

THE 'EBB AND FLOW' OF FISCAL SUPPORT FOR RESEARCH AND DEVELOPMENT: A NEW ZEALAND REFLECTION

ADRIAN SAWYER*

ABSTRACT

New Zealand's investment in research and development ('R&D') activities as a percentage of its Gross Domestic Product has remained near the bottom of the Organisation for Economic Co-operation and Development member countries. Efforts to improve this level have involved various targeted grants, tax credits (twice) and cashing out of R&D losses (a form of government loan), and have ebbed and flowed with the changes in government. This paper reviews New Zealand's approach from the early 2000s to the latest tax credit scheme that took effect in 2019. The paper reveals that the level of uncertainty, frequent change and political philosophies of the nation's various governments have done little to encourage businesses to take risks through increasing their investment in R&D.

Keywords: incentives, New Zealand, policy, research and development, R&D

* Professor of Taxation, UC Business School, University of Canterbury, Christchurch, New Zealand. Email: adrian.sawyer@canterbury.ac.nz. This paper states the position with respect to the incentives for R&D in New Zealand as at 29 February 2020. It has significantly benefited from the contributions of attendees at the annual ATTA Conference held during January 2020 in Hobart, Tasmania. Any remaining errors are those of the author.

“We do not learn from experience ... we learn from reflecting on experience” – John Dewey

I INTRODUCTION

The New Zealand government has, on numerous occasions, sought to stimulate research and development (‘R&D’) investment through statutory intervention. The objective of this paper is to assess the implications of providing tax incentives for R&D expenditure. This is conducted through a case study focussing on one jurisdiction, New Zealand (‘NZ’). To set the scene, in NZ with respect to incentivising investment in R&D activities, eligible R&D activities must be:

- a) systematic, investigative and experimental activities (SIE) that are performed for the purposes of acquiring new knowledge or creating new or improved materials, products, devices, processes or services and that:
 - are intended to advance science or technology through the resolution of scientific or technological uncertainty; or
 - involve an appreciable element of novelty.
- b) other activities that are wholly or mainly for the purpose of, required for, and integral to, the carrying on of the activities in paragraph (a).¹

While this definition applies for taxation purposes, a much bigger question (which is beyond the scope of this paper) exists: what is R&D from an accounting perspective and does investment in R&D create an asset or is it an expense? For these purposes, guidance is found in applicable accounting standards, including NZ IAS 38 which deals with intangible assets.²

According to Statistics NZ,³ in 2018:

- Total R&D expenditure increased 24 per cent from 2016, to \$3.9 billion;
- R&D expenditure by businesses reached over \$2.1 billion, accounting for 55 per cent of total R&D expenditure;
- R&D expenditure by service industries increased \$534 million (64 per cent) from 2016; and

¹ *Income Tax Act 2007* (NZ) s LH 7 (‘*ITA 2007*’). This is the definition that applies for eligibility for the new R&D tax credit that came in with effect from the 2019–20 income year.

² Under *ITA 2007* (n 1) s DB 26, an item of expenditure will be deductible for taxation purposes in accordance with the accounting standards provided in Financial Reporting Standard (‘FRS’) FRS-13, paragraph 5.3. With NZ adopting International Financial Reporting Standards (‘IFRS’), FRS-13 is superseded by NZ IAS 38, an accounting standard on intangibles also governs the accounting treatment for R&D expenditure. NZ IAS 38 paragraph 57 provides that expenditure on R&D is recognised as an expense when it is incurred unless the criteria for recognition of development expenditure as an intangible asset are satisfied. Although these criteria are worded differently from those in FRS-13, the new standards are largely consistent with the old standards.

³ See New Zealand Government, ‘Research and Development Survey: 2018’ (Web Page, 28 February 2019) <<https://www.stats.govt.nz/information-releases/research-and-development-survey-2018>>.

- R&D expenditure as a proportion of Gross Domestic Product ('GDP') was 1.37 per cent.

Putting this information into perspective, the Organisation for Economic Co-operation and Development ('OECD') average in 2018 for R&D expenditure was 2.37 per cent of GDP.⁴ This indicates that NZ is only achieving R&D investment at 58 per cent of the OECD average. Notwithstanding efforts to increase the level of investment, NZ consistently falls well below the OECD average for R&D investment. This is a state of affairs that cannot be allowed to continue if NZ wishes to improve its productivity, GDP and overall net wealth per capita.

This presents another question: how has the NZ government responded, on behalf of the country, to this relatively 'poor performance'? In addition to clarifying the definitions of 'research' and 'development' (including reducing the levels of black hole expenditure),⁵ NZ has frequently intervened through targeted legislation and the establishment of various Crown entities. These interventions include:

- Creating a tax credit (twice, the first in 2008 and the second in 2019);⁶
- Enabling certain businesses with losses to cash out their R&D tax credit; and
- Establishing a grants-based scheme administered by a government agency (currently, Callaghan Innovation).⁷

NZ's journey is characterised by disparate political views and frequent legislative change. Complex challenges for businesses (especially small business) in understanding and taking advantage of the support provided by government abound. Frequent changes in eligibility criteria and level of funding have further exacerbated the situation. Uncertainty, accompanied by change, is the prevailing theme.

It is moot as to whether the most recent changes in 2019 will enable NZ's R&D tax regime to be more internationally competitive. The *Taxation (Research and Development Tax*

⁴ See Organisation for Economic Co-operation and Development ('OECD'), 'Gross Domestic Spending on R&D' (Web Page, 2020) <<https://data.oecd.org/rd/gross-domestic-spending-on-r-d.htm>>.

⁵ Black hole expenditure is business expenditure that is expected to result in an economic cost to a taxpayer, but is neither immediately deductible for tax purposes, nor deductible over time. It is not deductible over time because it does not form part of the cost of depreciable property for tax purposes. Thus, it refers principally to situations where taxpayers would have received depreciation deductions had a project gone ahead (because the asset was expected to decline in value), but did not because the project was abandoned before it met the definition of depreciable property. See Steven Joyce and Judith Collins, *Black Hole and Feasibility Expenditure: A Government Discussion Document* (Inland Revenue, May 2017).

⁶ The first tax credit, created under a Labour-led Government, operated for one year before the incoming National-led Government repealed it. The second scheme was introduced by the new Labour-led Government in 2018 with effect from 1 April 2019.

