

# POLICY Quarterly

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## Editorial: Trustworthiness, trust and legitimacy of public institutions: foundations of capability

New Zealand society has become distrusting and polarised. It now sits between Ireland and the US in trust ratings (Acumen, 2025). In some ways this reflects global trends, including the impact of Covid-19. But there are local issues too, such as those around the Treaty of Waitangi. The issue of concern to this editorial is preserving the trustworthiness and legitimacy of New Zealand state-funded and mandated agencies. This is a broader scope than the core public service. Without trust and legitimacy, public service capability is lessened, and public services cannot be valued.

While much distrust and polarisation in New Zealand is directed at politicians, public servants (in the broadest sense) are easily caught, and sometimes participate, in the crossfire. Political neutrality extends beyond policy advisors avoiding partisanship over party policy issues, to broader cultural issues and political signifiers that attract public attention and ire. Our argument is that the public service, in both its narrow and broad definitions, needs to concern itself more broadly with neutrality or it risks further harming trust and increasing polarisation.

Trust and legitimacy concerns confidence in institutions, the services and products created, and their contribution to social cohesion, equity and fairness (Faulkner and Kaufman, 2018). Trust is defined as the willingness to be vulnerable, and trustworthiness is whether placement of that trust is justified. Legitimacy concerns generalised perceptions 'that the actions of an entity are desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs, and definitions' (Suchman, 1995, p.574).

A 2023 OECD study found that 55% of survey participants trusted the New Zealand public service. Drivers of trust included satisfaction with administrative services (68%), services improving if people complain about them (42.7% think they will) and not taking bribes (48.4% 'of the New Zealand population expects that public servants will refuse a bribe' (OECD, 2023, pp.62–3)). This is a weak case for complicity.

But surveys, commonly reporting averages or frequencies, do not always reflect the moments of truth when people are vulnerable and interact with the state (such as being a victim of crime). Many survey participants may be disengaged or not vulnerable. Some are probably too busy to wonder whether the positive interaction they had with a park ranger really indicates trustworthiness.

In contrast, victims of abuse in care have had to deal first with the abuse, then officials' continual attempts to conceal the issue, and their hounding of victims (from Wellington offices). They could argue that the public service is not trustworthy, and that public servants are not public spirited when tested (Burton, 2024). While many studies, including our own, point to the importance of public service motivation among public servants,

public service motivation exists alongside other motivations, including cowardice, callousness and careerism (Plimmer, Cho and Franken, 2019; Raymond, Beddoe and Staniforth, 2017). These motivations warrant more attention from both public servants and academics.

Perceived organisational capture by managers to serve their own political beliefs is another risk to trust and legitimacy. The state-owned and supported Radio New Zealand and Television New Zealand have limited trust (54% and 53% respectively) and are more trusted by leftist voters (Myllylahti and Treadwell, 2025). The judiciary is credibly accused of bias (e.g., Hodder, 2024). Other public institutions, such as universities, also adopt positions that are perceived to violate conventional norms, values and beliefs about neutrality.

The core public service is not always trustworthy – see the multi-agency omnishambles of Manurewa Marae (Public Service Commission, 2025). But the well-paid and educated Wellington bubble, with political beliefs and voting tendencies contrary to the rest of the country, seems unreflective. These beliefs take us back to public service motivation. One of its dark sides is that it can provide moral licence for unethical behaviour (Ripoll and Schott, 2023). So can a sense of moral superiority (de Bruin Cardoso et al., 2024).

We argue that better (meaning strict and broader) adherence to norms of neutrality would increase trustworthiness. Through these values we can better resolve debates.

Geoff Plimmer and Wonhyuk Cho  
Guest Editors

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# Addressing Capability Challenges and Restoring Trust in New Zealand's Public Management

## Abstract

New Zealand's public sector confronts mounting capability challenges, while public trust in government institutions is declining. In this introduction to the special issue, we propose that, to restore trust deficits in Aotearoa's public management system, we should focus on structures of capability, accountability and legitimacy, as informed by the articles in this collection. We argue that New Zealand's traditional public management model, although effective for many service deliveries, demands different approaches to adequately diagnose and tackle wicked problems that call for cross-agency collaboration and community engagement.

**Keywords** public trust, collaborative governance, accountability

### Why capability matters

Capability forms the operational engine of the public management system and encompasses the technical, organisational and political capacities for effective governance. In the literature, a capacity

framework distinguishes between analytical capability (use of evidence), operational capability (implementation) and political capability (stakeholder interests) (Howlett, Ramesh and Wu, 2020). Each dimension of capacity needs targeted

interventions beyond simple resource-based approaches, from mandating transparency to developing fiscal volatility management such as crisis contingency funds. The workforce development component also proves crucial (Andrews, Benyon and McDermott, 2016), as human resource development and investing in people can bridge the persistent craft gap between technical expertise and political acumen in the public service; these state competency investments must be understood as system-level enablers rather than isolated or fragmented organisational change. Capability is also dependent on the analytical depth and breadth of knowledge about the citizen activities as well as citizens themselves (Lee and Zhang, 2017).

As to trust-building, accountability, legitimacy and capability may interact as interdependent rather than sequential governance elements (Rimkutė and Mazepus, 2025). Effective accountability processes, which should balance procedural rigour with adaptive learning, may directly contribute to legitimacy, while opaque systems erode so-called 'felt' accountability (Fan, 2024; Yang and Min, 2022); conversely, policies perceived as legitimate enjoy higher compliance rates, effectively

reducing enforcement costs and increasing implementation capability. This virtuous cycle in both directions contrasts sharply with governance failures that typically exhibit breakdowns across multiple dimensions of capability, accountability and legitimacy simultaneously (Miller and Ghaffarzadegan, 2025; Rajala and Jalonen, 2025).

**Disrupting the status quo:  
addressing capability challenges**

In this special issue of *Policy Quarterly*, 'Addressing capability challenges in public management', we focus on addressing the trust deficit in public management that New Zealand faces. Challenges include

improvements in the public sector which we have tried to include in the summary below. Below is a brief description of each of the articles in the order they are published.

The first article, by John Yeabsley, argues that the relationship between transient political ministers and permanent public service advisors is the fundamental capability for public management in a Westminster system, which has traditionally maintained a fundamental divide between the two. Trust lowers transaction costs, and it needs to be earned. The article uses both the New Zealand Institute of Economic Research's criteria over 11 years (2008–19) and more recent Department of the Prime

that have been developed have helped. More system agency stewardship might help. The Covid-19 experience brought out the best in many agencies, as did the change of government in 2023, which led to challenges in managing volatility in policy settings and budgets. Both possibly point to the power of higher-level goals. Looking forward, the article shows the importance of quality in building trust, including by demonstrating how ministers' preferences have been considered in the analysis. Finally, it points to the tension between free and frank and professional advice and ministers' preferences. But sound, well-prepared advice can attenuate this tension and in turn allow for riskier, bolder advice, when there is mutual trust.

The second article, by John Ryan, until recently the controller and auditor-general, concerns effective accountability in collaborative working arrangements. It notes the tremendous difficulties organisations face in collaborating with each other effectively, including weak clarity over lines of accountability, different understandings of what collaboration would mean, blame shifting, difficulties in rewarding performance or applying sanctions, a bureaucratic and risk averse culture that reinforces work in silos, already high workloads, limited funding, and limited trust. It also notes that New Zealand public service systems, including management, finance and accountability, are generally focused on separate organisations. This works well for relatively routine services such as managing benefits. But for complex, often intergenerational issues, agencies need to work together – a point which has been recognised for some time as a challenging but necessary type of delivery method. This is a challenge for public sector leadership. It requires both new technical settings and new skills.

Since 2020, new ways of budgeting, resourcing and reporting have been introduced to better support collaborative working between agencies. A lesson learned since then is that getting the technical stuff right is not sufficient. The softer stuff, including relationships, trust, and addressing concerns such as fear of loss of power and credibility control, also matter (Aleksovska, Schillemans and Grimmelikhuijsen, 2019). Organisations

Of the themes included in the call [for papers], many centre on the trust and legitimacy theme, but with the other themes of change management and managing through volatile budget cycles, public sector leadership and development, and delivery methods also addressed.

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rising demand, limited resources, and growing complexity in a more volatile and uncertain world. Polarisation in broader society is also an issue. In New Zealand that is manifested in areas such as the contested role of the Treaty of Waitangi, and a reset after a pandemic-induced spending boom. Similar challenges are occurring globally.

The six articles we include in this special issue are based on the call for papers. Of the themes included in the call, many centre on the trust and legitimacy theme, but with the other themes of change management and managing through volatile budget cycles, public sector leadership and development, and delivery methods also addressed. The articles analyse contemporary issues and many provide practical, actionable ideas. We hope they contribute to constructive debate and dialogue, and lead to

Minister and Cabinet standards (2020–24) to argue that, overall, the quality is adequate rather than respectable, and generally stays clear of the 'low' zone, but there is room for improvement. More granular results point to both gains and losses. Sometimes organisations have an uptick in the quality of policy advice, perhaps because of new leadership, but a pattern emerges of reverting back to previous standards. Improvement is hard to sustain.

Yeabsley's article notes that, ironically, an excessive concern with process and risk management has impeded past efforts at improvement – some of the very areas where quality could be improved. While formal education courses are available, policy advising is a craft that needs learning on the job. Better mentoring, research and data are possibly fruitful areas for improvement. The various methods, frameworks and toolboxes



need to demonstrate trust, reciprocity, transparency, knowledge sharing, competency, good intentions and follow-through (Schillemans and Smulders, 2015). These are easier said than done. Such values are not always adhered to. While accountability is important, it can also go wrong (Yang, 2012). There can be too much focus on managing compliance, avoiding risks and achieving short-term gains. Transparency and objective measures, intuitively appealing, can lead to complexity and lack of timeliness, and undermine public trust and understanding.

The third article, by Derek Gill, Norman Gemmell and Arthur Grimes, concerns the size of the state in New Zealand. This article addresses the challenges of change management, and managing through volatile budget cycles. The article uses a broad range of lenses, including expenses, production investing and stewardship. The authors found that, relative to GDP, the size of the state has been generally stable since the 1990s. The winding back of public pension provision, and less production stemming from the privatisation programme in the 1990s, are exceptions to this. Regarding employment, it shows a sharp drop during the 1990s, then a gradual increase, some decline during the Key administration years, and then a sharp upturn during the Ardern–Hipkins administration, with public servant employment continuing to grow to June 2024. Significant growth in employment for support functions such as ICT, managers, legal, HR and other occupational groups relative to front-line positions was noted. The article also finds that, despite rhetoric about deregulation since the 1980s, regulation has grown steadily, with no meaningful decrease in word count since the 1980s and 1990s. The article has some useful analysis on more recent events. It generally supports the argument that increases in expenditure following a crisis or the election of a left-of-centre government are difficult to wind back. More social spending on health and welfare have driven much of the growth.

The article portrays the rapid increase in public spending in the Covid-19 era, and on other activities post-2022. It also looks at recent data and forecasts attempts to wind back the increased spending under the Ardern–Hipkins government. It argues for the state to manage fiscal risks and

maintain a buffer against adverse events because of New Zealand's small, open, exposed economy and high risk of natural disasters. On the positive side, net worth has increased since 1992, partly through revised valuations of government property.

The fourth article, by Simon Chapple, concerns the legitimacy of how the public service uses ethnic categories in its long-term insights briefings to ministers, designed to identify trends, risks and opportunities. The article argues that ethnicity receives a high level of attention in these briefings, but that ethnicity is portrayed in an essentialised, binary manner that ignores the complex interactions and relationships between people. It argues that many people identify

groups will appear younger and faster-growing even when fertility rates fall across all categories because of how the data and algorithm are constructed. The article makes the case that use of binary categorisations is used to promote essentialist beliefs: that ethnic categories have unique defining categories which are commonly applied to Māori in the insights briefings, but are absurd or offensive when similar stereotyping is applied to other ethnic categories.

The fifth article, by Kyle Higham, Bernardo Buarque and Troy Baisdon, suggests that evidence-based policymaking aims to improve government decisions by grounding them in research. They note,

While the erosion of public trust in government institutions has emerged as a defining challenge for New Zealand's public management, accountability systems must evolve to meet contemporary demands.

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with and belong to more than one ethnicity, but this is not how the data is portrayed, despite being collected in a manner that allows identification with multiple ethnicities, and despite the fact that the majority and growing numbers of Māori and others resist binary categorisations. In summary, Chapple makes several points. The first is that aggregating and reporting identity in such a narrow, essentialist way does not reflect how participants identify. The second is that it obscures the existence and identities of multi-ethnic people, who remain invisible. A third point is that difference is strongly focused on Māori. A fourth point is that it endangers accurate analysis: for instance, it obscures possible drivers of change in Māori and Pacific categories beyond the common attribution to a younger age structure and higher fertility rates.

Instead, Chapple raises the possibility of exogamy being another reason – specifically, relationships between ethnicities. This means that minority

however, that evidence is easily misused because of low technical expertise, expediency, and political or other constraints. They note the existence of 'policy-based evidence making', when research is cherry-picked to justify decisions. This is a threat to trust and legitimacy, as well as raising broader issues around capability. The article does, however, discuss the role of technology in addressing some of these issues. Other problems identified are the incentive effects of funded research, and the use of evidence which is convenient and quantifiable rather than that which is most relevant or most valid. Commissioning unpublished research, especially when policymakers choose the experts, affects the reliability and transparency of evidence-based policymaking processes. It raises questions about bias. This issue is described as particularly relevant to the New Zealand context where papers do not have DOIs and so cannot be linked to standard bibliometric databases and their metadata.

Basic steps like providing DOIs would allow for better analysis of citation patterns in policy documents, providing a useful tool for identifying what and who influences the policy writers.

Higham, Buarque and Baisdon suggest independent reviews of major policy documents to address transparency concerns, better accessibility of policy documents, and standardised citation practices to enhance transparency and reliability. The latter could make evidence-based policymaking more transparent especially as new tools allow for citation patterns to be tracked and mapped with more ease than in the past.

The final article, by Natalie Blackstock, Dyanna Jolly and Jon Sullivan, has the glorious title 'Pussyfooting around? Companion cat by-laws in Aotearoa New Zealand'. It then turns serious, making a case for how consultation can build trust and legitimacy and improve governance, but also recognising the limitations of that process and calling for improvements in how it could be done. It raises issues around both the threats that cats pose to

the natural environment and their capacity to transmit diseases and parasites to both humans and wildlife. It draws on submissions to five councils to analyse public attitudes to by-laws regarding desexing, microchipping, registration, and limits on the number of cats per household. It identifies five major themes: support for by-laws, anti-regulation sentiments, nuisance-related issues such as fouling gardens, conservation/environmental concerns and cost concerns.

#### Conclusion: breaking the compliance trap

Capability challenges show the critical dimension of New Zealand's trust deficit. The policymaking risks systemic weaknesses in how evidence informs policy, especially the absence of basic scholarly infrastructure such as DOI standards. These findings echo international concerns about the 'post-truth' policy environment, but show distinctively New Zealand institutional failures. The workforce challenges, especially the need for policy craft skills, mirror broader international trends in professional public

administration, but still call for solutions tailored to New Zealand's small, generalist public service context.

Through this collection of articles in our special issue, we identify pathways for changes: shifting from compliance-based to learning accountability systems, and harnessing evidence-based policy design and strategic fiscal capability. While the erosion of public trust in government institutions has emerged as a defining challenge for New Zealand's public management, accountability systems must evolve to meet contemporary demands. Collaborative working arrangements and accountability frameworks may be trapped in the so-called 'accountability paradox', where compliance mechanisms designed to ensure transparency actually inhibit effective collaboration. The solution lies in developing better learning accountability and adaptive systems (Piening, 2012). However, technical fixes must be accompanied by cultural shifts in the public sector.

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John Yeabsley

# Building a Working Relationship Policy Advice Quality – the fundamental capability for public management

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## Abstract

High-calibre written advice is the basis of government decision making. It produces good decisions and fosters trust in advisors which benefits the process. Data series of average scores based on two batches of assessments of policy advice quality over the last 16 years show little sign of sustained quality improvements. There remains a challenge.

**Keywords** policy quality, written advice, relationship building

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### What is the issue?

High-quality policy advice is an essential component of effective modern government.

—Mintrom, 2011

To cope with the bewildering array of tasks entailed by the process of government, the relatively small political administration is supported by non-political workers. This is even so when the task is to make decisions. The political component makes the decision, but is typically advised by the workers. This division allows the advisors to build up expertise and gather relevant

information, thereby contributing to good decision making. But it is not a costless way of organising a public service, as it creates its own problems.

It has long been recognised that in the New Zealand public service (based on the Westminster system), there is a fundamental divide between the interests of political (transient) ministers and their more permanent public service advisors.<sup>1</sup> And that this divergence of motivations (as well as background, training and roles) creates ongoing difficulties – especially of

communication<sup>2</sup> – which can have an impact on trust. And trust is an important factor itself in reaching good decisions.

Moreover, any lowering of trust can not only undermine decision making, but be inefficient, as it raises ‘transaction costs’ – the resources it takes to complete effective communication. And in the usual situation of straitened finances this pressure can lead to a poorer advice system. This, in turn, undermines the overall quality of public decision making.

So, addressing this divide is more than a matter of mere drafting nicety or being polite. It is a vital component of an effective decision-support mechanism.

### The specifics

While this is a general problem in the process of advising (Maister, Green and Galford, 2021), it seems to be particularly cogent for public advisors. The generic issues of what economists call agent–principal problems are challenging at the (decision-making) boundary between politics and action.

It is fundamental to public management to have an effective and soundly functioning system to build trust between the key component partners; or, at least, between the minister and the policy advisors.<sup>3</sup> An authoritative text on this type of relationship sums up the essentials as: ‘Trust must be earned and deserved’ (ibid.) But how?

Figure 1: Components of the Quality Policy Framework



Source: Department of the Prime Minister and Cabinet Policy Project

Another theoretical approach to advising (Morris, 2001) says that the key to convincing the politician to trust the advice offered is to find a way to demonstrate that the advisor is taking the trouble to work with the advisee, usually said to be doing things that cost the advisor. (This might be, in a small example, to blatantly adopt the politician's language.) So, whenever capabilities are being reviewed against the needs of the day, the continued high-grade capacity to effectively brief ministers is at the base of the whole operation. And this depends crucially on the mutual trust that is associated with reinforcing the relationship.

In most cases, this must be created from scratch. Our Westminster-style public service, with its merit-based appointment system, means key relationships are forged on the job. This is especially true for three areas tightly related to the effective delivery of public services:

- confidence in the advisors' professionalism – being able to take the information and comments provided at face value underpins an efficient communication system;
- decision support – 'ministerial policy making' is a stream of decisions at the heart of public management, resting on

credible analysis and evidence about risky projects; and

- information provision – in particular, updates on the effectiveness of policies and projects (including budget expenditure) and the general performance of the public delivery system.

This article looks at the quality of the advising capability of the New Zealand policy advice system over time. The focus is on the contribution this makes to building a trusting and effective relationship. The article starts by looking at the data on the quality of policy advice, at least as it is reflected in written communication. The evidence shows little sign that things have been improving overall. On this basis, it is concluded that while the quality of such advice continues to be sound and broadly does the job, there has long been room for improvement. Quality of advice is a key factor in ongoing trust and hence efficiency, so this is a capability with a potential upside. The final section suggests what might be done.

#### The capacity to produce high-quality policy advice – what do we know?

To discuss the question addressed in this article, we draw on some unique data. This comes from NZIER's experience in

reviewing the quality of policy advice in New Zealand public agencies for more than 25 years. It makes use of detailed assessment records from the last 15 or so years.

As the material on the Policy Project page of the Department of the Prime Minister and Cabinet website explains, policy advice is the product involved in the process by which ministers are informed, especially when it serves as a basis for decisions (see particularly Department of the Prime Minister and Cabinet, 2014). There is a specific focus on written advice material. It is classically the bulk of the information flowing to ministers. It is, too, the lasting record, and, as such, has a unique importance for legal and formal reasons. From a practical perspective, it is readily available for third-party assessment.

For more than 25 years, NZIER has undertaken independent audits of the quality of advice in the policy system. The framework was developed using the 1993 seminars and papers collected and discussed in Gary Hawke's thoughtful book on policy advice (Hawke, 1993).<sup>4</sup> Initially, there was one client, but the service has steadily extended to serve a wider set of public agencies, including local bodies (not included here).

As time went on, the methodology moved from purely descriptive assessments to quantitative scores using a rating schedule, with a mark plus structured commentary for each paper. There was always a focus on systemic diagnosis and improvement, looking to encourage quality enhancement.

#### How the assessments were done – there is an emphasis on consistency

NZIER assessments are undertaken by experienced policy advisors and managers. All assessors have experience in producing and supervising advice. Many of our core team were previous deputy chief executives with high-level experience in policy work at ministerial level in various agencies.

The approach used a standard framework (see Appendix B). It was built around the judging of the extent to which the advice was fit for purpose. This allowed the assessments to adjust naturally to cope with different types of advice within a common structure. To provide useful feedback to the authors, the assessment sheets considered the papers under the following high-level headings: customer focus, credible and robust analysis,



and clear and concise presentation. These headings were further divided into individual areas to shape comments in detail. But, crucially, the score and the overall feedback were based on fitness for purpose, while including advice on how the piece might have been improved.

This NZIER assessment system lasted until the emergence of an alternative coordinated by the Department of the Prime Minister and Cabinet in its role of supporting the head of the policy profession. This new approach identifies four high-level elements of quality policy advice: context, analysis, advice and action (see Figure 1). More detailed explanation and helpful commentary is presented on the Policy Project website, including a helpful guide to the marking system.

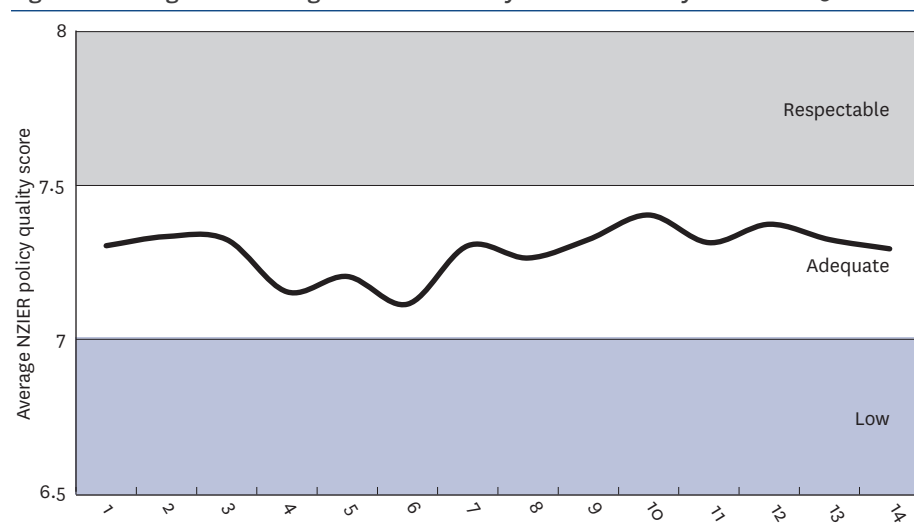
To maintain comparability with agencies not using NZIER, we shifted to the new system in 2019. We have detailed records of the agency assessments going back to 2008, and our scoring has always been based on a panel process to keep it consistent.

These days, the sample of papers is divided among our reviewers. Each assesses their papers carefully against the Policy Quality Framework and determines initial scores. That reviewer then writes an assessment of the paper: this gives a rationale for the score, comments on the key criteria for the score, points to areas of good practice and identifies possible improvements. Assessments are cross-checked via a moderation session where every paper is reviewed collectively. This can involve significant debate among assessors, but is a useful mechanism that supports consistency. As part of this process, a reasonable proportion of the sample will be reassessed by cross-marking.

These ratings provide a simple summary of the overall quality of individual papers. This means the average score is a well-founded indicator of the system quality.

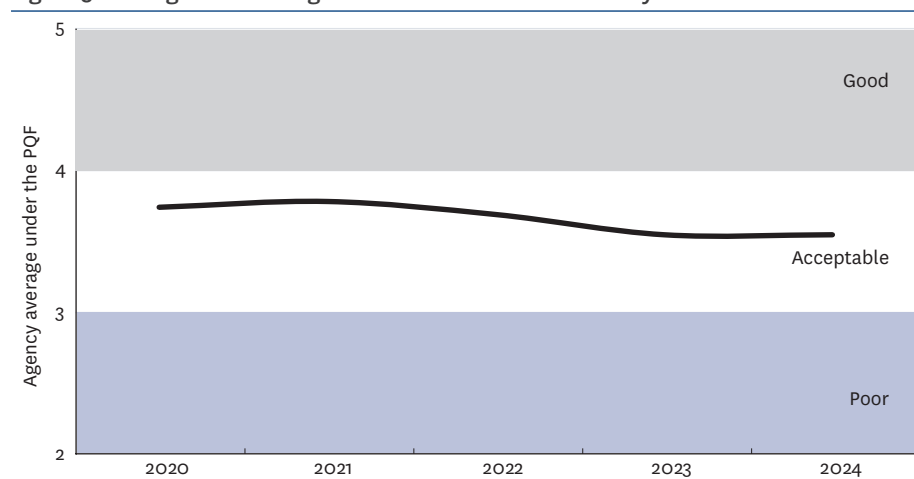
Looking at the results reported, there are differences between the make-up of the set of agencies represented over the years. We do not see this as a source of persistent bias. Obviously, this is a judgemental system. Fundamentally, it rests on the ability of the assessors to be consistent and reasonably uniform in their scoring. We believe that the measures and systems we use reduce the potential for outliers.

**Figure 2: Average scores of agencies assessed by NZIER over the years 2008–19**



Source: NZIER data

**Figure 3: Average scores of agencies assessed in the last five years to DPMC standards**



Source: NZIER data

This all suggests that the scores reported here are broadly indicative of the quality of advice over the timespan shown.

### Setting matters

The task of developing advice is closely linked, of course, to the challenge of analysing and considering public policy-related issues. There is a substantial literature on policy analysis; less has been published on the difficult job of successfully preparing advice that works. It is, however, a challenging role, with many moving parts.

Trying to bring ministers to the point of being able to make an informed decision about a risky venture demands more than just piling up facts and analysis. To be helpful in the usual situation of New Zealand politicians (pressed for time, with a pile of other reading) means drafting for the reader's needs. It is very demanding – a highly skilled task.

### What do we know about quality?

#### Three sources provide triangulation

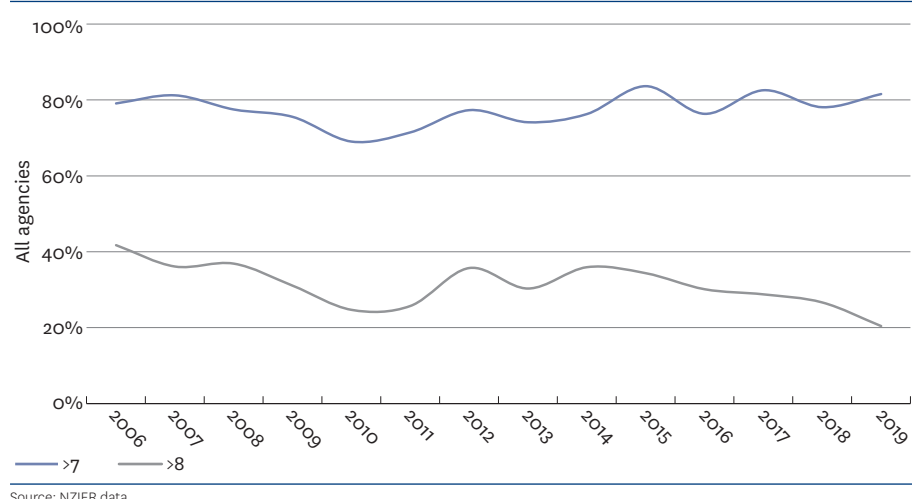
We use three different measures to consider what has been happening to advice quality.

#### Average scores show a high-level picture

These scores are the overall annual assessments and are in two groups. First, the 11 years of the NZIER system: the average findings are summarised in Figure 2. This has the average score lying between 7 and 7.5 for the whole period, with no clear sustained trend. As the chart shows, the results are, in NZIER jargon, 'adequate' rather than 'respectable'. But the average does stay comfortably clear of the 'low' zone.

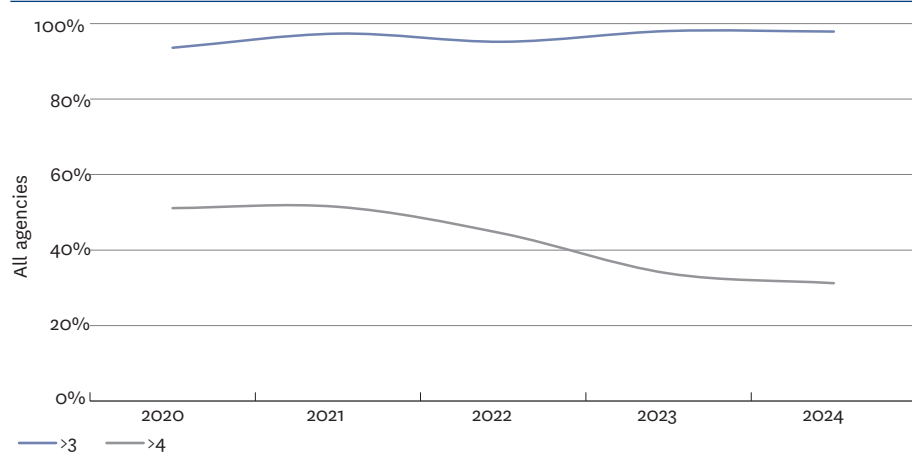
Then there are the more recent five years, using the new scoring system created by the Policy Project. These results are in Figure 3. The labels used here are those included in the marking schedule. Note that the critical value is 3 (margin of the 'poor' zone), as the scores below mean

Figure 4: Performance up to 2019 (meeting requirements is &gt;7 and exceeding &gt;8)



Source: NZIER data

Figure 5: Performance 2020–24 (meeting requirements is &gt;3, exceeding is &gt;4)



Source: NZIER data

(according to the marking schedule) that the paper should not have been signed out of the shop – it is not fit for the purpose.

The Figure 3 results seem to be broadly continuing the picture shown over a longer period in Figure 2. Over the last five years, the average-quality paper has been sound rather than startling. But signs of quality output are on show: there is clear daylight between the mean score and the critical 'poor' value. Unfortunately, there is no obvious sign of the typical advice quality improving over time; if anything, there is something of a decline shown over the five years.

This suggests that the job is challenging in the current setting (as has broadly prevailed over the years between 2006 and 2019). There are many practical and theoretical reasons why this is true.

- The problems are inherently difficult: not only are they often under-researched and typically lacking simple, neat solutions, but their possible remedies are frequently contentious,

with different social subgroups having strong views one way or another.

- In a technical sense, these issues are 'non-Paretian' questions. The outcome will inevitably tend to make some groups better off and others worse off compared with the status quo.
- The issues are often singular, 'one-offs' with limited previous experience to draw on. Even when problems recur, there is typically a new twist that needs to be taken into account.
- The available background information and data, both in New Zealand and overseas, is usually sparse and not readily accessible. (This is a product of a small set of advisors dealing with a large set of ministerially driven problems under frugal conditions.)
- The prior examples of other jurisdictions where any similar policies have been enacted are nearly always sufficiently different to make the drawing of analogies risky.<sup>5</sup>

So, accepting that the various agencies reported on here are not finding it easy is not a great surprise. This track is average, so there are agencies with lower scores every year. Thus, the typical advisory group is slogging away and producing solid output but not acing the test.

#### More granular results – some gain, some loss

We can look beyond the summary scores in the averages to examine the distribution of scores. First, we turn to two measures that agencies use to keep track of their own progress. These are the proportion of papers meeting requirements and the proportion exceeding requirements. The change in scoring means there are two graphs, Figure 4 and Figure 5. These results generally support the impressions about the quality of advice over time gained from the average scores. It seems that a set of reasonable quality papers has been produced over the years.

In terms of trends, in Figure 2, over the whole period, there was a decline, a recovery, and then another longish decline. Under the new marking schedule, there was a slight tendency for the proportion of papers exceeding requirements to gently slip lower. We wouldn't take too much out of this. The series clearly has a lot of variation, and there are, of course, a range of possible causes. These include the social experiences of the last few years, general pressure from work volumes, and even changing assessment standards.

#### Individual paper marks

A more detailed examination of the scores over the last few years (Figure 6) shows a fairly consistent pattern of scores. The main effect shown in this figure is a slight tendency to centralisation: fewer poor papers (scoring below 3) balanced by fewer high-scoring pieces (gaining 4 and above). What has emerged is a strong number (more than 40%) of papers scoring 3.5.

#### A snapshot from the outside

In August 2010 there was an announcement that a major review of the cost of the policy advice system would be conducted. Inevitably, this involved considering the quality of the product. The review team was chaired by Graeme Scott, a former senior New Zealand public servant and



policy advisor with recent experience as a consultant in many countries. It included Pat Duignan, another former senior Treasury officer and a member of the Commerce Commission, and former secretary of the Department of Human Services in Victoria, Australia, Patricia Faulkner. This exercise

arose from the Confidence and Supply agreement between the National Party and ACT, in which it was agreed that a series of task-forces would be 'established to undertake fundamental reviews of all base government spending in identified sectors'.

The National Party and ACT have agreed to undertake a review of expenditure on policy advice across agencies.

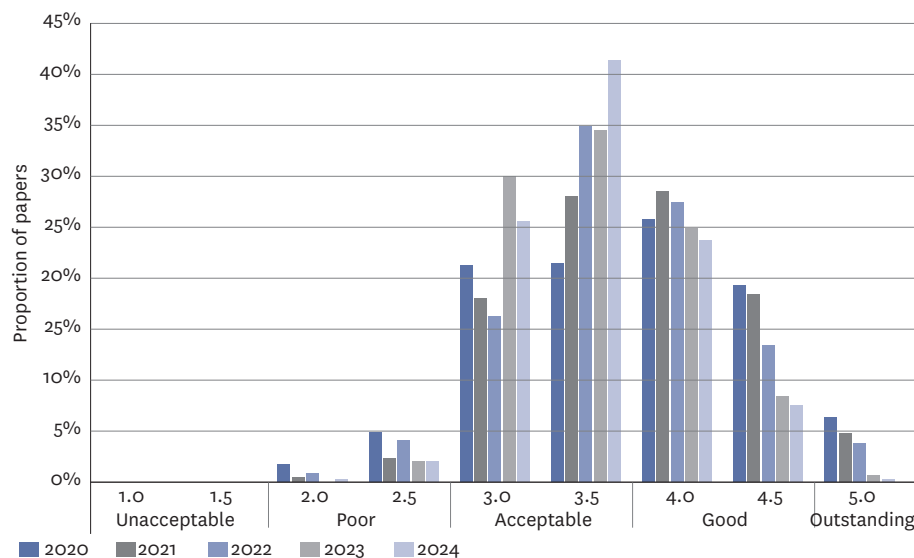
The purpose of this review is to provide recommendations to the Minister of Finance, the Minister of State Services, the Minister for Regulatory Reform and other relevant Ministers on the scope for refocusing and/or reducing total government expenditure on policy advice to ensure high professional standards, cost effectiveness and strong alignment with government policy priorities. (Review of Expenditure on Policy Advice, 2010, p.1)

In December 2010, after extensive research, what had come to be known as the Scott inquiry said:

There are parts of the policy advice system that are run down, while the best information available on quality assessment shows the general standard has a lot of room for improvement. That this can be achieved is clear from the good practices and high-quality work done in many areas. But we have been surprised at the very wide spread between the best and worst practices and standards of which we have evidence. The costs vary too widely, as does the quality. (Scott, Duignan and Faulkner, 2010, covering letter)

Of course, their focus was on expenditure, but this remark about quality was part of a careful investigation of various aspects of the advisory system.

Figure 6: Over the last few years ...



Source: NZIER data

Their recommendations were broadly accepted by the government in April 2011. The government response said the idea was 'to adjust the system to drive sustained improvement in the quality and management of policy advice' via a suite of actions. These were to focus on:

- producing better financial and management information to drive value for money and efficiency;
- improving the leadership and management of policy advice within agencies; and
- driving stronger central agency stewardship of the state sector to support cross-agency collaboration, performance improvement, capability building and focus on medium and longer-term policy challenges. (Treasury, 2011)

Guiding this work was put into the hands of the central agencies.

Even at the time, the set of recommendations and the associated government response was seen as, ironically, suffering from many of the same weaknesses as the system it was trying to diagnose and treat. In particular, the problems were spelled out as being a 'preoccupation with process and risk-management' (Mintrom, 2011, p.8). Our data above (Figures 2 and 3) suggests that, whether this comment was justified, there has been limited overall progress. And this is despite what has happened since. There has clearly been much effort – both the Department of the Prime Minister and Cabinet and Treasury

websites include helpful advice and general support. In addition, we have seen ongoing training and other supportive quality-oriented initiatives in many agencies. But for all this, our evidence suggests limited progress in achieving marked improvements in this capability.

#### What we have learnt over the years

There are some (relatively) easy gains, like tightening the proofreading and quality assurance stages and pushing to shorten papers. As a quick generality, these changes have (by and large) been implemented by agencies and are now in force most of the time. And, as noted above, there is a general long-running tendency to have far fewer low-scoring papers these days.

