

Science for policy: The need for a Commission for Science¹

Shaun C. Hendy*

Department of Physics, University of Auckland, Private Bag 92019, Auckland 1142

Introduction

There is growing interest in the use of scientific research for informing public policy (Gluckman, 2011). Science has shown itself increasingly able to make predictions of catastrophic harms many decades in advance, as well as suggesting ways in which these harms may be avoided. Scientific methodologies are now also being drawn on in many other areas of policy. Randomised controlled trials (RCT) and related statistical and experimental techniques are starting to be used to evaluate the effectiveness of existing policy and to experiment with the development of new policies, for instance (Pearce & Raman 2014).

More recently, government itself has become an important source of scientific knowledge, and it is likely to become even more important in the coming decades. In New Zealand the Integrated Data Infrastructure (IDI) has become a unique and powerful source of socio-economic data that captures many aspects of the lives of residents and citizens (Statistics New Zealand 2016). The IDI is used by independent researchers, as well as by researchers within government agencies such as the Ministry of Social Development, to inform operational practice and public policy, as well as to study the effectiveness of these policies. Indeed, the Ministry of Social Development has built a substantial data science team which carries out research commissioned by its policy branch (Ministry of Social Development 2016).

Scientific research, however, requires more than just data and skilled researchers who can apply appropriate statistical techniques to this data. Modern science needs to be practised under the open scrutiny of other researchers to function effectively (Miguel *et al.* 2014). Peer review, for instance, while still necessary, is no longer regarded as sufficient to correct scientific fraud (Stroebe *et al.* 2012). Furthermore, the public increasingly has expectations that the conduct of scientific research be open to their scrutiny as well (Yarborough 2014). As a result, a need

has been identified for new institutions for the governance of evidence-based policymaking (Pearce & Raman 2014). In this article I propose a Parliamentary Commission for Science, an organisation that would be responsible for ensuring the scientific use of evidence by government and fostering corresponding levels of trust in the public.

Transparency in science

Transparency and openness are believed to be a crucial component of the scientific approach to producing objective knowledge. A recent review of studies of the relationship between the consumption of sugary drinks and obesity found that those funded by drinks companies or the sugar industry were five times more likely to find no link than those that were not (Bes-Rastrollo *et al.* 2013). An important source of such biases is the tendency for studies that produce results unfavourable to the funder to go unpublished. Parties with an interest in the results may wittingly or unwittingly seek out researchers whose methodologies are more likely to produce favourable results, as these researchers will have a track record that tends to favour the funder. Even in the absence of end-user funding, researchers can face incentives that do not favour the publication of null results (Miguel *et al.* 2014). Bias then arises from an incomplete scientific literature which contains too few null results and an excess of false positives. Without a record of the unpublished work of scientists, science may not be objective.

Transparency also influences the public's assessment of scientific integrity. A 2014 UK survey of public attitudes to science revealed that 83% of those surveyed agreed that it was important to have some scientists who are not linked to business, while 77% believe that the independence of scientists can be compromised by the interests of their funders (Castell *et al.* 2014). Openness is required not only to ensure that science continues to function properly, but also for maintaining public trust in science (Yarborough 2014).

*Correspondence: shaun.hendy@gmail.com

¹ Reproduced with permission from *Policy Quarterly* (Aug 2016), vol. 12(3): 46–49.



Shaun Hendy is a Professor of Physics at the University of Auckland and Director of Te Pūnaha Matatini, a Centre of Research Excellence focussed on the study of complex systems and networks. Shaun was Deputy Director of the MacDiarmid Institute for Advanced Materials and Nanotechnology at Victoria University of Wellington from 2008 to 2012 and President of the New Zealand Association of Scientists from 2011 to 2013.

He has won a number of awards, including the Prime Minister's Science Media Communication Prize, the Callaghan Medal for science communication, the Australian and New Zealand Industrial and Applied Mathematics' E.O. Tuck Medal and the New Zealand Association of Scientists' Research Medal. In 2012 he was elected a Fellow of the Royal Society of New Zealand.

These factors have led to calls for increasing openness in science (Miguel *et al.* 2014). The open science movement encourages researchers to make all stages of the scientific process accessible to the public and other researchers. In some fields of research it is becoming common to openly register studies and an intention to publish before the research commences. The American Economic Association, for instance, has established a public register for RCT studies in economics and social science (www.socialscienceregistry.org). However, open science practices are not yet standard in the science community; they have not been codified in the Royal Society of New Zealand's (2012) professional standards, for instance. This has important implications for the utility of science advice for policy.

Government use of scientific research

The prime minister's chief science advisor, Sir Peter Gluckman, took stock of the New Zealand public sector's use of scientific evidence as recently as 2013. Gluckman concluded that there was 'significant unevenness across government regarding departmental use of and respect for research-derived evidence'. He made two key recommendations:

- (1) The establishment of government-wide formal protocols to guide policy makers in sourcing quality research-based advice; and
- (2) The appointment of Departmental Science Advisors to major ministries (Gluckman 2013, pp.31, 24).

Since this stocktake, a network of eight science advisors has been established across government (Office of the Prime Minister's Chief Science Advisor 2015).