⁷ Callaghan Innovation states that it '... provide[s] a single front door to the innovation system for businesses at all stages of their innovation journey – from start-ups to the most experienced R&D performers': see Callaghan Innovation, 'About Us – Our Role' (Web Page, 2020) <<https://www.callaghaninnovation.govt.nz/about-us/our-role>>.

Credits) Act 2019 (NZ) reintroduced a 15 per cent tax credit with effect from 1 April 2019. Further modifications to the refundability of R&D tax credits are contained in the Taxation (KiwiSaver, Student Loans, and Remedial Matters) Bill 2019 (NZ), which is expected to be enacted later in 2020.⁸

Further and more generally, debate is far from settled as to whether R&D incentives actually have an impact in increasing investment in R&D activities.⁹ The mere existence of fiscal incentives may not in themselves be sufficient to stimulate R&D investment; more may be needed, including appropriate design and collection of data. If fiscal incentives are considered desirable, the author's view, as will be expended upon in this paper, is a clear preference for interventions by way of tax incentives with clear guidelines for all qualifying entities (such as through tax credits), over limited grants that may be available to selected enterprises upon application and which are assessed based upon limited guidance developed by relevant government officials.

The importance of public policy and its influence on R&D should not be underestimated, as noted in a recent OECD study:

Public policy has an important role to play in promoting research and development (R&D) the development, diffusion, and use of new knowledge and innovations. *Fiscal incentives, including tax policies, should be directed at specific barriers, impediments or synergies to facilitate the desired level of investment in R&D and innovations.* Without careful design, policies can have unintended consequences such as favouring incumbent firms, encouraging small firms to undertake less efficient activities, or creating arbitrage and rent-seeking activity. *R&D tax policy needs to be considered in the context of the country's general tax policies, its broader innovation policy mix and its other R&D support policies.* More R&D activity in one country does not necessarily result in an overall increase in global innovation if it is simply shifted from another country. More research is needed to determine the extent to which R&D fiscal incentives in one country increase overall R&D, the quality of that R&D, and its positive spillovers to other sectors of the economy and other countries.¹⁰

⁸ At the time of writing, the Bill has been reported back to Parliament following the hearing of submissions. No date has been set for its second reading. A number of points raised by submitters have been accepted by Officials or have been recommended that the point(s) raised be noted.

⁹ See, eg, Silvia Appelt et al, 'R&D Tax Incentives: Evidence on Design, Incidence and Impacts' (Policy Paper No 32, OECD Science, Technology and Industry, 10 September 2016); Irem Gucer and Li Lu, 'Effectiveness of Fiscal Incentives for R&D: Quasi-Experimental Evidence' (2019) 11(1) *American Economic Journal: Economic Policy* 266; Lucy Minford and David Meenagh, 'Testing a Model of UK Growth: A Role for R&D Subsidies' (2019) 82 *Economic Modelling* 152. See also Hanna Spinova and Theodoros Rapanos, 'R&D Tax Incentives: Do R&D Tax Incentives Stimulate Innovations and Economic Growth? Evidence of OECD Countries' (Working Paper, Södertörns högskola, Institutionen för Samhällsvetenskaper, 18 January 2019); Petr Svoboda, 'The Impact of Tax Incentives on Research and Development' (2017) 65(2) *Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis* 737 (tax incentives are a more effective form of research and development support than direct government funding).

¹⁰ Tom Neubig et al, 'Fiscal Incentives for R&D and Innovation in a Diverse World' (Working Paper No 27, OECD Taxation, 13 September 2016) 5 (emphasis added).

A further argument is that the presence of a capital gains tax ('CGT') assists in encouraging investment in R&D type activities as it provides an avenue for allowing capital losses to be offset against other forms of capital gains.¹¹ NZ, as a member of the OECD, is the only country without a formal CGT regime.¹² This could, in part, explain why there is a lower level of investment in R&D activities, since any capital losses arising from R&D activities are unable to be offset against capital gains (there being no liability to tax for such gains unless they are caught under various income tax criteria).¹³

Fiscal support for R&D activities in NZ is premised upon a neoliberal culture that assumes the best outcomes from support funding is achieved through contestable means.¹⁴ This approach pits researcher(s) against researcher(s), necessitating that they (at least) implicitly advocate why their proposed research should be funded at the expense of others. There is also a very limited 'pot' from which projects can be funded. This approach applies to research funding generally, such as the elite Marsden Fund for researchers, along with more generally the Performance Based Research Fund ('PBRF').¹⁵ This approach is also present in the R&D context in NZ with the Callaghan Innovation grants funding mechanism which is discussed in more detail in Part III of this paper. Accordingly, there would appear to be minimal chance that this underlying philosophy of promoting competition will change for the foreseeable future.

The perspective taken in this paper is largely positivist, in that it reviews political interventions to encourage investment in R&D activities. Normative suggestions are also offered in interpreting the effects of these interventions. This paper takes a policy

¹¹ See, eg, Mark Bowler-Smith, 'New Zealand National IFA Branch Report: Tax Incentives on Research and Development' (2014) 100a *Cahiers de Droit Fiscal International*. Bowler-Smith suggests the absence of a CGT in NZ may be to the country's benefit in promoting investment in R&D activities.

¹² Attempts to develop a CGT for NZ were made with the Tax Working Group established by the NZ government in 2017. Its proposal for a CGT included in its Final Report in February 2019 was rejected by the Labour-led Government in April 2019. See Grant Robertson and Stuart Nash, 'Govt Responds to Tax Working Group Report' (Media Release, New Zealand Government, 17 April 2019) <<https://www.beehive.govt.nz/release/govt-responds-tax-working-group-report>>.

¹³ For recent discussion on the taxation of certain capital gains in NZ see Chris Evans and Richard Krever, 'Taxing Capital Gains: A Comparative Analysis and Lessons for New Zealand' (2017) 23(4) *New Zealand Journal of Taxation Law and Policy* 486; Kerrie Sadiq and Adrian Sawyer, 'New Zealand's "Experience" with Capital Gains Taxation and Policy Choice Lessons from Australia' (2019) 16(2) *e-Journal of Tax Research* 362.

¹⁴ For discussion on the implications of this approach see, eg, Branko Marcetic, 'New Zealand's Neoliberal Drift', *Jacobin* (Article, 2016) <<https://www.jacobinmag.com/2017/03/new-zealand-neoliberalism-inequality-welfare-state-tax-haven/>>. See generally, Kelly Freebody et al, 'Who is Responsible? Neoliberal Discourses of Well-Being in Australia and New Zealand' (2018) 42(2) *NJ Drama Australia Journal* 139.