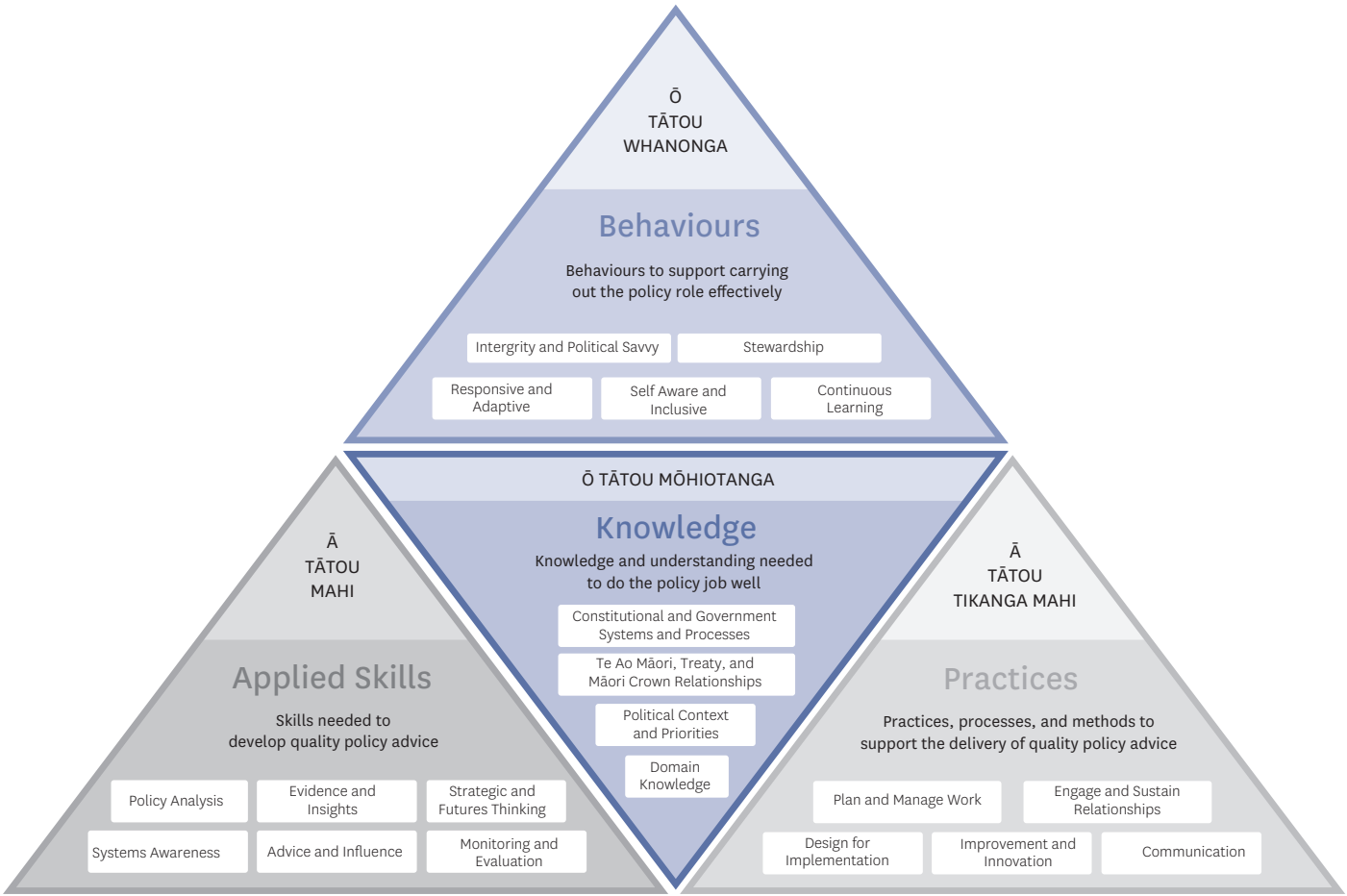
But our experience has been that even these aspects are relatively fragile. They are brought into being as part of a management initiative and belong to the organisation. Thus, unless individual analysts identify with their importance or have their jobs tied up with them, in the context of some stressful experience for the organisation or other large change<sup>6</sup> it's easy to return to simple ways.

We see the need to weave the commitment to quality advice into the policy shop's culture – for it to become 'the way things are done around here'. Then it is embedded.

#### Beyond the historical record – what do we see today?

Notwithstanding the overview of the results, our reviews lately have shown

Figure 7: The Policy Skills Framework



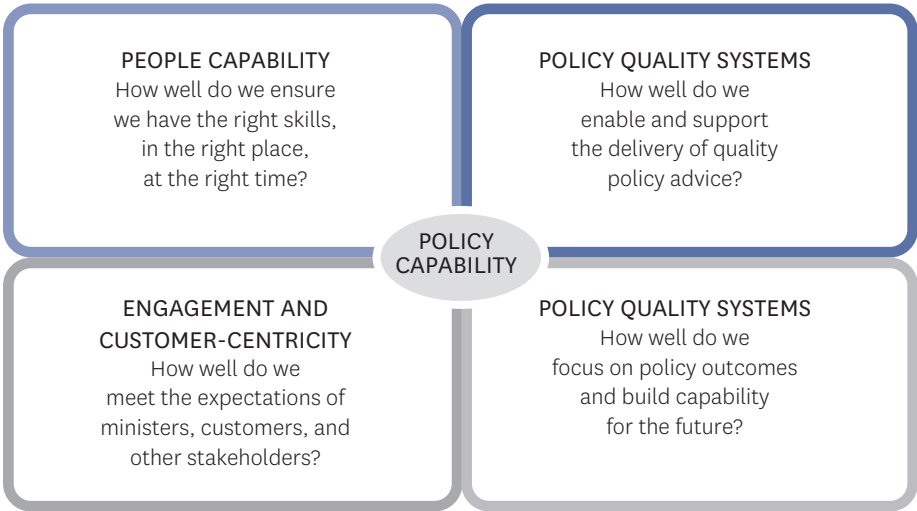
Source: Department of the Prime Minister and Cabinet Policy Project

plenty of high-calibre advice work. A couple of areas can be cited to back this up. The Covid-19 experience was both hectic and challenging. But it brought the best out of many agencies. They reacted to the situation by producing high-scoring work that kept ministers on top of the play. The topics ranged from the economic

situation to transport and supply chains. It revealed robustness and capacity to undertake quality work, including in novel areas, under pressure. Similarly, the change of government in late 2023 meant a significant number of major policy stance reversals. This was the backdrop to many pieces of free and frank

advice that were both bold and professional. Indeed, we noted instances when the agency followed up advice conveying thoughtful reasons why not to pursue a particular policy avenue, with helpful and practical advice about how best to implement it if that policy avenue was chosen.

Figure 8: The Policy Capability Framework



Source: Department of the Prime Minister and Cabinet Policy Project

**Central support**  
As noted above, there has been a lot of effort at the centre to provide support for the agencies in their various drives to improve the quality of their advice. The Department of the Prime Minister and Cabinet website, for instance, has the Policy Skills Framework (Figure 7); the Policy Capability Framework (Figure 8); and the Policy Methods Toolbox, a series of areas of advice, including on Treaty of Waitangi analysis. These are all helpful for agencies looking to improve the quality of their policy advice over time. We have seen them used by different agencies to improve the skills of their analysts.



## Conclusion

As was always the case, at any given time, some agencies are good at producing quality advice, and others are less good. The group that is better is not constant year on year, although there is often a degree of persistence. As a general remark, looking back over the years, there have been some longer-run underlying improvements in advice as a whole – generally shorter papers, for instance, although we still see outbreaks of longer briefs. However, it is not uncommon for an agency (perhaps under new management) to improve its score significantly and even repeat a good result for a few years; but then something happens, and the agency's assessment score falls away.

We have seen a substantial increase in the number of formal public policy courses being offered in academia, and the standard of general background is higher today than previously. This can be nothing but good. Nevertheless, policy advising is a craft that requires much on-the-job learning. This needs capable mentors, great research and data back-up, and a thorough commitment from agency policy leadership.

One superficially simple factor is our strongly held opinion that 'quantity is the enemy of quality'. Trying to do too much is not helpful for quality. But there is a real tension between meeting the minister's expressed needs (which might involve lots of advice) and doing good work (which usually takes time and resources).

We do not have any evidence supporting magic bullets, but our experience over the years (see NZIER, 2022) suggests that it is a constant struggle to gain and hold onto lasting improvements. One approach is to focus strongly on building trust between the minister and the team of advisors. Higher-quality advice should contribute to earning trust, possibly by showing the way the advisors were putting the minister's preferences front and centre within a careful analytical approach.

There is an unavoidable paradox here – a vital part of being a high-calibre public policy advisor is to provide free, frank and professional advice when it is appropriate. This might seem to cut across the task of reflecting the minister's preferences. But if the preparation has been sound and the

specific advice is professional, the potential for tension should be managed down.<sup>7</sup> Indeed, ministers could set the tone for riskier, bolder policy and advice. Interestingly, this chimes with the recent remarks of the previous minister for the public service (McCulloch, 2024).

- 1 See discussion of the differences and what is involved in detail, with examples, in Prebble, 2010.
- 2 There is a stylised treatment of this in NZIER, 2016a and 2016c.
- 3 Other sources of advice for ministers range from chats in the Koru Lounge to intense professional lobbying. One notable development in recent years has been the rise of political advisors. These are discussed by Shaw and Eichbaum, 2019.
- 4 This volume was based on a series of seminars and workshops involving experienced policy advisors. Along with feedback from users, it informed the development of the NZIER assessment framework as shown in Appendix B, before being overtaken by the inter-agency work on the Policy Project.
- 5 These statements are based on NZIER assessors' collective experience of producing and assessing policy advice.
- 6 Such situations are common in the New Zealand public sector see Hamblin and Plimmer, 2023.
- 7 Mintrom (2011) saw this approach as being solely focused on the supply side: improving the quality of the analysts and thus of the advice. And he suggested the core problem – especially for the tougher long-term issues that confront New Zealand was on what he called the demand side – ministers.

## Acknowledgements

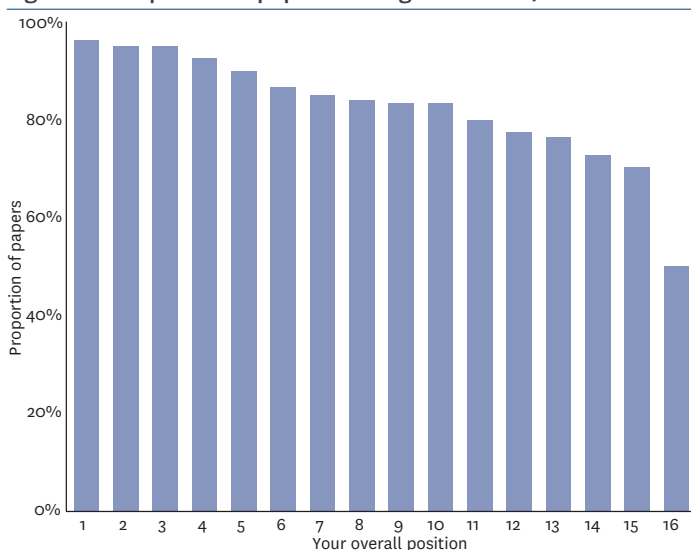
I wish to thank Cathy Scott, Todd Kriebel and Sarah Spring.

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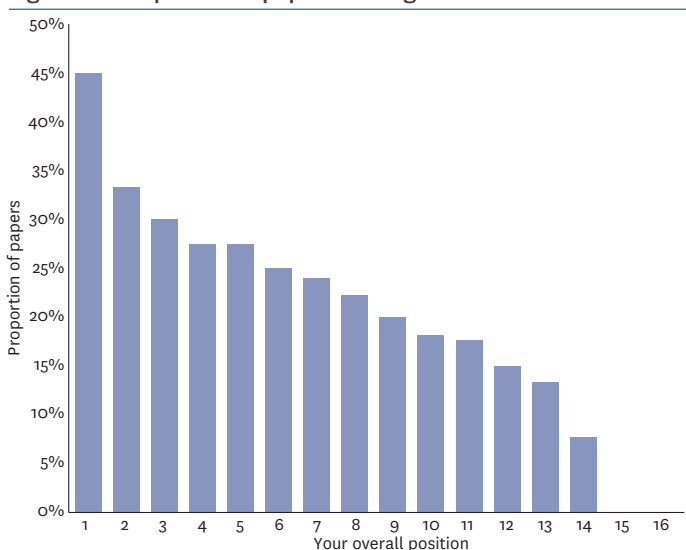
## Appendix A: Supplementary data – one year’s results: 2019

Figure A1: Proportion of papers scoring more than 7



Source: NZIER data

Figure A2: Proportion of papers scoring more than 8



Source: NZIER data

## Appendix B: NZIER assessment criteria

Overall assessment	
Rating	Overall fitness for purpose, key qualities and issues, and how it could have been better
Customer focus	
Purpose and context	States the objective of the briefing clearly and early Gives enough background to shape the discussion and resolution Makes linkages to wider matters, such as strategy, long-term drivers or other parts of the system
Anticipation	Addresses likely next steps and time frames Has all the necessary content to support next steps, and to pre-empt unnecessary follow-up Provides a tight summary, talking points, a ‘25 words or less’ argument, or other aids
Risk and mitigation	Identifies risks (acceptability, cost, effectiveness, implementation, stakeholder views, etc.) Indicates how risks would be managed (communication, monitoring, trials, evaluation, exit, etc.)
Credible and robust analysis	
Problem definition	Has a clear problem/opportunity definition Indicates the scale, scope and immediacy of the issue
Framework	Shows evidence of an appropriate theory, framework or logical approach to support the analysis Has logical assessment criteria and a clear explanation of how the analysis applies
Options	Shows evidence that a range of alternatives have been developed and considered Gives simple, but logical and powerful reasons for options and dismisses credible alternatives Considers the implementation requirements and challenges Shows evidence of appropriate consultation/engagement and consideration of these perspectives
Data and evidence	Uses evidence (e.g., research, data, evaluations, expert advice) and insights from different points of view (e.g., customer/client input, stakeholders’ views, agency views) to support the arguments Is clear about the strengths, sensitivities and limitations of the evidence Presents accurate numbers and calculations Uses examples or international comparisons to make points
Recommendations	Has clear recommendations that flow from the analysis Is clear about how the recommendations would be implemented, by when and by whom
Clear and concise presentation	
Language	Is concise, uses plain English and minimises jargon, with no errors Uses short sentences and paragraphs to make the reading task easier
Structure and format	Selects the medium (report, poster, presentation, one-pager) that best fits the situation Uses tables and charts that are easy to understand and read Avoids duplication or unnecessary clutter Uses meaningful subheadings as signposts and to tell a logical story



John Ryan

# Observations on Effective Accountability in Collaborative Working Arrangements

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## Abstract

While some changes have been made to the public sector's management, finance and accountability systems to enable collaborative working, public organisations continue to find effective collaboration challenging. Many of the things that are important for developing and sustaining effective collaboration are also elements of effective accountability, including understanding roles and responsibilities, being clear about goals and performance, and developing the right incentives for everyone to act in the best interests of the collaboration. Getting collaborative working right – and being collectively accountable for it – is increasingly important for achieving positive outcomes for all New Zealanders.

**Keywords** accountability, collaboration, relationships, trust

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**A**lthough governments face complex issues that need a collective approach, they have often found setting up effective accountability arrangements for collaborative working problematic. In the work my office does auditing the public sector's performance, I have frequently observed well-intentioned collaborations between agencies that do not operate as effectively as they could and

therefore fail to realise the aspirations of those who established them. In this article I set out some thoughts and observations from the work my office has done, and from other research, to encourage more discussion and understanding of what lies behind this enduring issue and what can be done about it.

It is first worth noting that, for the most part, the design of the management,

finance and accountability systems for the public sector tend to focus on separate organisations and the delivery of individual services to the people or communities who need them. This focus is important for supporting the efficient management and delivery of many public services. It is particularly useful for services that one agency can largely deliver, that are well-defined, and that are relatively routine – for example, managing benefits.

However, this focus does not easily support public organisations wanting to work in a collaborative way, especially when they need to manage more complex intergenerational public outcomes, such as reducing poverty or responding to violence. Even so, many public organisations still need to work together – and with organisations outside the public sector – to make progress on these complex issues. These organisations involved in collaborative work must be accountable for both their individual contributions and overall outcomes.

## The difficulties public organisations face when collaborating are well-known

Many of the difficulties that public organisations face when working together are already widely understood. Earlier research provides a good description and discussion of the issues involved for New Zealand's public sector and these remain relevant today.

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John Ryan began his term as controller and auditor-general on 2 July 2018. He has held senior executive positions in a range of public sector organisations and in the private sector. His experience spans corporate, regulatory and operational management, and assurance.

In a 2011 paper, public policy experts Jonathan Boston and Derek Gill examined public sector accountability in collaborative working. They identified several issues that commonly arise when two or more individuals or organisations share accountability. These include: a lack of clarity over lines of accountability; the risk of blame-shifting; and difficulties in rewarding performance or applying sanctions in the event of poor performance. Boston and Gill observed that these issues can make 'some individuals and agencies reluctant to participate fully or enthusiastically in joint working arrangements, thereby thwarting inter-agency collaboration and cooperation' (Boston and Gill, 2011, p.2).

Three years later, Rosemary O'Leary, a visiting Ian Axford fellow from the United States specialising in public management, also looked at collaborative governance in New Zealand's public sector. She identified several factors that inhibited or acted as barriers to collaboration. These included:

- a bureaucratic and risk-averse culture that positively reinforces individuals working in silos;
- different understandings of what collaborating means;
- difficulties delivering the collaboration message to the bureaucracy;
- public servants with enormous responsibilities and little room to try something new;
- a lack of funding; and
- a lack of trust.

O'Leary's paper quoted one public servant as saying, 'I have everything to lose and nothing to gain by collaborating' (O'Leary, 2014, pp.v, 33). This points to a lack of systemic incentives and effective accountability for collaborative work.

**The public sector needs to collaborate more**  
Many of the issues and concerns that Boston, Gill and O'Leary identified are, in my opinion, still relevant today. However, the need for the public sector to collaborate continues to increase.

In 2020, to support the increasing need for collaborative working within central government, public management and finance systems were adjusted to allow for different organisational forms, such as joint ventures and interdepartmental executive boards. Different ways of budgeting, resourcing and

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relationships.

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reporting were also introduced (Treasury, 2023, pp.2–3). Examples of these collaborative working arrangements include:

- In 2021, the Border Executive Board was established as part of New Zealand's defence against Covid-19 and other risks. The board is intended to help co-ordinate the management of New Zealand's borders.
- In 2022, the Climate Change Chief Executives Board was established to implement, monitor and advise on New Zealand's emissions reduction plan, including cross-agency actions and strategies.
- In 2022, the Executive Board for the Elimination of Family Violence was established to ensure joint accountability for work relating to the elimination of family violence and sexual violence, replacing the joint venture of the same name. (Treasury, 2024)

However, providing the machinery to collaborate is one thing; getting organisations to do so in an effective and enduring way is another. In a 2022 *Public Sector* article, Derek Gill explained that, to collaborate effectively, organisations need to get the 'hard (technical governance) stuff and the soft (behavioural) stuff working together'. He also said that 'getting the hard

stuff right is not sufficient for joint working to succeed' (Gill, 2022, p.5).

O'Leary identified why the 'soft stuff' matters in her 2014 paper. She found that risk, fear and lack of trust create significant challenges for collaborators, especially for central government organisations. These challenges manifest as 'fear of loss of power, loss of credibility, loss of control, suboptimal outcomes, loss of resources, personal loss and loss of authority'. She also observed that '[b]efore agreeing to a collaborative arrangement, it is important to determine if and how a collaborative group will be held accountable to citizens and public officials' (O'Leary, 2014, pp.33, 49).

A 2021 Norwegian study affirmed the importance of setting up effective accountability arrangements when organisations collaborate, at least in part to assuage the kind of fears O'Leary identifies and to build trust. The authors found that greater focus on designing relevant accountability mechanisms may be needed to counteract collaborative issues such as 'blame avoidance tendencies, low trust, and scepticism towards other ministerial silos'. Effective collaborations need 'informal horizontal accountability mechanisms ... as a supplement to formal, vertical, and hierarchical accountability relations' (Læg Reid and Rykkja, 2022, p.16).

My office has made similar observations. In practice, we often see more focus on formal management and financial structures ('the hard stuff') rather than less formal but still important things like developing shared goals and building strong relationships ('the soft stuff'). Therefore, in the remainder of this article I will focus on the challenges organisations face in getting the 'soft stuff' right, and what, based on our work, getting it right might involve.

#### **Organisations struggle with collective accountability**

In many of my office's performance audits, we have seen the consequences of the challenges that Boston, Gill and O'Leary identified. For example, a performance audit we carried out in 2021 looked at how the government's Joint Venture for Family Violence and Sexual Violence worked in practice. We found that, although the joint venture had the machinery and commitment for ten public organisations

to work together, they still found this challenging. We found that important barriers to effective collaboration included organisations not having a shared understanding of goals, responsibilities and accountabilities; a lack of clarity about people's authority; inconsistent communication; and a lack of connection with Māori and important stakeholders (Office of the Auditor-General, 2021, pp.6, 20, 22, 32).

Other performance audits we carried out in 2023 and 2024 found similar issues. In a 2023 performance audit examining how well public organisations supported Whānau Ora and whānau-centred approaches, we found that the Whānau Ora commissioning agencies experienced competitive rather than collaborative behaviours from individual public organisations they worked with. One example we learned about involved a public organisation drawing on a commissioning agency's knowledge and experience of supporting whānau without telling them that it was going to set up a similar service. Such behaviour undermined relationships and eroded trust (Office of the Auditor-General, 2023, p.51).

A 2024 performance audit about how well public organisations were meeting the mental health needs of young New Zealanders found a lack of clarity about the various agencies' roles and responsibilities. For example, we found that when prisoners with ongoing mental health needs were discharged from prison and transferred to public health services, organisations did not always transfer essential information in a timely way. This meant that some people could be released without medication or ongoing care plans (Office of the Auditor-General, 2024, p.53).

The difficulties we have seen that organisations have in working together reinforce the importance of one of O'Leary's key findings: building trusting relationships and sustaining collaboration needs 'clear communication, reciprocity, goal alignment, transparency, information and knowledge sharing', and organisations to 'demonstrat[e] competency, good intentions, and follow-through' (O'Leary, 2014, p.50).

These principles are also important elements of explaining, demonstrating and justifying the progress and performance of

a collaboration to all partners and stakeholders. In other words, our work shows that many of the elements important to building trusting relationships and sustaining a collaboration are also elements of effective accountability.

In the more successful collaborations we have seen, the elements are borne out in co-design and cross-sector leadership. When we looked at how well public organisations were meeting the mental health needs of young New Zealanders, we saw some initiatives that displayed these characteristics. One example was Mana Ake, where several agencies worked together to provide well-being services for primary- and intermediate-age students (Office of the Auditor-General, 2024, p.27).

Participants were concerned about the lack of consequences, particularly for work that was meant to improve Māori outcomes.

#### Accountability arrangements in

#### government-community collaborations

Spending time building relationships is especially important when public organisations work with community groups or non-governmental organisations. For example, *Māori Perspectives on Public Accountability*, a report we commissioned from Haemata Ltd in 2022, found that the concept of accountability is inherently collaborative and relationship-centred for Māori. Participants in the study felt that qualitative non-financial outcomes related to community and whānau initiatives are often overlooked and undervalued. They also identified that their understanding of accountability included elements of both responsibility and consequences (Haemata, 2022, pp.18, 19).

Participants were concerned about the lack of consequences, particularly for work that was meant to improve Māori outcomes. They said that the Crown needs to 'front up' and to own and learn from its failings. They felt that acknowledging failures is a first step in the process of improving accountability, followed by swift and monitored action to ensure improvement (ibid., p.20).

In the work my office has completed this year looking at relationships between government and community organisations, we have found that being open to different ways of demonstrating accountability (in addition to the usual public sector accountability requirements) is important when public organisations work with others outside the public sector to achieve shared goals. This work explores the accountability practices of three well-established government-community partnerships, in Gisborne, Taranaki and Auckland. In examining these partnerships, we observed that partners understanding each other's roles, responsibilities and expectations was an important building block for effective accountability and a trusting working relationship.

Although formal partnership documents were useful for effective accountability, accountability was also demonstrated in other ways. This was especially the case where strong local connections created opportunities for direct conversations between those involved in the partnership and their communities. Fronting up in person to communities was seen as an important way of demonstrating accountability.<sup>1</sup>

#### Five essential elements for establishing effective accountability

In 2019, my office published a discussion paper that set out five essential elements for establishing effective accountability when parties work together. These elements are:

- understanding the relationship, the parties and their expectations;
- defining the objective of the partnership and the need for accountability;
- identifying what information is meaningful to understand progress and performance;
- having the means to report, discuss and judge that performance information; and



- agreeing to appropriate consequences for unexpected events (Office of the Auditor-General, 2019, pp.32–7).

Our 2019 discussion paper observed that care must be taken in how accountability arrangements are planned for and managed to avoid or mitigate unintended consequences. Such consequences include:

- an accountability dilemma – when management and governance decisions are heavily influenced by managing compliance with accountability requirements;
- an accountability paradox – when accountability requirements reduce organisational performance through, for example, a shorter-term focus, risk aversion and less innovation;
- a tyranny of light – when the desire for fully transparent and objective measures leads to complexity, lack of timeliness, less public understanding or more public distrust;
- a multiple accountabilities disorder – when organisations attempt to be accountable in the wrong way or try to be accountable in every way; and
- a problem of many eyes – when organisations have different stakeholders with different and conflicting accountability requirements. (ibid., p.38)

In *Collaboration and Public Policy* (2022), public policy scholar Helen Sullivan

concluded that '[s]ecuring accountability is one of the most significant challenges facing collaborators for public policy' (Sullivan, 2022, p.241). Although we know that effective accountability arrangements play an important role in building trusting relationships and sustaining a collaboration, setting up these arrangements can be challenging and time-consuming in practice.

So where should potential collaborators start when thinking about how to develop a shared accountability process? Some questions that may help include:

- Is there clear and common agreement about what the collaboration is designed to achieve?
- Have you engaged with other interested parties about their expectations?
- Do all parties understand everyone's roles and responsibilities, and what they bring to the collaboration?
- Is there a plan that demonstrates how each of the collaborators' roles, resources and responsibilities will result in the collaboration's intended outcome(s)?
- Is there regular and meaningful reporting and a forum for discussion and feedback?
- Do you need regular monitoring processes or periodic evaluations? Is the information about performance or progress relevant, reliable and robust?
- Are there clear and agreed protocols for managing unforeseen events, any lessons,

and/or unexpected progress or performance?

A well thought through and agreed accountability process will clarify what is important for the collaboration to succeed, what each party's roles and responsibilities are, how stakeholders can be properly informed about progress, and what incentives are needed to encourage everyone to act in the best interests of what the collaboration is intending to achieve.

More broadly, it is important to acknowledge that working together well takes time. Agencies are too often not given adequate time to collaborate and are under considerable pressure to deliver. Collaborative working needs to balance these frequently competing imperatives. Ensuring that enough time is available for organisations and people to collaborate will help leaders and decision makers to participate early and well.

Getting collaborative working right – and being effectively accountable for it – is increasingly important for achieving positive outcomes for all New Zealanders. In the words of the whakataukī, 'nā tō rourou, nā taku rourou ka ora ai te iwi – with your food basket and my food basket, the people will thrive'. Or, in other words, working well together will ensure the prosperity and well-being of the people.

<sup>1</sup> Office of the Auditor-General, 2025.

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Derek Gill, Norman Gemmell and  
Arthur Grimes

# The Myth of the Shrinking State in New Zealand Revisited

## what does the data show about the size of the state in New Zealand from 1900 to 2028?

### Abstract

This project uses a variety of lenses – the state as spender, producer, employer, investor and steward – to assess how the size and shape of the state has changed. We explore the conventional wisdom that New Zealand’s ‘neoliberal’ reforms of the 1980s and early 1990s resulted in a dramatic reduction in the size of the state. We find – with two notable exceptions – that the shrinking of the state over this period of reform is an urban myth. Indeed, relative to GDP, spending on real resources to support public production and investment in non-market outputs has been stable or has increased slightly since the 1990s, while the Crown’s balance sheet has steadily strengthened. We include an additional lens to explore the proposition that ‘deregulation’ in 1980s and 1990s

led to a reduction in the regulatory state. We find the opposite: that the number of words used in the New Zealand statutes has grown steadily since 1908, but dramatically from the 1960s.

In the last decade, under the Ardern–Hipkins Labour administration, government current spending on collective consumption grew rapidly to reach record levels, even after allowing for Covid-19-related spending programmes. The fiscal adjustment proposed by the National–Act–New Zealand First administration in the 2024 Budget involves winding much of this increase back.

**Keywords** size of the state, neoliberal reforms, New Zealand reforms, fiscal policy, stock of regulation, net worth, Covid spending

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Introduction: the changing role of the  
state – shrinking or growing?

The neoliberal reforms in New Zealand resulted in a shrinking of the state, marked by privatization, deregulation, cuts to public services, and a reorientation of the government's role in the economy.

– ChatGPT, 18 December 2024, in response to the prompt, 'how did the neoliberal reforms in New Zealand affect the size of the state?'

The focus of this issue of *Policy Quarterly* is the capability of the state. This article sets the historical context by looking at how the size of state has changed over time. The conventional wisdom – reflected in the ChatGPT response above – is that the New Zealand reforms of the 1980s and early 1990s resulted in a dramatic reduction in the size of the state. Previous research reported in *Policy Quarterly* in 2016 by Gemmell and Gill looked at the state in New Zealand from a range of perspectives – the state as consumer, producer, employer, investor, spender and taxpayer. In our 2016 study, a range of fiscal aggregates, such as taxes and spending, were compared to GDP, which acts as a control for the effects of inflation and economic and population growth. This ratio is a useful measure of size over time, but does not necessarily indicate the government's share of total resources in the economy. Our 2016 study concluded:

there is clear evidence that the state's role as a producer of market outputs has shrunk since the 1980s and with that its role as employer, but for a range of other measures the state's relative role has stayed the same. The overall Crown balance sheet shows the greatest variation, with a rapid deterioration until 1991/92 and then strengthening remarkably thereafter. (Gemmell and Gill, 2016, p.9)

Until recently, therefore, the size of the New Zealand state has not been reduced very much since the early 1970s relative to the economy as a whole. The exceptions to this were the winding back of public pension spending in the 1990s, and a reduction in market production arising from the privatisation programme, which

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involved the sale of multiple state trading enterprises (Telecom, the Government Printer etc.). In contrast, the share of spending on resources to support public production and investment in non-market outputs has been stable or increased slightly relative to GDP since the 1990s.

This article reports on the results from updating the data set developed in 2016 for more recent developments, including a rapid expansion in state spending and employment under the Ardern–Hipkins administration. We consider the extent to which this expansion can be explained by programmes that were a response to Covid-19. We also explore the extent to which the 'cuts' announced in the 2024 Budget of the new National–Act–New Zealand First government reverse the growth in state spending under the previous administration.

We introduce a new perspective not in our previous study by including new data on the size of the regulatory state. This data set is used to test the proposition that 'deregulation' associated with the regulatory reforms of the 1980s and 1990s led to a reduction in the size of the regulatory state.

The term 'state spending' refers in this article to central government. New Zealand

is one of the most centralised jurisdictions in the OECD, with around 90% of total public sector employees employed by central government organisations. In addition, local government data for revenue and expenditure relative to GDP over the post-WWII period is remarkably consistent, with relatively small fluctuations around a stable trend. As a result, we focus almost exclusively on central government in the commentary that follows.

**Part 1: The state as spender**

**– step change growth, then levelling out**

Over the past 150 years, the level of New Zealand government total spending followed a similar pattern to that of other advanced OECD economies, growing steadily after each of the world wars before peaking in the late 1980s or early 1990s. Afonso, Schuknecht and Tanzi (2020), who provide a useful cross-country survey of the changes in the size of the state across history, suggests Tanzi (2018): 'the size of government developed in line with the evolving thinking about its role and its capacity to raise taxes'.

**Use New Zealand spending data  
before 1950 with caution**

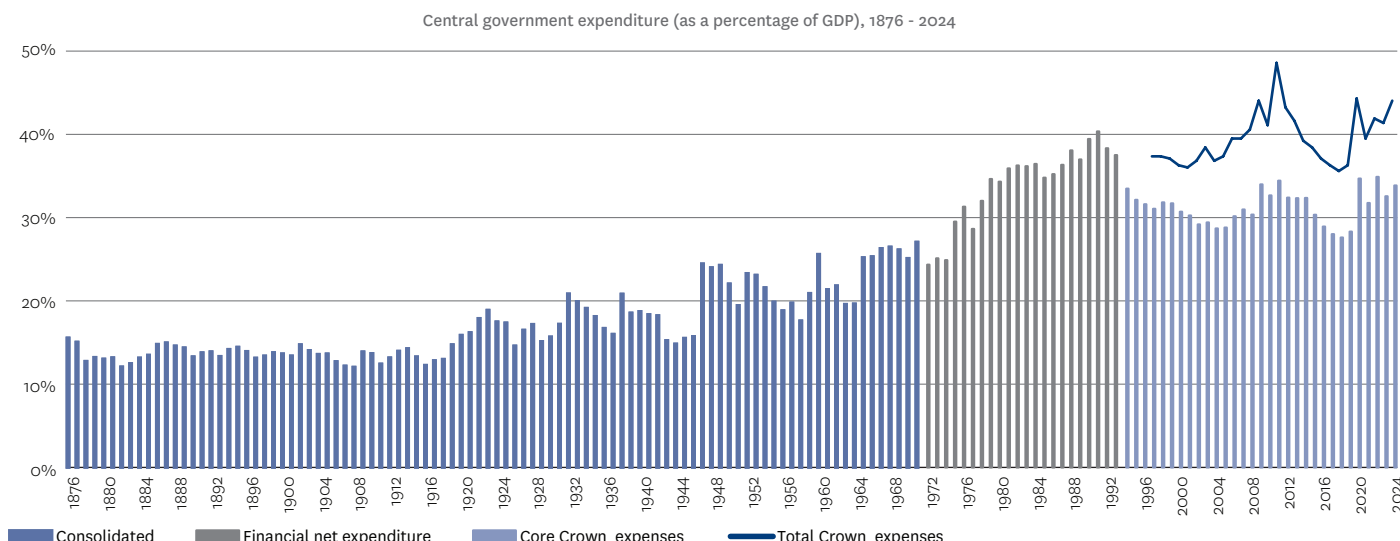
Long-term fiscal data on state spending in New Zealand (shown in Figure 1) should be used with care, as there are concerns about the consistency of the historical time series before 1950. To illustrate, Figure 1 shows total public spending falling during both WWI (from 14% to 13% of GDP) and WWII (from 18% to 15% of GDP). By contrast, historians estimate that defence spending alone peaked at 17% of GDP in WWI and 50% of GDP in WWII.<sup>1</sup> Given concerns such as these, Wilkinson (2023) uses the tax-to-GDP ratio as a more reliable indicator of the historical trends in public spending before 1950.

**Total government spending appears  
to peak in the middle of the  
'neoliberal' reforms**

Another data break occurs between 1991 and 1992, with the move to accrual accounting leading to a change to the government reporting entity to incorporate all expenditures in the core Crown and later total Crown data that included all arm's-length public bodies. This series break occurs



**Figure 1: Core state spending peaks in the early 1990s and again in the 2020s**



Source: Treasury long-term fiscal data

towards the end of the reform period of the mid-1980s to early 1990s (Evans et al., 1996). Looking across a range of indicators, total spending by core central government (shown in dark blue, grey and light blue in Figure 1) appears to have peaked in the early 1990s, before declining relative to GDP. However, even after this decline, the level of spending was higher than in any year prior to the mid-1970s. The patterns here are consistent with those found by Rose (2019, pp.4–5) using system of national accounts fiscal data since WWII. He identifies four distinct periods: relative stability (1948–71), rapid expenditure growth (1972–92), fiscal constraint and consolidation (1992–2005) and post-2005. We then observe an increase in current spending under the Ardern–Hipkins administration.

#### Recent fiscal data is robust

Fiscal data quality and consistency is not an issue when looking at developments over the last 15 years. This is because the introduction of accrual accounting enabled significant improvements in the quality and coverage of fiscal data – including information on stocks included with balance sheets and reporting data on both core Crown (i.e., government departments and the Reserve Bank, shown in light blue in Figure 2) and total Crown spending (shown in dark blue, which also includes arm’s-length public agencies such as Crown entities and state-owned enterprises).

Figure 2 shows core Crown and total Crown spending since 2009, while also

using Treasury estimates to control for the direct effect of spending on the Canterbury earthquake sequence (2010–13) and Covid-related programmes (2019–23). Budget 2024 three-year fiscal forecasts are included, although they are only available for core Crown.

#### Fiscal restraint then Covid and a ‘spending spree’

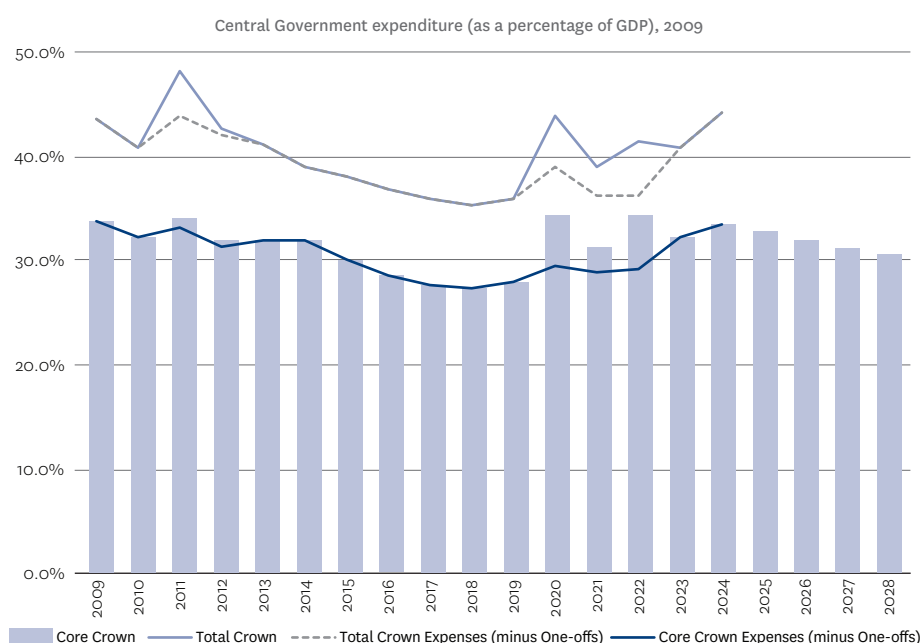
Figure 2 shows another period of fiscal constraint and consolidation for the decade after 2009. It also shows the impact of the Canterbury earthquake sequence

on the accounts of the total Crown, mainly due to claims on the Earthquake Commission fund. After 2019, government spending grew significantly, initially on Covid-related programmes and then on other expenditures.