A more recent inquiry – the Sedley inquiry – into the use of research by policymakers identified similar problems in the UK. Sedley had a particular focus on the necessity for transparency in the use of research commissioned by government. In particular, Sedley found that the publication of research findings was sometimes subject to delay, to accommodate political concerns. While acknowledging that there could at times be legitimate reasons for delay (to allow time for government to develop a policy response, for instance), he found that delay was also being used to minimise the political impact of findings that were inconvenient or embarrassing for the Government. Such delays are detrimental to the value of the research, and can reduce the ability of the public and independent experts to scrutinise evidence that underpins policies, potentially harming the public (Sedley 2016).

Such delays can occur in the New Zealand context. A recent Treasury-commissioned study of the 90-day employment trial legislation¹ by researchers from Motu Economic and Public Policy Research was subject to months of delay before its release (Office of the Minister of Finance 2016). Motu is an independent research organisation which only undertakes externally funded projects that it can publish openly.² Making use of the IDI, Motu researchers found that 90-day employment trials had not met several of the stated policy objectives that supported their introduction. Release of the study's results was delayed sever-

al times by the Treasury, with researchers being told that the Government needed time to inform Cabinet and to formulate a policy response.³ Upon release, however, government ministers resorted to the use of anecdotal evidence in an effort to undermine the report's findings (Radio New Zealand 2016).

It also appears that the eventual release of the study by Treasury was sparked by a media request for the results under the Official Information Act (Office of the Minister of Finance 2016). A journalist had learnt about the study after a joint Treasury/Ministry of Business, Innovation and Employment briefing on the research project was mistakenly advertised as a public seminar.⁴ It is impossible to know how much longer the release of this research would have been delayed without this inadvertent public disclosure. Delays in the release of government-commissioned research reduce the quality of public discourse, undermine public trust in research and compromise the scientific literature (Selby 2016).

Similar concerns must apply to delays in publishing research that is carried out within government agencies. There is currently no systematic way of identifying delays or missing studies conducted internally by government. Yet if government is to use research effectively, whether internally or externally conducted, it must ensure a high degree of transparency as the science community is learning to do. Sedley considers concerns that increased transparency might dampen policy-makers' willingness to commission research, but notes that UK departments that have operated public research registers do not appear to have reduced their use of research in policy.

While Gluckman considers transparency in his stocktake, his corresponding recommendation is limited to public access to the data and does not extend to the advice or research itself: 'Provide greater transparency regarding the use of research-informed data' (Gluckman 2013, p.6). The Sedley inquiry's recommendations go significantly beyond this, requiring that scientific *advice and the research* it is based on be made public. Specifically, Sedley recommends that government:

- (a) establish 'a standardised central register of all externally commissioned government research';
- (b) undertake 'routine publication of research government has considered in policy formulation with, if appropriate, reasons for rejecting it'; and
- (c) provide 'a clear statement of the current requirements for prompt publication and adherence to them' (Sedley 2016, p.7).

The role of a Parliamentary Commission for Science

I have argued elsewhere for the creation of a Parliamentary Commission for Science (Hendy 2016). This organisation would be modelled on the role of the Parliamentary Commissioner for the Environment, and would carry out several of the functions envisioned by the Sedley inquiry. The Commissioner for the Environment is accountable to Parliament rather than to a minister or ministry, and is appointed by the Governor-General at the recommendation of Parliament for a five-year term. A similar arrangement for a Parliamentary Commission for Science would

¹ Employment Relations Amendment, section 67A.

² A. Grimes, personal communication, 2016.

³ I. Sin, personal communication, 2016.

⁴ I. Sin, personal communication, 2016.

offer the necessary independence from the Government of the day needed for such functions.

In particular, the Commission would maintain a register of internally and externally commissioned government research which provided publication and review timelines, the stated goals of the research, and a description of the methods to be used. It would have powers to track how this research was used once published, including requesting (and then publishing) policy reasons for the rejection of any evidence. It is worth noting that public registration of commissioned research would also enhance that research's value by making it available to policy-makers across government: Sedley noted several instances where staff turnover had left departments and ministries unable to access their own commissioned research.

Another important role of the Parliamentary Commission for Science would be reporting on and monitoring the integrity of the public research system, both inside and outside government. Yarborough argues for the need to 'routinely conduct confidential surveys in individual laboratories, institutions and professional societies to assess the openness of communication and the extent to which people feel safe identifying problems in a research setting' (Yarborough 2014). In New Zealand, a government researcher could seek to notify research misconduct or incorrect use of research under the Public Disclosures Act 2000, but none of the current authorities specifically named in this act have scientific expertise. The Parliamentary Commission for Science should be added to the list of authorities named in the Public Disclosures Act, occupying a similar place in the legislation to the Parliamentary Commissioner for the Environment.

Summary

I have argued that new institutions are needed to govern the way scientific research is used and conducted by government. In New Zealand, a Parliamentary Commission for Science would fulfil such a role, being responsible for: reviewing the Government's processes for generating and utilising scientific evidence, and reporting on this to Parliament; maintaining a register of internally and externally commissioned research by government, together with a pre-analysis plan with timelines (where appropriate); requesting, and then publishing, policy outcomes of each research project; investigating any matter where scientific misconduct may have occurred; and reporting, on a request from the House or any select committee, on any petition, bill or any other matter which may need scientific input.

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