¹⁵ See Royal Society of New Zealand, 'Marsden Fund' (Web Page, 2020) <<https://www.royalsociety.org.nz/what-we-do/funds-and-opportunities/marsden>>; Tertiary Education Commission, 'Performance Based Research Fund' (Web Page, 2020) <<https://www.tec.govt.nz/funding/funding-and-performance/funding/fund-finder/performance-based-research-fund/>>. See also, Leon Benade, Nesta Devine and Georgina Stewart, 'The 2019 PBRF Review: What's to be done?' (2019) 54 *New Zealand Journal of Educational Studies* 225.

perspective, drawing upon documentary analysis of various scholars and commentators who offer insights into R&D interventions. This paper does not attempt to analyse legislation and regulations in detail, and as a consequence, does not utilise 'blackletter' legal analysis techniques.

The paper adopts an in-depth exploratory case study approach in order to examine, over time, the various political interventions to encourage investment in R&D activities. It is common to see criticism of case studies as a research method, with some viewing the method as a non-scientific approach to undertaking research. Notwithstanding this view, case study research is utilised extensively in academic enquiry in traditional social science disciplines as well as practice-oriented fields. When completing case studies, the design and analysis considerations are of prime importance, more often than the description of events or the scenario under review. As Yin states,¹⁶ the need for a case study arises out of the desire to understand complex social phenomena and allows investigators to retain the holistic and meaningful characteristics of real-life events.

Ultimately, the research question this paper seeks to answer is: what can we learn from NZ's political intervention experience to encourage investment in R&D activities? As noted above, answering this research question necessitates that an in-depth exploratory case study analysis be performed.

Accordingly, this paper will conduct a historical review, drawing substantially upon the earlier contributions of Sawyer¹⁷ and Robinson.¹⁸ The paper will also evaluate subsequent developments, including the recently enacted R&D tax credit scheme in 2019. In particular, Part II provides context to the NZ R&D interventions, with commentary concerning the early review of their impact and effectiveness. Part III proceeds to bring these reviews together and explores the issue of the R&D inventions being 'hostage' to political ideologies, rather than necessarily working to stimulate NZ's level of R&D investment to meet, at least, the average for the OECD member countries. The paper concludes with Part IV detailing the author's concluding observations, limitations of the research and suggests some areas for future study.

II BACKGROUND AND REVIEW

Much has been written globally about R&D fiscal incentives, whether it be through tax credits, grants or other forms of support. This comes from various perspectives, including econometric analysis and political science. It is not the intention of this paper to undertake a further comprehensive review of the relevant literature. Rather, as a single country case

¹⁶ Robert K Yin, *Case Study Research and Applications: Design and Methods* (Sage Publications, 6th ed, 2017).

¹⁷ Adrian Sawyer, 'Reflections on Providing Tax Incentives for Research and Development: New Zealand at the Cross Roads' (2005) 8(1) *Journal of Australian Taxation*, 111.

¹⁸ Alex Robinson, 'The Rise and Fall of R&D Tax Credits in New Zealand: The Practitioner's Perspective' (BCom Thesis, University of Canterbury, 2009).

study, this Part will briefly review the contributions to the R&D literature from a NZ perspective.

Business expenditure on R&D in NZ is low in comparison to other OECD countries. In an OECD working paper in 2017, the author comments:

New Zealand's R&D expenditure, especially by the business sector, is low as a share of GDP ... While it might be reasonable for New Zealand to aspire to a lower level of R&D spending than leading OECD countries due to its industry structure, size and location, *its productivity is hampered by its low rate of R&D expenditure ...*¹⁹

One attempt to redress this was the establishment of Callaghan Innovation in 2013 as a source of funding for R&D grants; this development is explored further in Part III. Deakins et al, in a series of interviews with technology-based small firms ('TBSFs') in NZ, concluded:

Direct government support for TBSFs has been through mechanisms such as technology grants and vouchers targeted at R & D and later stage growth and project development. Whilst such grants have been welcomed as being valuable by our entrepreneur respondents, they have not been without criticism. Some technology entrepreneurs *expressed a preference for R&D tax credits rather than direct grants whilst others perceived grant mechanisms as too bureaucratic, discouraging some firms that would have had eligible projects from applying.* Grants often carry high levels of deadweight (the investment in R&D would have occurred without financial support, perhaps at a later time or at a lower level), arguably resulting in some firms becoming too grant dependent, so the value of relatively high levels of state expenditure could be questioned. However, this would require a full economic evaluation to provide an informed opinion.²⁰

Le and Jaffe provide further empirical evidence of the effect of an R&D subsidy on innovation in NZ.²¹ The authors' study examined the impact of government subsidies through R&D grants on innovation output for firms in NZ. The authors had access to a large database that linked administrative and tax data with survey data, and found that R&D grants have a stronger effect on more novel innovation than on incremental innovation. They also found that larger, project-based grants are more effective at promoting innovation compared to smaller, non-project-specific grants. Interestingly, there was little evidence to support the proposition that R&D grants have differential effects between smaller (less than 50 employees) and larger firms.

Most recently, Nakatani provides a positive early analysis on the potential impact of the recently enacted R&D tax credit scheme. Nakatani concludes his analysis as follows:

¹⁹ Andrew Barker, 'Improving Productivity in New Zealand's Economy' (Working Paper No 1419, OECD Economics Department, 2017) 15 (emphasis added).

²⁰ David Deakins, David North and Jo Bensemann, 'Paradise lost? The Case of Technology-Based Small Firms in New Zealand in the Post-Global Financial Crisis Economic Environment' (2015) 17(1-2) *Venture Capital* 129, 147 (emphasis added).

²¹ Trinh Le and Adam B Jaffe, 'The Impact of R&D Subsidy on Innovation: Evidence from New Zealand Firms' (2017) 26(5) *Economics of Innovation and New Technology* 429.

Analysing New Zealand firms' profitability in terms of productivity enhancers, we find the importance of R&D tax incentive and investment. The results indicate that the *R&D tax credit, currently planned by the new government, can improve the performance of New Zealand firms.*²²

Several studies offer longitudinal analyses of the approaches taken to support R&D in NZ. The following discussion necessarily provides an overview only, and readers are therefore encouraged to review these studies independently for more detail.