#### The ratchet effect – 2024 Budget locking in a higher level of spending?

Wilkinson’s historical analysis of New Zealand government administrations since 1911 suggests that a ratchet effect operates whereby public spending increases under a left-of-centre government or as a response

**Figure 2: State spending (with adjustments for spending on the Canterbury earthquakes and Covid-19 programmes)**



Source: Treasury financial statements; Covid spending estimates from Binning, MacGibbon and Mawson, 2024; earthquake spending based on Treasury’s costing in note 15 of the 2015 financial statements of the New Zealand government. Note: the expenses data after 2024 are based on Budget (BEFU) 2024 forecasts.

## The Myth of the Shrinking State in New Zealand Revisited: what does the data show about the size of the state in New Zealand from 1900 to 2028?

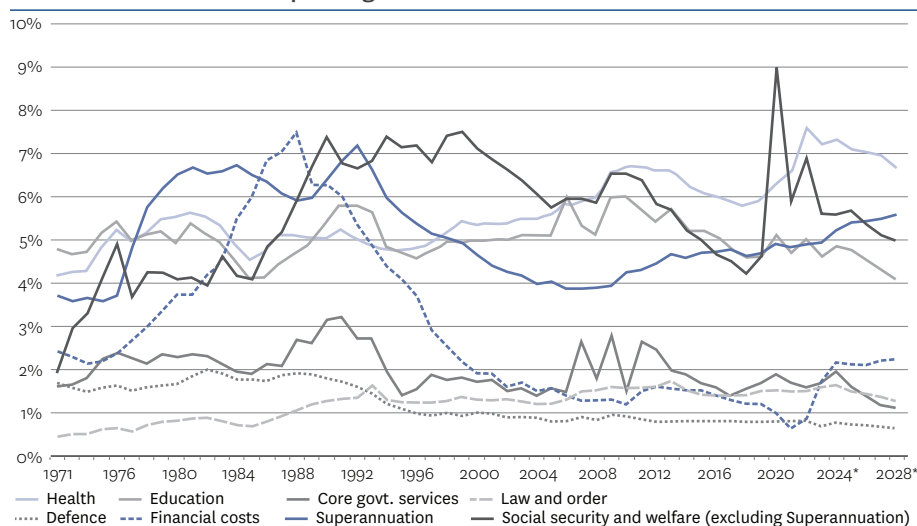
to a major event, which is followed by a period of consolidation when spending is stabilised at a new higher level and does not return to the previous level. Any generalisation has an exception – in this case during the era of the reforms the National administration of 1990–99 oversaw, when there was a 9.5% fall in spending relative to GDP, more than offsetting the 4.5% increase under the previous Labour government.<sup>2</sup>

The fiscal adjustment proposed by the National-Act-New Zealand First administration in the 2024 Budget involves partly winding back increases under the previous government and returning the fiscal aggregates closer to the levels of 2012. But even by 2028 the forecast level of total spending is above the levels of 2015–19.

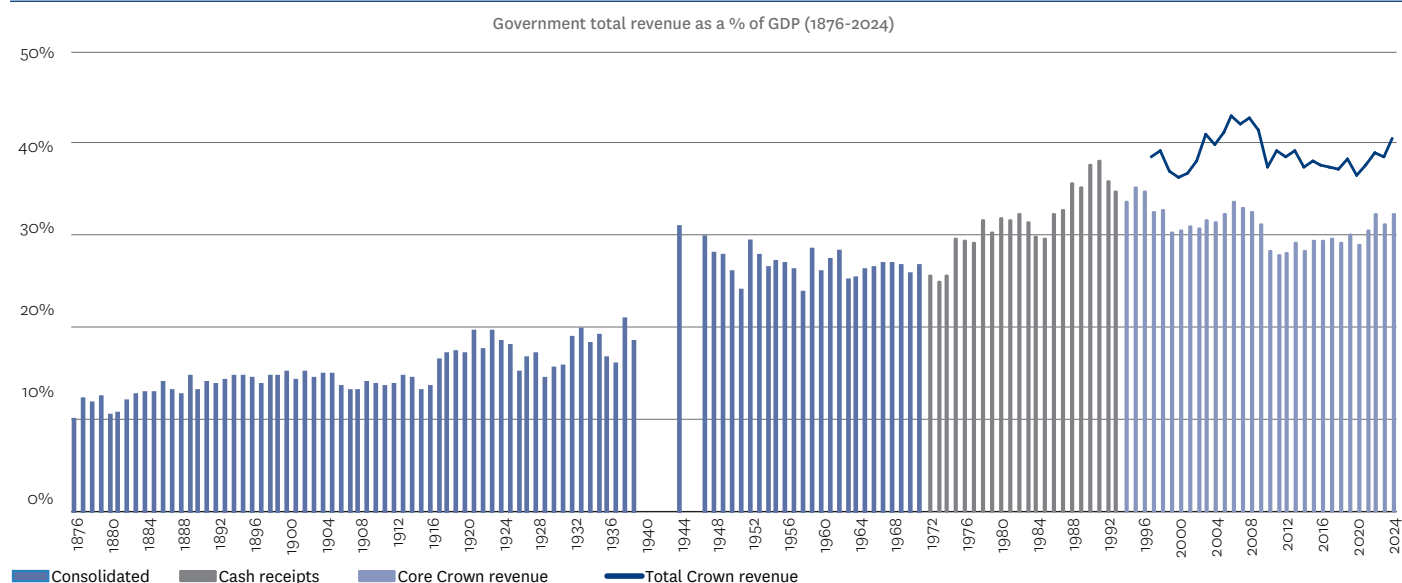
### The changing shape of the state with increased social spending

Figure 3 explores the allocation of public spending across the main functions: health, education, social welfare (split between New Zealand Superannuation and other welfare), defence, other government services (such as transport) and debt servicing. In New Zealand – like much of the rest of the OECD – the growth in social spending on health and welfare has dominated growth in total spending since 1972. Education expenditures have been reasonably flat at around 5%, varying between 4% and 6% of GDP, while spending on other government services, such as defence and transport, has declined relative to GDP. Debt servicing is quite volatile, for reasons discussed below.

**Figure 3: Social spending on New Zealand Superannuation and other benefits dominates total spending**



**Figure 4: Government revenue peaked in 1990 before levelling out**



### Shift in social spending towards and then away from New Zealand Superannuation

Spending on public pensions grew rapidly with the introduction of New Zealand Superannuation in 1976. This increase was mirrored by the increased fiscal deficits and net debt over this period. The relative decline after 1992 reflects policy changes in the 1991–96 period, as well as the impact of demographic changes. The composition of other social welfare spending has altered along with its level with a move away from universal entitlements such as the family benefit and the growth in spending on the unemployment and domestic purposes benefits (Welfare Expert Advisory Group, 2019, ch.2).

### Part 2: The state as taxpayer – increasing in steps until the 1990s

The story about tax and public revenues broadly mirrors the spending story, with a series of plateaux followed by step changes with WWI, the period before WWII and the mid-1970s, before peaking in the early 1990s. Figure 4 shows that public revenues were relatively flat from 1876 to 1916, at 10–15%, rising to 15–20% in the decades before the Second World War. Note that data quality problems also arise for consolidated revenue before 1945 with trading revenues included in some years and not others, and data for 1940–45 are unreliable or missing altogether. The light blue series post-1992 shows core Crown revenue, while the dark blue series post-1992 covers total Crown including revenues from arm's-length public bodies.

We focus here on the light blue series, as it is more comparable with the historical data.

Post-WWII saw another step change with the tax take plateauing in the low 20% range and public revenues a little higher for three decades. Central government revenue then jumped for a short period to around 35–38% in the late 1980s, before falling back to closer to 30% from the mid-to late 1990s onwards. Local government tax revenue from rates on property stabilised after WWII within the 2–3% range and has fluctuated at around 2% of GDP for the last 20 years.

#### Public revenues dominated by taxes

Taxation is the predominant source of public revenues (around 85% share), while minor sources include interest and investment income, and the sales of goods and services. Figure 5 illustrates that taxation has become an increasingly dominant revenue source, increasing from 27% to 33% of GDP, offsetting the fall in revenue from other sources over the last decade.

#### Bracket creep increasing the tax take and changes in tax shares

The majority of this growth in the tax take reflects the impact of bracket creep (or fiscal drag) rather than explicit changes in the statutory tax. (The increase in the top marginal tax rate to 39% for income above \$180,000 from 1 April 2021 post-dates much of the income tax/GDP increase.) Fiscal drag arises from inflation increasing nominal incomes, so driving more taxpayer income into higher tax brackets and reducing the value of tax credits.

Figure 6 illustrates how personal taxes grew as a share of tax revenues from the start of the 20th century through to the early 1980s (to become two-thirds of the total tax take), before declining to around a 45% share from around 2010. Inland Revenue data shows that the average marginal personal income tax rate (income weighted for all taxpayers) increased from 26.4% (after the 2010 GST tax switch) to 30.3% in 2022/3. The share of revenue from GST/sales taxes grew markedly with the introduction of GST in 1986. The share of revenue gained from customs and excise duties, land tax and estate and gift duties all fell through the 20th century.

### Part 3: The state as a producer and consumer – contrasting trends

Public spending is focused on the various tasks of government. These can be categorised by a functional classification as above – health, education, defence – or according to an economic classification – consumption, investment, interest, subsidies and transfers. We turn now to economic classification – production, consumption and investment – focusing on government's share of total resources in the economy.

#### Government market production has fallen – this dimension of the state has shrunk

Government production comprises two components, market and non-market. Market production is the value added

by government-owned organisations which sell their output, such as postal services or electricity. (Value added is the difference between the sales revenue and the cost of intermediate inputs such as raw materials.) Non-market production refers to the services produced by the government (such as defence, law and order, or regulations) that consume real inputs (labour, raw materials and capital depreciation) but for which there is no market price and no arm's-length sales transaction for the outputs. (Note that total government spending, as described in Part 1, also includes transfer payments such as pensions and benefits, which do not count as government production.)

The production data from 1972 shows a shrinking of the state with respect to

Figure 5: Tax take increased while government revenue flattened out since 2010

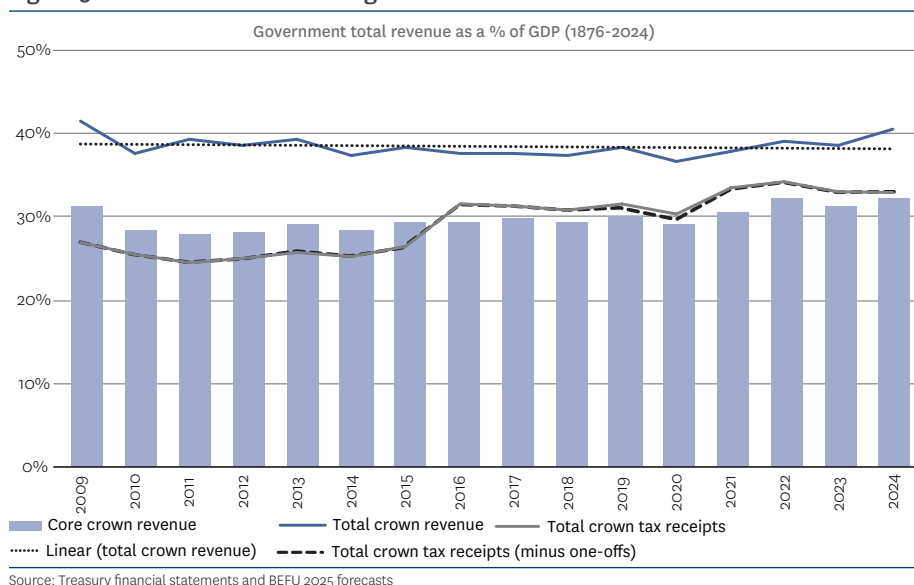
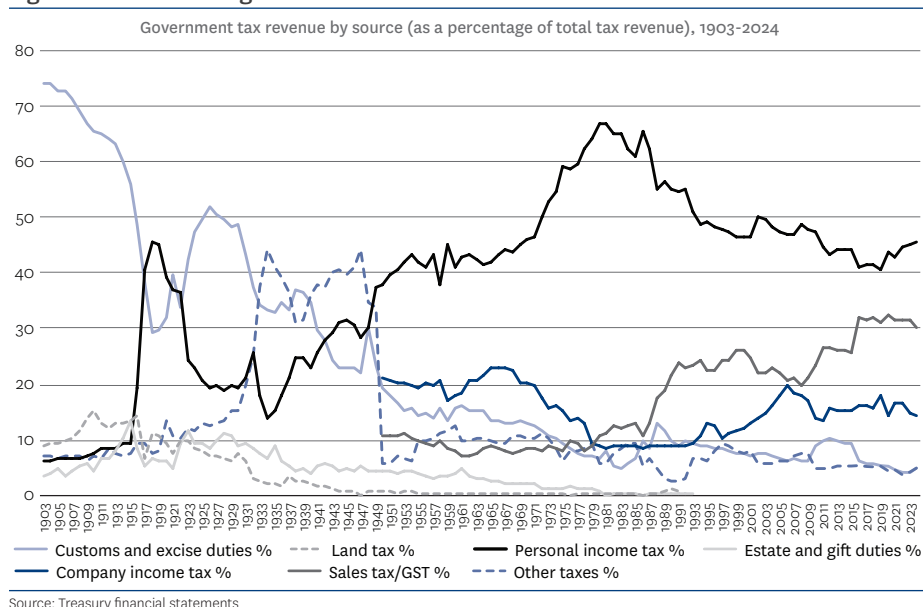


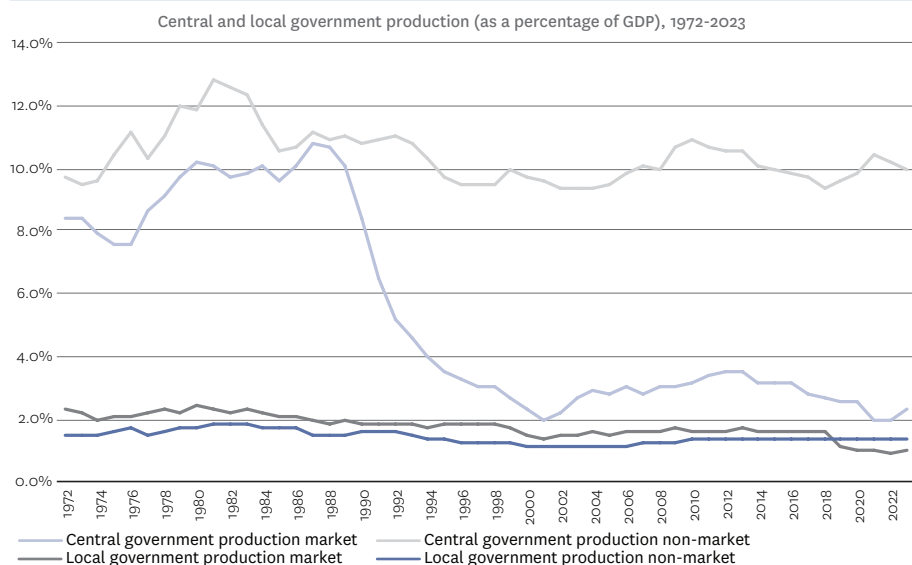
Figure 6: Marked changes in the sources of tax revenue until the last decade



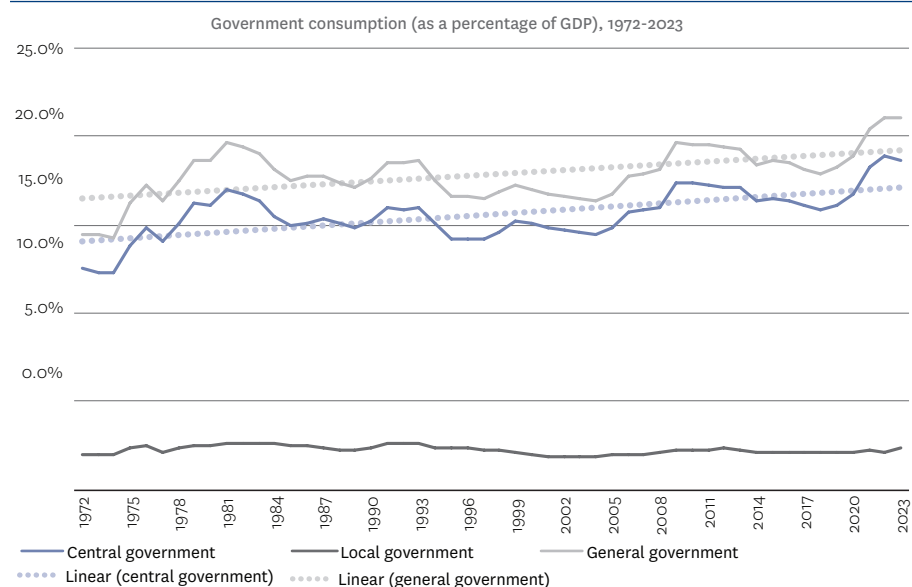


## The Myth of the Shrinking State in New Zealand Revisited: what does the data show about the size of the state in New Zealand from 1900 to 2028?

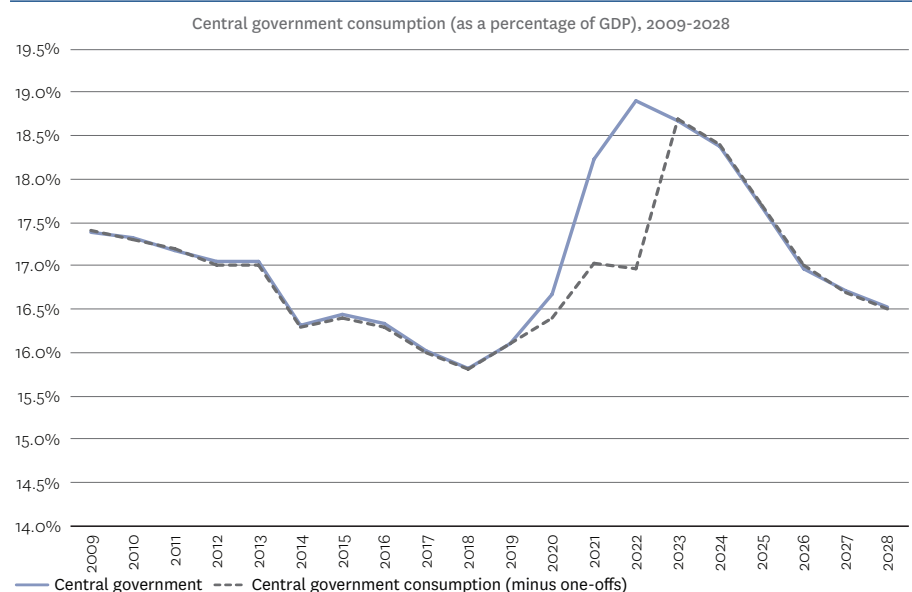
**Figure 7: Reduction in the state's role as a producer of market outputs**



**Figure 8: Collective consumption peaked in 1981, 2008, then 2023**



**Figure 9: Recent growth in collective consumption forecast to be largely wound back**



market production, but not with respect to non-market production. Figure 7 shows the impact of privatisations leading to a marked fall in central government market output, while non-market output rose from 1972 to the early 1980s, then fell back to around its initial level from 1995 onwards. Similarly, local government market production declined through the period, while its non-market output was maintained at a fairly constant rate throughout.

**Government consumption has increased – this dimension of the state has expanded** Government final consumption is SNA (system of national accounts) jargon for goods which are consumed collectively. It refers to the non-market services that the government produces (such as law and order, defence, regulations) that are not sold but are collectively consumed. ‘Consumption’ refers to the consumption of real resources, less any fees or charges, so it excludes transfer payments. It also excludes capital spending. Government consumption differs from government production as the former has a few more components to it, including intermediate consumption of goods and services, which grew significantly after 2021.<sup>3</sup>

In New Zealand, central government spending on consumption is much larger than that by local government, which has stayed flat since 1972. As Figure 8 shows, central government consumption had peaked in 1981 before falling to 15% before the reforms of the 1980s took effect, rising markedly in 2008, and again since 2018 to reach a 50-year high in 2023.

Figure 9 shows the recent historical data and the 2024 Budget forecast track for central government consumption. It shows a rapid increase in public spending on Covid-related activities from 2020 and on other activities after 2022 when Covid-related programmes were phased out. It also shows how the three years of ‘cuts’ in the 2024 Budget essentially involves winding back much of the increase under the previous administration.

### Part 4: The state as an employer – mirrors the trends in spending and state production

The pattern for the state as an employer broadly follows the pattern of the state as a

producer and consumer. While long-term data on employment is available from 1908 for the public service (i.e., the departments of state at the core of government), this unfortunately covers only around 10% of the current public sector workforce. An integrated employment data set for the public sector as a whole is only available from 1989.

**Public service employment grew steadily, then fell sharply with the state sector reforms**

Figure 10 shows public service employment relative to the population since 1908. It reflects the growth in the state after the two world wars and the continued expansion into the 1980s, before the impact of corporatisation of state trading enterprises and restructuring of non-trading activities into arm’s-length public bodies which resulted in a dramatic reduction in the size of public sector employment. More recently, there was a slight increase under the Clark Labour administration to 2008 and the recent Arden–Hipkins Labour administration after 2017. Note that public service employment continued to grow quarter on quarter through to June 2024, despite announcement of widespread budget baseline cuts.

**Total public sector employment has expanded steadily over the last 20 years.** Labour force data for the period 1989–2024 for the components of the public sector is

shown in Figure 11. It shows the impact of privatisation of state trading enterprises and restructuring of non-trading activities in the early 1990s. Since then, while employment growth in local government has been limited, employment in the government health and education sectors has grown much more rapidly. Employment in the public service (at the core of central government) fell prior to 2000 before rising substantially in recent years. While total public sector employment has grown overall, as shown in Figure 11, so has the overall labour force. Total public sector employment was around 15% of the labour force for most of the last two decades, before growing to around 16% after 2019.

In addition to the changing mix of public employment by sector and

organisational type, there is a range of other compositional changes to the public sector workforce. Public Service Commission occupational data shows significant growth in support functions such as ICT, IT professionals, managers and legal, HR and finance occupational groups. This is consistent with detailed research by Löfgren et al. (2022) which indicated an increase in organisational support functions (IT, communications) relative to front-line occupations.

**Part 5: The state as investor – declining market but increasing non-market investment**

The narrative thus far has focused on current spending, employment and

Figure 10: 1980s and 90s corporatisation reduced public service employment

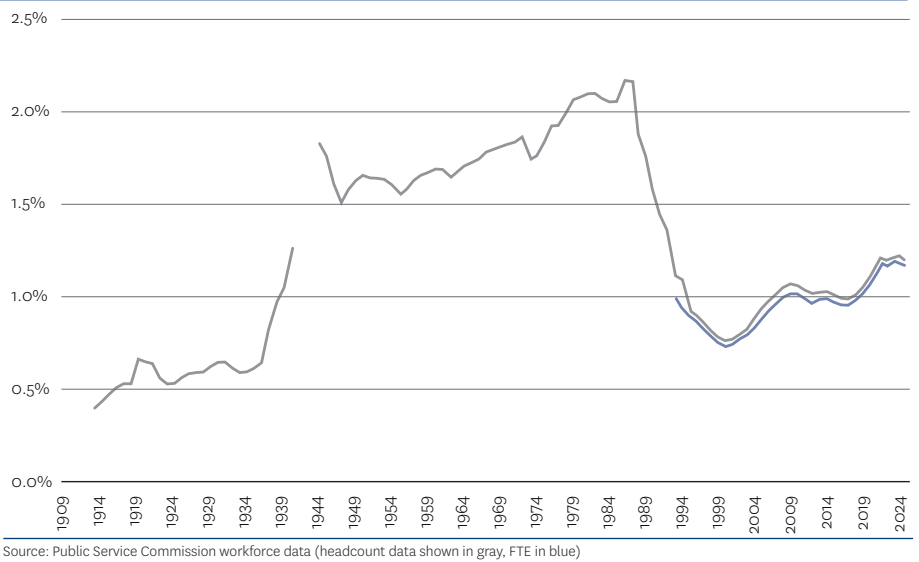
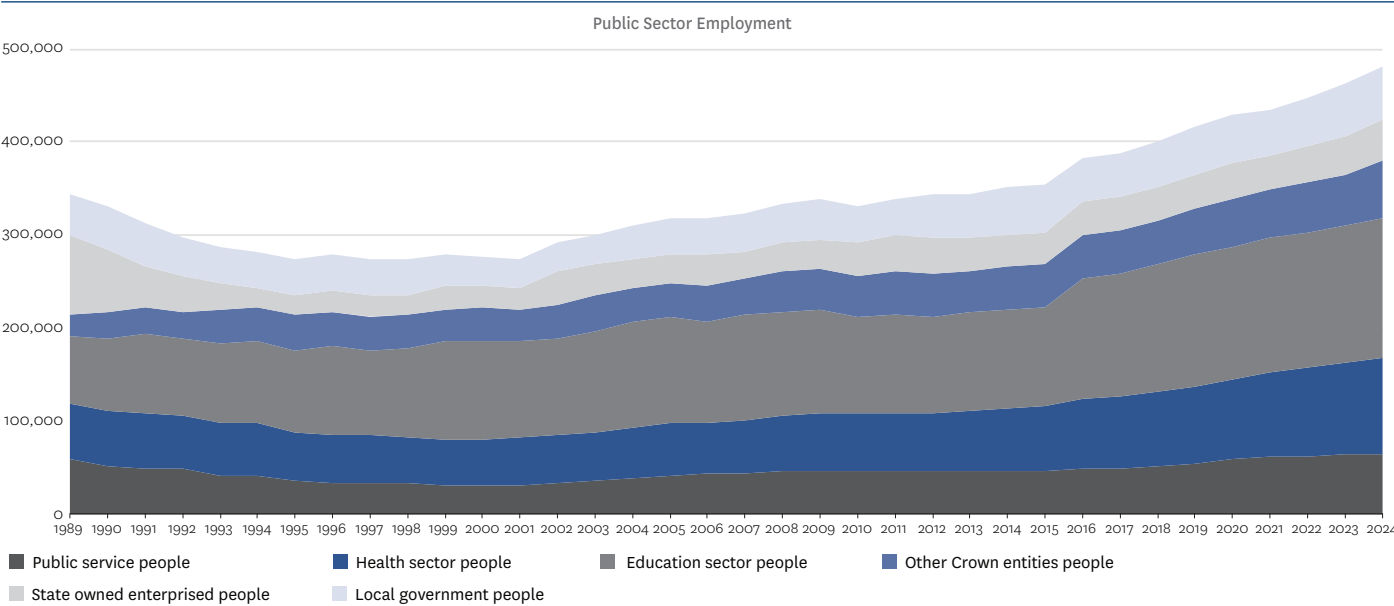


Figure 11: Health and education drive growth in public sector employment since 1989



## The Myth of the Shrinking State in New Zealand Revisited: what does the data show about the size of the state in New Zealand from 1900 to 2028?

taxes. We turn now to public investment expenditure on fixed assets (gross fixed capital formation in SNA jargon).

Figure 12 shows the sharp decline in market investment spending after 1987 due to the transfer of asset ownership associated with privatisations. Conversely, it shows relative stability of non-market investment spending by central government around a slow upward trend. It is interesting to note the absence of any uptick in capital spending related to Covid, despite the announcement of funding for 'shovel ready' projects. The political colour of the central government of the day does not appear to be significantly related to the trend in non-market investment. (While not shown in the graph, local government data also shows a slow upwards trend over the last 40 years.)

### *Erosion of the state – evidence for and against*

So, for the investment dimension of the size of the state, the data for market investment again shows a shrinking state, while the non-market data suggests the opposite trend, and is inconsistent with the notion of the erosion of the state. Indeed, looking across a range of measures, public spending on real resources to support public production and investment in non-market outputs has been stable or tended to increase slightly over time (relative to GDP) since the 1990s. The extent to which privatisation leads to hollowing out – given that the services involved, including printing, cleaning services, telephony, can be readily purchased from private market suppliers – is the subject for a discussion on another day.

### **Part 6: The state as steward of the balance sheet**

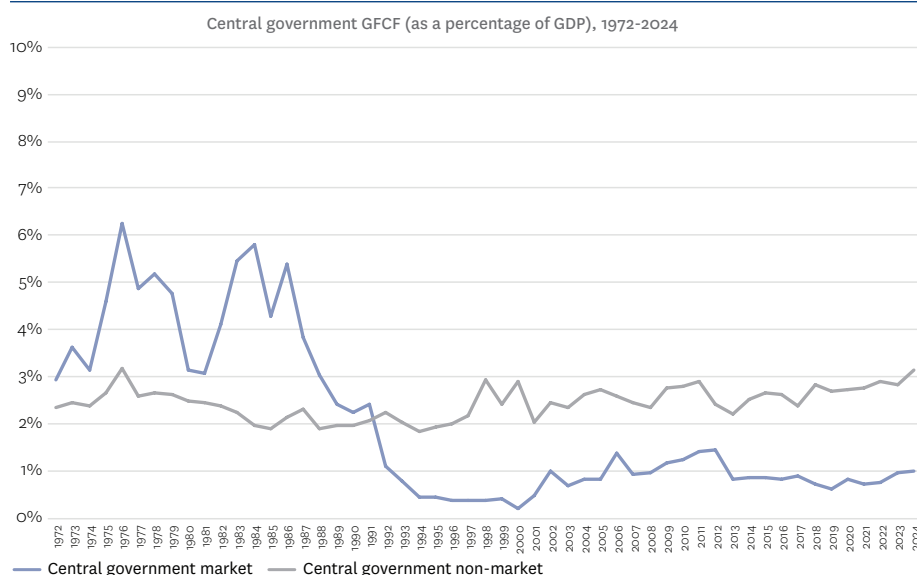
What about the government's role as a fiscal steward? 'Stewardship' is the management of the government's overall fiscal position, including the Crown's balance sheet. This is an important consideration, because focusing solely on taxes paid and current government services produced ignores whether the services are funded from current taxes or debt (future taxes), and whether the government is building or depleting its stock of assets.

The state's role as a fiscal steward also includes actively managing future fiscal risks and maintaining a buffer against adverse events. This role is particularly important for a small, open, exposed economy like New Zealand. On exposure, for example, the Lloyd's of London insurance risk index ranks New Zealand second highest based on the annual expected cost of natural disasters that damage property. The Public Finance Act requires the Crown to achieve and maintain levels of net worth that provide a buffer against factors that may have an adverse impact on net worth in the future.

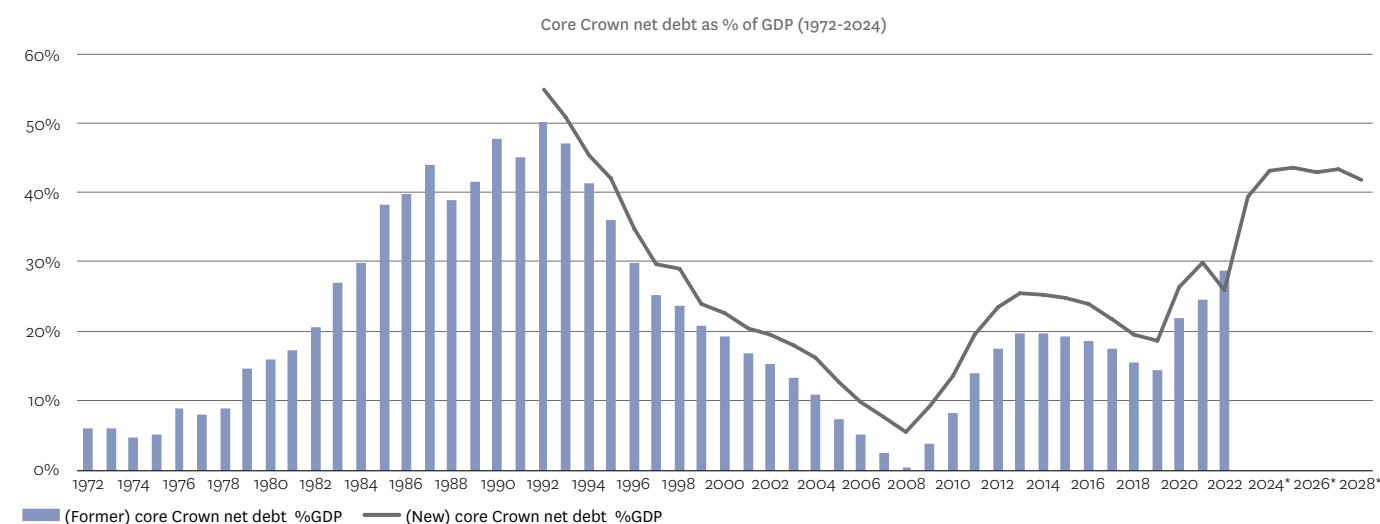
### *Volatile swings in the operating balance drive the growth in net debt*

Expenditures need to be financed by revenues and borrowing. The operating balance is volatile as it is the residual difference between two large numbers – public revenue and expenditure. The Crown's fiscal balance when in surplus provides a source of saving for investment in physical and financial assets.

**Figure 12: Declining market but increasing non-market investment spending**



**Figure 13: The rise, fall and rise in net debt**





New Zealand data reflects four distinct periods before the impact of the 2019 Covid pandemic: sustained structural deficits (mid-1970s–1990), sustained structural surpluses (1991–2008), structural deficits (2008–11) and sustained surpluses (for most of 2012–19). The succession of consistent substantial structural surpluses under both Labour- and National-led administrations in the aftermath of the reforms highlights the impact of the fiscal responsibility provisions in the Public Finance Act (see Gill, 2019 for a longer discussion).

The fluctuations in the operating balance were reflected in shifts in net debt (Figure 13). Over the last 50 years the Crown's net debt positions have fluctuated markedly. The changes in net debt were reflected in debt servicing costs, which exploded to 8% in 1988, before easing back to under 1% by 2021, before rebounding to over 2% of GDP by 2024. Both the stock of debt and interest rate fluctuations affect debt servicing costs, but the former is the primary driver.

#### ***Measured net worth has increased significantly since 1992***

While there is considerable public discussion about net debt, much less attention is directed at changes in the Crown assets and trends in overall net worth. Net worth is a wider measure than

net debt as it includes the value of assets the government owns, which are offset against the liabilities it owes. Statistics New Zealand data suggests that in 2023 central government controlled 6.8% of the New Zealand economy's assets and 5.5% of its liabilities.

The government's net worth comprises accumulated savings from fiscal surpluses and the withdrawals from deficits, revaluation reserves from physical assets, and accounting gains and losses on financial assets. Over the last decade, the escalation in property prices has generated significant gains on revaluations, as the government is a significant owner of property.

Net worth provides a backward-looking measure of how fiscal stewardship is being exercised by assessing the value of assets less liabilities (such as public debt). New Zealand data on net worth only became available in 1992 with the introduction of accrual accounting. Nonetheless, the available data (Figure 14) showed a steady improvement from –20% of GDP in 1992 to a peak of +55% in 2007/8. Net worth declined slightly with the global financial crisis, and then took a hit, falling to 27% in 2011/12 with the Canterbury earthquake sequence leading to the drawdown of the Earthquake Commission fund. Thereafter, net worth improved steadily until turning down in 2021 with the growth in borrowing

associated with the fiscal deficits of the Covid era. Since 2021 net worth has been stable, with the increase in the value of physical assets due to the escalation in property prices offsetting the impact of increased borrowing.

An element of caution is required in interpreting trends in net worth. Some of the assets with a positive value on the balance sheets are non-realisable, as they do not generate a revenue stream and are unlikely to be traded (national parks). As already noted, a high proportion of the increase in fixed asset values since 2012 is a result of the general increase in land prices resulting in the revaluation of property assets. Thus, the large increase in land values does not reflect an increase in capacity, but rather represents a relative price change resulting in an increase in the cost of providing that capacity.

Treasury in the 2022 investment statement (Treasury, 2022, p.37) also reports an alternative measure, 'financial net worth', which excludes social assets such as housing. Using the financial net worth measure, liabilities exceed assets, so this measure of net worth is negative; the fiscal deficit associated with the onset of Covid-19 resulted in a deterioration in this measure.

