the failings that government incentives which support R&D seek to address – and it is critical that this support be provided consistently over the long term and in a sustainable way. Nevertheless to the extent that Australia is in a state of immediate ‘budget emergency’ (where the cost of borrowing is high or impossible because of the limits of financial market tolerance) or where the expenditure levels are unsustainable – then Australia may be compelled to divert spending from innovation, despite the longer term damage to the economy.

Though government budgets remain tight, given there can be real impacts on our future economic prosperity and productivity through reducing R&D expenditure, any decisions about reducing spending on encouraging R&D must be made extremely carefully.

The question of whether there is an immediate ‘budget emergency’, which would render moot any further discussion about fostering innovation, is difficult to clearly establish. On the one hand, the measure of a country’s ability to pay back its debt – the debt-to-GDP ratio – is much lower than the OECD average, and has been described as being ‘enviable’.⁴³ However, some commentators have pointed to recent increased rate of deterioration in this ratio⁴⁴.

Given that Australia’s expenditure on R&D for industry is comparable to the OECD average, and that fiscal choices are not currently severely constrained by hard market limits, the question of innovation in Australia is not a question that should be framed in the context of short term budgetary cycles. Instead, fostering of innovation is a key reform to support longer term economic growth which requires a multi-pronged policy approach that is predictable, clear, consistent and broad-based.

⁴³ See, for example, “Australia’s economy is healthy, so how can there be a budget crisis?” < <http://theconversation.com/australias-economy-is-healthy-so-how-can-there-be-a-budget-crisis-26036>>.

⁴⁴ See, for example, “Here’s The Big Problem With Comparing Australia’s Budget Deficit To Other OECD Countries” < <http://www.businessinsider.com.au/heres-the-big-problem-with-comparing-australias-budget-deficit-to-other-oecd-countries-2014-5>>.

Innovation as a means of reducing Australia's structural deficit

The question of budget sustainability (including support for R&D) must be framed within the context of Australian government's structural budget deficit- with tax reforms to be made to reduce Australia's structural deficit, which has been built up by the policies of both major political parties.⁴⁵ This structural deficit seeks to quantify the underlying budget balance, with the effect of cyclical and other temporary factors removed.⁴⁶ This measure has shown improvement in 2012-13, but is still approximately 1.5% to 2.75% of GDP.⁴⁷ Given sufficient time, the structural deficit may become unsustainable and begin to impede the Government's ability to plan future spending.⁴⁸

This means that Australia is in a relatively fortunate position – it has time to institute responsible structural reforms to reduce its structural budget balance. Overseas experience indicates that this is possible, and there are historical examples of governments recovering from much larger debt positions than Australia is facing,⁴⁹ but this strategy cannot rely simply on economic growth.⁵⁰ What sorts of reforms will support this recovery?

Fiscal policies should be rationally designed and directed toward supporting long-term growth potential.⁵¹ A long term vision is required which addresses factors including education participation, infrastructure spending, promoting a greater role for markets where appropriate and reducing investment disincentives.⁵² In a coherent response, policies that promote Australian innovation would feature prominently. Indeed it could be argued that with increased innovation, comes increased economic activity, higher growth potential and a more sustainable, globally integrated economy- the very things that can help address the countervailing issues which impact budget sustainability (including helping to avoid 'budgetary emergencies').

Final comments

We would also draw attention to Professor Chubb's recent address to the Cranlana Programme.⁵³ We echo his comment that Australia's aspirations should inform and drive economic decisions, rather than economics limit the aspiration. The Australian Government should commit to a comprehensive, strategic approach to science, technology, engineering and mathematics. This strategy should itself be based on empirical, evidence based investigation of what works to stimulate innovation, with innovation in both the private and public sectors a key part of this. The policies implemented as part of this strategy should be subject to a process of search, experimentation, monitoring, learning and adaption.⁵⁴ We have in the past, and continue to, believe that the R&D Tax Incentive (along with continuing support for public sector R&D in Universities and research institutes), is a broad based, consistent and effective way of achieving this.

⁴⁵ See for example, "Tax reform: A better way" <[http://www.ey.com/Publication/vwLUAssets/EY-tax-reform-a-better-way/\\$FILE/ey-tax-reform-a-better-way.pdf](http://www.ey.com/Publication/vwLUAssets/EY-tax-reform-a-better-way/$FILE/ey-tax-reform-a-better-way.pdf)>.

⁴⁶ "Estimates of the structural budget balance of the Australian Government 2001-02 to 2016-17", Parliamentary Budget Office.

⁴⁷ Ibid.

⁴⁸ "Australia's economy is healthy, so how can there be a budget crisis?" <<http://theconversation.com/australias-economy-is-healthy-so-how-can-there-be-a-budget-crisis-26036>>.

⁴⁹ "Is there still a budget emergency? Canberra Press Club", transcript, John Daley, Grattan Institute.

⁵⁰ Ibid.

⁵¹ "Public Expenditure Reform, Making Difficult Choices", International Monetary Fund.

⁵² Above n42.

⁵³ Speech: Cranlana Programme, Prof. Ian Chubb, <<http://www.chiefscientist.gov.au/2014/05/speech-cranlana-programme>>.

⁵⁴ "Making Innovation Policy Work: Learning from Experimentation", OECD.

Our recommendations

We recommend that innovation support be a centrepiece in the Australian Government's strategy to ensure productivity improves, quality of life is enhanced, and we create viable and sustainable economic growth. It would be short sighted to reduce the level of fiscal support for innovation, and although this may result in improved budget figures in the short term, this will only result in a worsened structural deficit in the long term. Innovation support can nurture the creation of new industries, drive productivity and create a new generation of entrepreneurs and thought leaders. We recommend continued support and certainty for the broad-based R&D Tax Incentive to drive innovation in all businesses (including larger participants who are currently at threat of being prevented from claiming the R&D tax Incentive, potentially limiting their ongoing involvement in Australia's innovation ecosystem), as well as supporting direct contributions to Australia's public sector research; sustaining vital research being done at Universities and public research institutes.