Sawyer²³ provides the background to NZ's approach to supporting R&D up to 2005. NZ was described in the OECD's 1996 report as the OECD member providing the least R&D tax support.²⁴ Indeed, in the mid-2000s, NZ remained near the bottom of the OECD list. Under rules introduced in 2001, businesses were allowed a full (100 per cent) deduction for most expenditure on R&D, except to the extent that an asset is created (linking the deduction to the 'research' and 'development' concepts used in financial accounting standards). Businesses were also expected to apply tests used for financial accounting reporting purposes to determine eligible expenditure. Relevantly, the Private Sector R&D Liaison Group worked with the NZ Government to provide clear definitions of R&D. A positive outcome of this work led to clearer definitions in the *Income Tax Act 1994* (NZ) (as it then was). NZ's approach at this time, as commented by Sawyer, was to:

... prefer R & D subsidies (or grants) over tax credits and incentives to steer research to particular goals and avoid jeopardising the neutrality of the tax system. This most recent approach of *providing grants places the New Zealand Government and officials in the role of 'picking winners', which introduces the risk that factors other than the potential future value and contribution of the R&D, such as political bias, will be major factors in the decision-making process.*²⁵

Sawyer's research concluded that:

[t]he *tax credit is also preferable in terms of incurring the lowest level of compliance costs.* Notwithstanding this evidence, the New Zealand Government and officials prefer a grants scheme, the opposite of what the research indicates is preferred by businesses.²⁶

Robinson's research²⁷ was timely in that it provided insights collected from interviews with tax practitioners who had experienced the implementation of NZ's first tax credit scheme for R&D in 2008. Unfortunately, this scheme only lasted for one year (becoming the 'victim' of politics). Robinson examined the R&D tax credit from the perspective of a behaviour changing intervention and concluded that:

²² Ryota Nakatani, 'Firm Performance and Corporate Finance in New Zealand' (2019) 26(13) *Applied Economics Letters* 1118, 1123 (emphasis added).

²³ Sawyer (n 17).

²⁴ OECD, 'Fiscal Measures to Promote R&D and Innovation' (General Distribution No OCDE/GD(96)165, OECD, 1996) 25–26.

²⁵ Sawyer (n 17) 143 (emphasis added).

²⁶ Ibid 148 (emphasis added).

²⁷ Robinson (n 18).

[t]he overall finding ... is that the *success or failure of behaviour changing efforts cannot be assessed within a single business year*. Although there was little indication that the R&D tax credit had influenced new R&D from its introduction, the interviewees all stressed the fact that there *had not been enough time for business managers to see the financial benefits derived from this credit and to further have the funds to engage in new projects*.²⁸

Robinson traversed the process by which the R&D tax credit concept was developed and eventually enacted. Relevantly, the process commenced in 2006 with a discussion document and an issues paper being released.²⁹ Draft legislation was subsequently introduced in 2007, and became law with effect from the 2008–2009 income year. The tax credit was subsequently repealed with the change in government following the 2008 General Election.

Robinson reported on several of the interviewee's comments:

When asked about grant funding as another mechanic for creating R&D, responses were fairly sceptical. Grants were typically seen as a minimum level of government investment, or as an inferior substitute:

'Grants seem quite difficult to get ... it seems more hit and miss ... with R&D if you're undertaking R&D and it fits the statutory definition you should be eligible and so you receive an amount. But I guess with grants you have to be accepted.'

A public accountant

'Grants are handouts and will always be limited in availability, whereas a tax credit places the incentive and control on the researcher who must initially fund it themselves. Nothing focuses the drive for success more than having one's own money at risk. Hence a tax credit is a far stronger mechanism for driving innovation than grants.'

A public accountant

'As far as companies are concerned, if they can get a contribution for the research they're doing, great. And from that perspective if it's a grant or credit it shouldn't really matter. But it's really a question of what's the allocation method of public funds and I'm not sure that you get the best outcome with [grants] – because then you effectively have got people that know how to get the grants will get the grants and people that don't know won't get them.'

A public accountant³⁰

A further major finding of Robinson's study was that the success of the R&D tax credit could not be effectively evaluated as it required much longer than one year of operation in order to undertake such an evaluation. Thus, Robinson's qualitative-based approach to

²⁸ Ibid 5–6 (emphasis added).

²⁹ Michael Cullen and Peter Dunne, 'Business Tax Review: A Discussion Document' (Discussion Paper, NZ Inland Revenue Department, 2006); Policy Advice Division of the Inland Revenue Department and the New Zealand Treasury, 'R&D Tax Credits: An Officials' Issues Paper on Matters Arising from the Business Tax Review' (Issues Paper, NZ Inland Revenue Department, 2006).

³⁰ Robinson (n 18) 37–38.

his research was the only feasible method with the absence of longitudinal quantitative data.

A recent review of NZ's R&D tax incentives and grants was undertaken by Afram in 2016.³¹ Afram applied Adam Smith's principles or cannons of taxation (equity, certainty, convenience and efficiency),³² as a criteria to evaluate: the one year R&D tax credit; the more recent cashing out of losses; and, the Callaghan Innovation administered grants. Her analysis ranked the tax credits and cashing out of tax losses from R&D activities as superior to the grants approach.

A common theme throughout these studies is the significant role that political interventions have had in shaping R&D incentive policy, including a number of undesirable side effects, such as creating uncertainty and resource wastage. Against this background, the next Part will proceed to review these political interventions and their corresponding impact.

III FISCAL SUPPORT FOR R&D: A HOSTAGE TO POLITICS?

The following subsections provide evidence suggesting that R&D incentives, whether provided through the tax system or as grants, are a 'political football', 'kicked around' by various governments as they seek to increase R&D investment

A R&D Tax Incentives: A Political Football?

As indicated in the previous section, NZ's government policy with respect to R&D incentives has changed dramatically on numerous occasions over the last twenty years. This has created a great deal of uncertainty for businesses, and has done little to advance NZ's position on the OECD table in terms of its investment in R&D activities (especially private sector investment).

As discussed earlier, until the later part of the 2000s, NZ's principal approach was to allow full deductibility of R&D expenditure that met criteria specified in tax legislation and in financial accounting standards. As areas of black hole expenditure were identified, legislative clarifications were made in most instances to ensure the expenditure was deductible for tax purposes. Rather than providing direct support through the tax system, as recommended by private sector organisations, researchers and businesses themselves, the elected NZ government persevered with a grants-based system (through Callaghan Innovation – see the discussion in the next subsection), deciding that it (and officials) were best placed to 'pick winners'. Relevant research reveals that this approach has been insufficient at boosting investment in R&D activities; see Part III B below.