In summary, the conventional measure of net worth since 1992 suggests that for the state's role as a steward, there has been

**Figure 14: Steady improvement in the Crown's balance sheet**

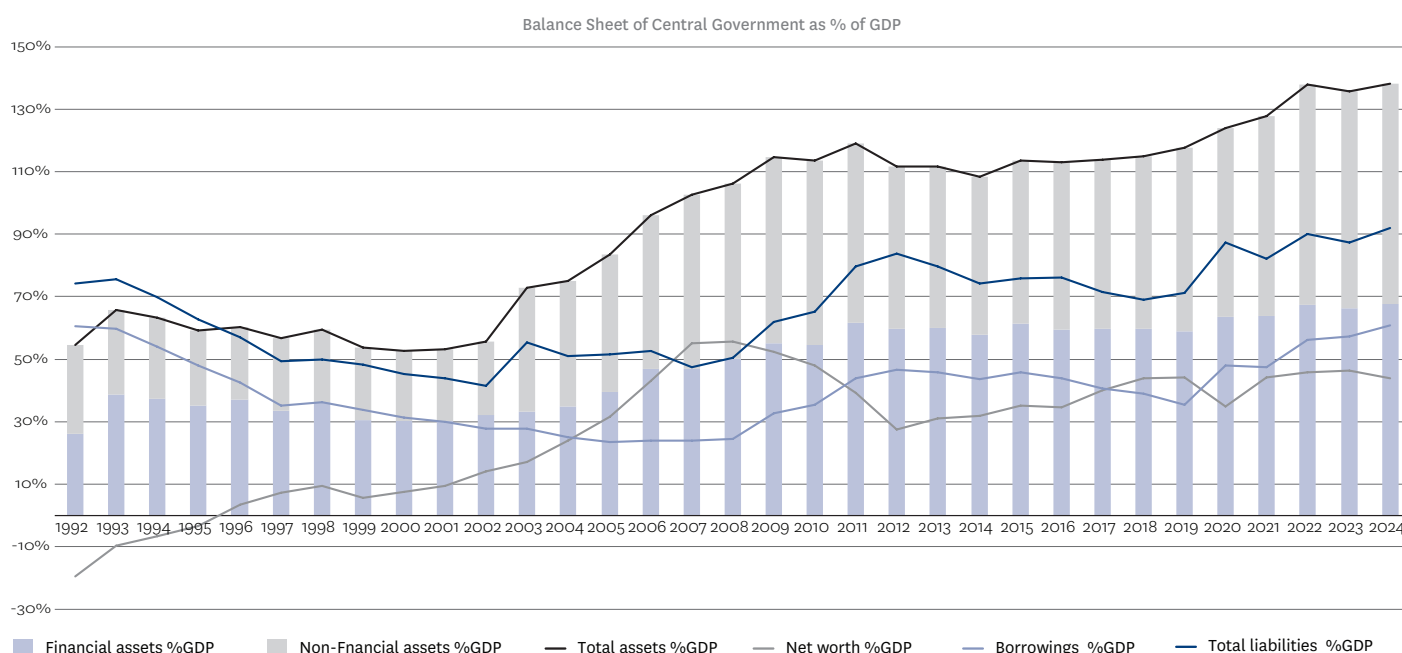
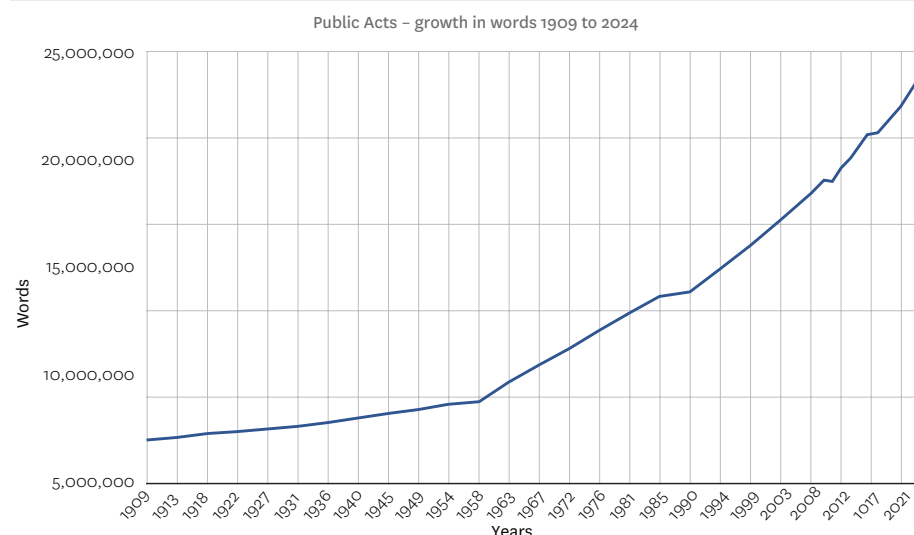


Figure 15: Consistent growth in the stock of words in the statute book



Source: Parliamentary Counsel Office Annual Report on Legislative Practices 2023–2024

a trend increase in the size of the state's balance sheet. This does not support the notion of an erosion of the state. If anything, the opposite has occurred on this dimension.

#### Part 7: The state as regulator – shrinking or growing?

Finally, what about the state's role as regulator, an issue that Gemmell and Gill did not address in 2016 because of lack of data.

#### New time series data on the size of the regulatory state

In the February 2025 issue of *Policy Quarterly*, Gill, Shipman and Simpson discussed newly released data on the size of the statute book and how it has changed since 1908. The study collected data to count the number of statutes, as well as the words (and the pages) in those statutes. This approach was based on data availability, but also taken because words in statutes are widely used as a proxy for the growth in the supply of regulation. We briefly summarise the findings of this research here, as this data helps explore the proposition that 'deregulation' associated with the regulatory reforms of the mid-1980s and 1990s led to the regulatory state shrinking.

#### Rapid growth in the supply of primary regulation

What the study found was surprising: that number of words used in the New Zealand statutes has grown steadily since 1908, but dramatically from the 1960s, as shown in

Figure 15. That growth means that the stock of current legislation has doubled in size since 1988, to more than 23 million words (whereas in 1908 it was just 7.5 million words). The growth rate in recent years is similar under both Labour and National administrations and does not coincide with conventional narratives of deregulation and re-regulation. The stock of the number of Acts in New Zealand also grew, but at a slower rate than words, then levelled off before the 1980s. That means that the average length of each principal Act is increasing.

The analysis of Gill, Shipman and Simpson (2025) suggests that this growth in the New Zealand statute book was not the result of technical factors such as plain language drafting or greater use of secondary rules. Instead, the growth reflects substantive factors, with increases in the depth and the breadth of regulation.

#### No evidence of a reduction in the regulatory state

Regulatory inflation and policy accumulation are general trends not unique to New Zealand. Recent scholarship suggests that globalisation and liberalisation are often accompanied by the expansion of regulatory rules and agents (Vogel, 1996). Interpreting the growth in the size of the statute book is complicated. More words in government regulations may imply more complexity, but does not automatically mean there is increased regulatory intensity or burden of compliance. But the Figure 15 does not lend any support to the notion that any

deregulation associated with the regulatory reforms of the mid-1980s and 1990s has led to a reduction in the regulatory state; indeed, the opposite appears to be the case.

#### Part 8: The shape of the state –

##### plus ça change, plus c'est la même chose

Despite the rhetoric, there is little evidence in the data of a consistent erosion or shrinking of the state after the mid-1980s. The conventional wisdom that New Zealand's 'neoliberal' reforms of the 1980s and 1990s resulted in a dramatic reduction in the size of the state is largely an urban myth. The notable exceptions – spending on New Zealand Superannuation and the state's role as a producer of market outputs, along with the associated employment and investment – prove to be just that, exceptions rather than the rule.

Figure 16 summarises – in stylised form – the key turning points by showing the peaks (shown by a P) and troughs (shown with a T) but removing other fluctuations for the main series discussed in this article available since 1972. The figure also anchors all the indices at 100 in 1972 so that relative changes in each can readily be compared. It shows no clear pattern, with some series trending up and some trending down in the period of so-called neoliberal reforms of the late 1980s and early 1990s. Similarly, there is no clear turning point, with several peaks well before the reform era and only one trough in the immediate post-reform era. The number of words used in primary statutes – the only available proxy for the size of the regulatory state – increases steadily over the whole period since 1972.

In terms of the overall capability of the state, spending on real resources to support public production and investment in non-market outputs has increased slowly relative to GDP since the 1990s and the strength of the balance sheet (net worth) has improved.

Looking at the recent Labour-led administration, there are several local peaks and one global peak. Government current spending on collective consumption grew rapidly to reach record levels, even after allowing for Covid-related programmes. The fiscal adjustments proposed by the new National-Act-New Zealand First administration in the 2024 Budget essentially involved partially

winding back the dramatic growth in current spending under the Ardern–Hipkins administration.

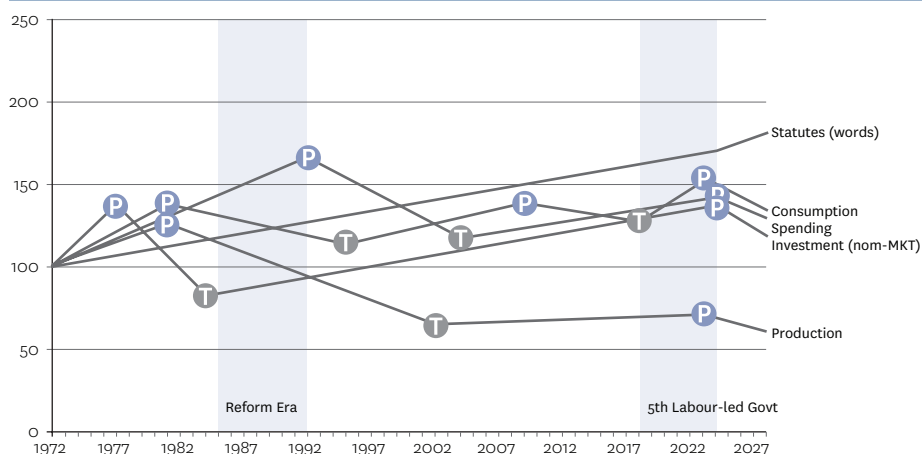
The data also suggests significant compositional changes in the state's role, leading to a changing shape of the state. For example, there have been marked shifts over time in the composition of tax revenue by source and public spending by function. Public spending has been increasingly dominated by social spending, including health, while spending on some other government services, such as defence, has declined relative to GDP. So, while there has not been a consistent erosion or shrinking of the state overall, there is considerable evidence of compositional shifts in the state's role over time.

1 <https://teara.govt.nz/en/graph/36156/defence-spending-as-a-proportion-of-estimated-gdp-1880-1971>. For WWII see chart 16 in Baker, 1962.

2 Wilkinson (2023) provides a detailed analysis of the trends in government spending and taxation for each government administration since 1911, controlling for CPI inflation and population growth as well as relative to GDP.

3 Statistics New Zealand, in an email dated 19 December 2024, advised that the differences between recent trends in public

Figure 16: The size of the state 1972–2024, peaks (P) and troughs (T)



consumption and public production arise from 'the increase in Intermediate Consumption and the decrease in Sales and Own Account Capital formation from 2021 onwards that is causing the percentage to GDP ratios to diverge for central government production and central government consumption from 2021 onwards'.

### Acknowledgements

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Simon Chapple

# Legitimacy and the Use of Ethnic Categories in Public Service Long-Term Insights Briefings

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## Abstract

This article considers the way government agencies use the concept of ethnicity in their long-term insights briefings. Ethnicity receives a disproportionate focus compared with other socio-demographic categories. Yet the concept is treated as self-evident, and its manifold limitations are unexplored. Salient outcome variations are reduced to average ethnic differences, and variation is further reduced, in an essentialised manner, to comparisons between Māori, Pacific and the largely invisible others in the European and Asian categories. Human commonality and complex webs of micro-connections between people are not explored. Questions arise regarding whether the briefings' treatment of ethnicity relative to other socio-demographic dimensions fulfils statutory obligations to be impartial and politically neutral. The article argues that the briefings' treatment of ethnicity may undermine their public legitimacy. Significant recommendations for positive change are made.

**Keywords** long-term insights briefings, ethnicity, socio-demographic differences, reductionism, essentialism, in- and between-group variance, societal complexity, impartiality, political neutrality, public legitimacy

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This article critically considers the way government agencies conceptualised and utilised ethnicity in their first long-term insights briefings, prepared during 2022–23, and offers a significant number of suggestions for improvements. Introduced by the Public Service Act 2020, these briefings are designed to provide 'information about medium- and long-term trends, risks, and opportunities that affect or may affect New Zealand', as well as 'information and impartial analysis, including policy options' (schedule 6(8)) to address the issues raised (see Menzies, Jackson and Boston, 2024 for an overarching and largely critical assessment of the debut briefings). The briefings are also intended to give the public service an avenue for free and frank advice, independent of their current ministers, enabling exercise of long-term stewardship. In addition to being impartial in their briefings, the public servants creating them are more generally required to be politically neutral. Creating long-term briefings that meet these requirements helps to build trust in and enhance the legitimacy of the public service in the eyes of citizens.

As the basis for the discussion, this article first considers the construction of the ethnicity data used in the briefings by Statistics New Zealand, revealing significant ambiguity behind the concept and the way

that the data is both collected and aggregated. It then examines how agencies have used Statistics New Zealand data on ethnic categories in their briefings compared with other commonly used dimensions of socio-demographic differences, revealing a disproportionate focus on Māori and Pacific ethnic binary categories and outcome differences by group. It then critically analyses how ethnicity is actually used in the long-term briefings in terms of population projections of shares of high-level ethnic categories. As the analysis reveals a considerable agency focus on the Māori ethnic category as a binary, a detailed consideration is made of the briefing of the main government agency advising on Māori, Te Puni Kōkiri, and how it conceptualises Māori as a social category. Lastly, consideration is given to what meaning agencies ascribe to ethnicity, revealing a significant element of public service essentialism.

#### Statistics New Zealand's approach to measuring ethnicity

In undertaking these briefings, policymakers regularly categorise people into ethnic groups. Where quantitative data on ethnicity is referred to in the briefings, it comes from Statistics New Zealand's (Stats) definitions and data collections. In its background notes on the concept, Stats defines ethnicity as 'self perceived' and about the groups people 'feel they belong to' (Statistics New Zealand, n.d.). Stats also observes that it is not a measure of race, ancestry, nationality or citizenship. The conceptual distinction Stats makes between ethnicity and nationality is not a strong one, as indicated by an assessment of international approaches to ethnicity questions, where the two terms frequently overlap (Morning, 2015, pp.22–3). Additionally, when Stats collects ethnicity data, it does not supply these conceptual prompts to respondents, so the meaning which it ascribes to ethnicity may have little or no connection to what is in respondents' minds when filling out forms. For example, the census question simply asks respondents:

Which ethnic group do you belong to?  
Mark the space or spaces which apply to you.

NZ European  
Māori  
Samoa  
Cook Island Māori  
Tongan  
Chinese  
Indian  
Others such as Dutch, Japanese and Tokelauan.

Overall, the conceptual framework and the question are poorly integrated. While the conceptual description is in terms of subjective self-identification, the actual question is posed in terms of a taken-for-granted objective fact that someone must belong to an ethnic group (compare this with ethnicity questions in several other countries, which are worded much more subjectively: see Morning, 2015, p.25).

recommends the total count approach, where people are recorded as members of each of the categories into which they fall. For example, if a person ticks both a New Zealand European and a Māori box, they are counted in both the European and Māori categories. Because of consequent multiple counting of multi-ethnic people, the sum total of ethnic groups exceeds the total population. The total count approach also has the undesirable feature of obscuring the existence and identities of multi-ethnic people.

A method which more accurately reflected societal complexity and which honoured people's responses would be to create a series of discrete categories whereby all permutations of groups were reported on separately if they were of

While the existence of multi-ethnic people is acknowledged, their populations are not projected, so they remain statistically and hence analytically invisible.

Additionally, while Statistics New Zealand states that conceptually ethnicity is not a measure of nationality, all ethnic categories explicitly mentioned in the question, barring New Zealand European and Māori, are directly mapped onto current nation states (viz, Samoa, the Cook Islands, Tonga, China, India, the Netherlands, Japan and Tokelau). Hence, the fundamental underlying definition and the question are inconsistent with one another.

These raw individual responses are typically aggregated. Stats defines six aggregations of the data in terms of sets of binary groups: European, Māori, Pacific peoples, Asian, MELAA (Middle Eastern/Latin American/African) and 'Other ethnicity'. Strictly speaking, these are ethnic categories, and they will be referred to as such below. Because significant numbers of New Zealanders report multiple ethnic categories, in order to generate these binaries an algorithm is needed. Stats

sufficient absolute size. Thus, for example, if the number of people ticking both a New Zealand European and a Māori box were sufficiently large, it should be reported on as a group separate from both the only New Zealand European and only Māori groups (again, if these latter two groups were sufficiently large).

Statistics New Zealand uses this total count ethnic data to descriptively compare outcomes across ethnic categories in the census and in various social and economic surveys, and to generate population projections by the broad ethnic categories (Statistics New Zealand, 2022). While the existence of multi-ethnic people is acknowledged, their populations are not projected, so they remain statistically and hence analytically invisible. These projections are based on a range of assumptions based on different combinations of fertility of women and paternity assumptions for men (to allow for the fact of inter-category paternity),

mortality, migration and inter-ethnic mobility.

The limitations of the ethnicity data discussed above are not a focus of any of the agencies' briefings when this data is employed.

#### How important is ethnicity in the briefings compared with other socio-demographic categories?

As of 24 November 2024, there were 19 first round published briefings available for analysis (see Public Service Commission, 2024). Of these briefings, four were produced by two or more agencies and 15 were the product of single agencies.

The briefings typically consider current and future demographic differences and a wide variety of outcome differences between different socio-demographic categories. None of the briefings report any analysis of why these particular groups were considered to be salient to the briefings. Their salience was taken by agencies as self-evident. Additionally, sometimes these differences are cast

descriptively as inequalities (e.g., by Treasury) and at other times as inequities, reflecting a tacit distributional value judgement (e.g., by the Ministry of Health).

This analysis commences with a count of the number of times each briefing refers to one of the four largest main ethnic categories used by Statistics – European, Māori, Asian and Pacific – and the overall term ethnic(ity). It compares these to mentions of four other social categories commonly used to consider differences in outcomes – socioeconomic, men/male, women/female and disabled.<sup>1</sup> The aim is to contextually assess the extent to which agencies have focused on specific ethnic categories, relative both to other ethnic categories and to other socio-demographic categories.

Table 1 indicates a very strong dominance of the four ethnic categories in briefings, which form a very large majority – 89% – of all mentions of the eight socio-demographic categories considered here. Two out of 19 briefings – Inland Revenue and the Department of the Prime Minister

and Cabinet – contain relatively few references to ethnicity compared to others, but do not replace this with a focus on other socio-demographic categories. The other four socio-demographic categories (11%) are barely visible, with, for example, the average mention of 'socioeconomic' being one per briefing and the median mention being zero. Surprisingly, the Ministry of Health makes no mention of 'socioeconomic' in its briefing. While the expectation was that four ethnic categories would attract significant numbers of mentions, the extent to which they dominate over other socio-demographic categories was unexpected.

Considerations of ethnic differences are strongly focused on Māori. Within the ethnic categories, Māori are a considerable majority – 63% – of mentions, followed by Pacific at 29%. By way of comparison, the 2023 census puts the Māori category at 18% of the population and the Pacific category at 9% of the population. The Asian category, 17% of the population in the 2023 census, is significantly under-

Table 1: Summary of mentions of ethnicity and other social categories across long-term insights briefings

Agency or first agency	Pages	European	Māori	Pacific	Asian	Ethnic (ity)	Socio-economic	Women/ female	Men/ male	Disabled
Ministry for Pacific Peoples	40	2	37	534	3	43	1	1	0	1
Ministry of Health	37	2	115	28	2	9	0	4	0	8
Departmental of Internal Affairs	60	3	69	11	5	12	0	0	2	4
Department of Conservation	50	0	32	0	0	0	0	0	0	0
Te Puni Kōkiri	48	3	537	4	0	18	0	2	2	0
Statistics New Zealand	35	0	68	5	0	1	0	2	0	2
Public Service Commission	63	1	74	11	1	5	1	4	2	3
Ministry of Transport	64	3	15	3	3	5	0	3	0	6
Ministry of Education	60	0	115	53	0	2	7	22	2	77
Treasury	93	9	80	28	6	18	3	16	11	0
Prime Minister and Cabinet	41	0	3	2	2	7	0	0	0	0
Education Review Office	108	24	29	22	148	504	0	5	5	1
Housing and Urban Development	36	5	45	10	0	9	1	1	0	3
Justice	124	5	318	93	1	12	6	147	73	0
MBIE	37	0	80	24	0	1	1	0	0	0
Ministry for the Environment	79	0	78	1	0	8	0	0	0	1
Ministry for Primary Industries	56	0	22	1	0	3	0	0	0	0
Ministry for Culture and Heritage	37	4	128	5	2	10	4	0	0	1
Inland Revenue	111	0	3	0	0	0	0	0	0	0
<b>Total</b>	<b>1068</b>	<b>61</b>	<b>1845</b>	<b>835</b>	<b>173</b>	<b>667</b>	<b>24</b>	<b>207</b>	<b>97</b>	<b>107</b>
<b>Average</b>	<b>62</b>	<b>3</b>	<b>97</b>	<b>44</b>	<b>9</b>	<b>35</b>	<b>1</b>	<b>11</b>	<b>5</b>	<b>6</b>
<b>Median</b>	<b>53</b>	<b>2</b>	<b>72</b>	<b>11</b>	<b>1</b>	<b>9</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>1</b>
<b>Maximum</b>	<b>124</b>	<b>24</b>	<b>537</b>	<b>534</b>	<b>148</b>	<b>504</b>	<b>7</b>	<b>147</b>	<b>73</b>	<b>77</b>
<b>Minimum</b>	<b>35</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>



represented at 6% of mentions. The majority of Asian category mentions (86%) come in the Education Review Office (ERO) briefing. The European category, despite being 68% of the 2023 census population, is virtually invisible in the briefings, at 2% of mentions, 39% of these being concentrated in the ERO briefing. While again this disproportionate pattern was expected, its degree, and the extent of the invisibility of the majority European ethnic category and the large Asian category, was surprising. Notably, the qualitative disproportion among the four main ethnic categories survives exclusion of the Māori and Pacific population agency briefings from the counts, with 71% of category mentions now Māori (a higher proportion), 17% Pacific, 9% Asian and 3% European.

In terms of the relatively invisible other socio-demographic categories, some are more invisible than others. The (relatively) dominant categories are women, twice as likely to be mentioned as men (including, puzzlingly, in Justice's briefing, which has a focus on imprisonment, where males are massively over-represented) and the disabled. Of the other two non-dominant categories, the socioeconomic category is the least important, getting half the mentions compared even to relatively neglected men. It is difficult not to conclude that New Zealand's public servants across all agencies demonstrate little long-term strategic interest in the socio-demographic stratification of the New Zealand population beyond the Māori and Pacific ethnic categories and virtually no interest in socioeconomic differences in understanding longer-term futures.<sup>2</sup>

#### How do the briefings use ethnic population projections?

In addition to considering ethnic categories in relation to outcomes, a significant number of agencies refer to ethnicity in terms of Statistics New Zealand's ethnic category population projections. However, they do so mechanically, not providing a comprehensive picture of why the projected shares of main ethnic categories change or indicating why the changes are salient, and paying little attention to drawing out the implications of those projected changes.

For example, Internal Affairs (p.25) indicates a fall in the share in the European category and a rise in the Māori, Pacific and Asian categories to 2043. It does not explain why the shares change and draws no implications of this change analytically. Using the same data, in the context of a weakening international order, the Department of the Prime Minister and Cabinet suggests that a more ethnically diverse community arising from the projections raises concerns about foreign countries seeking to divide ethnic communities in New Zealand (p.20), while Te Puni Kōkiri uses the data projections to emphasise the differences in age distributions between Māori and non-Māori categories.

According to the Ministry of Health

categories. However, a further reason for rising shares arises out of high rates of exogamy for Māori and Pacific categories. With multiple ethnic identification likely to arise out of this exogamy – which is a dimension of similarity, not difference – this means these minority groups will appear as younger and growing faster even in the face of a common fertility rate for all categories, simply by virtue of data construction.

#### A case study: Te Puni Kōkiri's use of ethnic binaries

Given the strong focus on Māori revealed in Table 1, the concentration on that focus in Te Puni Kōkiri's briefing, and the fact that it is the government's main policy advisor on Māori, its briefing is an

In a cross-section, a large and rising majority of Māori New Zealanders ... and, as importantly, in most other ethnic categories ... identify or are identified ... as multi-ethnic.

(p.8), the projected change in population shares of the major ethnic categories may shift health needs and aspirations, but it takes this no further, not addressing how needs and aspirations might change and by how much. The Ministry of Justice (p.99) notes the same sets of projected changes, but again with little analysis of the implications. Culture and Heritage too presents a short outline of the projections and asserts, without explaining why and without any supporting evidence, that greater ethnic population diversity 'is associated with economic and social benefits, such as increased productivity, innovation and cultural vibrancy' (Manatū Taonga, 2023, p.34).

Both the Public Service Commission (p.21) and the Treasury (pp.12–13) discuss the drivers of change in Māori and Pacific category shares in terms of a younger age structure and higher fertility rates than European and Asian categories – that is to say, in terms of differences between ethnic

interesting and pertinent analytical case study. Te Puni Kōkiri's briefing is based on five oppositional binaries – between Māori and non-Māori people, between Māori whānau and an implied other, between Māori communities and an implied other, between the Māori economy and an implied other, and between te ao Māori and the Pākehā or 'Western' world.

In terms of binaries between people, Te Puni Kōkiri briefly acknowledges Māori people who also self-identify with other ethnic categories (Te Puni Kōkiri, 2023, p.5). However, these people are then automatically subsumed into a binary Māori category. But by ticking multiple ethnic boxes, these people are rejecting binary categorisation. As well as providing a misleading view of New Zealand society, this algorithm suppresses a potentially important dimension of these people's self-identity.

In a cross-section, a large and rising majority of Māori New Zealanders (see

Figure 1) and, as importantly, in most other ethnic categories (see Figure 2) identify or are identified (primarily by their parents) as multi-ethnic. Multi-ethnic people exist largely because of inter-ethnic category partnering and childbearing and raising. Consistent with a traditional te ao Māori world view, multi-ethnic people are frequently whakapapa-driven, with a whakapapa including people from other ethnic categories. Inter-ethnic partnerships and consequent whakapapa demonstrate a fundamental micro-engagement between humans across macro-ethnic categories. If there are a lot of multi-ethnic people, and there are in New Zealand, this indicates a low degree of social distance between human beings in different ethnic categories.

An intergenerational consequence of inter-ethnic marriage is that children of mixed ethnicity couples are less likely to define themselves as a single ethnic category than those of sole ethnicity couples, likely further reducing effective macro-category distinctions. This dynamic is a recursive process of further breaking down macro-category difference through time. One might have thought that this whakapapa relationship dynamic would be an salient consideration in a briefing about Māori futures, given a very long history of significant rates of exogamy (Callister, 2003).

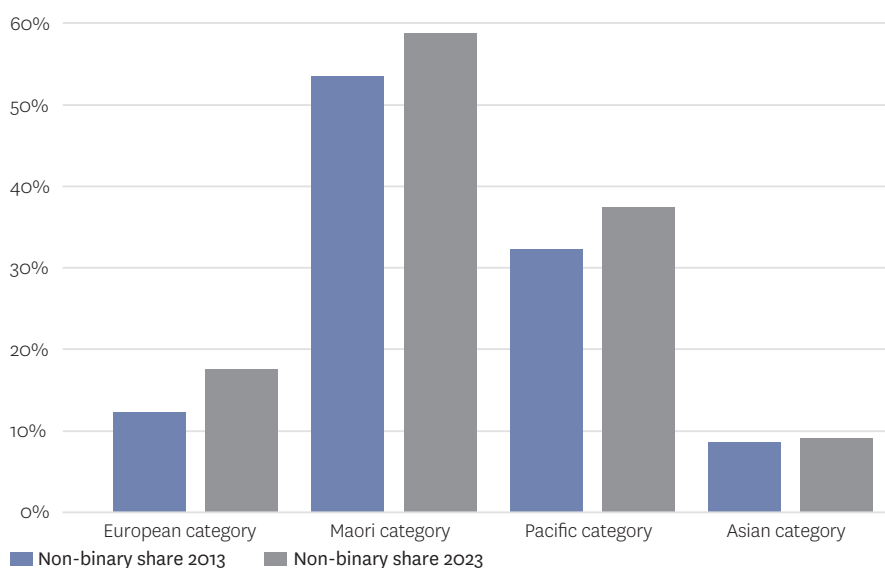
This ethnic binary is also implied to be a temporally enduring primordial one. Yet the linked census data indicates the opposite – a socially significant amount of

movement into and out of the Māori category. For example, linked census data between 2001 and 2006 indicates a high turnover rate of the base 2001 Māori category of 22% to 2006, with an inflow rate of 12% and an outflow rate of 10% (rates calculated from data in Didham, Nissen and Dobson, 2014, Table 9, p.30). The turnover rate between 1991 and 1996 was even higher at 29%, but this figure was dominated by a much higher inflow rate (23%) and a much lower outflow rate (6%) (see Chapple, 2000, p.104). Clearly, ethnic categorisation is a choice variable, not a primordial binary for many in the Māori category. Category mobility is an absolutely and relatively important demographic feature of Māori which is, again, not identified as salient by Te Puni Kōkiri.

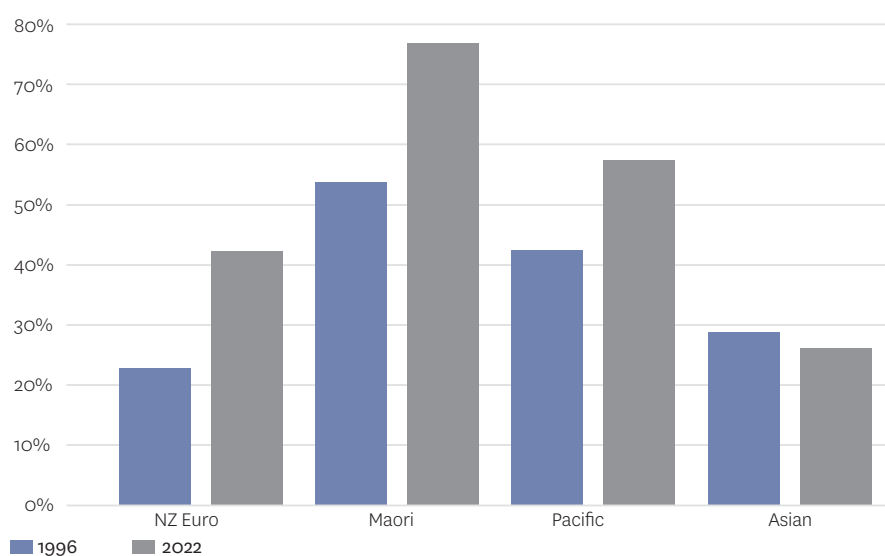
Te Puni Kōkiri develops another binary in terms of Māori whānau, who exist in implied contrast to other, non-Māori family structures (e.g., p.2). In Statistics New Zealand's 2018 Te Pukenga survey, Māori respondents generally reported that their whānau are relatively small, with a median size of under 10 people. In the 2013 Te Pukenga survey, 40.2% of Māori defined their whānau as only including respondents' parents, their partner, their children and their siblings.<sup>3</sup> Further including grandparents and grandchildren to this base category adds 15.2% of people, and including aunts, uncles and cousins adds a further 31.9% (Kukutai, Sporle and Roskrige, 2016, p.60). In other words, most whānau (87.3%) seem similar in definition, breadth and size to how many other New Zealanders, irrespective of their ethnic categorisation, would frequently define their families. Again, the consequence of ignoring social similarity and overlap is a focus on contrasting, binary difference. Te Puni Kōkiri defines this form of whānau as whakapapa whānau and defines a second form of whānau, 'kaupapa' whānau, including friends/other: 23% of Māori had whānau in this category in 2018.<sup>4</sup>

The further presumption is that both these forms of whānau are uniquely Māori. Once again, the implied Māori/non-Māori dichotomy does not hold for whānau. In addition to the many Māori respondents who will identify with other ethnic groups, their partners, parents, siblings, children and other relatives may all identify partly

**Figure 1: Growing numbers of multi-ethnic people resist binary categorisations in the census**



**Figure 2: The future is looking increasingly non-binary: Multi-ethnicity births by major ethnic category, 1996 and 2022**



or wholly with non-Māori categories. In terms of kaupapa whānau, many Māori will have non-Māori friends/others whom they consider as whānau. Again, consideration of micro-connections between people is neglected for an overwhelming emphasis on macro binary differences.

Central to Te Puni Kōkiri's briefing is the belief that 'whānau wellbeing depends on achieving a meaningful balance between participation and achievement in both *wider society* and *Te Ao Māori*' (p.18). However, analysis by Kukutai, Sporle and Roskrugé of the relationships between Te Pukenga's self-assessed whānau wellbeing and the te reo Māori, mātauranga Māori and te taiao dimensions of te ao Māori finds to the contrary: 'having a high level of whānau wellbeing does not depend on an individual's engagement in the activities that sustain Te Ao Māori' (Kukutai, Sporle and Roskrugé, 2017, p.49). Thus, there is no evidence that te ao Māori matters for whānau wellbeing, yet this strong assumption is the foundational basis for Te Puni Kōkiri's briefing.

Te ao Māori is prescriptivised by Te Puni Kōkiri, making the te ao Māori model a cultural deficit model. A deficit model suggests that people who identify as Māori who do not prioritise te ao Māori – as defined by government agencies – are deficient and somehow not fully or authentically Māori. It is noteworthy that this sort of cultural deficit ruler is not run over any other ethnic category by any other government agency.

Lastly, Te Puni Kōkiri also employs other binaries in its use of the conceptual terms of Māori communities and the Māori economy, again based on a tacit implication that these are meaningfully discrete, clearly defined categories.

#### **Ethnic essentialism in the briefings**

Essentialism is the notion that groups of people have unique defining characteristics which only they possess, and which make up their essence, differentiating them and allowing categorising them into groups. Explicit idealised essentialising views of the Māori ethnic category are scattered throughout the briefings. For example, Te Puni Kōkiri mentions the 'unique characteristics of the Māori population,'

the 'particular and innate responsibilities that come from "being Māori"' and 'elements that are uniquely important – to whānau and to Māori' (Te Puni Kōkiri, 2023, pp.38, 36, 24). Essentialism also comes from other agencies. The Public Service Commission mentions the 'unique [Māori] relationships with lands, waters, and biodiversity' (Public Service Commission, 2022, p.22), Culture and Heritage identifies 'the unique cultural and spiritual connection iwi/Māori have to whenua' (Manatū Taonga, 2023, p.49), and Internal Affairs asserts that 'Māori are active participants in community life, with marae at the centre' (p.18). Finally, Treasury notes that 'Māori have an enduring connection with their ancestral lands' (Treasury, 2021, p.35).<sup>5</sup>

nature via creation of the perception that the group is further uniquely defined by a shared average outcome dimension, associated with their common ethnic category.

#### **Discussion**

In their assessment of long-term insights briefings, Menzies, Jackson and Boston (2024) find a general lack of cross-departmental coordination and consistency. Agencies' treatment of ethnicity and other socio-demographic categories is more consistent, but also quite problematic. Overall, ethnicity receives a disproportionate focus in the briefings, yet the concept is treated as self-evident, and its manifold limitations remain unexplored. Briefings tend to reduce

The public service treatment of ethnicity in the briefings can be seen as a form of strategic essentialism, a notion arising out of post-colonial theorising.

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However, the only thing that is unique about people in any ethnic category, including Māori, is that they ticked a particular ethnic box and were allocated to that ethnic category by a statistical algorithm. A thought experiment is salutary here: replace 'Māori' with the European or Asian ethnic categories in versions of these quotations and consider how it appears. For example, phrases like 'the innate responsibilities that come from being European' or the 'unique relationship which Asians have with education' reveal the essentialism and stereotyping uncritically employed by the public service with regard to Māori people.

Further essentialism comes in the widespread conflation of individual people in ethnic (and other) categories with actual communities. Lastly, a repetitive focus on average outcome differences between ethnic categories and the neglect of any consideration of in-group variances, which many of the briefings do, is essentialist in

salient outcome variations to average ethnic category differences. With ethnic categories, variation is further reduced in most briefings to comparisons between Māori, Pacific and the largely invisible others who fall into the European and Asian categories. There is consequently a disproportionate focus in most of the briefings on macro-differences between a limited set of ethno-binaries. Human commonalities and the complex webs of micro-connections between people are not considered or even acknowledged. Ironically, a more connective approach is consistent with a traditional te ao Māori world view, where whakapapa is a central organising concept. At least in the case of treatment of ethnicity, rather than the general conformity on offer, perhaps a greater degree of inter-agency intellectual diversity, reflecting serious thought, might be encouraged in the future.

As Gillespie, Howarth and Cornish (2012) point out, 'social categories simplify



the social world, homogenising intra-group differences, accentuating differences between groups and are resistant to falsifying evidence'. That's a good description of the briefings. The public service treatment of ethnicity in the briefings can be seen as a form of strategic essentialism, a notion arising out of post-colonial theorising. Under strategic essentialism, '[a]ssertions of profound difference are evoked to achieve political recognition and the redistribution of authority and resources' (Hoskins, 2012, p.85). An economist would readily

making and conduct of an agency with politicised expectations that detract from independence' (Doole, Stephens and Bertram, 2024, p.50). Culture capture regarding ethnicity is arguably observed in the briefings.

If re-legitimisation of the briefings were to take precedence, how might it be done? A place to start for the public service is simply acknowledging the problem. Does the essentialist treatment of ethnicity and the absolute and relative neglect of other socio-demographic differences meet the statutory requirements of public servants

balanced emphasis needs to be placed on other socio-demographic differences in the New Zealand population, including differences in socioeconomic position and their future implications.