³¹ Dina Afram, 'A Review of New Zealand's Past & Current R&D Incentives and How They Reflect Adam Smith's (1776) Principles of Good Taxation: An Exploratory Study' (MCom Thesis, University of Canterbury, 2016).

³² See Adam Smith, *An Inquiry into the Nature and Causes of the Wealth of Nations* (London: Methuen, 1950 edition).

The first significant change was the introduction of the 15 per cent tax credit with effect from the 2008–2009 income year by the then Labour-led Government. This credit was aimed at incentivising NZ businesses to invest in R&D in order to correct an under-investment trend, stimulate the economy, improve productivity and raise international competitiveness. It was also seen as an opportunity to bring NZ in line with countries who already offered tax incentives for R&D — especially Australia’s 125 per cent accelerated deduction. The legislation, set out in subpart LH of the *Income Tax Act 2007* (NZ) (*ITA 2007*), effectively provided NZ businesses with a 15 per cent tax credit on eligible expenditure. As indicated by Robinson, this scheme was largely supported by advisers to businesses that invested in R&D activities.³³

Following the change of government in November 2008, the R&D credit was repealed from the 2009–2010 income year onwards. The reasoning given by the National-led Government (which would usually be seen as pro-business), was to fund its preferred tax regimes involving personal income tax cuts. The National-led Government claimed that it was appropriate to cease the R&D tax credit as it was unclear whether new R&D would be developed. If so, then the credit was simply rewarding R&D that would have been conducted irrespective of the credit. Important questions needed to be answered at that point in time, such as ‘had businesses been responding to the credit by engaging in new R&D, or did they, perhaps, simply reclassify other expenditure that could qualify for the credit?’ Whatever the case was, abolishment of the credit meant that these propositions could never be effectively tested. Furthermore, a one-year period is far too short to evaluate the effectiveness of the tax credit or otherwise. In effect, the National-led Government had ‘answered’ its questions without allowing time to determine whether they were correct.

Nothing of significance happened in the R&D space (other than further clarifications concerning black hole expenditure) until 2015 when the National-led Government became convinced that the current grants-based scheme was not supporting new businesses. This view presented no surprise to those that understood the importance of fiscal stimulus to encourage investment in R&D activities.

Accordingly, legislation was enacted to allow start-up companies engaging in intensive R&D activities to ‘cash out’ their tax losses for R&D expenditure. The Taxation (Annual Rates for 2015–2016, Research and Development, and Remedial Matters) Bill 2015 was enacted on 24 February 2016 with effect from the 2015–2016 income year. Under this scheme, R&D start-up companies were able to receive a payment for up to 28 per cent (the company tax rate) of their tax losses from R&D expenditure in any given year. To be eligible, the company had to be a loss-making company resident in NZ, with a sufficient proportion of labour expenditure on R&D. Relevantly, R&D expenditure eligible for the measure was more restricted than the R&D expenditure that is deductible under sections DB 34 and DB 35 of the *ITA 2007*. The amount of losses that could be cashed out were initially capped at NZD500,000 for the 2015–2016 year and increased by NZD300,000 over the following five years, to NZD2 million. This scheme remains in place.

³³ See Robinson (n 18).

In a Special Report on the legislation issued by Inland Revenue ('IR'), the following comment was made:

A cashed-out loss can be thought of as an interest-free loan from the Government to be repaid from the taxpayer's future income; it is intended to provide a cash flow timing benefit only. In economic terms, repayment of cashed out losses will occur when a taxpayer pays tax on net income that would otherwise have been sheltered by the cashed out losses. An earlier repayment will also be triggered in certain circumstances. Triggers for the early repayment of amounts cashed out include the sale of research and development assets, liquidation or migration of the company, and the sale of the company. The early repayment will be effected via a new R&D repayment tax. Where a cashed out loss is required to be repaid early, a new deduction will reinstate the loss, which will be available to offset future income.³⁴

Thus, this cashing out of losses is effectively a repayable loan once the company becomes profitable and pays tax (similar in some respects to student loans for tertiary study, albeit there is a greater impact on wellbeing of the debt holder).³⁵ With its very limited application, this measure would be welcomed by some businesses but is not relevant to most involved in R&D activities.

With a change in government following the 2017 General Election, the new Labour-led Government was quick to reintroduce a tax credit, based initially on its earlier 2008–2009 regime, albeit with some differences that emerged through the consultation process. Concurrently, the new government announced that its goal was to increase total R&D as a percentage of GDP to 2 per cent (from the then 1.25 per cent). In order to reach this target, a significant amount of growth was expected to come from NZ business expenditure on R&D. The R&D tax incentive (effectively a tax credit) was the primary mechanism for achieving this target. In the Impact Statement accompanying the proposal, the Labour-led Government observed:

New Zealand currently delivers R&D subsidies to businesses through Callaghan Innovation. The bulk of these subsidies are delivered through Growth Grants to firms that have stable, high-intensity R&D programmes. However, *these grants are unavailable to the large majority of firms that are currently undertaking R&D or may undertake R&D in the future*. While these remaining firms can obtain Project Grants, these are targeted at a specific type of R&D expenditure and involve significant compliance/transaction costs (i.e., expenditure of time and resources) for firms.³⁶

³⁴ Inland Revenue, '*Cash Out*' of Research and Development Tax Losses: A Special Report (Report, April 2016) 2 (emphasis added).

³⁵ For an overview of the impact of student loans repayments on wellbeing, see Sylvia Nissen, Bronwyn Hayward and Ruth McManus, 'Student Debt and Wellbeing: A Research Agenda' (2019) 14(2) *Kōtuitui: New Zealand Journal of Social Sciences Online* 245.

³⁶ See Megan Woods and Stuart Nash, 'Coversheet: Research & Development Tax Incentive' (Impact Statement, 2017) 2 <<https://www.mbie.govt.nz/dmsdocument/1258-research-and-development-tax-incentive-regulatory-impact-statement>> (emphasis added). This statement was supported by personnel from MBIE, The Treasury and Inland Revenue. Inland Revenue subsequently issued a series of briefing papers; see Inland Revenue, *Research and Development Tax Credit: Policy Reports and Briefing Notes* (September 2018). See also, Inland Revenue, *Research and Development Tax Incentive:*

The new tax credit was initially expected to cost the government NZD1.02 billion for each of the first four years, over and above the NZD0.53 billion on grants paid through Callaghan Innovation. Growth Grants (the current funding mechanism via Callaghan Innovation) for business R&D would be phased out with the introduction of the R&D tax credit. The *Taxation (Research and Development Tax Credits) Act 2019* (NZ) amended the *ITA 2007*, along with other statutes, with specific provisions for the 2020 income year and new provisions for 2021 and subsequent years.