The public service also needs to be far more cognisant of the limits and the risks for understanding of categorisation of people into ethnic and other social categories, including risks of endorsing a society revolving around unproductive rent-seeking. Further, an unnuanced use of common-sense ethnic categories in briefings doesn't only reflect, but also creates and legitimises these categories. This endogeneity means an extra layer of care needs to be taken by impartial and politically neutral public servants in the analytic utilisation of such categories.

Human differences exist and some of these differences correlate (although often less strongly than many people think) with various macro, including ethnic, categories. There are typically both differences between (but not always) and within (always) ethnic categories, and consequently also similarities between people in different ethnic categories. The degree of that balance is not a matter of opinion, it is a fact which can be empirically established. Focusing only on group difference and ignoring similarities offers New Zealanders a fundamentally misleading picture of our society and is thus a poor evidential basis for policymaking. Consequently, when reporting on average ethnic category differences, public servants should present data on in-category variances and between-category overlaps and discuss *both* commonality and difference. Additionally, basic social science cautions should always be made that any correlation or average difference between a socio-demographic category and an outcome is not necessarily evidence of a causal relationship running from category to outcome.

Furthermore, human commonality and micro-connections between humans exist and in many cases are arguably more significant and important than macro-differences. These connections therefore need serious consideration in briefings. Their analysis means taking a far more whakapapa- or relationally based approach to these matters than do the first wave of briefings.

## The public service ... needs to be far more cognisant of the limits and the risks for understanding of categorisation of people into ethnic and other social categories, including risks of endorsing a society revolving around unproductive rent-seeking.

recognise strategic essentialism as supporting unproductive rent-seeking activities. Strategic essentialism is a strategy commonly employed by ethno-political activists. Thus, questions should be asked of the public service about whether their briefings' endorsement of strategic essentialism fulfils their explicit statutory obligations under the Public Service Act 2020 to be impartial. Questions also consequently arise about whether the approach is consistent with the broader statutorily endorsed principle for public servants 'to act in a politically neutral manner'. If, by apparent acceptance of strategic essentialism, the briefings are consequently neither impartial nor politically neutral, public trust in and legitimacy of the briefings are directly undermined. The broader legitimacy of the public service is also reduced.

In another recent *Policy Quarterly* article, Doole, Stephens and Bertram identify a form of government capture which they describe as 'culture capture', summarised as 'influencing decision

to be impartial and politically neutral? If the answer is no, and it is difficult to see how it could be otherwise, then an analysis of why the problem has arisen is necessary. What shared structural features of agency organisations give rise to the apparent lack of thought-diversity in the agency briefings in their treatment of socio-demographic categories and their apparent partiality and non-neutrality?

Moving forward, agencies need to consciously avoid making essentialising claims about any ethnic or for that matter any other social category. Moreover, rather than a primary focus on Māori and a secondary focus on Pacific categories, agencies need to report on the fullness of ethnic binaries, including those which are largely currently invisible.

Greater consideration also needs to be given by the public service to New Zealanders identifying in multiple ethnic categories and the extent to which this broadens our understandings of human identity, as well as analysing its current and future implications. More widely, a

A particular issue here is the habit of many agencies of referring to some social categories as discrete ‘communities’, implying a strong degree of in-group homogeneity (e.g., the ‘disabled community’, the ‘Asian community’, the ‘LGBTQI community’ etc.) and out-group difference. No serious analyst would discuss the ‘European community’, the ‘male community’ or the ‘university-educated community’. Where possible, blanket assertions that social categories are communities should be avoided unless

supported by powerful independent evidence that a category actually constitutes a community. In most instances, the alternative, neutral word ‘people’ readily and accurately suffices.

- 1 ‘Social class’ was tried as a term and yielded no results. ‘Rainbow’ and ‘LGBT’ and variants were also tried and yielded only a minor handful of results. Consequently, these are not further reported on.
- 2 Interestingly, the Ministry for Pacific Peoples has announced that its 2025 briefing ‘seeks to address the gap in our understanding by looking at the experiences of people who identify as both Māori and Pacific individuals’, who it puts at 20% of the Pacific population in the 2023 census (Ministry for Pacific Peoples, n.d.). The larger proportion – about 25% of Pacific people – who identify also in the European category in the census are invisible, as are other Pacific ethnic non-binaries. The agency has apparently made a choice to concentrate exclusively on connections with the Māori

ethnic category rather than broader Pacific social connections. The motivation behind such a choice is unclear from the consultation document, but is consistent with the overall narrow Māori/Pacific focus in the 2023 briefings and the focus on Māori/Pacific difference from the majority European category.

- 3 Somewhat confusingly, Tibble and Ussher (2012, p.11) describe this three-generation form as a nuclear family. A nuclear family is usually defined as two generations – mum, dad and the kids.
- 4 See the Excel data downloadable at <https://www.stats.govt.nz/information-releases/te-kupenga-2018-final-english/>.
- 5 Similar essentialising claims are made on behalf of Pacific people by the Ministry of Pacific Peoples. For example, ‘For Pacific peoples, data represents the tangata (a person), ‘āiga (family), or community, from the past and the present’ (Ministry for Pacific Peoples, 2023, p.6). There is insufficient space, however, to examine this issue in detail in a Pacific context.

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# Evidence-Based Policymaking and Public Management emerging empirical approaches

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## Abstract

This article demonstrates how emerging data sources and analytical tools can be applied to better understand evidence-based policymaking and its relationship to public sector capabilities. By analysing policy documents and their citations, we show how these methods can explore uses of evidence in policy processes, highlight gaps in knowledge integration, and evaluate the balance between local and international research inputs. Using New Zealand environmental policy as a case study, we show how these tools may be applied to complex policy areas, with broader implications for public sector decision making.

**Keywords** evidence-based policymaking, research–policy interface, knowledge flows, environmental science, policy citations

Evidence-based policymaking is widely seen as a way to improve the quality of government decisions by grounding them in research and empirical analysis. The idea is straightforward: rather than relying on political intuition, ideology or tradition, policymakers should turn to systematic evidence to guide their choices. However, evidence must be interpreted, weighed against competing interests, and translated into actionable policy, and even when high-quality research is available, policymakers face institutional, political and practical constraints that shape whether and how it is used. As such, effective evidence-based policymaking depends crucially on the analytical capabilities and institutional capacities of the public sector, so understanding and measuring how evidence is actually used can directly inform efforts to support these capabilities.

In practice, evidence-based policymaking takes several forms. For example, it can be evaluative in nature: which policies worked and which did not? Other modes are more forward-looking, such as those that focus on compiling advice and policies in a more exploratory

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fashion: what form should new policies take? For the purposes of this article, all forms of evidence-based policymaking are formulated based on information available to the policymaker – the ‘evidence’.

Now, the phrase ‘information available’ is doing a lot of heavy lifting here, and its definition is crucial to understanding New Zealand’s evidence-based policymaking landscape. First, this information should typically include retrospective analysis in the domestic context. Second, New Zealand policymakers are rarely the first to think about implementing a particular policy; we often have access to a wealth of academic and policy research in international contexts that speaks to potential impacts. Finally, policymakers can commission research from experts to fill any obvious gaps in their understanding. This latter source of information is vital to provide insight into how policy may interact with New Zealand-specific social, cultural, economic or environmental contexts, and even more so in policy domains of high complexity and uncertainty, and when conditions can rapidly change (Saul et al., 2013; Head and Alford, 2015; Manning et al., 2015).

Despite its appeal, evidence-based policymaking is often misused. Sometimes this is innocent: policymakers may lack the technical expertise to assess the reliability of competing studies (Newman, Cherney and Head, 2017), or may otherwise be pushed towards expediency rather than rigour by various structural and political incentives and constraints (Lindblom, 1959). However, a guise of evidence-based policymaking can also be used as a weapon to implement politically motivated policy change, whereby research is selectively used to justify decisions rather than inform them (Weiss, 1979; Strassheim and Kettunen, 2014; Parkhurst, 2017), sometimes referred to as ‘policy-based evidence-making’. Such practices are often easy to spot, such as citations of articles in predatory journals (Brandts-Longtin et al., 2022; Albert, Lalu and Grudniewicz, 2025). More pernicious variations include a ‘funding effect’ of support from policy agencies (Krimsky, 2012), the prioritisation of easily measurable outcomes at the expense of either harder to quantify but equally important factors (Sanderson,

2002), such as social equity or ethical considerations, or those that are only measurable at long time horizons (Lindblom, 1959; Boston, 2017).

This article addresses what we perceive to be a deep irony: while evidence-based policymaking proponents call for policy to be based on evidence, there is surprisingly little research on how evidence is actually used in policymaking. The result of this fact is that much of what we assume about evidence-based policymaking remains

#### The evidence for evidence-based policymaking

Here, we review the methods being used to study evidence-based policymaking in practice: that is, how can we quantify the input of research findings into policy decisions? Of course, the most direct way is to ask the decision makers. Surveys of this kind can provide useful insight into how policymakers perceive and use scientific evidence, including the barriers they face in accessing or applying it. While

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theoretical or anecdotal, with limited real-world validation outside of a small number of qualitative works. This lack of research leaves open questions on both the policy and research ends of the policymaking process: do policies informed by scientific evidence actually perform better than those driven by other considerations? Which types of research are most influential? To what extent do different government agencies rely on internal expertise versus external scientific research? Do co-production and co-design initiatives lead to more research-driven policy decisions? This short article does not answer these questions; instead, we aim to provide an introduction to new analytical tools and data sources that may be used to do so in the future. After briefly discussing the current state of empirical research on evidence-based policymaking practice, we explore the use of policy documents and their citations as a source of data for future research in this area. Finally, we demonstrate how this data is being used in practice, via initial explorations of environmental science policy that form part of a larger Te Pūnaha Matatini-funded research project.

such findings often lack generalisability in isolation, a recurring finding is that policymakers express strong support for evidence-based policymaking in principle, but often struggle to integrate this evidence into policy, for a variety of reasons (Oliver et al., 2014; Cairney, 2016). However, a key limitation of survey-based approaches is that they usually measure attitudes rather than behaviour. That is, policymakers may claim to use or perceive evidence in a certain way, but whether they actually do is another question.

To move beyond self-reported data and directly observe policymaker behaviour, some researchers have turned to experimental methods (Kertzer and Renshon, 2022; Haaland, Roth and Wohlfart, 2023). Such an experiment may, for example, test whether policymakers who receive well-designed, policy-relevant research are more likely to incorporate evidence into their decisions (Callen et al., 2020; Hjort et al., 2021; Lee, 2022; Toma and Bell, 2024). However, as one might imagine, experiments like this are extremely sensitive to the context in which they are carried out, and thus the results are often complex and nuanced. In the above



example, political alignment (Furnas, LaPira and Wang, 2024), cognitive biases (Banuri, Dercon and Gauri, 2019) and the timing of research dissemination (Rose et al., 2020) all influence whether and how evidence is used. As such, while experiments can provide valuable (and potentially causal) insights, design limitations mean they usually focus on immediately observable outcomes in relatively narrow domains, rather than broader patterns of institutional behaviour.

## ... the increasing availability of structured policy document datasets represents a major opportunity for assessing evidence-based policymaking from an empirical perspective.

A more recent approach, enabled by advances in computational tools and data collection, involves the systematic analysis of policy documents themselves. For example, resources like Overton (Szomszor and Adie, 2022) allow researchers to track how academic research is cited in government reports, white papers and legislative documents. Unlike surveys, which rely on subjective reporting, and experiments, which are often limited in scope, policy document analysis provides much more direct, if nuanced (Yu et al., 2023), evidence of research uptake. Most pertinently, policy documents are widely accessible and primarily composed of text, making them amenable to natural language processing: text provides data that is the basis of empirical analysis (Grimmer and Stewart, 2013; Gentzkow, Kelly and Taddy, 2019).

### Policy documents as data

Policy documents serve as both a record of government decision making and a reflection of the evidence that informs it, making them a valuable resource for studying the integration of research into policy. While policy documents contain non-textual elements such as graphs,

important takeaways from these elements are usually elaborated on within the text. Further, while the automatic extraction of quantitative insights from text is an established area of study (Ash and Hansen, 2023), doing the same for non-textual elements at scale is much more challenging and is a field in its infancy as a general tool (Davila et al., 2020; Farahani et al., 2023; Huang et al., 2024). As such, the remainder of this article will focus on the systematic extraction of information from the text

of policy documents for the purposes of developing a quantitative understanding of how research evidence is incorporated into policy.

The most explicit way to link policy documents to the evidence base on which they depend is to identify any citations they make to other documents. Such an exercise will result in a network of links between a given policy document and the broader literature in which it sits, which can include academic articles, commissioned reports and other policy documents (Bornmann, Haunschild and Marx, 2016; Szomszor and Adie, 2022). Of course, these cited documents may have links of their own to previous work, which link to others, and so on down the citation chain. The result of this iterative linking process is a large, complex web of connected ideas and the people who channel them (De Solla Price, 1965; Sorenson, Rivkin and Fleming, 2006; Phelps, Heidl and Wadhwa, 2012).

On top of this network structure sits metadata that describes the links and nodes (i.e., documents). In addition to the text of the documents themselves, this metadata includes authors, institutions and topics, from which we can derive a whole set of new citation networks between these

entities. That is, a citation between documents is also a citation between the authors, institutions and topics of those documents. These derived networks can provide insights into, for example, how central they are to the flow of information in the network (Burt, 2004; Sandström and Carlsson, 2008; Yan and Ding, 2009) or how the networks evolve with time (Barabási et al., 2002; Powell et al., 2005). Analysing the text around the citation can also give us context (Nicholson et al., 2021; Yu et al., 2023), such as when it refers to supporting evidence or a counterargument.

In sum, citation networks are very useful for understanding the flow of information in a system, and are amenable to the tools of network science (Coscia, 2021). As such, once this data structure is in place, we can start to ask targeted, domain-specific questions: which voices shape policy debates? Are certain perspectives or research communities systematically over- or under-represented in decision-making processes? Longitudinal analysis of citations in regular government reports offers another intriguing avenue for studying science–policy interactions, and such an analysis is demonstrated later in this article.

From a computational point of view, citation linkages are generally easy to identify. However, it is also possible to use other properties of documents to infer relationships, such as text similarity (Vijaymeena and Kavitha, 2016; Arts, Cassiman and Gomez, 2018). These methods are very useful for comparing the content of a small, predefined set of documents, but such comparisons can quickly become very computationally expensive. A common way around this problem is to use machine-learning methods to ‘embed’ or ‘project’ documents into a low-dimensional space wherein similar documents are closer in this space (Le and Mikolov, 2014; Devlin et al., 2018; Morris et al., 2023). Readers may be familiar with such projections in other contexts, such as the distillation of political views onto a two-dimensional ‘political compass’ on which distance reflects similarity in those views.<sup>1</sup> Notably, these techniques avoid many of the limitations of citations, such as the assumption that all citation links are meaningful.

Once documents are embedded, one can analyse them using spatial metrics, such as distance and density (Kusner et al., 2015; Shibayama, Yin and Matsumoto, 2021; Ganguli et al., 2024). Dynamic patterns in the output of authors or organisations can be studied within the space describing this evolving body of literature. For example, we may see the set of policy documents produced by two ministries start to become more or less similar over time as government priorities change.

In summary, the increasing availability of structured policy document datasets represents a major opportunity for assessing evidence-based policymaking from an empirical perspective. By applying new analytical techniques to these sources, we can start to move beyond theoretical discussions and begin systematically measuring how evidence is used in governance, while also uncovering the limitations of policy documents as data.

#### Exemplar: environmental science policy and greenhouse gas inventories

In this section, we will present examples from our research on environmental policy in New Zealand to illustrate the use of policy documents as a data source and its implications for public sector capabilities. We note that this policy area was chosen as this article is based on ongoing work within a larger Te Pūnaha Matatini-funded project with this focus. The base data for the following analyses is Overton, a large database of citations made by policy documents to both science and other policy documents. We collected from this database 1,406 policy documents (hereafter ‘base documents’) published between 1998 and 2023 by three New Zealand governmental institutions working on topics related to environmental policy – the Ministry for the Environment and the parliamentary commissioner for the environment (hereafter ‘base institutions’). This triad captures the enhancement of outputs of the primary industries, policies monitoring and regulating environmental impacts, and the independent ‘watchdog’ agency charged with reporting on the management of the environment. In addition to citations made by these documents, we also obtain the

publication dates, titles and sources of those cited documents, resulting in a rich dataset with which to start to measure the policy and science diets of these three institutions that are used to develop their public policy. We shall look at the characteristics of policy and science citations in turn.

#### Citations to policy

In total, our base documents cite 1,701 other policy documents, which we can dissect to obtain insights into the sources policymakers turn to for information. These insights are presented below as a series of stylised facts, the implications of which we will discuss thereafter.

First, Table 1 shows that each institution makes many citations to other documents that they produced, and to documents produced by either of the other two environmental policy institutions: 40% of all citations fall into one of these categories, and primarily the former. This is not surprising: one would expect New Zealand’s new environmental policy to

build on (or at least reference) existing New Zealand environmental policy.

Interesting patterns exist among those citations made between institutions, however, with the Ministry for the Environment citing many parliamentary commissioner for the environment and Ministry for Primary Industries documents, but receiving very few in return. These patterns are displayed in Table 2. Indeed, the Ministry for the Environment is not even among the top 20 most cited sources of the other two: knowledge flows into the ministry but does not appear to flow out, at least according to the citation record.

Second, 60% of the cited policy documents do not originate with our base institutions. We will group these other institutions according to country and type. The bulk of the cited institutions in this set are intergovernmental organisations (IGOs), such as the Organisation for Economic Co-operation and Development (OECD) or the Intergovernmental Panel on Climate Change (IPCC), producing

**Table 1: Unique citations to other policy documents according to country and type**

Country	Type	No. of docs	No. of DOIs cited	DOIs per doc.
IGO	IGO	373 (43.4%)	95072 (88.2%)	254.9
New Zealand	Government	137 (15.9%)	2061 (1.9%)	15
USA	Government	68 (7.9%)	2135 (2.0%)	31.4
UK	Government	49 (5.7%)	807 (0.7%)	16.5
USA	Think tank	47 (5.5%)	1359 (1.3%)	28.9
New Zealand	Think tank	46 (5.4%)	474 (0.4%)	10.3
EU	Government	37 (4.3%)	977 (0.9%)	26.4
UK	Think tank	19 (2.2%)	199 (0.2%)	10.5
France	Think tank	17 (2.0%)	2538 (2.4%)	149.3
Australia	Government	17 (2.0%)	526 (0.5%)	30.9

Note: digital object identifiers (DOIs) are unique codes that link to specific digital objects; for our purposes, these refer to published academic research (including preprints).

**Table 2: Top ten most cited policy sources, by institution**

Ministry for the Environment		Ministry for Primary Industries		Parliamentary commissioner for the environment	
MfE	486 (39.7%)	MPI	144 (31.2%)	OECD	25 (20.0%)
OECD	69 (5.6%)	WHO	52 (11.3%)	PCE	19 (15.2%)
WHO	52 (4.2%)	FAO	28 (6.1%)	IPCC	11 (8.8%)
PCE	51 (4.2%)	DOC	18 (3.9%)	Treasury	7 (5.6%)
EPA	42 (3.4%)	IPCC	17 (3.7%)	CCC <sup>1</sup>	6 (4.8%)
DOC	38 (3.1%)	Motu	15 (3.3%)	OP EU <sup>2</sup>	6 (4.8%)
Motu	37 (3.0%)	MOH	12 (2.6%)	UNEP	5 (4.0%)
Treasury	34 (2.8%)	FSANZ <sup>3</sup>	11 (2.4%)	WHO	5 (4.0%)
IPCC	33 (2.7%)	OECD	10 (2.2%)	IUCN <sup>4</sup>	4 (3.2%)
MPI	32 (2.6%)	IUCN	9 (2.0%)	IEA	3 (2.4%)

<sup>1</sup> Climate Change Commission <sup>2</sup> Publications Office of the European Union <sup>3</sup> Food Standards Australia New Zealand

<sup>4</sup> International Union for Conservation of Nature

43% of all cited documents not originating with our base institutions. A further 16% cite documents produced by other New Zealand government institutions, such as the Department of Conservation or Treasury. Policy produced by foreign government organisations make up 22%, while independent organisations such as Motu produce the remaining 18%.

We can also compare the policy citations across the three institutions to highlight obvious differences and similarities. For example, the OECD is the most cited non-base source of policy information for the parliamentary commissioner for the environment (20%) and the Ministry for the Environment (5%), but is only the ninth most cited non-base source for the Ministry for Primary Industries (2%). Perhaps unsurprisingly, the Food and Agriculture Organization of the United Nations (FAO) is the second most cited non-base source for

the Ministry for Primary Industries (6%), but very rarely cited by the other two base institutions. Some sources, like the IPCC and the World Health Organization (WHO), are frequently cited by all three institutions.

Altogether, these results provide an overview of knowledge influences and potential sharing across governmental agencies in New Zealand and their relationship to other international authorities, highlighting the capabilities and specialisations across these institutions. They also provide a good sanity check for the use of citation data in the first place: the relative ranking of different policy knowledge sources appears to make intuitive sense.

The simple explorations above reveal the potential for a network-analytic approach to studying public management. Understanding how knowledge flows around a policy system and how to measure

these flows in a useful way can, for example, highlight unexpected gaps in knowledge transfer between government agencies or identify central actors in this knowledge exchange network.

We also note that knowledge flow in policy networks is a chronically understudied topic, at least from an empirical standpoint; even with policy citation data in its infancy, most research that uses this information is focused on ties between policies and published science. While these links are important, we suspect that they are less likely to have influenced the direction of policy than other policy documents or commissioned research: this is a topic of ongoing research within the larger project of which this article is a part. We now describe basic patterns in the published science cited by our base institutions.

**Table 3: Top ten most cited journals and institutions (all base institutions, unique citations)**

Journal		Institution	
<i>New Zealand Journal of Marine and Freshwater Research</i>	910 (27.6%)	NIWA	957 (0.28%)
<i>Journal of Food Protection</i>	486 (14.7%)	University of Auckland	470 (0.14%)
<i>Marine Ecology Progress Series</i>	281 (8.5%)	University of Otago	449 (0.13%)
<i>International Journal of Food Microbiology</i>	274 (8.3%)	Manaaki Whenua	259 (0.08%)
<i>Science</i>	262 (7.9%)	University of Canterbury	258 (0.08%)
<i>Applied Environmental Microbiology</i>	241 (7.3%)	AgResearch	257 (0.07%)
<i>Chemosphere</i>	223 (6.8%)	Massey University	214 (0.06%)
<i>Science of the Total Environment</i>	208 (6.3%)	Victoria University of Wellington	207 (0.06%)
<i>Marine Pollution Bulletin</i>	208 (6.3%)	Ministry of Health	201 (0.06%)
<i>PLOS One</i>	204 (6.2%)	Lincoln University	166 (0.05%)

**Table 4: Top ten most cited countries**

Country	Unique institutions	Unique DOIs	Unique citations per institution
United States	1042	4780	4.6
New Zealand	76	4118	54.2
Great Britain	301	1586	5.3
Australia	161	1421	8.8
Canada	126	825	6.5
Germany	179	539	3
France	233	484	2.1
Netherlands	66	464	7
Spain	136	463	3.4
Japan	151	430	2.8

### Citations to science

The pathways between research and policies are complex, and citation data offers several perspectives on these pathways. We can look at the published research that is directly referenced by the base institutions, and Overton identifies 23,252 unique digital object identifiers (DOIs) (which act as identifiers for published research) cited in this way. However, research is often embedded in other policy documents. This is particularly true for documents produced by IGOs: if we only look at those IGO policy documents cited by the base institutions, we find over 92,000 unique DOIs cited. Indeed, IGO policy documents cited about 16 times more published science than the average base document: most of the science that is being incorporated into New Zealand policy actually comes indirectly via external policy references.

Despite the volume citations made by the IGO documents, most of the science cited by the base institutions is not duplicated from those documents. This implies that there is significant complementarity between the knowledge they source directly and that coming indirectly from the IGOs. Indeed, compiling a comprehensive evidence base for decision making is costly, so it pays to source it from other policy relevant institutions. However, there are unique social and cultural features

of New Zealand that are likely to be outside the IGO's field of view, so local agencies may need to source additional evidence to ensure policy relevance for a local context. Such an arrangement represents a sensible division of labour, given the limited resources for policymaking in the New Zealand context.

So, where do New Zealand environmental policymakers source their knowledge from? We link Overton's extracted DOIs to an open bibliometric database, OpenAlex (Priem, Piwowar and Orr, 2022), to obtain metadata for these articles to map these sources. Aggregated statistics for all citations from base documents at the journal, institution and country level are displayed in Tables 3 and 4.

Contrary to what one might expect based on the local 'context' argument above, the plurality of citations made by the base institutions are to US-based researchers, though New Zealand researchers are a close second. This is perhaps unsurprising, given the sheer volume of research produced by the United States, and, all else equal, any given research article from New Zealand is still far more likely to be cited than articles produced elsewhere. Further, this finding is partially an artefact of the research/policy document dichotomy in the Overton database; four of the five most cited US institutions are actually government agencies publishing in peer-reviewed journals. However, none of these institutions crack the top ten most cited institutions by the base institutions – these are all New Zealand-based, highlighting the importance of local sources of scientific knowledge for environmental policy.

Beyond aggregated statistics across all base documents, we can also compare information sources between the three base institutions. One way to do this is to simply look at the overlap of the academic journals, researchers and institutions cited by each of these institutions. Because each of these entities is often relatively specialised, such an analysis may provide insight into the academic domains from which research evidence is being sourced.

Figure 1 shows the results of this analysis. We find that there are strong correlations between the journals and institutions cited by the Ministry for the Environment and the parliamentary commissioner for the

Figure 1: The shares of (A) journals, (B) institutions and (C) authors cited by the institution shown in the row labels (left), that are also cited by the institution shown in the column labels (bottom)  
For example, 48% of journals cited by MfE were also cited by MPI, and 36% of those cited by MPI were also cited by MfE





environment, but the Ministry for Primary Industries' sources are more distinct. This finding makes complete sense, as it reflects the overlap in policy domains under the remit of each of these institutions. The same pattern of overlaps (or lack thereof) is found at the cited researcher level, noting that researchers cannot produce papers at the same rate as an entire journal or institution, and thus citations are spread more evenly across researchers.

Combined with the differences in policy sources referenced by each institution, we can start to build a picture not only of the knowledge sourcing practices of individual government agencies, but also of complementarities in these knowledge sources and the potential for more efficient sharing of knowledge and inter-agency collaboration. Similar ideas have been explored extensively in other contexts, such as technological change (Hidalgo et al., 2007), industrial policy (Foray, 2014) and scientific research (Larivière et al., 2016). The wealth of information becoming available in the policy domain makes it possible to lean on this prior work to map knowledge flows both within policy circles and across the science-policy interface. We are optimistic that such a map could provide insight into improved knowledge management practice between and within government agencies to enable efficient evidence-based

policy-making, and, ultimately, enable these agencies to make the best policy decisions possible with the resources available.

#### Longitudinal opportunities: greenhouse gas inventories

One possible strategy to cut through the noise brought by the different publication and citation practices among the policy documents in the sample is to zoom in and focus more narrowly. We focussed on New Zealand's Greenhouse Gas Inventory (GGI), a well-referenced, annual publication parallel to those of other nations meeting requirements of the United Nations Framework Convention on Climate Change (UNFCCC). The national GGI reports serve a clear purpose, documenting emissions in ways that can support emissions-reduction policies.

Thus, the GGI offers a recurrent publication with consistent periodicity and citation standards. It offers a well-structured reference list from which most off-the-shelf reference extraction algorithms can extract citations to a high degree of accuracy.

For the purpose of this demonstration, we identified 16 GGI published by the New Zealand Ministry for the Environment from 2005 to 2020, from which we can extract citations and quantify dynamics of knowledge inputs over this period. Noting that most citations are carried over between

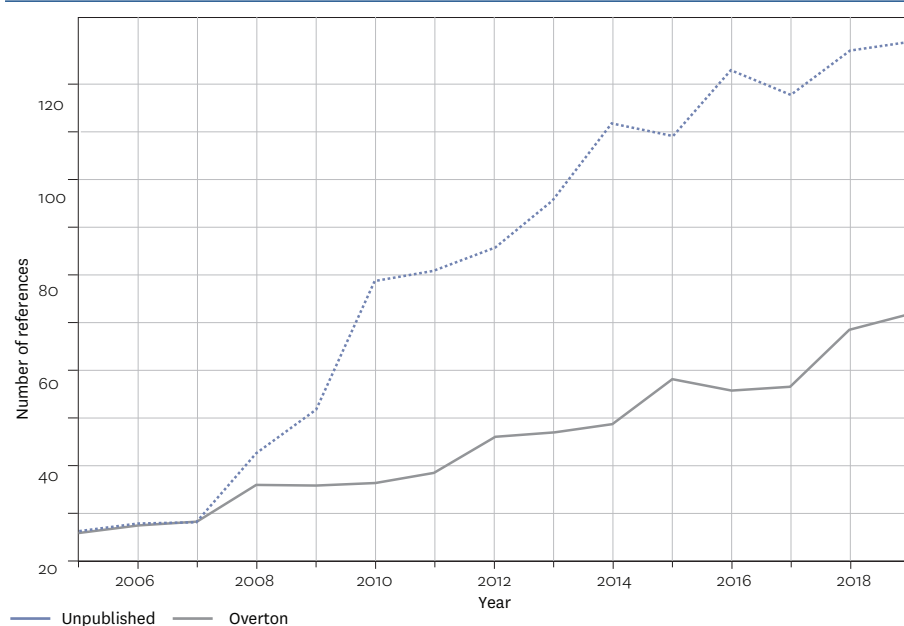
subsequent reports, dynamics that are easily studied include the number and diversity of scientific sources, the prevalence of new sources, and the longevity of cited evidence. A convenience of the New Zealand GGIs is that they are in an analytical 'sweet spot': they provide enough data to run various informative quantitative analyses, yet are small enough for their accuracy to be entirely manually validated in a timely manner.

While our focus lies in the New Zealand corpus, another advantage of using the GGIs is that they offer the opportunity for direct international comparison under a standardised reporting framework. That is, since the publication of GGIs is an obligation under the Paris Agreement, there are equivalent documents published by other countries, each with their own set of citations to science. The UNFCCC library provides access to annual reports back to 2003 from over 40 countries. Cross-country comparisons can, for example, measure the similarity between citations (or the dynamics thereof) across countries, or even how often one nation sources from the other, perhaps offering a window into the quantification of international policy knowledge spillovers.

The GGIs are usually several chapters long, and each chapter has a reference list with at least 20 publications, yet Overton retrieves only 84 unique citations to published science and 36 unique citations to policy. This is less than expected for such a science-dependent set of documents. The reason for this is that much of the science input into these reports is commissioned, and these commissioned reports are often not published, even in the ministry's digital library. When they are published, there is no formal link from these publications back to the report for which they were commissioned. Figure 2 displays the number of unique citations made by each GGI in the corpus, split by their presence in Overton (i.e., whether they have been formally published) as a function of time; most citations are unpublished and thus not present in bibliometric databases.

In other words, for the majority of citations in the GGIs, all we can know about them is what we are able to garner from the citation and its associated entry in the reference list. Fortunately, we are able to use semi-automated tools to mine and retrieve as much information as possible

**Figure 2: References cited in each annual GGI report divided between those Overton matched to a DOI (grey), indicating formally peer-reviewed journal articles and similar, versus references to reports that we classify as 'unpublished' or 'commissioned work' (dotted blue line)**



about the authors and institutions responsible for the unpublished commissioned work; this work is ongoing within our broader research programme. Preliminary results from this exercise suggest that consistent commissioning of work from a set of experts within New Zealand effectively supports GGI-related policies, while also raising questions about the dependence of GGIs on grey-literature reports that remain difficult to link to more formal and systematic publications.

Such practices have clear implications for the reliability and transparency of the government's evidence-based policymaking processes in general, especially when those who set policy are also able to choose the experts who inform it. Further, while the ability to commission work that is timely and informed by local contexts is extremely valuable and should be part of effective evidence-based policymaking, these commissions and their scope have been carefully tailored to the requirements of the policymaker, which opens the door to policy-based evidence making. Finally, commissioned work is often carried out by organisations that have their own financial incentives and relationships to actors who may be affected by the policies under consideration. Even if we assume that the resulting research is of the highest quality, the fact that policymakers are able to choose the research that is commissioned – and what is not – is certainly a concern when the majority of the research informing policy is sourced in this way. These problems do not have straightforward solutions, but we suggest that independent reviews of major policy documents are a good first step. Incidentally, such a practice is already enshrined in the UNFCCC in the case of GGIs,<sup>2</sup> which may constitute a model on which to build more transparent evidence-based policymaking in other policy areas.

#### Limitations of policy citation data

While citations extracted from policy documents clearly have some informational value, they also have many limitations, some inherent and some that may be overcome in time.

The inherent limitations are primarily due to the data generation process: that is, citation practice within government. There are several ways in which this affects the data available, including inconsistent

citation practices, motivated citation, and lack of access to resources. In short, mechanisms that determine what is cited (and what is not) are generally opaque, and this fact places a natural limit on the informational content of citations.

However, there are also limitations that can be addressed with further research, standardisation and technological advances. These limitations currently place restrictions on the kinds of research that can be undertaken, at least in a systematic way. For example, the accessibility of policy documents varies by country, which hampers international comparisons of

documents that cite more than 100 DOIs were published by the Ministry for Primary Industries, many of which are serial reports such as fish assessment reports, aquatic environment and biodiversity annual reviews, and risk profiles related to potential food contaminants. Indeed, citations made by these series lead directly to the *New Zealand Journal of Marine and Freshwater Research* and the *Journal of Food Protection* being the top two cited journals across all base documents (Table 3).

Other limitations are more technical, such as those related to the automated extraction of the citations from the

There is ... inconsistency in the different types of documents produced by agencies, which can make it difficult to determine what counts as 'policy', and how to weigh the importance of a three-page briefing against a 200-page annual report.

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knowledge sourcing for policy. Standardisation or centralisation of policy documents (as implemented in the United Kingdom, for example, via <https://www.gov.uk/>) can partially address this issue.

Accessibility of policy documents also varies drastically between government agencies in the same country, and New Zealand is no exception to this. Some agencies have central repositories for their policy documents, while others do not; further, some agencies that have central repositories do not add all their policy documents to that repository or do so in a timely manner. There is also inconsistency in the different types of documents produced by agencies, which can make it difficult to determine what counts as 'policy', and how to weigh the importance of a three-page briefing against a 200-page annual report.

Empirical complications are also myriad. For example, there exist obvious statistical outliers in the citation data: 70% of the base

documents. This process is complicated by differences in citation style, whether a bibliography is present, citations only found in footnotes, etc. Finding solutions to these issues is mostly up to the data providers – the scale of extraction at the global level presents unique challenges.

Finally, one limitation stands out as being inherently problematic and particularly relevant to the New Zealand context: commissioned research. These documents do not have a DOI and thus cannot be linked to standard bibliometric databases and their rich metadata. Further, most are not accessible to the public. These documents cannot be ignored, however, as they represent key evidentiary inputs into the policymaking process and the most direct interactions between researchers and policymakers, while often also making up a large fraction of the citations made in the resulting policy document. When these commissioned reports are co-produced by researchers and

policymakers, we also miss valuable and increasingly common interactions that do not neatly fit a linear model of policymaking (Strassheim and Kettunen, 2014).

In summary, while policy documents contain much valuable information about the research that informs them, we must be aware of and account for their numerous limitations. For researchers, this means transparency about analytical methods is vital to ensure appropriate and consistent interpretation of results. From a policymaking point of view, should governments want to make the best use of their policy documents as a tool for evaluating policy development, accessibility of these documents and some minimal standardisation of citation practice would make extraction and analysis of data significantly easier and more reliable.

#### Looking forward

Tools such as Overton make efforts to follow the use of evidence in policymaking dramatically more transparent. This matters in areas of complex evidence, such as environmental science, which may require input from many disparate fields of

research and cross-agency collaboration. Our preliminary analyses find that patterns of policy citations vary widely between public environmental policy agencies in New Zealand, in ways that suggest that evidence-based policymaking can be made more uniform, transparent and effective. The Greenhouse Gas Inventory reports provide a case study detailing the imperfect process of weighing and improving the quality of evidence while limiting sources of bias, and may serve as a model for other policy challenges. This model may also be used to understand the use of evidence in policy domains that experience more unstable and contested policy cycles, such as freshwater management, and also for larger-scale analyses to assess the historic role of new public management in the evolution of public sector capability in the context of knowledge sourcing.

Further, the variation in citation patterns across different government agencies (see, e.g., Figure 1 and Table 2) might reflect genuine differences in policy domains; however, these differences also raise the possibility of sector-specific biases or even regulatory capture. While our quantitative analysis alone cannot confirm such biases, it

suggests that complementary qualitative investigation is warranted to assess decision-making processes surrounding the search for, and citation of, relevant evidential inputs into evidence-based policymaking, particularly to determine the extent to which this search is framed by predetermined policy positions.

Current and future work within the present research programme explores the extraction and use of grey literature citations (i.e., commissioned research) and applies network analytic tools to policy citation networks to explore the flow of knowledge at the science–policy interface in detail. We also note that new tools, such as the New Zealand Research Information System that is currently in development, will significantly augment the amount of information available to understand how policy-relevant knowledge is produced in New Zealand by linking this knowledge production to research funding, and make transparent the valuable social contributions of the researchers who undertake this work.