As part of a transition, in order to reduce the risk of uncertainty and reduction in business expenditure on R&D, the NZ Government would:

- Educate and develop appropriate guidelines to enable businesses to understand how to claim the R&D tax credit;
- Allow a transition period of two years during which existing Growth Grant recipients may continue to claim a Growth Grant through Callaghan Innovation (instead of the R&D tax credit);³⁷
- Provide clear information on transition arrangements for Growth Grant recipients to ensure a smooth transition to the R&D tax credit that supports businesses to maintain and grow their R&D over time; and
- Develop an appropriate implementation strategy to ensure the successful uptake of the R&D tax credit.

Another risk of the R&D Tax Incentive (tax credit) is re-characterisation of 'business-as-usual' expenditure. This risk would be managed by:

- A robust definition of eligible R&D for taxation (and other relevant) legislation to create a clear boundary between R&D and non-R&D expenditure; and
- Audit of claims, including in-year approval of the R&D.

Other types of grants provided by Callaghan Innovation will remain, leaving a mix of tax credits, cashing out of losses and grants approaches to stimulate investment in R&D activities. While initially proposed to be 12.5 per cent, submissions received during the consultation process encouraged the NZ Government to accept that the rate should be 15 per cent, which is a welcome outcome showing the importance of engaging in the consultation process.

In order to claim the credit, the business must first determine if it is an eligible person (as defined in the legislation), whether the activities will be considered an eligible R&D activity (as defined in the legislation), whether the expenditure is eligible for the credit, as well as taking into account practical considerations, such as registration with IR and providing a supplemental R&D return following filing of their tax return. The process for

Guidance (May 2019), which provides in-depth guidance and a series of useful flowcharts that explain the core aspects of the new tax credit incentive.

³⁷ See further material provided by Callaghan Innovation, *Managing the Transition from Growth Grants to the R & D Tax Incentive* (2019).

year one of the regime (which ends 31 March 2020 for most taxpayers) is transitional, with a change in process for the subsequent years (assuming the scheme remains if there is a change in government following the 2020 General Election). In essence, IR is the gatekeeper for approving expenditure that leads to the granting of the R&D tax credit.³⁸

The enactment of the *Taxation (Research and Development Tax Credits) Act 2019* (NZ) is not the latest development in this area. The Taxation (KiwiSaver, Student Loans and Remedial Matters) Bill 2019 (the '2019 Bill'), currently before the Finance and Expenditure Select Committee ('FEC'), proposes further changes to the new tax credit. The Commentary to the 2019 Bill states that:

The Bill proposes an amendment to make refundable R & D tax credits available to more firms. It is proposed that the existing corporate eligibility criteria, wage intensity test, and \$255,000 cap be removed and replaced with a payroll-tax based cap. It is also proposed that entities that derive tax exempt income (other than levy bodies, and claimants that only receive exempt income from certain intercompany and foreign dividends) be ineligible for the R & D tax credit.

[...]

The Bill also proposes an amendment to allow the Commissioner to adjust a person's R & D tax credit claim upwards if the person has initiated the disputes process through issuing a notice of proposed adjustment (NOPA) within four months of filing their income tax return or a year after their income tax return due date.³⁹

Furthermore, there is a proposed amendment to prevent a person from challenging the Commissioner of Inland Revenue's decisions made for the pilot approval scheme and expenditure exceeding the NZD120 million cap. Other changes proposed relate to R&D Certifiers, and adjustments for joint ventures involved in R&D investment activities.

This is not a complete story concerning the political nature of R&D support — the Callaghan Innovation administered grants schemes also need to be reviewed, as discussed in the next subsection.

³⁸ Inland Revenue, at the time of writing, is developing a form of advice notification, potentially similar to the new short process rulings, for those businesses seeking approval of their R&D expenditure for the tax credit. Short process rulings are a mechanism for individuals and organisations, with an annual gross income of NZD20 million or less, to apply for a binding ruling on how a tax law applies to a situation (any joint applicants must each have an annual gross income of NZD20 million or less). Such rulings are likely to be suitable for most commercial arrangements or business transactions that may have an uncertain tax treatment. However, IR may decline to make a ruling. A short process ruling is confidential to the applicants named in the ruling. If a person chooses to follow the ruling, IR is bound by it, providing the information the person provided IR is correct and complete. A short process ruling will take about 6 weeks and costs NZD2,000 (including GST). This needs to be paid when a person submits their application. A tax invoice will be issued to the main applicant.

³⁹ Stuart Hash, *Taxation (KiwiSaver, Student Loans, and Remedial Matters) Bill: Commentary on the Bill* (June 2019) 27, 36 (emphasis added). For further discussion see Virginia Ginnane, 'R&D Tax Incentive: Refundable Tax Credits Extended to More Businesses' (2019) *Taxation Today* (September) 4–5.

B Callaghan Innovation: A Focus on 'Picking Winners' Through the Provision of Grants⁴⁰

Callaghan Innovation was established following a June 2012 NZ Cabinet decision to create an advanced technology institute ('ATI') with the main objective to support science and technology-based innovation and its commercialisation by businesses, primarily in the manufacturing and services sectors, in order to improve the growth and competitiveness of these business. In December 2012, legislation was finally enacted establishing the organisation as a new statutory Crown entity.⁴¹ The new organisation, with the permanent name of Callaghan Innovation, commenced operations from 1 February 2013, and is located in the Auckland, Wellington (including the Hutt Valley) and Canterbury regions.⁴²

As an ATI, Callaghan Innovation initially employed 320 scientists from Industrial Research Limited ('IRL'), a Crown Research Institute ('CRI') that was disestablished as Callaghan Innovation was established. Callaghan Innovation also administers the Ministry of Business, Innovation and Employment's ('MBIE's') co-funded research portfolio.

Callaghan Innovation offers four types of grants to NZ businesses: student grants; start-up grants; project grants; and, growth grants. Student Grants are available for NZ-based businesses that want to:

- Access NZ undergraduate and postgraduate students who can assist them in their R&D projects;
- Gain access to the latest thinking and fresh talent at minimal cost;
- Train and mentor a future employee for them or the sector; and
- Build links with New Zealand universities.