<sup>1</sup> For example, <https://votecompass.tvnz.co.nz/>

<sup>2</sup> <https://unfccc.int/resource/docs/cop8/07a02.pdf#page=15>

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Natalie Blackstock, Dyanna Jolly  
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# Pussyfooting Around? Companion cat by-laws in Aotearoa New Zealand

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## Abstract

Cats have a significant impact on Aotearoa New Zealand's biodiversity. While national legislation can help reduce the impacts of feral and stray cats, managing companion cats is more complex due to bonds between cats and their owners. Local councils can use by-laws to regulate companion cats, although it can be difficult to gain widespread public acceptance. This research analysed public submissions from five New Zealand councils to gain deeper insight into community attitudes towards cat control by-laws and consider the potential role of national standards. The submissions indicated that the majority of submitters supported by-laws, although regional differences suggest the need for localised approaches.

**Keywords** by-laws, cat legislation, cat management, cat predation, responsible cat ownership, cat welfare, conservation management, public consultation, public engagement, policy design

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Cats are the most popular companion animal in New Zealand, with 41% of households owning at least one cat, and over 1.2 million companion cats nationally (CANZ, 2020). Additionally, there are approximately 200,000 stray cats and an estimated 2.4 million feral cats (Donnell, 2021). Cats of all relationship types (companion, stray and feral) threaten native biodiversity, cause public nuisance by damaging private gardens through defecating and spraying, and can transmit diseases and parasites such as *Toxoplasma gondii* to humans and wildlife (Bassett et al., 2020; Farnworth, Campbell and Adams, 2011; Glen et al., 2023; Kays et al., 2020; Loyd and Hernandez, 2012; National Cat Management Strategy Group, 2020; Read, 2019; Sumner, Walker and Dale, 2022).

While all cat types have significant ecological and health impacts (Bassett et al., 2020; Glen et al., 2023; Howe et al., 2014; Read, 2019; Roberts, Jones and Roe, 2021; Roe et al., 2017), due to the density of companion cats in urban areas, they collectively kill 28–52 times more animals

per square kilometre than feral cats<sup>1</sup> living in urban environments (Legge et al., 2020). The average home range of a companion cat is 3 hectares, although this range can increase for cats living near natural areas such as wetlands and reserves to a maximum of 6.8 hectares (Kikillus et al., 2017; Metsers et al., 2010; Thomas et al., 2014). The large home range size and ecological impacts of cats poses a problem for New Zealand as, thanks to conservation efforts, populations of threatened species such as kākā and kākāriki are increasing in cities like Wellington and Dunedin (Ballance, 2018; Concannon, 2021). Cat predation has a negative impact on these conservation successes. Cats also spread parasites, notably *Toxoplasma gondii* which sexually reproduces in cats and poses serious risks to humans, wildlife and livestock (Glen et al., 2023; Horn et al., 2011; Zhu, VanWormer and Shapiro, 2023). Native species such as kiwi, kākā, kererū and red-crowned kākāriki have tested positive for toxoplasmosis, as have marine mammals, including New Zealand sea lions and Hector's and Māui dolphins (Glen et al., 2023; Howe et al., 2014; Roberts, Jones and Roe, 2021; Roe et al., 2017; Taylor et al., 2023). Some of the kiwi tested were living inside the Zealandia ecosanctuary in Wellington (Taylor et al., 2023), demonstrating that cat impacts can spread into these predator-free areas. In livestock, toxoplasmosis can cause reproductive issues, and is costly to monitor and control, impacting the agricultural industry (Glen et al., 2023; Roberts, Jones and Roe, 2021).

In New Zealand, feral, stray and companion cats are managed under various policies. Feral cat impacts are addressed through the Wildlife Act 1953, Conservation Act 1987 and Biosecurity Act 1993. The Animal Welfare Act 1999 protects feral and stray cats from wilful or reckless mistreatment, prohibits abandonment, and outlines the responsibilities of cat owners (Sumner, Walker and Dale, 2022). In addition to these national frameworks, regional and district councils play a key role in managing cats at the local level. Stray cats are typically managed through regional pest management plans in regions like Auckland, Northland and Wellington. These plans may include restrictions on feeding or relocating stray cats, and, in

some cases, classify them as pests (SPCA, n.d.a, n.d.b). Companion cat management is primarily regulated through local by-laws, with clauses varying by region (Sumner, Walker and Dale, 2022).

Community consultation is a key component of developing these by-laws. By analysing the consultation processes and submissions, this research offers insights into local government capability in participatory governance and decision making. These processes also illustrate how councils navigate competing priorities – ecological concerns, animal welfare and community values – when shaping cat management policies.

Currently, 23 of the 78 regional, territorial and unitary councils in New Zealand have by-laws with cat-specific clauses. Five councils have by-laws that include the full suite of currently accepted cat management legislation: limiting the number of cats per household and requiring mandatory microchipping,

desexing and registration. Eleven councils solely limit the number of cats per household, while five councils have requirements for mandatory microchipping, desexing and registration but no limits on the number of cats. One council's by-law only includes limits on the number of cats per household and mandatory desexing, and one includes only mandatory microchipping and registration (Kikillus et al., 2017, Sumner, Walker and Dale, 2022; SPCA, n.d.a; SPCA, n.d.b; Selwyn District Council, n.d.). Public acceptance significantly influences which clauses are adopted: for example, Selwyn District Council removed desexing requirements after public feedback (Sandys, 2021).

Beyond reducing nuisance and supporting conservation, cat control by-laws provide animal welfare benefits for cats and their owners, while contributing to national cat management (Sumner, Walker and Dale, 2022). Desexing lowers

**Table 1: Territorial authorities and the cat management measures included in their by-laws**

Territorial authority	Desexing	Microchipping	Registration	Limits on number of cats per household
Buller District Council	✓	✓	✓	✓
Far North District Council*				✓
Hastings District Council				✓
Hutt City Council	✓	✓	✓	
Invercargill City Council				✓
Kaipara District Council				✓
Manawatu District Council	✓			✓
Marlborough District Council				✓
Nelson City Council	✓	✓	✓	
New Plymouth District Council				✓
Palmerston North City Council	✓	✓	✓	✓
Rangitikei District Council				✓
Ruapehu District Council	✓	✓	✓	✓
Selwyn District Council		✓	✓	
South Waikato District Council				✓
Taranua District Council	✓	✓	✓	✓
Tasman District Council	✓	✓	✓	
Wairarapa consolidated by-law**				✓
Wellington City Council	✓	✓	✓	
Whanganui District Council	✓	✓	✓	✓
Whangarei District Council	✓	✓	✓	

\* Far North District Council is undertaking a by-law review which proposes adding mandatory desexing, registration and microchipping of cats.

\*\* Adopted by the Carterton, Masterton and South Wairarapa district councils in 2019.

the risk of reproductive diseases, increases cat lifespan, curbs unwanted behaviours like urine marking, and reduces risks associated with roaming (ibid.; Kent et al., 2022). Nationally, higher desexing rates help prevent cat abandonment and relinquishment to shelters (SPCA, n.d.a; Sumner, Walker and Dale, 2022). Microchipping and registration improve the likelihood of reuniting lost cats with their owners: for example, following the 2011 Christchurch earthquake, 85% of microchipped cats were returned home within three hours, compared to just 25% of non-microchipped cats within seven days (SPCA, n.d.a).

Despite growing recognition of the ecological, health and nuisance impacts of cats, cat management remains locally controlled through council by-laws, resulting in inconsistencies across the country. This variation in regulations has led to calls for a more unified approach to cat management at the national level. In July 2023, Parliament's Environment Committee recommended developing a nationwide cat management framework requiring registration, desexing and microchipping, with exemptions as needed. Groups such as the SPCA, Predator Free New Zealand and the National Cat Management Strategy Group consider national cat legislation to be the best option to resolve discrepancies between each council's cat by-law requirements (SPCA, n.d.a, n.d.b; National Cat Management Strategy Group, 2020). Research suggests that a national strategy could balance the benefits of cat ownership with societal and environmental impacts (Walker, Bruce and Dale, 2017; Somerfield, 2019). However, in November 2024 the government shelved the proposed National Cat Act, indicating that nationwide cat management was not a priority. For groups such as the SPCA and Predator Free New Zealand, the government's inaction was a 'colossal missed opportunity' (Sharpe, 2024). Are councils to be left to tackle this issue alone, or is it time for the government to stop pussyfooting around and take action on cat management?

#### Research methodology

We collected submissions data from five councils: Palmerston North City Council, Selwyn District Council, Tasman District

Despite growing recognition of the ecological, health and nuisance impacts of cats, cat management remains locally controlled through council by-laws, resulting in inconsistencies across the country.

Council, Wellington City Council and Whangarei District Council. The five councils were chosen based on similarities in the cat management clauses in their by-laws, and their representation of different demographic and regional areas, such as urban, rural or an urban/rural mix. Because each council collected this data differently, a mixed-method approach combining qualitative and quantitative analysis was used to determine the common themes and significant regional similarities and differences among the submissions. Statistical analyses were conducted using R statistical software (v4.4.1). A binomial generalised linear model (Hothorn, Bretz and Westfall, 2008) was used to analyse the data, with a Holm's sequential Bonferroni procedure applied to account for conducting multiple tests on the same dataset. Most submissions were from the councils' original by-laws, except for Wellington City Council's, which were from the 2024 by-law amendment on mandatory desexing. A total of 2,725 submissions were analysed, with cat-specific submissions distributed as follows: Palmerston North City Council received 46, Selwyn District Council 289, Tasman District Council 408, Wellington City Council 580 and Whangarei District Council 1,402.

#### Results

Ten themes emerged from the analysis, highlighting the various issues around cat management and public views on by-law requirements. Some themes were more frequently commented on than others. Themes commented on in 20% or more of submissions in most regions were:

- nuisance;
- cost concerns;
- stray and feral cat management;
- containment/curfews;
- conservation/environmental concerns;
- by-law support.

Fewer than 10% of submissions in most regions commented on:

- human and livestock health concerns;
- toxoplasmosis risk to wildlife;
- benefits of cats;
- anti-regulation sentiments.

This article focuses on five of these themes, due to their implications for policy and management: by-law support, anti-regulation sentiments, nuisance, conservation and cost.

#### Theme 1: By-law support

All councils except Palmerston North surveyed residents on whether they would support the by-law or its clauses. While there was statistically significant regional variation in the by-law support theme, all regions showed majority support for cat by-laws. For this theme, free-text submissions were examined for support-related terms and combined with survey form data ('Comment' vs 'Box tick' in Figure 1). Wellington had the highest support at 96% of submissions, while Palmerston North had the lowest at 59%. However, the Palmerston North percentage may have been higher if submitters were directly asked if they supported the by-law, as shown by the increase in support for regions where survey form data was available. Palmerston North also had fewer submissions than other councils, with 46 cat-specific submissions, compared to Whangarei as the highest with 1,402 submissions. Statistically, Selwyn and Palmerston North had similar levels of support for by-laws, as did Tasman and Whangarei, indicated by the letters at the top of Figure 1.

#### Theme 2: Anti-regulation sentiments

Anti-regulation sentiments were analysed to determine why some submitters were

opposed to the by-laws. Frequently expressed comments were that the by-law was a 'revenue' or 'money making' exercise, 'anti-cat', a 'waste of time and/or money' and 'unenforceable'. Some submitters also felt that it should be their decision whether to desex, microchip or register their cat. There was significant regional variation among submissions on this theme, with Palmerston North, Tasman and Selwyn submitters expressing the highest percentage of anti-regulation sentiments, between 11% and 20%, while Wellington and Whangārei had the lowest at 1%.

### Theme 3: Nuisance

Nuisance-related issues were a high cause for concern in most regions, with examples of cats digging or fouling gardens, fighting and demonstrating 'anti-social cat behaviours'. Whangārei had the highest number of submissions tagged with this theme, at 79%, as this was the focus of a petition submitted by 1,092 residents, focusing on the nuisance and health impacts of stray and feral cats in the region. Other regions had moderately high percentages of nuisance-related submissions, with Selwyn at 38%, Palmerston North at 26% and Tasman at 18%, while Wellington had the lowest percentage at 5%.

### Theme 4: Conservation/environmental concerns

All regions expressed concerns about the environmental and conservation impacts of cats, with submitters often mentioning various native species and areas of conservation in their region. Whangārei and Tasman had the highest percentage of submissions with this theme at 40% and 36% respectively, followed by Selwyn (27%), Palmerston North (26%) and Wellington (23%). These submitters were all concerned about cats' impacts on native species within their region and nationally.

### Theme 5: Cost concerns

Cost concerns generally related to the affordability of cat by-law clauses and recommendations for councils to provide subsidies or discounts when implementing the by-law. Whangārei had the highest percentage of cost concerns, at 81%, followed by Palmerston North (50%), Tasman (24%),

Selwyn (19%) and Wellington (7%). While no council collected demographic data, some financial demographics can be inferred from the Statistics New Zealand 2018 census, which shows that Whangārei, Tasman and Palmerston North have the lowest median incomes and percentages of full-time employment of the regions studied (Statistics New Zealand, n.d.a, n.d.b, n.d.c). The census information may correlate with the varying levels of concern found across the regions, as regions with lower reported incomes had higher levels of concern about cost. However, cost concerns did not explicitly relate to the submitter's income, with many submitters expressing concern for low-income households in their region, and a desire for subsidies to support these residents.

### Councils and cat by-laws

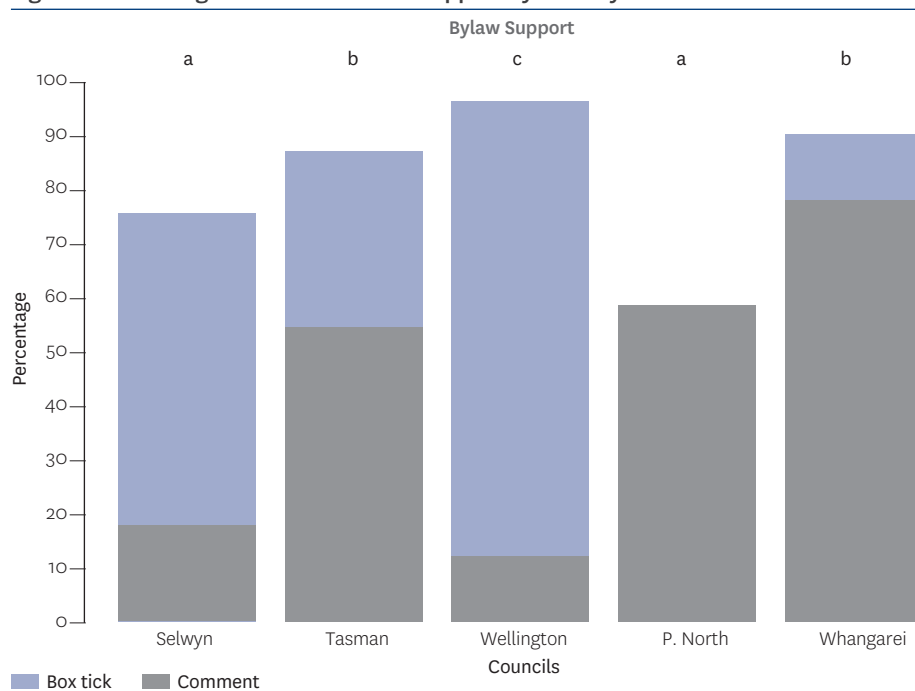
Wellington City Council was the first council to implement a cat by-law, with the Animal Bylaw 2016 requiring mandatory microchipping and registration (Kikillus et al., 2017). In 2024, the by-law was updated to include desexing. Eighty-nine per cent of submitters supported the 2016 by-law (Simmons, 2016), with submitter support increasing to 96% for the 2024 update. Palmerston North City Council implemented their by-law in 2018, and as

such the lower support percentage may reflect the novelty of cat management by-laws at that time. The number of councils introducing cat by-laws rose substantially from 2020 onwards (Sumner, Walker et al., 2022). The Selwyn District Council by-law was introduced in 2021, Whangārei District Council's in 2022, and Tasman District Council's came into effect in late 2024, accompanied by an equivalent by-law from Nelson City Council. The growing number of cat by-laws nationwide may be contributing to public support for these measures. Awareness of cat management issues is not a new topic, with Gareth Morgan's 'Cats to Go' campaign in 2013 generating a strong emotional response in New Zealand and overseas (Adam, 2013). Despite the controversy, public perceptions of cats have shifted more towards Morgan's ideas, with New Zealand residents showing strong support for a national cat management strategy and exclusion zones to protect wildlife from cats (Read, 2019; Walker, Bruce and Dale, 2017).

### Implications for local and regional planning

Key themes in public submissions reflect region-specific issues that decision makers must address. For example, nuisance caused by cats, particularly their impacts

Figure 1: Percentage of submitters who support by-laws by council



'Box tick' refers to data gathered through survey forms, while 'Comment' refers to searching free-text submissions for tagged words. The letters along the top denote whether regional variations were statistically significantly different ( $P < 0.05$ ) using a Tukey's HSD test. Palmerston

North and Selwyn are statistically similar (a). Tasman and Whangārei are also statistically similar (b) but different from Wellington, Palmerston North and Selwyn. Wellington statistically differed from the other councils (c).



on gardens, emerged as a common concern, though Selwyn residents commented more on this issue than Wellington residents. This disparity likely reflects housing type and density differences between the two regions, as fewer Wellington residents would have access to garden space to grow vegetables. Additionally, rural Selwyn residents may be more aware of the risks of toxoplasmosis than Wellington residents, due to its agricultural impacts (Glen et al., 2023; Roberts, Jones and Roe, 2021). In Whangārei, nuisance issues primarily stemmed from stray cats, reflecting a need for greater control of stray cat populations.

Cost concerns also varied by region, with lower-income areas more likely to comment on the cost of cat management measures and the need for subsidies. This concern is likely amplified by the ongoing cost-of-living crisis and its impact on those with a lower socioeconomic status. Submitters in all regions expressed concern about how the by-law would affect low-income households and a desire for the council to support these households.

Conservation and environmental concerns were frequently raised, with submitters commenting on local conservation issues. These included impacts on particular species in their region, such as kororā/little penguins (*Eudyptula minor*) in Tasman and Wellington, and long-tailed bats (*Chalinolobus tuberculatus*) in Whangārei, and impacts on particular places of conservation significance, such as Zealandia in Wellington and St Arnaud in Tasman. Submitters were more likely to support stricter measures such as containment, curfews and exclusion zones around these areas or in the habitats of these taonga species. Several submitters in each region thought that ‘much stronger action’ was needed, referring to New Zealand’s dog control policies and Australia’s cat containment regulations as examples of how cat roaming could be restricted to better protect wildlife and reduce nuisance effects.

Anti-regulation sentiments are another theme important to designing and implementing policy and by-laws. Public concerns around enforcement of by-law measures, microchip failure, and by-laws as a ‘money-grabbing exercise’ reflect the

... the variation in regional concerns highlights the need for tailored approaches that consider both the specific issues faced by each community and the broader implications for conservation and animal welfare.

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importance of consultation, information provision and transparency. However, this may be easier said than done, as those expressing anti-regulation sentiments do not appear to seek this information. This is particularly evident in responses to social media posts by councils during by-law consultations. For example, Tasman District Council social media posts encouraging public submissions on their proposed cat by-law elicited comments opposing microchipping and registration, based on the misconception that council would charge an annual fee similar to dog registration. Despite multiple replies from a council staff member clarifying that the fee is a one-time charge to the New Zealand Companion Animal Register, the volume of comments on the matter indicated that many individuals had not fully read the post or prior responses addressing the same concern (Tasman District Council, 2023). To resolve such misunderstandings, a more nuanced approach may be needed, with ongoing engagement and education. Concerns around freedom of choice and by-laws being ‘anti-cat’ could be addressed by educating the public on how by-laws benefit cats and owners themselves.

Research shows that cat owners are more likely to support regulations that address animal welfare than ones that address other issues such as conservation (Hall et al., 2016; Kent et al., 2022; Sumner, Walker and Dale, 2022).

Submission rates across regions varied, which could reflect differences in public engagement, regional concerns, or the accessibility of the submission process. For instance, Wellington, with a population of 202,737, received 580 submissions, corresponding to about 0.29% of its population. In contrast, Whangārei, with a population of 90,960, received 1,402 submissions, or about 1.54% of the population. Tasman (0.78%), Selwyn (0.48%) and Palmerston North (0.05%) also showed varied submission rates, with Palmerston North having the lowest engagement relative to its population. These findings highlight an ongoing challenge in public engagement. As Hodder (2019) notes, only a small percentage of a region’s population typically engages in the submission process. Consequently, enhancing community engagement and collaboration is essential to effectively identify the issues that need to be addressed in cat management (Reid and Schulze, 2019).

Effective regulation is critical to mitigating the impacts of cats on New Zealand’s biodiversity. However, the variation in regional concerns highlights the need for tailored approaches that consider both the specific issues faced by each community and the broader implications for conservation and animal welfare. By incorporating public feedback on cat-control issues, councils can develop more effective and widely accepted solutions for managing cat populations while minimising negative impacts on both wildlife and residents. It is important that decision makers consider region-specific issues and address these when developing and implementing by-laws.

Locally, planners can engage, educate and legislate in response to region-specific matters to better address residents’ concerns. The Whangārei petition highlighted the importance of stray cat management in the area, while submissions to Selwyn, Tasman, Palmerston North and Wellington councils showed a desire for

containment/curfews and/or cat exclusion zones around ecologically significant areas. Further, transition periods between adoption of the by-law and its enforcement are essential, as they give cat owners time to comply with by-laws, and councils to address some of the cost concerns expressed in submissions.

#### Standardising survey design

Four of the five councils used online surveys as part of their engagement process. Some offered multiple-choice questions and some provided a combination of both. However, each council used a different survey format and asked different questions, leading to notable variations in how respondents engaged with the process. Complex multiple-choice options often caused confusion, while surveys that used clear, simple language and concise answer choices were generally better received, with fewer instances of misunderstanding.

Despite these differences, the core purpose of each survey was the same: to gauge public support for the by-law, identify which management measures were preferred, and understand the reasons behind that support or opposition. A standardised survey format across councils would not only reduce confusion, but also ensure consistency in how questions are framed, making it easier to compare public sentiment between regions. This approach would enable councils to identify trends more effectively, share insights, and engage with their communities in a more targeted and meaningful way. Standardising the format would ultimately create a more streamlined, transparent public consultation process while minimising the risk of misinterpretation. After all, if we're all asking the same questions, shouldn't we be asking them in the same way?

#### Localised versus nationwide approaches towards cat management

Cats have significant national impacts on native wildlife, and on human and livestock health and wellbeing through predation, parasite spread, particularly *Toxoplasma gondii*, and nuisance effects. Despite these negative impacts, cat ownership can offer various benefits, including improved mental and physical health, reduced stress and enhanced well-being through tactile

The National Cat Act proposed by the National Cat Management Strategy Group was supported by many national organisations, including wildlife conservation groups such as Forest and Bird and Predator Free New Zealand ... as well as animal welfare organisations like the SPCA.

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interactions and caregiving (Barker et al., 2005; Ravenscroft et al., 2021). However, the evidence supporting these benefits is mixed, with some studies indicating limited or no significant improvements (Ogata, Weng and Messam, 2023; Ravenscroft et al., 2021; Schreiner, 2016). Nevertheless, many pet owners perceive their cats as important companions and family members, contributing positively to their lives (Hardie, Mai and Howell, 2023; Ravenscroft et al., 2021). As such, the complex relationship between people and their pets is an important aspect for decision makers to consider when creating cat management legislation.

Public awareness of cats' environmental impacts has grown, with increasing media coverage of this topic (Brett Kelly, 2022; Dowling, 2023; Page, 2023; RNZ, 2024), which has led some people to reconsider cat ownership (McClure, 2023). New Zealand has previously taken action against the impact of pets, such as banning ferret sales

in 2002 (Lee, 2002), although a similar ban on cats is unlikely due to their widespread popularity, emphasising the need for effective management legislation.

In New Zealand, 41% of households own a cat, and of these, 74% consider their cat a member of the family (CANZ, 2020), meaning cat management is often a deeply personal issue. Many cat owners are already complying with management measures, with 88% of all companion cats desexed and 49% microchipped (ibid). Additionally, New Zealand research shows that there is high support for desexing, microchipping and registration among cat owners (Bassett et al., 2020; CANZ, 2020; Forrest et al., 2019; Gates et al., 2019; Hall et al., 2016; Ovenden, Bassett and Sumner, 2024; Sumner, Walker and Dale, 2022; Walker, Bruce and Dale, 2017). Given the strong support for by-laws demonstrated in this research, and consistent with recommendations from the National Cat Management Strategy Group (2020), the SPCA (n.d.a, n.d.b) and other research (Sumner, Walker and Dale, 2022; Walker et al., 2017), national cat management legislation requiring mandatory desexing, microchipping and registration seems likely to be well-received by most of the New Zealand public.

The National Cat Act proposed by the National Cat Management Strategy Group was supported by many national organisations, including wildlife conservation groups such as Forest and Bird and Predator Free New Zealand (Forest and Bird, 2023; Rutledge, 2022; Predator Free New Zealand, n.d.), as well as animal welfare organisations like the SPCA. Additionally, international commitments that New Zealand has signed, such as the Ramsar Convention and the Convention on Biological Diversity, technically require the control of feral and domestic cats (Trouwborst, McCormack and Martínez Camacho, 2020). These commitments, coupled with the increasing public awareness of cat impacts and the strong support for cat management measures seen in the findings and literature, demonstrate that for legal and social reasons, New Zealand should implement national cat legislation to reduce the environmental, nuisance and health impacts of cats.

Despite the necessity of cat legislation, challenges remain, particularly regarding costs and resistance to regulation. Cost is a significant barrier and may require local or central government support and subsidies to address. Decision makers could partner with national groups like the SPCA, or local groups like Cats Protection, who already offer subsidised desexing and microchipping services (Cats Protection League Canterbury, n.d.; Cats Protection Wellington, n.d.; SPCA, 2024). Anti-regulation sentiments will remain a barrier, although these can be addressed in part through good engagement on a local level. Ongoing education, engagement and advocacy on the importance of these measures for cats, the environment and the wider public, alongside a slow, phased-in approach to regulation (National Cat Management Strategy Group, 2020), would be essential to ensure the success of national legislation. Cat owners are usually more receptive to education that focuses on animal welfare and responsible cat ownership than conservation (Crowley, Cecchetti and McDonald, 2019; Dickman, 2009; Hall et al., 2016; Ovenden, Bassett and Sumner, 2024; Sumner, Walker and Dale, 2022; Woolley and Hartley, 2019); however, wildlife conservation is a key concern to both cat owners and non-owners, with cat owners in New Zealand showing greater concern about the

conservation impacts of cats than those in other countries (Foreman-Worsley et al., 2021; Hall et al., 2016). Thus, any education campaign should use a dual approach, focusing on the conservation impacts and animal welfare benefits of cat legislation. These challenges are not insurmountable, and the widespread support for better cat management shows that New Zealand is ready to do better.

## Conclusion

Despite the proposed National Cat Act not being prioritised by the current government (Environment Committee, 2023; Sharpe, 2024), this research suggests that New Zealanders support better cat management, and many cat owners are already complying with the proposed management measures (desexing, microchipping and registration). The strong support for these measures indicates that national legislation is not only feasible but would likely be well received by much of the New Zealand public. However, regional differences indicate that to effectively implement national legislation, local authorities would need to work closely with communities, especially in low-income areas where residents may require support from councils and local organisations to comply with legislation. Additionally, a nationwide legislative framework could give local councils the flexibility to address

region-specific concerns, and potentially implement stricter measures like exclusion zones or containment around ecologically significant areas where desired.

This study highlights how consultation processes can serve as a mechanism for public sector leadership, shaping both policy design and community trust. It also reveals the potential – and the limitations – of public consultation as a governance tool, particularly when navigating complex issues. These limitations could be reduced by standardising public engagement tools, such as survey design, to improve clarity, minimise misinterpretation, and enable more meaningful cross-regional comparisons. Ultimately, the success of any cat management legislation depends on a careful balance between national standards and local adaptation, ensuring that the preservation of wildlife, the welfare of cats and the concerns of the public are all addressed in a clear and effective manner. It is time to stop pussyfooting around and establish a national plan for cats – one that promotes better cat welfare while protecting New Zealand's unique indigenous biodiversity.

<sup>1</sup> The definitions of stray and feral cats vary by country. In New Zealand, feral cats are defined as living independently from humans, with no input from the companion cat population, while stray cats are considered semi-reliant on human resources and increase their population through interbreeding with companion cats. In an Australian article (Legge, 2020), stray cats are defined as a subset of feral cats (semi-feral), so in this instance, 'feral cats' refers to stray and feral cats.

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# Estimating the Additional Income Needed to Address Higher Deprivation Levels of Children in Households with Disabled People

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## Abstract

Children living in households with disabled people have a rate of material hardship three times that of children living in households with no disabled people. The rate of severe material hardship is almost four times higher. This article aims to improve the evidence base to inform policy responses to these inequities. It uses pooled Household Economic Survey data to estimate how much additional income is needed to reduce levels of deprivation to match those of households with children with no disabled people. Examples of the estimated additional income needed range from \$8,400 to \$24,000 per annum on an equivalised income basis and vary depending on where the household's income sits in the income distribution. The additional income needed is higher when there are two or more disabled people in the household than when there is one disabled person.

**Keywords** costs of disability, hardship, poverty, child poverty, standard of living

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Disabled people and the families, whānau and carers of disabled people can face significant additional costs and unmet needs that stem from the interaction of impairment and an inaccessible society (Disability Resource Centre, 2010; Mitra et al., 2017). Additional disability-related costs can include the direct out-of-pocket costs required for health service visits, transport, special diets, medication, help with daily activities, and disability-related equipment and aids. They can also include indirect 'opportunity costs', including additional time and energy costs for daily living and limits on participation in paid employment.

In Aotearoa New Zealand, some payments within the income support system and a range of other government-funded supports acknowledge these additional costs (Table 1). How well these payments and supports compensate for or offset additional costs is hard to assess, however. A developing international literature suggests there are sizeable total and uncompensated additional costs for disabled people, but with a wide range of estimates of their scale (Mitra et al., 2017).

Analysis of Household Economic Survey (HES) data shows that of New Zealand families in the most extreme hardship, around half have a disabled family member (Stephens, 2022). In child

poverty monitoring, being in material hardship is defined as having six or more of the 17 restriction items that make up the Dep-17 deprivation index (see Box 2 and Perry, 2022). Severe hardship is defined as having nine or more of the 17 restriction items. Pooled data from the 2019/20, 2020/21 and 2021/22 HES show that the rate of material hardship was three times higher for children in households with a disabled person than for other children (21.2% compared with 6.9%) and the rate of severe material hardship almost four

times higher (9.6% compared with 2.6%). However, average equivalised household income (i.e., adjusted for household size and composition) for children in households with a disabled person was above 85% of the average household income of other children (Wilson and McLeod, forthcoming).<sup>4</sup>

A range of factors can explain wide differences in material hardship despite modest differences in equivalised income. These include differences in levels of financial assets (e.g., savings and

investments net of debts), physical assets (e.g., home ownership, consumer durables), assistance from outside the household (from family, whānau, friends, community or government), the ability to convert given resources into valuable consumption, the ability to access available resources, and the size of housing costs and employment-related costs (e.g., childcare). Importantly, they also include disability-related extra costs and disability-related limits on paid employment (Perry, 2022; Stephens, 2022).

**Table 1: Selected government-funded health- and disability-related payments and other supports for working-aged people and children as at 1 July 2024**

Payment/Support	Maximum value <sup>1</sup>	Income criteria <sup>2</sup>
<b>Supported living payment</b> is available to people who are either totally blind or both permanently and severely restricted in their capacity for work because of health conditions, injuries or disabilities.  People can also be eligible if they are caring for a person (other than their partner or spouse) who requires full-time care and attention.	\$718.14 net per couple per week if partnered with children \$552.14 net per week if single with children	For every dollar of income over \$160 a week and below \$250 the net rate reduces by 30 cents. For every dollar of income above \$250 the net rate reduces by 70 cents.  For a totally blind person, all earnings are disregarded. For others qualifying in their own right, the first \$20 earned is disregarded.
<b>Jobseeker support – health condition or disability</b> is available to people who have a short-term health condition or disability that is preventing them from working or reducing their work hours.	\$635.10 net per couple per week if partnered with children \$494.80 net per week if single with children	For every dollar of income over \$160 a week the net rate reduces by 70 cents.
<b>Disability allowance</b> is designed to assist with the additional costs associated with a disability or an ongoing medical condition. It can be paid in addition to a main benefit or New Zealand Superannuation or to people not receiving a main benefit.	\$78.60 per qualifying adult or child per week (or actual qualifying costs if these are lower)	Entitlement to the entire payment is lost once gross weekly income exceeds an income limit. Limits vary by family type (e.g., \$1,225.95 if partnered with children and \$921 if single with children).
<b>Child disability allowance</b> is a payment designed to acknowledge the extra care and attention needed caring for a child with a serious disability that is likely to last 12 months or more.	\$59.23 per qualifying child per week (regardless of costs)	No income criteria
<b>A community services card</b> is available to enable access to subsidised health services for card holders and their family members and a 50% discount on public transport fares for the card holder.	Subsidy for health practitioner (e.g., GP) visits <sup>3</sup> of \$15 for adults aged 18+ and \$20 for children 14–17 years (visits for younger children are usually free); exemption from the \$5 co-payment for fully subsidised prescription items	Entitlement to the card is lost once gross annual income exceeds an income limit. Limits vary by family type (e.g., \$79,167 for a family of three).
The <b>Total Mobility scheme</b> assists eligible people with long-term impairments to access subsidised door-to-door transport services wherever scheme transport providers operate.	75% subsidy of the normal transport fare up to a maximum fare (set by the relevant regional council, or Auckland Transport)	No income criteria
<b>Disability support services</b> are available to people who have a physical, intellectual or sensory disability where the disability is likely to continue for at least six months and the person is assessed as needing ongoing support to live independently.	Unspecified	No income criteria
<b>Individualised funding</b> is a type of person-directed funding which gives disabled people and their family or whānau more choice in how they are supported to live their lives. It is for eligible people who have been assessed to receive either home and community support services or respite services.	Unspecified	No income criteria

Note: other payments and supports include: special needs grants that can be paid to assist with one-off costs; special disability allowance; house modification funding; social rehabilitation assistance; residential care subsidy; residential support subsidy; community costs; home help; MSD-funded

supports to help disabled people to move into work; and Accident Compensation Corporation (ACC) social insurance that can provide earnings-related compensation and other supports following an injury.

Several approaches have been used in the international literature to estimate the additional costs associated with disability. These can be categorised into:

- subjective approaches, which typically ask disabled people about their additional costs;
- comparative approaches, which contrast the actual expenditure of disabled and non-disabled people;
- budget standards approaches, which involve the construction of a list of items and services which are required for disabled people to meet a 'reasonable' standard of living;
- standard of living approaches, which explore the difference in incomes for disabled and non-disabled people who have the same standard of living and take this as a measure of additional costs (Mitra et al., 2017; Melnychuk, Solmi and Morris, 2018).

The different approaches each have limitations (Mitra et al., 2017; Melnychuk, et al., 2018; Mont, 2023). For example, subjective and comparative approaches may underestimate costs of disability where unmet needs exist due to lack of affordability or access to goods and services. Budget standards approaches do not generally estimate the additional costs associated with disability, as there is typically no comparison with the non-disabled. Standard of living approaches do not provide an estimate of the costs required for full participation, or provide any insight into what goods and services are needed. They also have potential methodological limitations, which we discuss in more detail below.

Several previous New Zealand studies have examined or touched on additional costs of disability (Box 1). This article's aim is to further strengthen the New Zealand evidence base for future policy development. We begin by setting out and applying a simple, descriptive standard of living approach to provide estimates, at points in the income distribution, of how much additional income is needed to reduce levels of deprivation of households with children and disabled people to levels that match households with children with no disabled people. We then look at the feasibility of two standard of living approaches most commonly used in the

## BOX 1 Previous New Zealand studies

The Disability Resource Centre (2010), HealthiNZ (2024) and qualitative interviews undertaken in 2022 (Cram et al., forthcoming; Gray and Stratton, forthcoming) asked disabled people and people in families and whānau with a disabled person about the costs they face. Costs mentioned range from disability-related care and equipment and health costs, to extra costs associated with special food or transport and housing that meets accessibility needs. People talked about ways these costs sometimes go unmet because they are unaffordable, and ways in which self-funding costs limits the amount available for other essentials, including food, dental treatment, educational resources and activities for children, and travel to maintain connections with family, whānau and culture.

The Disability Resource Centre (2010) used the budget standards approach to cost the additional resources (support, equipment, transport and time) that disabled people with physical, sensory, intellectual and mental health impairments need to live in the community. The estimates were for examples of disabled people aged 18–64 with no children, without multiple impairments, and with ranges of need characterised as 'high' and 'moderate'. A process of discussion with disabled people was used to define and cost baskets of goods, services and activities required to achieve an ordinary standard of living. Indicative costs ranged from \$204 to \$2,568 per week (in 2006 dollar terms).<sup>5</sup> How much of these costs was not compensated for by income support and government-funded support services was not estimated.

Godfrey and Brunning (2009) examined the costs faced by the blind and vision-impaired community. Focusing on short-distance non-optional taxi costs as an example, they demonstrated that the true cost of blindness was substantially underestimated if only actual incurred costs are considered. Allowing for those who would have spent more on this form of transport to mitigate the effects of blindness if they had been able to afford it, the estimated average cost of taxis rose from \$14.52 to \$23.43 per week (in 2004 dollar terms). This estimate was likely to be conservative, as whether

affordability was a constraining factor was unknown for a third of the sample on which the analysis was based. These results suggest considerable unmet true costs of blindness, even with the Total Mobility scheme and disability allowance.

Doran et al. (2022) conducted surveys and workshops to explore the transport experiences of disabled people. The data showed that disabled people's transport-related effort and costs were increased due to a lack of accessible direct routes to destinations and limited transport choices. Financial and non-financial costs meant trips they would otherwise like to make were foregone.

Norris et al. (2023) conducted a randomised controlled trial of exempting people with high health needs and living in areas of high deprivation from a \$5 prescription charge. Removing the charge had a substantial and statistically significant effect on the odds of being hospitalised, suggesting that better meeting costs of disability and health conditions for people with high health needs and living in areas of high deprivation can lead to improvements in health. Observational research also shows that prescription unaffordability is associated with higher rates of hospitalisation (Jeffreys et al., 2024).

Wynd (2015) conducted interviews with caregivers of disabled children. The conversations suggested that payments and supports need to better reflect the costs of being disabled or caring for a disabled child, and be reviewed to improve ease of access and coverage.

A comparative study by Murray (2018) observed that while in New Zealand households with disabled children are significantly more likely to experience income poverty, this is not the case in the United Kingdom. In the UK, disability-related allowances for children are three times higher than in New Zealand. The author advocates for changes to better meet the direct and indirect costs of disability in New Zealand. These include increasing disability-related allowances and improving other supports for parents and carers, including support for employment.



## BOX 2 Items in Dep-17

Enforced lack of essentials (for respondent or household as a whole):<sup>11</sup>

- meal with meat, fish or chicken (or vegetarian equivalent) at least each second day
- two pairs of shoes in good repair and suitable for everyday use
- suitable clothes for important or special occasions
- presents for family and friends on special occasions
- home contents insurance.

Economised, cut back or delayed purchases 'a lot' because money was needed for other essentials (not just to be thrifty or to save for a trip or other non-essential):

- went without or cut back on fresh fruit and vegetables
- bought cheaper cuts of meat or bought less than wanted
- put up with feeling cold to save on heating costs
- postponed visits to the doctor

- postponed visits to the dentist
- did without or cut back on trips to the shops or other local places
- delayed repairing or replacing broken or damaged appliances.

In arrears more than once in last 12 months (because of shortage of cash at the time, not through forgetting):

- rates, electricity, water
- vehicle registration, insurance or warrant of fitness.

Financial stress and vulnerability:

- borrowed money from family or friends more than once in the last 12 months to cover everyday living costs
- feel 'very limited' by the money available when thinking about purchase of clothes or shoes for self (options were: not at all, a little, quite limited, and very limited)
- could not pay an unexpected and unavoidable bill of \$500 within a month without borrowing.

Note: around half of all households with children report none of these deprivation items  
Source: unpublished Statistics New Zealand analysis

international literature to arrive at an overall average cost-of-disability estimate and outline the limitations with these approaches we encountered. The interpretation and implications of our findings are discussed.

### A descriptive standard of living approach

A simple, descriptive standard of living approach is to compare mean standard of living scores for households with and without a disabled person at different income levels. We can then use these

comparisons to estimate how much additional income the households with a disabled person need to achieve the same standard of living.

We apply this approach using pooled data from the 2019/20, 2020/21 and 2021/22 HES. This yields a sample of 13,695 households with children aged under 18 (4,044 with one or more disabled person, 9,651 with no disabled person). We fit separate curves<sup>6</sup> to scatter plots of standard of living scores plotted against household equivalised disposable income ('SOL-income curves').<sup>7</sup>

Standard of living is measured using the 'Dep-17' deprivation index (Box 2). Income is calculated by Statistics New Zealand based on survey responses and administrative data linked to the HES in the Statistics New Zealand Integrated Data Infrastructure. The calculation of income includes health- and disability-related income support payments, but excludes the value of in-kind supports provided via, for example, the community services card, Total Mobility scheme or Disability Support Services.

We compare fitted standard of living-income curves for households with and without a disabled person. Disability status is based on Washington Group measures from the HES (Box 3). In addition, we distinguish between households with one and with two or more disabled people. Results are presented for households with children overall, and for households with children where any household member is Māori<sup>8</sup> compared with households where no household member is Māori.<sup>9</sup> Results use unweighted data for simplicity, although we tested the sensitivity to using sample weights.

Estimated 95% confidence intervals are shown graphically. As with the fitted curves, confidence intervals were calculated using unweighted data, and they do not account for the complex sample design. This is likely to result in underestimation of the standard error, resulting in confidence intervals which are too narrow. We estimate that were we to take account of the survey design, confidence intervals could be up to 80% wider than those presented here, depending on the population being examined.

When presenting the estimates graphically, the top and bottom ends of the income distribution are excluded. At the

## BOX 3 Washington Group measures used as a disability indicator in the HES

Whether a person is disabled or not has been able to be assessed using HES data since 2019/20. International Washington Group questions on functioning have been used to derive disability indicators where:

- people aged 18 or over are considered disabled based on the amount of difficulty they have with seeing, hearing, walking or climbing stairs, remembering or concentrating, self-care, communication (expressive and receptive), upper body activities, and affect (depression and anxiety) (Washington Group, 2020a);
- children and young people aged 5–17 are considered disabled based on the

amount of difficulty they have with seeing (even with glasses), hearing (even with hearing aids), walking, feeding or dressing themselves, communicating, learning, remembering, concentrating, accepting change, controlling their own behaviour, making friends, anxiety or depression (Washington Group, 2020b);

- children aged 2–4 are considered disabled based on the amount of difficulty they have with seeing (even with glasses), hearing (even with hearing aids), walking, manual dexterity, communicating, learning, playing, or controlling their own behaviour (Washington Group, 2020c).

bottom end of the distribution, households with very low incomes have a higher standard of living than households with somewhat higher incomes (Perry, 2022) and therefore are problematic for our approach.<sup>10</sup> At the top end of the income distribution, standard of living measures are unlikely to be accurate, given their focus on measuring material deprivation, while points on which to fit the SOL-income curves are also sparse, particularly for households with a disabled person.

## Results

Figures 1 and 2 display the fitted curves for households with children overall. They show the relationship between Dep-17 scores and equivalised household disposable income by the presence and number of disabled people in the household respectively.

Mean Dep-17 score (i.e., the average number of deprivation items listed in Box 3 reported by households) falls with increasing income. At all points, the mean Dep-17 score is higher in households with a disabled person than in households with no disabled person. The fitted curves flatten and converge to mean Dep-17 scores between zero and one at the high equivalised income bands. As noted, material hardship is defined as having a Dep-17 score of six or above. For households with two or more disabled people at the lowest equivalent income levels, the mean Dep-17 is close to this level.

For context, median equivalised household disposable income was \$38,000 in households with a disabled person and \$45,000 in households with no disabled person (in 2022 dollar terms).<sup>12</sup> One-person households are the reference point for equivalisation. This means that the income levels displayed should be thought of relative to the needs of a one-person household in terms of value. In 2022 annual net income from the supported living payment for a single person was around \$19,000. This increased to around \$22,000 if the maximum disability allowance was received and around \$31,000 if the maximum accommodation supplement was also received. A single person with \$40,000 net annual income had no entitlement to main benefits such as the supported living payment<sup>13</sup> or

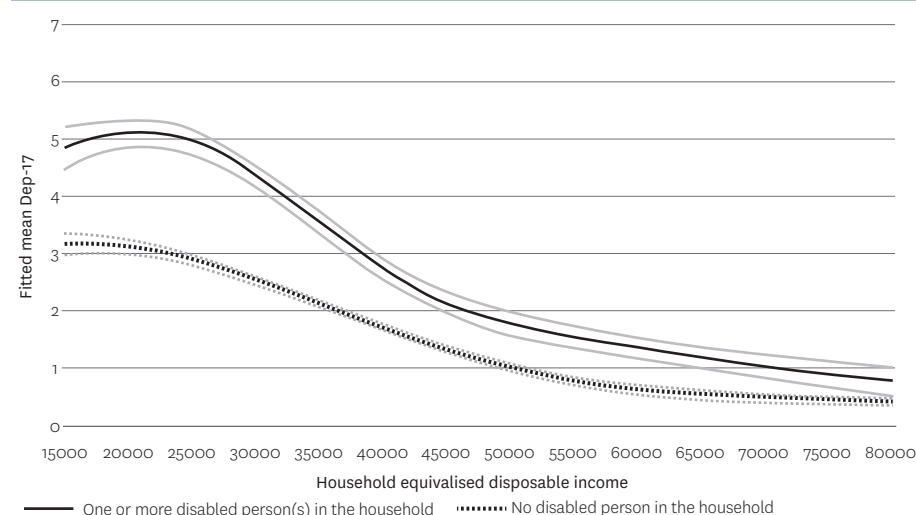
disability allowance due to their income. They may have qualified for the accommodation supplement depending on their housing costs and area.

Table 2 provides examples of the additional income needed to address the higher levels of deprivation for households with disabled people at selected income levels. Each example is derived by reading horizontally from Figure 1 how much income needs to slide to the right in order for households with disabled people to have the same mean Dep-17 score as households with no disabled person. By way of example, at \$20,000, a household with no disabled people has a mean Dep-17 score of 3.14. Households with one or more disabled people have this mean Dep-17 score at \$38,600, \$18,600 higher.

At higher income levels, where the SOL-income curves flatten, any variation in the gradient of the estimated curve could result in large differences in our estimates. For this reason, we confine Table 2 to estimating the additional income needed at an income level of \$20,000, \$30,000 and \$40,000. If we were to estimate additional income for incomes in excess of \$40,000, comparable incomes for households with disability would be well in excess of \$50,000, at a point in the distribution where the fitted curve is both flat and imprecise, as evidenced by the widening confidence intervals at these levels of income.

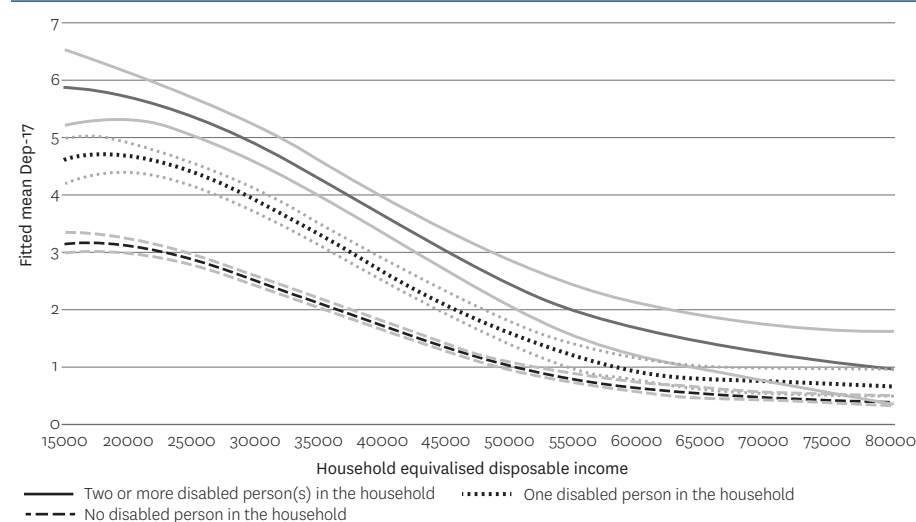
At each of the three income levels considered, the additional income needed is higher for households with two or more disabled people than for those with one

**Figure 1: SOL-income curves fitted to plots of Dep-17 score by equivalised annual household income (in 2022 dollar terms) by the presence of disabled people in the household, households with children aged under 18**



Note: 95% confidence limits are shown in grey

**Figure 2: SOL-income curves fitted to plots of Dep-17 score by equivalised annual household income (in 2022 dollar terms) by the number of disabled people in the household, households with children aged under 18**

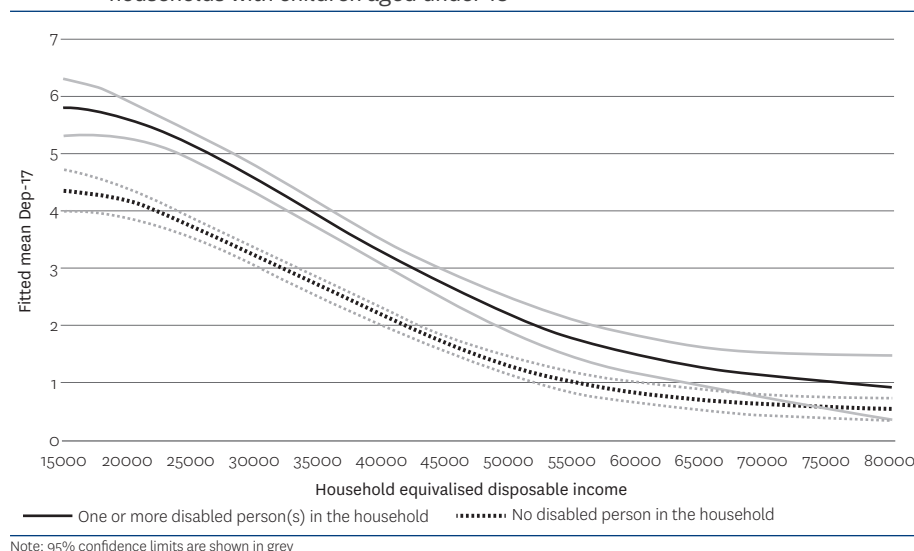


Note: 95% confidence limits are shown in grey

**Table 2: Additional equivalised income households with a disabled person need in order to have the same mean Dep-17 score as households with no disabled person, examples at different points in the income distribution, households with children aged under 18 (in 2022 dollar terms)**

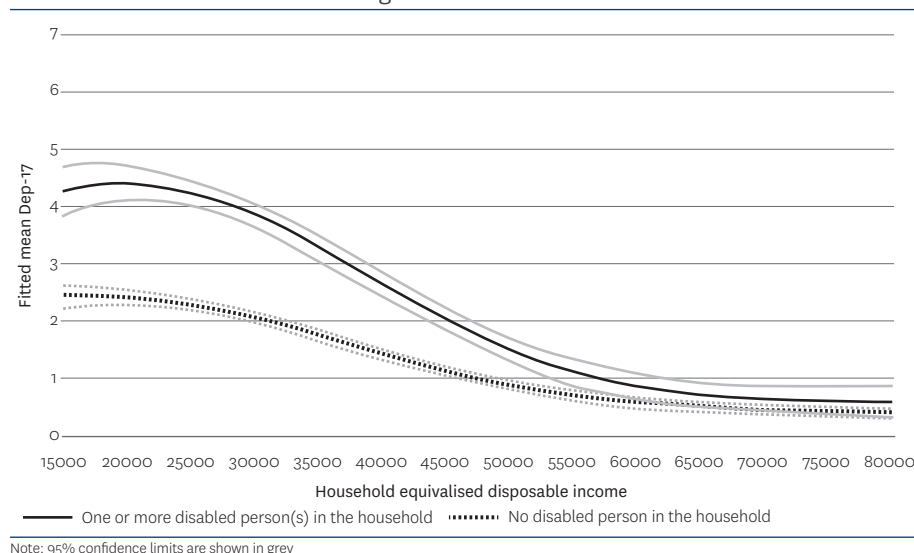
Example income level (for households with no disabled person – mean Dep-17 scores in brackets)	Income level where households with disabled people have the same mean Dep-17 score	Additional income needed
	One or more disabled person in the household	
\$20,000 (3.14)	\$38,600	\$18,600
\$30,000 (2.52)	\$43,300	\$13,300
\$40,000 (1.72)	\$50,500	\$10,500
	One disabled person in the household	
\$20,000 (3.14)	\$36,500	\$16,500
\$30,000 (2.52)	\$41,400	\$11,400
\$40,000 (1.72)	\$48,400	\$8,400
	Two or more disabled people in the household	
\$20,000 (3.14)	\$44,000	\$24,000
\$30,000 (2.52)	\$49,400	\$19,400
\$40,000 (1.72)	\$59,600	\$19,600

**Figure 3: SOL–income curves fitted to plots of Dep-17 score by equivalised annual household income for households with Māori household members (in 2022 dollar terms) by the presence of disabled people in the household, households with children aged under 18**



Note: 95% confidence limits are shown in grey

**Figure 4: SOL–income curves fitted to plots of Dep-17 score by equivalised annual household income for households with no Māori household members (in 2022 dollar terms) by the presence of disabled people in the household, households with children aged under 18**



Note: 95% confidence limits are shown in grey

disabled person. However, the relationship between income level and the additional income needed to achieve the same mean Dep-17 score is less straightforward. It falls as income increases between \$20,000 and \$40,000 overall and for those with one disabled person in the household. In contrast, there is no drop between \$30,000 and \$40,000 for households with two or more disabled people.

Figures 3 and 4 display fitted curves for households with children, with and without Māori household members, by presence of disability in the household. Table 3 examines the additional income needed for households where there is at least one versus no Māori household member.<sup>14</sup> Only the case of one or more disabled person in the household is presented. The data does not support examining the case of one versus two or more disabled people. At \$20,000 and \$30,000, the additional income needed is lower for households with a Māori household member than for households with no Māori household member. At \$40,000, the amount is similar for the two groups. At each of the income levels, the mean Dep-17 score is higher in households with a Māori household member.

We tested sensitivity of the overall results to using the Material Wellbeing Index (Perry, 2022), rather than Dep-17, as the indicator of standard of living. Estimates were broadly similar. Using weighted rather than unweighted data did not materially change the findings or interpretations. We also ran the same analysis for households with no children aged under 18 and no adults aged 65 or over. Estimates of the additional income needed ranged from \$6,000 to \$27,100.<sup>15</sup>

#### Looking at the feasibility of standard of living approaches that provide an overall average cost-of-disability estimate

Two approaches are used in standard of living studies internationally to provide an overall average cost-of-disability estimate. The most common approach is to use the average difference in incomes for disabled and non-disabled people who have the same standard of living as a measure of overall average additional costs. This involves constructing regression models of the relationship between standard of living

and income for families or households with and without a disabled person (Box 4). Regardless of the income term used in the regression model, the functional form of the model imposes one of two strong assumptions on the shape of the SOL-income curve, and through those relationships on the estimated cost of disability. These are either that the costs of disability are constant across the income distribution (where actual, linear income is considered), or that costs of disability are increasing across the income distribution (where logged income is considered).

Hancock, Morciano and Pudney (2013) use data for Great Britain to highlight the poor robustness of these regression-based cost-of-disability estimates, with small breaches of the assumptions resulting in large positive biases in the estimated cost of disability. To test the feasibility of the approach, we examined the plausibility of the underlying assumptions using the pooled HES data. We ran separate standard of living models at the household level with linear and logged income within broadly partitioned income bands. In all models, the parameter estimates for the income bands<sup>16</sup> did not conform with the assumed relationships across the income distribution and varied considerably from model to model. As with Hancock et al. (2013), this is particularly troubling in a context in which any mis-specification of the SOL-income curve can have a large impact on the estimated cost of disability.<sup>17</sup>

Hancock et al. (2013) introduce an alternative approach which does not require a fixed specification of the shape of the SOL-income curve to estimate the additional costs experienced by older people in Great Britain. This approach used propensity score matching to estimate the overall average costs of disability. Disabled people were matched with comparison non-disabled people chosen to be as close as possible in terms of observable personal characteristics and their achieved standard of living. Differences in income between the disabled group and the matched comparison group were then assumed to relate to the additional income required for disabled people to achieve the same standard of living as non-disabled people, providing an estimate of average additional costs.

**Table 3: Additional equivalised income needed for households with Māori household members versus other households, examples at different points in the income distribution, households with children aged under 18 (in 2022 dollar terms)**

Example income level (for households with no disabled person)	Households with children with a Māori household member	Households with children with no Māori household member	All households with children
One or more disabled person in the household (mean Dep-17 scores in brackets)			
\$20,000	\$13,300 (4.15)	\$21,600 (2.45)	\$18,600 (3.14)
\$30,000	\$10,700 (3.21)	\$14,800 (2.05)	\$13,300 (2.52)
\$40,000	\$10,300 (2.16)	\$10,400 (1.45)	\$10,500 (1.72)

Melnychuk et al., (2018) estimated the cost of child disability in the United Kingdom using a similar approach.

We tested the feasibility of a matching approach for New Zealand, using many of the matching variables used in Hancock et al., (2013) and Melnychuk et al., (2018) and the pooled HES data. Surprisingly, we found that households with a disabled person had somewhat lower incomes than matched households without a disabled person and the same standard of living, on

average. This implied negative costs of disability (i.e., households with a disabled person achieved a given standard of living with lower income than the matched households). This held both before and after matching on other characteristics of the households.<sup>18</sup> Results were not sensitive to the choice of matching variables, choice of matching algorithm, or other matching settings. Results were also relatively invariant to choice of standard of living measure,<sup>19</sup> disability identifier<sup>20</sup> and

## BOX 4 Regression-based standard of living models

In regression-based models, standard of living is generally assumed to increase monotonically with increasing income in a linear or non-linear fashion. Disability is assumed to shift the SOL-income curve to the right as more income is required to achieve the same standard of living. This is typically represented as a regression model such as:

$$S = \alpha + \beta Y + \delta D + \varepsilon \quad (1)$$

where  $S$  represents a measure of SOL,  $Y$  represents income (in practice logged income is often used, reflecting diminishing returns of additional income on standard of living), and  $D$  is a binary indicator reflecting the presence of a disabled person. Parameters  $\beta$  and  $\delta$  reflect the impact of income and the presence of a disabled person, respectively, on income. The additional cost of disability ( $C$ ) for any level of standard of living is then expressed as:

$$C = \frac{dY}{dD} = -\frac{\delta}{\beta} \quad (2)$$

In the case where the income term is not

transformed, as in equation (1), the impact of disability is invariant to income. This is a direct result of the functional form in (1) which assumes that disability affects standard of living equally, regardless of income, and that changes in income of the same magnitude have the same impact on standard of living regardless of where on the income distribution someone lies.

In the case where logged income (i.e.,  $\ln Y$ ) is included as covariate in equation (1), equation (2) resolves to:

$$C = \frac{d \ln Y}{dD} = Y \exp \left( -\frac{\delta}{\beta} - 1 \right) \quad (3)$$

and the cost of disability expressed as a percentage of income ( $C_p$ ) can be calculated as:

$$C_p = \frac{C}{Y} = \exp \left( -\frac{\delta}{\beta} - 1 \right) \times 100 \quad (4)$$

In this case, cost of disability  $C$  varies according to income  $Y$ , while the relative cost of disability  $C_p$  is invariant to income – i.e., the cost of disability is larger in dollar terms with higher income, or constant in percentage terms.



specification of income. Apart from tenure, we were unable to include variables representing household assets or savings which were included in the UK studies. However, we did have data on the net worth of a subset of respondents.<sup>21</sup> Results were unchanged following the inclusion of this variable.

There are several possible reasons for the negative cost-of-disability estimate. While the standard of living measures we use<sup>22</sup> were designed to be relevant to the needs of the New Zealand population, items may not be of equal relevance to disabled people. Items which are of particular importance to many disabled people may be missing. Additionally, some costs of disability may already be met through supports provided by the government, non-government organisations, or family, whānau and friends. These may enable disabled people to achieve a higher standard of living than they otherwise could, and substitute at least part of the requirement for additional income. Although we were able to explore an indicator of disability derived from the Washington Group questions, we did not have access to the responses to the underlying questions, and so could not test the sensitivity of our results to alternative specifications, such as those identifying severe disability. Given that previous studies have shown that costs often increase with severity of disability (Mitra et al., 2017), this could have limited our ability to identify additional costs.

We hypothesise that a more plausible explanation is that in matching on standard of living and a wide range of other characteristics, such as education, we arrived at comparison groups that, despite having no disabled person in the household as measured by HES data, faced other significant challenges to their material wellbeing and income-earning potential. For example, the Washington Group questions do not capture all disabled adults and children. As a result, the comparison group will have included households with people who are neurodiverse or have intellectual disability, mental illness, addiction, chronic disease, rare conditions or fluctuating impairments, but who do not have any of the impairments captured by the Washington Group questions. In

At all these  
income levels,  
more  
deprivation is  
experienced by  
Māori  
households on  
average, even  
when there is  
no disabled  
person in the  
household.

addition, the comparison group will have included households with people who are not disabled but for whom other life events and barriers impose costs, cause standard of living to be lower than would be expected given their education level, and restrict their incomes (e.g., people with sole care of children, past justice system involvement, or qualifications that are not recognised in New Zealand).

#### Discussion

This article aims to improve the evidence base to inform policy responses to inequities in material hardship rates according to whether children live in a household with disabled people or not. It uses pooled HES data and estimates that, on an equivalised income basis, households with children and with a disabled person need between \$8,400 and \$24,000 more income per annum (an extra 17–55%) to match the standard of living of households with children and with no disabled person on incomes ranging from \$20,000 to \$40,000.

The income shortfall is lower for Māori than non-Māori at \$20,000 and \$30,000, and similar for the two groups at \$40,000. At all these income levels, more deprivation is experienced by Māori households on average, even when there is no disabled person in the household. This underscores

the range of other factors that increase the risk of material hardship for Māori (Himona et al., 2019; King, 2019; Ingham et al., 2022; Wilson and McLeod, forthcoming). Possible explanations for the lower estimated income shortfall at \$20,000 and \$30,000 include more natural supports from whānau and community.

We do not provide an estimate of the overall average additional income needed across the income distribution. We explored the feasibility of two approaches that provide such estimates and found neither satisfactory. This was due to a combination of limitations of the methods and the nature of the New Zealand data. In the case of regression-based approaches, these assume that the cost of disability is either constant or increasing across the income distribution. Neither assumption appeared valid for New Zealand. In the case of a matching approach, this requires certainty that the comparison group does not include disabled people. This could not be guaranteed with the Washington Group indicator available to us. It is also likely that the comparison group will include other groups for whom barriers to inclusion cause low standard of living at a given education level, and also cause income to be low. This does not offer a sound comparison for identifying additional costs faced by disabled people.

Importantly, we do not characterise our estimates as cost-of-disability estimates. Aside from household size and composition, we do not control for factors other than cost of disability that can influence standard of living at a given income. Our estimates may reflect additional direct costs of disability. But they could also partly reflect the effects on standard of living of other factors, such as lower financial assets, poorer housing, location outside main centres, or lower education levels. These factors, in turn, may or may not themselves be caused by disability, which makes it questionable whether they should be controlled for if the aim is to shed light on the costs of disability.

In practice, there are associations between disability and a range of inequities (Statistics New Zealand, 2014, 2020; Himona et al., 2019; King, 2019; Beltran-Castillon and McLeod, 2023; Marks et al., 2023) and intersectionality between

ableism, disableism, racism and other forms of discrimination (Ingham et al., 2022; Cram et al., forthcoming; Gray and Stratton, forthcoming). In addition, reverse causality may be at play whereby lower standard of living causes mental and physical health and injury risks that make it more likely that there is a disabled person in the household. This includes the potential for lagged effects of a low standard of living early in the life course on health and impairments in adulthood, and interplay between age at onset and the opportunity to accumulate human capital and financial assets.

All these factors make disentangling independent causal effects of disability difficult. Notwithstanding these estimation difficulties, our findings agree with international research in showing that substantially more income is needed by households with a disabled person to achieve the same standard of living as other households. Regression-based standard of living estimates from a pooled study of 15 European countries show that around 30–44% more income is needed for households with a disabled adult aged 50–65 (Morris and Zaidi, 2020). The matching-based estimates for older disabled British people (Hancock, et al., 2013) equate to around NZ\$7,000–9,000 (in 2022 dollar terms). Those for the most disabled UK children (Melnichuk et al., 2018) equate to around NZ\$7,000–10,000.

Our findings also concur with other research in suggesting that additional costs borne by households with a disabled person that are not being met by income support payments and allowances and other supports are likely to be part of the explanation for material hardship among New Zealand children (Wynd, 2015; Murray, 2018; Wilson and McLeod, forthcoming). While qualitative interviews show that government, families, whānau, friends and community agencies provide important formal and informal supports, the overwhelming impression is one of many disabled people in households on low and middle incomes having unmet need and hardship or having only just enough to get by in spite of these supports (Wynd, 2015; Cram et al., forthcoming; Gray and Stratton, forthcoming). Useful areas of focus for efforts to reduce hardship

Substantial increases in income and/or direct supports for households with disabled people would be needed to address higher levels of deprivation for children in these households when compared with children in households with no disabled person.

would be improving income support payments and services that support employment, and improving income support payments such as the disability allowance and child disability allowance, and other supports that help with the additional costs of disability.

These payments and supports are currently received in only a minority of households where children live with a disabled adult or child (Suri and Johnson, 2016; Wilson and McLeod, forthcoming). More research to better understand the extent to which increased uptake of available payments and supports could help reduce hardship would be useful (Wynd, 2015; Wilson and McLeod, forthcoming). Awareness of supports appears to be an issue (Suri and Johnson, 2016). In the New Zealand Income Support Survey, one in five respondents who said they had a child with a physical, sensory, psychiatric or intellectual disability were

not aware of the child disability allowance.<sup>23</sup> However, we note that even if a household with a disabled child missing out on the disability allowance and child disability allowance were to receive these payments, this would yield at most \$7,167 per annum. This amount would not fully address even the smallest of the average income shortfalls we estimate. It would therefore be useful to consider policies that improve the adequacy of payments and supports, as well as those that broaden coverage, access and uptake (Morris, 2021).

Based on the Washington Group measure used in the HES, almost three in every ten children live in a household with a disabled person (likely an underestimate given the limitations of the measure).<sup>24</sup> This means that policies addressing the high rate of material hardship for children in households with a disabled person are important to the wellbeing of a sizeable share of the population of children. Such policies could contribute to both future child poverty reduction efforts and to meeting obligations under the United Nations Convention on the Rights of Persons with Disabilities, which require ratifying countries to safeguard and promote the right to an adequate standard of living and social protection for disabled people.<sup>25</sup> They could also form part of an early intervention social investment approach. Helping to ensure that disabled children and adults get the resources, therapies and services they need early may improve the trajectory of their lives and reduce future costs.

Key strengths of our approach are its transparency and simplicity, and that it avoids difficulties encountered with regression and matching standard of living approaches. A key limitation is that while we provide useful new insights into the range of additional income needed to address higher deprivation for children in households with disabled people, we are unable to offer insights into the degree to which the income shortfall results from costs of disability. Nor can we shed light on how much additional income would be required to reduce material hardship rates to below certain levels, or whether income shortfalls would be best met through income support payments or direct supports. In addition, as with the regression

and matching approaches tested, we are limited to a single indicator of disability status in which some disabled people appear as not disabled, and we are unable to consider variation in income shortfalls by the nature and severity of disability.

Potential areas for further research include estimating the additional income needed to address higher rates of material hardship and severe material hardship (i.e., to equalise proportions with six or more and nine or more Dep-17 items), exploring variation in costs faced by people with different types and degrees of disability,<sup>26</sup> exploring differences between Māori and non-Māori in more detail, and investigating the feasibility of developing an approach to income equivalisation in income poverty monitoring that takes into account additional costs of disability.

## Conclusion

Substantial increases in income and/or direct supports for households with disabled people would be needed to address higher levels of deprivation for children in these households when compared with children in households with no disabled person. The increases needed are higher when there are two or more disabled people in the household.

1 Other payments, such as Working for Families payments and the accommodation supplement, may be received in addition to health- and disability-related income support payments. Sole parents who are disabled or have a disabled child may receive sole parent support rather than the supported living payment or jobseeker – health condition or disability benefit. (See Graham, 2022 for a more detailed overview of the income support system.)

2 Where these apply, they count the income of the recipient and their spouse or partner.

3 This does not usually cover additional primary healthcare costs, such as those for electrocardiograms, vaccinations, dressings and diabetes support.

4 Disclaimer: These results are not official statistics. They have been created for research purposes from the Integrated Data Infrastructure which is carefully managed by Statistics New Zealand. For more information about the Integrated Data Infrastructure please visit <https://www.stats.govt.nz/integrated-data/>.

The results are based in part on tax data supplied by Inland Revenue to Statistics New Zealand under the Tax Administration Act 1994 for statistical purposes. Any discussion of data limitations or weaknesses is in the context of using the Integrated Data Infrastructure for statistical purposes, and is not related to the data's ability to support Inland Revenue's core operational requirements.

The views, opinions, findings and recommendations expressed in this article are those of the authors. They do not necessarily reflect the views of the Ministry of Social Development, or people involved in the advisory or peer review processes. Any errors or omissions are our own.

5 Inclusive of the costs of the additional time required by disabled people in daily living.

6 These are cubic spline curves. Cubic splines were chosen due to the simplicity of calculation and the smoothness of the resulting fitted curve. Spline curves were fitted with four knots placed approximately at the quartiles of the income distribution. Two knots were insufficient to capture the broad shape of the SOL-income curve, while five knots resulted in over-fitting to the data.

7 Net income after deducting taxes and adding transfers (e.g., benefits and Working for Families tax credits) adjusted for household size and composition.

8 Based on a sample of 4,893 households with children aged under 18 (1,785 with one or more disabled person, 3,108 with no disabled person).

9 Based on a sample of 8,703 households with children aged under 18 (2,160 with one or more disabled person, 6,543 with no disabled person).

10 This could be for various reasons, including recent migrants with low income earned in New Zealand but higher income earned elsewhere, self-employed with low taxable earnings, or people who have high asset wealth and low expenses, and are less reliant on income to maintain their standard of living. In addition, very low incomes could result from reporting error or matching error resulting from the construction of the IDI.

11 An enforced lack is an item that is wanted but not possessed because of the cost.

12 Lower and upper quartiles in households with a disabled person were \$28,000 and \$51,000 respectively. Lower and upper quartiles in households with no disabled person were \$33,000 and \$62,000 respectively.

13 Unless totally blind.

14 This involves, e.g., examining the additional income needed by households with a Māori household member and with a disabled person when compared with households with a Māori household member and with no disabled person.

15 Estimates could not be produced for households with adults aged 64 or over and with no children aged under 18 because there was no consistent relationship between income and standard of living.

16 For  $\beta$  and  $\delta$  in Box 4.

17 Through its impact on the ratios in equations (2) and (3) in Box 4.

18 Matching variables included the age of household members (age of oldest adult and youngest child in the household), number of adults and children in the household, ethnicity of household members, region, area deprivation, highest qualification of household members, and housing tenure.

19 Apart from the deprivation index (Dep-17), we also tested our results on the Material Wellbeing Index (Perry, 2022, Appendix 1) and a self-reported question about income sufficiency.

20 We did not have detailed Washington Group screening questions, so were unable to construct alternative measures based on type or severity of disability. However, we did have access to administrative data on chronic health conditions from hospital admissions.

21 A wealth supplement to the HES is undertaken every three years, but is only administered to a subset of HES participants. In our sample, we therefore were able to derive wealth data for a subset of respondents to the 2020/21 HES.

22 Dep-17 (see Box 3) and the Material Wellbeing Index (Perry, 2022).

23 Source: Ministry of Social Development unpublished tables.

24 Underwood et al. (2024) find that among multi-person families living in the same household, 60% include at least one person with one of nine selected long-term health conditions (cancer, chronic obstructive pulmonary disease, heart disease, diabetes, dementia, gout, stroke, traumatic brain injury, or mental health/behaviour conditions).

25 Article 28 – Adequate standard of living and social protection (<https://social.desa.un.org/issues/disability/crpd/article-28-adequate-standard-of-living-and-social-protection>).

26 This would require more detailed information on responses to HES Washington Group questions than is currently available to researchers.

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# Navigating the Boundaries of Digital Platform Content Regulation in New Zealand

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## Abstract

This article examines the complexities of implementing online content regulation in a small jurisdiction such as New Zealand. Three attempts at hate speech and online content regulation have faltered, in part due to the difficulty of crafting precise legal definitions and different possible conceptions of harm. The ‘safer online services and media platforms’ policy is the most recent. Given New Zealand’s limited market size and the global reach of online platforms, enforcing local content standards is both impractical and potentially ineffective. Most content originates offshore, beyond the scope of domestic legislation, and technological solutions to tailor content to individual user groups are costly and easily circumvented. Existing domestic laws and voluntary industry codes combined with the spillover effects of regulations in larger jurisdictions and international multi-stakeholder efforts likely offer more effective solutions than local legislation. Hence, fostering international cooperation, leveraging global standards and encouraging voluntary compliance should be encouraged.

**Keywords** New Zealand, digital platform content regulation, censorship, free speech, Christchurch Call

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New Zealand has a long legacy as a world-leading innovator in telecommunications and internet technology policy, with its 1990s ‘light-handed’ competition law-based reforms (Howell, 2007) and its government-subsidised nationwide ultrafast broadband network (Heatley and Howell, 2010). More recently, that extended to leadership in internet content moderation policy, via its central role in the Christchurch Call multi-stakeholder network established in 2019 (Wolbers, 2023). Yet so far it has adopted a follower strategy in artificial intelligence (AI) regulation (Ministry of Business, Innovation and Employment, 2024; Collins, 2024) and has had three failed attempts to introduce legislation regulating for hate speech and online platform content moderation, the latest being the coalition government’s announcement that it would not be proceeding with legislation introducing a single regulatory agency overseeing both online and physical/broadcast media content (Van Velden, 2024).

This article notes that online content regulation is fraught with definitional difficulties and challenges due to differing perceptions of harm from the same content for different potential end consumers and by extension the groups with which they

are associated (for example, New Zealand as a society). This poses specific difficulties for a small state such as New Zealand (population approximately 5.3 million) when endeavouring to create institutions and legislation to manage both the incidence and the distribution of potentially harmful online content, the vast majority of which is created outside its borders by individuals and firms over which it is unable to exercise formal controls. Ultimately, it must rely on the effects of laws and codes of practice developed elsewhere rather than local laws and practice to moderate the vast majority of online platform content.