The types of *Student Grants* are detailed below.

- R&D Experience Grant: A 10-week internship designed as work experience during the student's summer break or at completion of the student's study. The student is expected to help the business with an R&D project. The grant is available for only part of the year.
- R&D Fellowship Grant: Designed to provide funding support for students to undertake a PhD, or the research component of a master's degree, which is aimed at solving a technical or scientific problem for the business. The business will

⁴⁰ Most of the details are taken from information on the Callaghan Innovation website: see *Callaghan Innovation* (Website, 2020) <<https://www.callaghaninnovation.govt.nz>>.

⁴¹ See *Callaghan Innovation Act 2012* (NZ).

⁴² See Callaghan Innovation, 'About Us - Publications and Documents' (Web Page, 2020) <<https://www.callaghaninnovation.govt.nz/about-us/publications-and-documents>>. In its April/May 2016 newsletter, NZ Institute of Food Science and Technology Careers reports on the success of two tertiary students working under a student grant over the summer of 2015-2016: see 'Undergraduates Gain Experience Through Callaghan Innovation R&D Experience Grants', *Food New Zealand* (April/May 2016) 40-41.

receive access to the latest thinking and knowledge through the student's university supervisor and build ongoing links between the business and the university. The grant is available year-round.

- R&D Career Grant: An internship designed to bridge the first six months of employment — providing work experience for recent PhD or masters graduate students. The student is expected to help businesses with an R&D project. The grant is available year-round.

Getting Started Grants are available for NZ-based businesses that want to:

- Launch their R&D activities to create a competitive edge;
- Navigate through R&D roadblocks — whether troubleshooting, basic prototyping, project planning, technical feasibility studies, development of an Intellectual Property strategy or determining product specifications and user requirements; and
- Access technical expertise to support businesses to take their development in the right direction.

A business that is successful with this type of grant will:

- Receive 40 per cent of their eligible R&D project costs, up to NZD5,000 (based on a quotation);
- Only receive funding for R&D undertaken in NZ; and
- Receive a one-off payment upon completion of the project.

For *Project Grants*, in addition to strict application criteria, these grants are designed to help businesses:

- Build their R&D expertise by giving the business an opportunity to push the boundaries and uncover new scientific or technical knowledge and understanding;
- Break new ground in an R&D project for the development of new or substantially improved devices, products, processes, systems or services;
- Develop the business into a stable and substantial R&D performer; or
- Grow their investment in R&D.

The business will:

- Typically receive 40 per cent of their eligible R&D project costs, reducing for large projects, or when the business has had multiple grants;
- Only receive funding for R&D done in NZ (unless pre-approved to be conducted elsewhere); and
- Receive payment in arrears (monthly or quarterly).

For *Growth Grants* (which are currently being phased out in line with the new R&D tax credit),⁴³ their objective is to increase NZ businesses' investment in R&D to support long-term economic growth. These grants are intended to be a rules-based, market led incentive for increasing R&D investment in businesses that are experienced in investing in R&D. To have eligible R&D expenditure the business must have:

- Incurred expenditure on an eligible R&D activity; and
- The expenditure must not be in the list of general or specific inclusions.

Relevantly, the guidelines are based on the ministerial direction but include additional clarification. Businesses are encouraged to discuss any matters with Callaghan Innovation directly in order to ensure they know what activities are eligible for financial support.

Callaghan Innovation's operations have not all been 'plain sailing'. In 2014, Callaghan Innovation was a recipient of 'the Accomplice Award', after it was discovered it had been providing grants for R&D to transnational companies, many of which were operating from tax havens.⁴⁴ This is an excellent example of the challenges in allowing an institution to determine grant recipients when the process lacks full and transparent robustness checks.

In an evaluation of Callaghan Innovation reported in 2015,⁴⁵ a significant problem perceived by interviewees was the focus of R&D funding on product innovation followed by a lack of funding to support later stage commercialisation of products. This later stage of product and market development is excluded from Callaghan Innovation co-funding. As a consequence, this leads to a 'prototypes-on-a-shelf' approach. Applicants also found the process time consuming, due to the complexity of the application questions, as well as delays in receiving timely responses from the funding network of regional funding partners and the government ministry. Concerns over the use and role of consultants were also expressed by applicants. It should be noted that this study was conducted during the establishment period of the organisation.

What can be said moving forward? The next subsection attempts to provide some 'crystal ball' insights into the immediate future for relevant R&D incentives.

⁴³ Callaghan Innovation provides guidance as to how the transitional process works: see Callaghan Innovation, 'R&D Tax Incentive' (September 2019) <www.callaghaninnovation.govt.nz/grants/rd-tax-incentive>.

⁴⁴ See *The Roger Award 2014* (Web Page, 2015) <<http://canterbury.cyberplace.org.nz/community/CAFCA/pdf/roger-award-2014.pdf>>.

⁴⁵ Nick Kearns and William Beale, 'Show Me the Money: Perspectives on Applying for Government Research and Development Co-Funding' (Discussion Paper No 2, 2015) <https://www.unitec.ac.nz/eypress/wp-content/uploads/2015/10/Show-Me-The-Money_Perspectives-on-Applying-for-Government-Research-Development-and-Co-funding-by-Nicks-Kearns-and-William-Beale.pdf>.

C *What About the Immediate Future?*

As at the time of writing, the above discussion reflects the state of play with respect to the political football of R&D incentives, focusing on government utilisation (or otherwise) of the tax system to deliver its fiscal support. The current scheme, at the time of writing, is nearing the end of its first transitional year of operation. From April 2020 the full regime comes into play, with the role of Callaghan Innovation reducing as the Growth Grants it administers are fully phased out by the end of the 2021 income year.

What is clear is that businesses cannot expect certainty through continuance of any particular R&D incentive scheme, given the frequent changes that are experienced following each change in government. As a consequence, NZ's R&D performance continues to be hampered and it will be some time, if at all, that the current government's goal of 2 per cent of GDP being invested into R&D activities eventuates. An abundance of irreplaceable experience, and sizable compliance and administrative costs were incurred, for the single year 2008–2009 tax credit scheme. The current scheme cannot be allowed to suffer a similar fate; however, only time will tell.

While it is not possible, as at the time of writing, to predict the outcome of the next general election, many pollsters are forecasting that a Labour-led Government will be returned, notwithstanding that the National Party has the most support of any party in this polling. Should this eventuate, then the risk of significant change to the R&D tax credit regime is low, assuming NZ's economy does not go into recession. With a change to a National-led Government, based on past form, the risk of intervention cannot be ruled out. In order to give NZ businesses a reasonable chance to increase their investment in R&D, and to evaluate the success of the regime, any 'tinkering' should be avoided other than to make remedial changes to support the intention of the R&D tax credit regime. Political party manifestos could make for interesting reading in later 2020.

IV CONCLUDING REMARKS

This paper sought to traverse approximately twenty years of government-based support, or otherwise, for encouraging R&D investment in NZ. It notes that following a very timid approach up to the early 2000s of clarifying what expenditure is deductible for tax purposes (including reducing black hole expenditure), efforts were made to introduce targeted grants. Here officials, through a government agency, would be charged with 'picking winners' by allocating various types of grants while following specified criteria. Like most types of research funding in NZ, the environment is one that encourages competitive applications for funding from a limited pool of available funds, underpinned by a neoliberal philosophy. Notably, NZ does not have a comprehensive CGT regime (where capital losses can be offset against capital gains) and there are no indications that a CGT regime will be revisited for the foreseeable future.⁴⁶

⁴⁶ See further the Tax Working Group's Final Report recommending a CGT and the NZ Government's response: see Robertson and Nash (n 12).

More generally, empirical evidence is vital to assessing the outcomes from R&D inputs, including funding, with 'politics' having a significant influence on innovation funding. Relevantly, Sarnoff observes that:

... scholars and policy makers lack substantial amounts of empirical information regarding the outputs to R&D inputs that would help to determine what innovation-funding form choices work best in particular situations for desired innovation goals. Theories of innovation funding are highly dependent on such missing information. Even if we obtained the missing information and revised these theories in light of it, *the political economy of innovation funding would cause us routinely to deviate from what our theory suggests would work best to achieve specific goals.*⁴⁷

Following work undertaken for the Royal Society of NZ, subsequently published by Sawyer in 2005,⁴⁸ along with other researchers, the pressure to improve NZ's low ranking in the OECD for R&D investment as a percentage of GDP increased to the point that government action was taken. This led to the Labour-led Government's ill-fated one-year tax credit for the 2008–2009 year which was subsequently repealed by the incoming National-led Government. We will never be able to assess whether this scheme would have increased R&D investment significantly due to its short lifespan. As observed by Robinson, this was a lost opportunity.⁴⁹ Grants then remained the main source of funding, along with provision from 2016 for enabling new firms with tax losses due to R&D investment to cash out those losses by way of a government loan, repayable when they became profitable and paid income tax. Neither the grants or the cashing out of losses were options for supporting most R&D activities by established business, so further support was needed.

Accordingly, with the incoming Labour-led Government in 2017, the second tax credit scheme was developed, with application from the 2019–2020 income year. Similar to its predecessor, this scheme supports a broad range of businesses and is the main mechanism to meet the current Government's goal of R&D expenditure being 2 per cent of GDP. Phasing out of the *Growth Grants*, administered by Callaghan Innovation, is occurring, which places greater emphasis on tax credits to stimulate R&D investment. At this stage, it is too early to evaluate the effectiveness of this new tax credit incentive, including whether it will move NZ's investment in R&D activities close to the NZ Government's target of 2 per cent of GDP. One possible challenge to its continued existence will be the outcome of the forthcoming September 2020 General Election should there be a change to a National-led Government.

Ultimately, this paper sought to respond to its research question and determine whether one could learn from NZ's political intervention experience with intervening to encourage

⁴⁷ Joshua Sarnoff, 'The Likely Mismatch Between Federal Research & Development Funding and Desired Innovation' (2016) 18(2) *Vanderbilt Journal of Entertainment & Technology Law* 363, 417 (emphasis added).

⁴⁸ Sawyer (n 17).

⁴⁹ Robinson (n 18).

investment in R&D activities. As noted above, this necessitated an in-depth exploratory case study analysis of the support provided by government to R&D investment in NZ.

What this analysis reveals is that R&D incentives have been highly political, and 'kicked around' by various governments as they prioritise their tax policies and approach to encouraging R &D investment. One major takeaway is that the matter of R&D incentives is too important to leave to the whim of politicians. Such incentives are vital to the success of what is colloquially referred to as 'New Zealand Inc.', and in this regard any change should require political consensus based upon independent analysis and input from officials, economists and tax experts. Perhaps a minimum period of operation is necessary before any significant change is made to allow sufficient time for review and analysis. A major challenge lies in receiving cross party support for the legislation. Both possibilities are unlikely given that one Parliament is unable to bind another in legislative terms and philosophically, the two major parties appear to remain divided over R&D investment support. This paper's analysis suggests that the political efforts to date have done little to support economic growth through enhanced investment in R&D activities. In many respects they have served to hinder rather than foster, especially for smaller businesses. In essence, the biggest concern is a lack of stability and certainty for businesses.

This paper has a number of limitations. First, at the time of writing, the latest regime is approximately one year into its operation and it is therefore too early to evaluate its effectiveness. Furthermore, if there should be a change in government at the next general election, then what might occur? Second, this paper takes an outsider's perspective; the author is not part of the political decision-making process, nor is an official that has access to confidential information and data. Third, and more generally, NZ's absence of a CGT regime may in fact serve as a 'hand brake' on the level of investment in R&D activities, as capital losses are unable to be offset against any form of (capital) gain.

In terms of future research, an evaluation of the latest scheme in two to three years would enable a preliminary comment on its effectiveness in moving NZ closer to the current Government's R&D target of 2 per cent of GDP. Importantly, just prior to the last General Election in 2017, Labour Party leader Jacinda Ardern, stated that the neoliberal model has 'failed' and needs to be changed.⁵⁰ While there is little evidence of this intervention to date, we may see announcements of specific interventions in the lead up to, or following the next general election, depending on the outcome. More specifically, following the 2020 General Election, analysis of whether NZ has the right mix of support (grants, cashing out of losses and tax credits) can be undertaken.

⁵⁰ Henry Cooke, 'Jacinda Ardern Says Neoliberalism has Failed', *Radio New Zealand* (17 September 2017) <<https://www.stuff.co.nz/national/politics/96739673/jacinda-ardern-says-neoliberalism-has-failed>>.

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