To support this assertion, we examine the difficulties faced in New Zealand when endeavouring to define acceptable and unacceptable content legislatively. We reference briefly the difficulties of defining ‘hate speech’ and ‘harm’, in legislation proposed in response to the recommendations of the inquiry into the March 2019 Christchurch terrorist attack. The substantive example then examined is the legislation proposed in 2023 to create safer online services and media platforms in New Zealand. Neither of these initiatives has proceeded. We argue that even if passed, the latter proposals would have been largely impotent in influencing online safety in New Zealand. We conclude by suggesting that international multi-stakeholder initiatives such as the Christchurch Call may provide some controls, as do the spillover effects of laws in other, larger jurisdictions to the extent that they can govern the activities of international firms with an online presence in New Zealand. New Zealand initiatives should focus on ensuring that locally produced content meets existing local laws and standards.

#### **Platform content regulation in New Zealand**

The Royal Commission of Inquiry into the Terrorist Attack on Christchurch Mosques on 15 March 2019 reported to the governor-general on 26 November 2020, making specific recommendations regarding hate speech and hate crime-related legislation (Royal Commission, 2020). Two attempts to effect this, in 2021 (Ministry of Justice, 2021) and 2022 (New Zealand Parliament, 2022), failed to proceed, in large part

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due to difficulties defining exactly what constituted ‘hate speech’ and the definition of harm. As the interpretation of an utterance and the extent of harm caused are critically dependent on the identity of the recipient(s) (or target) (Small, 2022; Strossen, 2018; Mchangama, 2022), defining hate speech and harm satisfactorily for legislation has proved both difficult and controversial. A third attempt begun in 2023 (Department of Internal Affairs, 2023a) was also abandoned following a change in government at the 2023 general election, with the incoming minister of justice instructing the Law Commission<sup>1</sup> to cease work on hate speech reforms in March 2024 (Manch, 2024) and the minister of internal affairs announcing in May 2024 that the legislation implementing a single platform for digital and physical content moderation would not be progressed (Van Velden, 2024).

Regulation of online content intertwines with AI regulation because AI tools sit at the core of social media platforms and other applications. AI tools are used to both filter the content uploaded by end users to be viewed by others (Gorwa, Binns and Katzenbach, 2020), and select and order the content distributed to and seen by the end

users. From the platform/application perspective, filtering is necessary to ensure that the content displayed does not breach relevant laws in the jurisdictions in which it is viewed, as well as to support the user experience. Platform/application providers may also apply additional screening to filter out content that fails to meet any additional standards they require. For example, a platform operator may add additional conditions, even if they are not legally required, in order to differentiate itself from its rivals or cater to the perceived preferences of its target user audience. Such additional filters have been applied to Google’s Gemini text generator to differentiate it from rival OpenAI’s ChatGPT (Milmo and Hearn, 2024), for example.

In June 2023, the New Zealand Department of Internal Affairs released proposals for ‘safer online services and media platforms’ (Department of Internal Affairs, 2023a). The department is responsible for managing the government’s content policy and managing relationships with the Classification Office, the independent Crown entity responsible for classifying content available to New Zealanders. The chief censor manages the Classifications Office and exercises its statutory powers. The motivation for the proposals presumed that ‘New Zealanders are being exposed to harmful content and its wider impacts more than ever before’ (ibid., p.3). Without change, ‘New Zealand is at risk of falling behind the protections that other like-minded nations provide’ (Department of Internal Affairs, 2023b, p.4). Existing provisions were deemed insufficient and inconsistent across platforms, and despite already having legislation to deal with most situations, it was argued, behaviour that is illegal is sometimes tolerated online. This conclusion was reached despite the apparently very successful blocking of access to the 2019 mosque shooting videos on New Zealand servers by local internet service providers within minutes of the event, and the chief censor making possession of the shooter’s manifesto in New Zealand illegal by the next day (Howell, 2019). However, removal of the video and manifesto from overseas servers could not be achieved because New Zealand laws cannot be enforced outside New Zealand’s

sovereign boundaries. Similar limitations have been experienced in other jurisdictions, including Australia (Howell, 2024a).

Defining what is harmful is highly content- and consumer-specific. Content that could cause harm or offence to some individuals or groups may not cause harm or offence to others (Strossen, 2018; Mchangama, 2022). Thus, the definition of what constitutes ‘safety’ comes from consumers’ perceptions of a specific piece of content, rather than those of its creator or publisher/host. As platforms cater to many different end consumers, all with different perceptions of what is ‘safe’ or ‘unsafe’ content, the decision about whether or not it is acceptable to host it is not simple. Choosing not to host a piece of content because it is not ‘safe’ for one subset of consumers denies access to it by another subset of consumers for whom it does not constitute a safety risk. Indeed, refraining from hosting it potentially infringes upon the creator’s freedom to express their views, the platform host’s rights to publish the creator’s content and potentially earn revenue from doing so, and the ability of the unharmed consumers to enjoy/benefit from it. And as much as ‘society’ as a subset of consumers may avoid some collective harms from some potentially harmful content being removed, it is equally potentially harmed by the loss of benefits to those members of society who would not have been harmed, and indeed could have prospered if the content was available.

The difficulty is illustrated by various digital marketing cases brought to the Advertising Standards Authority, the industry self-regulatory body overseeing advertising content in New Zealand (Advertising Standards Authority, n.d.).<sup>2</sup> The vast majority relate to offence taken by specific consumers motivated to lodge a complaint about content they deemed offensive (e.g., transphobic, misogynistic, in bad taste, likely to encourage young children to eat sugary foods), but with which many others would have no problem. Most complaints either were found to have no grounds to proceed or were not upheld. This reflects the very real challenge faced by platforms: the issue to be addressed is frequently not the content per se, but the identity of the user(s) to whom it is displayed. Placing legal responsibility for

... New Zealand’s current legal system has powers to deal with ‘most awful and illegal content like child sexual exploitation and promotion of terrorism, regardless of whether it is delivered online or through traditional forms of media such as printed publications’

online safety onto content producers and hosting platforms alone diminishes user actions (and those of their guardians) in monitoring and regulating access to online content and reducing harm (Howell, 2024b). This raises the question of whether the motivation to intervene is primarily to address harm directly linked to specific online content because existing laws and processes have demonstrably failed to ensure reasonable outcomes, or rather to address political concerns – notably, voter perceptions of the government’s performance in response to the royal commission on the mosque attacks and pressure from lobby groups. While this question is of interest, we focus here specifically on the content and enforceability of the 2023 safer online services and media platforms proposal.

#### **Safer online services and media platforms**

The proposal focused on consumer protection from harmful content in all media types, ranging from ‘books, films and radio to social media and blogs and

everything in between’. The proposed solution ‘introduces more robust consumer protection measures that protects [sic] New Zealanders while maintaining the existing freedoms we enjoy’, and came in response to ‘widespread concerns about the harm some content is causing children and young people’ (Department of Internal Affairs, 2023a, p.3), in addition to concerns about hate speech arising from the 2019 mosque shootings. For example, 83% of respondents to a Classification Office survey expressed concerns about harmful or inappropriate content on social media, video sharing sites and other websites (Classification Office, 2022).

The proposers found that, in principle, New Zealand’s current legal system has powers to deal with ‘most awful and illegal content like child sexual exploitation and promotion of terrorism, regardless of whether it is delivered online or through traditional forms of media such as printed publications’ (Department of Internal Affairs, 2023a, p.4). Hence, no changes to definitions of what is considered legal or illegal in New Zealand were proposed. However, as most of the legislation is over 30 years old, it was not deemed well suited to addressing the specific challenges of an online environment. Existing measures are predominantly reactive, allowing redress only after alleged breaches have occurred and been reported to the relevant authority. Furthermore, they address specific pieces of content only, rather than general categories. Moreover, those responsible for enforcing compliance believed they lacked the tools and powers to oversee online platform activity in respect of online content. A particular concern was that monitoring and oversight is spread among ten separate agencies: government agencies the Department of Internal Affairs, the Classification Office, the New Zealand Police and the New Zealand Customs Service; statutory bodies the Broadcasting Standards Authority and the Film and Video Labelling Body; industry organisations the Advertising Standards Authority, New Zealand Media Council and NZTech; and civil society entities such as Netsafe (see Appendix). This was thought to be leading to confusion among consumers about where to seek information or lodge complaints.



The proposed solution was to create a new independent regulatory (presumably statutory) body, separate from the government, responsible for overseeing all online and other media platform content, with similar online safety obligations to those of Ofcom in the UK.<sup>3</sup> The regulator would ‘work with platforms to create a safer environment’ and require ‘larger or high-risk platforms to comply with codes of practice’ developed by industry groups with input from and approval by the regulator (Department of Internal Affairs 2023a, p.6). Platforms will be required to have transparent operating practices in place to meet code requirements. Codes of this form already exist for broadcasters and other traditional media, currently overseen by bodies such as the Broadcasting Standards Authority, the New Zealand Media Council and the Advertising Standards Authority. However, these would have had to be renegotiated, alongside the negotiation of new codes for social media and other internet platforms, to ensure that consistent standards apply across all media.

The regulator would have had powers to ‘check information from platforms to make sure they follow the codes and could issue penalties for serious failures of compliance’ and ‘powers to require illegal material to be removed quickly from public availability in New Zealand’ (ibid., p.7). The regulator would thus enforce existing censorship legislation, in addition to exercising new powers ‘to deal with material that is illegal for other reasons, such as harassment or threats to kill’ (ibid.). To do this, the regulator would require the regulated platforms to submit transparency reports, review complaints, share information with domestic and international agencies, submit regulated platforms to periodic and ad-hoc audits, and request relevant information from the regulated platforms as necessary. Enforcement powers would include directions to take remedial action to address identified gaps or deficiencies, formal warnings, civil penalties for non-compliance, and directions to remove non-compliant material in a stipulated time frame.

Feedback was sought from the public on what other kinds of illegal material the regulator should have powers to deal with. Submission summaries were released in May 2024, along with the minister’s

To the extent that any New Zealand-specific content warrants special treatment, attending to this via specific legislation empowering the relevant bodies already in place rather than relying upon new online codes would appear to be a more robust resolution.

announcement that the legislation would not proceed.

#### Discussion

While there may be some merit in coordinating the many bodies with a stake in content oversight and consistently reporting their activities,<sup>4</sup> it begs the question of why additional powers of censorship are warranted, or can even be effectively enforced, given that most of the content viewed in New Zealand is created offshore by companies outside the jurisdiction of the New Zealand legal system.

First, to the extent that existing codes already address current legal requirements, albeit customised for specific circumstances, no further additional codes appear to be necessary. There are many examples of adherence to codes created and overseen by independent entities which have the effect of providing information to consumers with higher standards than legally required, in both the New Zealand and international contexts. For example,

Meta finances a quasi-judicial oversight board with an independent membership appointed from public nominations, via a system managed by US law firm Baler McKenzie, to oversee content on Facebook and Instagram to ensure that these platforms promote free expression by making principled decisions on content hosting according to their transparent policies (Wong and Floridi, 2023). The board’s independence and wide scope is asserted because Meta does not control the appointments process; the current board has membership from across the globe, albeit with a US bias (six of 18 members) (Meta Oversight Board, 2024). Likewise, civil society organisation Netsafe has developed a voluntary code for platforms operating in New Zealand, with input from Meta, Google, TikTok, Twitch and Twitter (now X) (Netsafe, n.d.). Similar initiatives have taken place internationally.

As New Zealand is so small relative to the international content providers, with only 0.05% of global population, relying on existing measures rather than creating yet another set of codes and adding additional layers of bureaucracy appears prudent. To the extent that any New Zealand-specific content warrants special treatment, attending to this via specific legislation empowering the relevant bodies already in place rather than relying upon new online codes would appear to be a more robust resolution. However, Ververis et al. (2024) have demonstrated that even website blocklists (or instructions) issued by authorities at national level in the EU, for example, are imperfectly put into practice and that there is a lack of transparency. So the simple act of legislating does not guarantee a more effective outcome.

Second, while New Zealand exists as a sovereign state capable of making its own laws, the entities engaged in creating and hosting content viewed in New Zealand are increasingly neither physically nor legally present in the country.<sup>5</sup> The extent to which they understand or can be held to account to a New Zealand code (or even current New Zealand law) is debatable. This is illustrated by a recent example involving the legality of online advertisements for a foreign betting agency involving a New Zealand sportsman



(Howell, 2023). Whereas the Department of Internal Affairs, having direct regulatory oversight of gambling and responsibility for relationships with the Advertising Standards Authority, asserted that the advertisements were not in breach of New Zealand law, Facebook erroneously took them down on the mistaken understanding that the New Zealand legal provisions were the same as those in Australia. Similarly, the Australian eSafety commissioner was found to be legally unable to force X to take down content internationally deemed unacceptable in Australia.<sup>6</sup> Whether other platforms' (Meta, TikTok, Google) actions in taking down the content internationally was due to the eSafety commissioner's order alone or because of obligations as signatories to voluntary international codes such as the Christchurch Call is arguable (Howell, 2024a).

The New Zealand market is such a small share of the global custom for many platforms that they have few incentives to understand (or may place a low priority on) the nuances of a New Zealand-specific code or law. For the most part, compliance with content codes relies upon AI and not human decision making. If New Zealand code requirements are sufficiently different from those applying in other jurisdictions, then large international platforms are likely to find it extremely difficult to manage the 'safety' of New Zealand consumers by focusing only on the nature of the content alone. The identity, location and preferences/restrictions of the content viewer will need to be known before an effective decision can be made about whether it is 'safe' to let that individual view specific content. This does not mean that there is not a role to play in New Zealand in ensuring that locally produced content obeys local laws. Rather, it means that the focus of compliance and harm avoidance lies in the relationship between the government and content creators that can be monitored and enforced, rather than with international online media platforms, where enforceability is extremely limited.

Yet a third issue arises due to technical considerations. Providers can moderate content based on a user's IP address and browser information (e.g., 'cookies'). The first is used to prevent content distribution in specific geographic locations, the latter

As the prime minister's chief science advisor has observed: 'As a relatively small economy, NZ doesn't have the market power to incentivise suppliers to comply with overly onerous regulation that is not in place elsewhere'

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to distinguish between different individuals using the same address. However, these can be masked by users to get access to content that otherwise may have been withheld (e.g., via VPNs, anonymising browsers and new accounts). A third party with access to a data stream (e.g., a broadband provider or a government entity intercepting traffic at a key point) could block all content from a specific server, but not individual items communicated using Hypertext Transfer Protocol Secure (HTTPS) (very commonly used), due to encryption. Hence, direct onshore reviewing and blocking of selected traffic generated offshore is not an option open to a country like New Zealand, where residents expect and need access to the usual panoply of online services available elsewhere (Howell and Potgieter, 2023; Howell, 2024a). Interception of this kind is possible in China because the country has developed its own onshore services that serve as partial substitutes (Wu et al., 2023).

In sum, therefore, there is negligible evidence that existing provisions, including existing laws and all statutory, industry-led and multi-stakeholder codes, are ineffective. Confusion about where to file complaints could be satisfactorily addressed by

publicity and education about the existing arrangements, and even a single portal linking a consumer directly to the relevant separate enforcement entities. Even if new laws were passed, the ability to enforce them effectively is limited, so it appears little will be lost if New Zealand adopts a follower strategy for internet content moderation in addition to AI regulation. Indeed, if international endeavours such as civil society initiatives, or 'Brussels effect'<sup>7</sup> regulations in larger jurisdictions where platform companies operate, address safety concerns satisfactorily for the vast majority of the content New Zealanders view, or the AI applications they use, then no extra regulation may be necessary at all. Existing codes may continue to prove sufficient.

### Conclusion

When New Zealand took an innovative approach to telecommunications policy in the 1980s, the subjects of the ensuing regulation were firms with a defined legal existence and presence within New Zealand, creating and providing services within New Zealand and almost exclusively to New Zealanders. Governing their activities under New Zealand law was straightforward, even though many of the firms entering the local market were foreign (e.g., Bell Atlantic, BellSouth, Vodafone, Econet). When it comes to the regulation of online content, while the consumers of internet content in New Zealand may have valid concerns about New Zealand-specific policy and legislation, the creators, hosts and promulgators of the vast majority of the applications, their outputs and contents will not be within the scope and jurisdiction of New Zealand laws. As the prime minister's chief science advisor has observed: 'As a relatively small economy, NZ doesn't have the market power to incentivise suppliers to comply with overly onerous regulation that is not in place elsewhere'.

In this context, New Zealand's leadership of the Christchurch Call takes on a new significance (Wolbers, 2023). New Zealand assumed this role not due to legislative experience but because, by dint of fate, it was in the international spotlight at the 'right time'. The country led by advocacy, not by example, when the Call

was founded because the massacre occurred in a country led by a prime minister with a strong international profile and the right connections to bring targeted stakeholders to the table. New Zealand stands to benefit from the Call initiatives, at least in relation to terrorist content, regardless of whether or not they take form in local laws, so long as the self-regulatory processes of the Call are effective. This is one reason why the New Zealand government underwrote the Call's administrative functions until the end of June 2024.<sup>8</sup>

Small countries such as New Zealand must rely in large part on international initiatives if they are to influence the behaviour of international media platform firms. But as Wolbers (2024) indicates, these initiatives must be self-sustaining and independent from too much government as well as industry influence if the codes of

practice are to be effective. This is a hard task to achieve. If the Christchurch Call and other civil society initiatives targeting other forms of objectionable online content cannot succeed, then New Zealand and other small countries must continue to rely only on spillover effects from laws passed in other countries influencing the behaviour of the international platforms making their content available to New Zealand citizens as members of a global audience.

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- 1 The Law Commission is an independent authority, like the privacy commissioner and the Human Rights Commission, established under the Law Commission Act 1985 and accountable to Parliament to review laws and make recommendations to government on how they can be improved.
  - 2 Unlike the similarly-named UK Advertising Standards Authority, the New Zealand entity is not a statutory body.
  - 3 Established in 2003, by the Office of Communications Act 2002, Ofcom has additional responsibilities in regulating telecommunications, broadcasting and postal services not envisaged in the New Zealand proposal.
  - 4 There is no apparent efficiency benefit from the process, as it is likely that all of the existing codes would have remained in some

form, overseen by the respective industry experts, in addition to the overlay of regulatory obligations for the firms and the new regulator. If what was sought was ease of access for consumers to the existing processes (which it has not been established were not working), then arguably this could have been achieved with simply a single portal linking to each of the specific complaints processes. If what was intended was a single process for all media types, then inevitably there would have been compromises in effectiveness, as it is far from clear that one code with a generic set of criteria would suffice given the various different objectives for different forms of content (e.g., advertising content is not assessed against the same criteria as broadcast entertainment).

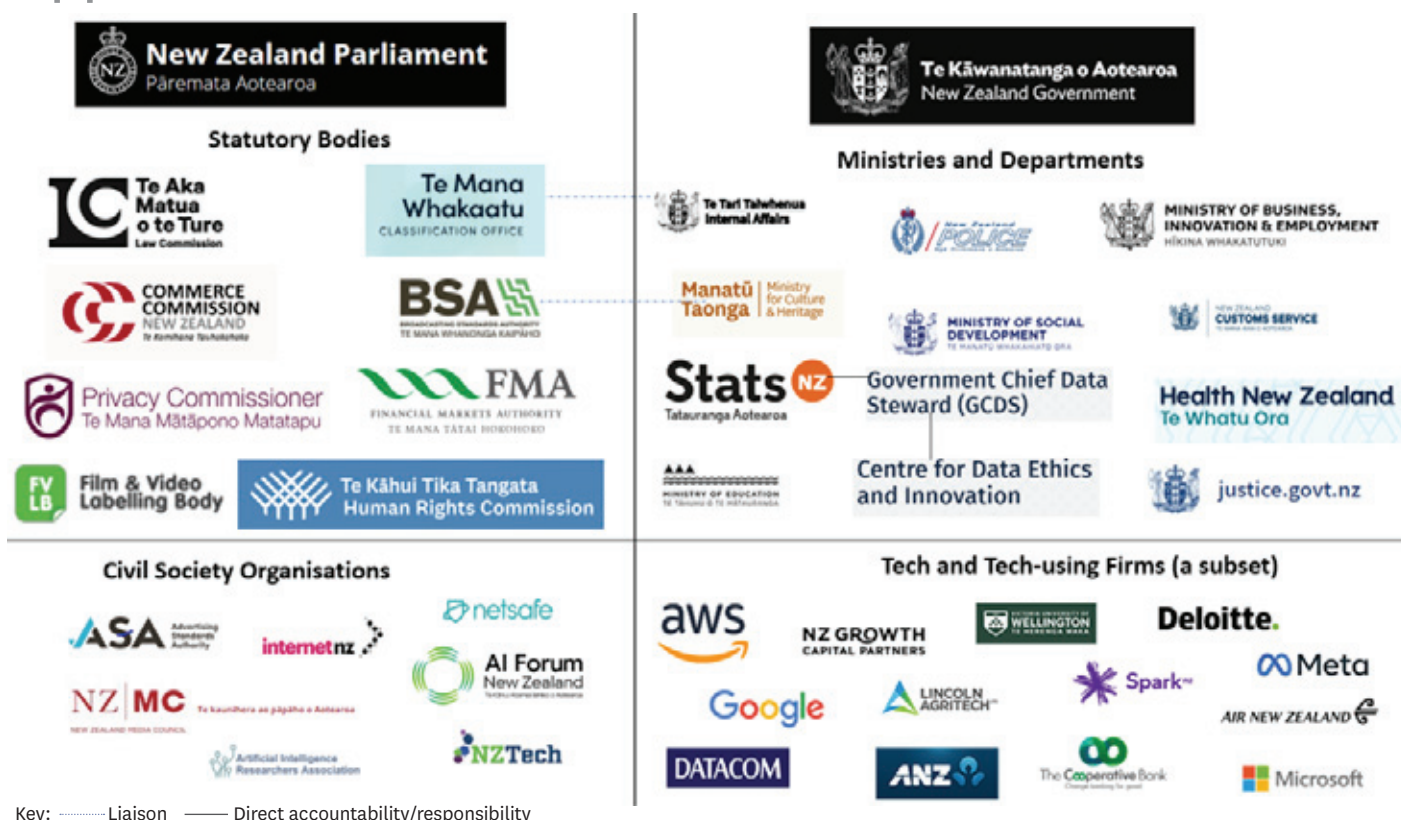
- 5 While Netsafe stakeholders Meta, Google, Twitch and X have a legal presence in New Zealand, this is principally to manage their advertising and other commercial interests; content moderation activity occurs outside New Zealand.
- 6 *eSafety Commissioner v X Corp* [2024] FCA 499 (<https://www.judgments.fedcourt.gov.au/judgments/Judgments/fca/single/2024/2024fca0499>). An interim injunction was granted while the judge considered the case, meaning the content was not available anywhere in the world for some days. However, the judge eventually found in favor of X and the content was made available outside Australia.
- 7 The Brussels effect refers to the ability for EU laws to apply to firms and markets outside the EU, by a combination of legislative specifications capturing any entity outside the EU trading with an EU resident, and advocacy for early-mover EU laws to become a standard for regulation across the globe (Bradford, 2012).
- 8 Funding was withdrawn due to a combination of financial pressures and a change of government leading to different political priorities.

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## Appendix: the New Zealand AI institutional environment





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Jennifer Salmond

# Policy Challenges Of Managing Naturally Occurring Respirable Mineral Dust in Aotearoa New Zealand

## Abstract

Researchers and environmental planners have raised concerns about human exposure to naturally occurring respirable mineral dust (RMD), including erionite and naturally occurring asbestos. However, it is unclear how existing policy frameworks address and manage the risks of exposure to RMD, and little has been offered regarding how satisfactory policy frameworks could be developed. We draw on international research, policy documents and key informant interviews to examine how these risks are presently addressed

globally and in the context of the Aotearoa New Zealand policy landscape, identifying key domestic challenges confronting effective risk governance. We recommend a collaborative effort from various disciplines to understand these new risks. We further recommend the development of an independent mechanism to evaluate risks from long-term or latent hazards such as these.

**Keywords** policy landscape complexity, respirable mineral dust, policy salience, erionite, naturally occurring asbestos, risk management, foresight

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The task of managing the risks posed by respirable mineral dust (RMD) illustrate the wider Anthropocene dilemma of how to live with newly identified ‘natural’ hazards about which we, as yet, have limited knowledge (Brocal, Sebastián and González, 2017; Liu et al., 2024). RMD comprises non-biological particles of natural rocks and soil of inhalable size (less than 10 microns) and includes erionite and other crystalline zeolites and asbestiform minerals (including naturally occurring asbestos (NOA)) (Musante et al., 2002). Mineral fragments in rock and soil can become airborne as a result of natural weathering and erosion processes or disturbed by anthropogenic processes

et al., 2015). There is, therefore, a plausible possibility of long-term health outcomes if we do not take action now to minimise occupational and population exposure to RMD (Morman and Plumlee, 2013).

Recently, concern has been raised about human exposure to RMD in urban environments, where increasing urban development may disturb minerals in rocks and soil, unintentionally exposing dense local populations to carcinogens (Patel et al., 2022; Scarfi et al., 2025). However, the need for mitigative action is complicated by difficulties in quantifying exposure and, hence, the risk posed to the population from RMD, especially in complex urban airsheds (Möller, Schuetzle and Autrup,

A further complicating factor is the lag between exposure to RMD and human health outcomes (Carbone et al., 2011; Frost, 2013). It can take 20–40 years from exposure for cancer to develop or symptoms to become diagnosable (Frank and Joshi, 2014; Carbone et al., 2011; Patel et al., 2022). As a consequence, evidence of the health impacts and level of population exposure to these minerals globally is scarce. Planners and policy actors have yet to agree on the magnitude of risk and how to mitigate it, despite the logical potential for harm (Liu et al., 2024). Thus, even minerals that are known carcinogens, such as erionite (Dogan, Dogan and Hoskins, 2008; Harper, 2008), or minerals that are very similar in morphology and chemistry to known carcinogens (such as NOA) are often not regulated or controlled by occupational or environmental exposure standards (Gualtieri, 2020; Liu et al., 2024).

In Aotearoa New Zealand, due to its unique volcanic geology, erionite and other zeolites (including clinoptilolite, mordenite and offretite) (Reid et al., 2021) have been found in sedimentary deposits in quarries, in surface rock exposures, and in open cliff faces in or near urban areas, in several areas throughout both the North and South Islands (Patel et al., 2024; Scarfi et al., 2025). Human exposure to erionite is of particular concern in the Auckland region, where it has recently been discovered in the geology. With the region accounting for one third of New Zealand’s population, Auckland’s growth in infrastructure and urban densification projects, and the development of land which has previously been considered marginal, present an increased risk to exposed populations (Brook et al., 2020). Given their potential for both occupational and environmental exposure to RMD, it is important to examine the risks and develop and implement appropriate mitigation plans.

To support coherent and anticipatory management of RMD, this article first provides a review of the relevant policy and research literature. Using Google Scholar and Scopus, we identified and reviewed 226 research articles and reports and 61 government documents (including guidance) and technical reports associated with NOA and erionite, from 1978 to 2024. This time frame is consistent with the

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such as construction or mining (Guthrie and Mossman, 2018; Liu et al., 2024). Although the inhalation of any type of respirable particulate can be harmful (Valavanidis, Fiotakis and Vlachogianni, 2008), some rock minerals, such as the group of six minerals collectively known commercially as asbestos (Metintas et al., 2002; Frank and Joshi, 2014), and others, such as erionite (Carbone et al., 2011; Van Gosen et al., 2013; Brook et al., 2020), are known to be especially harmful or carcinogenic (Berry et al., 2022). If inhaled, these minerals can gradually accumulate in lungs, causing diseases such as pleural thickening and pleural plaques (World Health Organization, 2018; Li et al., 2024), asbestosis (Burilkov and Michailova, 1970; Wolff et al., 2015) and lung cancers (Doll, 1955; Baris et al., 1987; Attfield and Costello, 2004; Carbone et al., 2011; Wolff

1994). When airborne particulate matter originates from rock or soil material, the naturally occurring air pollution is often made up of complex mineral and organic components; these mixtures have erratic source terms that are in turn governed by an array of natural and anthropogenic processes (Guthrie and Mossman, 2018). This makes it difficult to calculate exposure or predict the concentration and composition of the resulting particulate matter (Davidson, Phalen and Solomon, 2005). Further, air samples of particulate matter comprise an array of different particles from a range of different source terms (Kelly and Fussell, 2012). Identifying RMD within this complex mixture is challenging, and further complicated by the need to provide particle-specific information about chemistry and morphology to ascertain the particle type.

emergence of the erionite-related malignant mesothelioma epidemic first described in Turkey in 1978 (Carbone et al., 2011), which drew worldwide attention (Emri, 2017). We also interviewed nine key actors who were representatives of relevant policy and industrial sectors in Aotearoa New Zealand, and seven national and international experts from Australia and the United States. Interviewees came from major government agencies, industrial actors and relevant research institutes spanning workplace health and safety, environment and waste, land use, economic development, recreation, insurance, transport, infrastructure, and construction, mining and tunnelling. The interviews explored: 1) perceptions of risks posed by erionite and NOA; 2) potential solutions and capacity to mitigate these risks; 3) the motivations to act (or not) on reducing risks; and 4) standards of evidence required to justify anticipatory action (see Appendix for a list of semi-structured research questions for each interview topic).

After first summarising basic knowledge of erionite and NOA management globally, we draw on these interviews to examine challenges regulating naturally occurring RMD in Aotearoa New Zealand, before considering how mitigation principles and approaches could be considered in the New Zealand context to support proactive management.

#### **The case of naturally occurring asbestos and erionite**

##### *International cases of erionite and NOA management*

Within the policy instrument literature, there is a consensus around a high-level typology of five instrument types for managing environmental risks such as those posed by RMD, albeit with some variation in grouping and emphasis across the literature (Howlett, 2011; Bali et al., 2021). The basic typology often includes: economic (fiscal incentives or disincentives); regulatory; research and educational; cooperation; and informational instruments, depending on how the role of government intervention is perceived and thus structured (Kuhndt et al., 2006, p.4). Goulder and Parry (2008) used the terms ‘incentive-based’ and ‘direct regulatory’ instruments to describe the

kinds of ‘carrot or stick’ approaches that are on the more interventionist side of this typology, compared with research and educational or informational tools to address policy problems. Some scholars suggest that the full typology can be reduced to two simple categories, namely ‘encouraging’ (supportive) or ‘enforcing’ (restrictive), or sometimes both (e.g., Gustafsson and Anderberg, 2021).

##### *International cases of NOA management regulations*

Since RMD is not regulated anywhere, it is helpful to consider how asbestos, a carcinogenic natural mineral, has been managed internationally. Many countries

combined with compliance monitoring and testing techniques designed for high concentrations, makes regulations difficult to apply in cases involving the inadvertent disturbance of NOA. Such locations may not meet regulatory definitions of asbestos (or asbestos concentrations) for assessing risks associated with exposures to NOA (Noonan, 2017). Consequently, the disturbance of rocks and soil containing NOA has been frequently overlooked as a source of exposure, and there has been limited discussion of specific cause–effect linkages between exposure and health outcomes in these settings (Hendrickx, 2009, Harper, 2008).

There are limited examples of policies

... the disturbance of rocks and soil containing [naturally occurring asbestos] has been frequently overlooked as a source of exposure, and there has been limited discussion of specific cause-effect linkages between exposure and health outcomes in these settings ...

worldwide have general regulations on asbestos (e.g., see Muhammad, 2010; Le et al., 2011). However, these regulations are targeted primarily at minimising risk for mining or industrial production operations, and the exposures associated with the use, disturbance or removal of human-made products containing asbestos such as concrete, insulation and other building materials (Gualtieri et al., 2022). As a consequence, these regulations have limited application to NOA. For example, some regulations are limited specifically to the six asbestiform minerals known collectively as ‘asbestos’ (Ross et al., 2008; Strohmeier et al., 2010), but NOA is frequently found in rocks and soil as a complex blend of asbestiform minerals with similar or near identical morphology and chemistry (Lee et al., 2008). This narrow geological definition,

and regulations which have been specifically developed to mitigate the risk of RMD for construction (Lee et al., 2008) and non-asbestos quarrying/mining activities in areas where NOA minerals are common. In California, airborne toxic control measures were adopted to reduce some public exposure to NOA in rocks or soil from unpaved surfaces and quarrying/mining and construction operations (California Air Resources Board, 2002). These control measures specify that in the presence of NOA, specific procedures for sampling, evaluation and monitoring should be applied to reduce exposure risk for workers and the general public. California also provides local-level guidance available for homeowners and schools (Department of Toxic Substances Control, 2006) located in areas with a high prevalence of NOA in the rock and soil, and

there are requirements for record-keeping and air monitoring. Since 2016, the California Department of Transportation has required the identification and management of NOA during the planning, design, construction, maintenance and operation of its transportation facilities (California Department of Transportation, 2016). However, even for those with NOA-specific guidance or regulations, enforcement has been challenging, and monitoring remains insufficient, partly due to a lack of funding or resources (e.g., Li et al., 2014), or the difficulties in distinguishing the potential for exposure resulting from the mere presence of NOA in soils or rocks, especially when no mining activities are

management plans invoke proactive foresight of policy measures to address the latency of health effects, along with more robust hazard identification or enhanced exposure monitoring requirements such as detailed record-keeping of exposure. For example, in Australia, Workplace Health and Safety Queensland articulated specific considerations required when preparing an asbestos management plan for NOA and ongoing management for NOA in 2021, including an air monitoring programme to assess exposure levels and the effectiveness of risk control measures (Workplace Health and Safety Queensland, 2021). However, there are no statutory requirements for an asbestos register for NOA (Queensland

concern remains hazard exposure from unintentional disturbance of erionite-containing rock and soil. Therefore, hazard response and management regimes have included deploying different instruments which span several policy sectors and implementation levels, depending on the nature of human interaction with the hazard. We categorised responses to erionite risks in different jurisdictions in both public and occupational exposure scenarios, demonstrating the contextual and inconsistent nature of the policy response to date (Table 1).

In the case of Turkey, an epidemic of malignant mesothelioma in three villages in a region of central Anatolia during the 1970s was attributed to exposure to erionite (Carbone et al., 2011). According to Metintas et al., malignant mesothelioma was the cause of mortality in 52 of the 103 deaths, 'representing 50.5% of all deaths' (Metintas et al., 2010, p.88). In this case, erionite was thought to be present in the rock-based building materials, soils and roads around the villages. The Ministry of Health of Turkey identified the villages at the highest risk and relocated those villagers to new housing sites. In addition, it initiated a programme to prevent unnecessary use of soil and limit natural erosion (Carbone et al., 2011).

In the US state of North Dakota, medical studies showed that occupational exposure to road gravel containing erionite could lead to changes to lung tissue (Ryan et al., 2011), and thus the use of gravels containing erionite is restricted to limit the potential for occupational exposure, primarily of gravel pit and road maintenance workers, who are considered to be at the highest risk of exposure (Environmental Protection Agency and North Dakota Department of Health, 2010). Additional measures include prohibiting mining in areas where the presence of erionite is known or suspected, and areas nearby should be tested before being mined. The state goes on to recommend that residents with family histories of mesothelioma should reduce or avoid exposure to materials containing or likely to contain erionite (North Dakota Department of Health, 2009). More recently, in 2023, the North Dakota Draft Resource Management Plan (federal

## In the US state of North Dakota, medical studies showed that occupational exposure to road gravel containing erionite could lead to changes to lung tissue ...

involved (Harper, 2008).

Risk mitigation approaches for managing asbestos are equally ill-suited to the management of the risk posed by RMD. For example, workplace asbestos management plans include regulating the mining and processing of asbestos, reducing demand for asbestos-containing products, searching for substitutes, and setting up and equipping medical facilities for asbestos-affected communities (Li et al., 2014), but fail to address issues relevant for managing the risks posed by NOA, such as quantifying ambient fibre counts from different disturbance processes (Harper, 2008). Calls for new or revised regulations on the remediation of contaminated sites, review of safety standards for asbestos handling, and clean-up of asbestos-contaminated areas and waste management (Basel Convention Regional Centre for Asia and the Pacific, 2011; Li, Doing and Liu, 2014; Bolan et al., 2023) also have little relevance beyond those providing and promoting awareness-raising programmes (Espina et al., 2013). Some workplace NOA

Government, 2021), and only the identified or assumed occurrence of NOA at a workplace must be included in the asbestos management plan for the workplace.

### *International cases of erionite management*

Our second case example through which to examine the management (or non-management) of RMD risks focuses on erionite. Erionite is a carcinogenic zeolite found in volcanic regions on every continent (Berry et al., 2022). To date, erionite has been identified as a health risk in at least three countries: Turkey (Dogan, Dogan and Hoskins, 2008), the United States (Van Gosen et al., 2013) and Australia (Department of Mines and Petroleum, 2015). Erionite is perhaps the more useful example to illustrate the policy complexity of addressing a naturally occurring but often anthropogenically triggered respiratory hazard. That is because it has rarely been mined commercially for industrial purposes (Stevens et al., 2024), and thus the major



government) requires testing surface deposits for erionite minerals if any activity is proposed in certain geological formations or geologically down-gradient from them. If erionite is identified, the proposed project may not be approved or may be subject to required design features (US Department of the Interior Bureau of Land Management, 2023).

In the state of Western Australia, erionite was mentioned in the ‘Guidance note on the public health risk management of asbestiform minerals associated with mining’ by the Western Australia Department of Health as a mineral that ‘may have fibre characteristics that make them potentially hazardous as asbestiform minerals’ (Western Australia Department of Health, 2013). Analyses of erionite hazards are found under the ‘Management of fibrous minerals in Western Australian mining operations’ guideline of the Department of Mines and Petroleum (Rogers, 2018). A fibrous minerals management plan must be formulated if fibrous minerals exist on a mine site to manage exposure to an acceptable level by implementing required control measures and procedures (Department of Mines and Petroleum, 2015).

#### **RMD management in New Zealand**

Naturally occurring RMD like erionite falls outside the existing policy landscape in New Zealand. Many of the minerals of concern within the category of RMD are not commercially mined or processed here, and thus there is no exposure data from industrial settings to provide evidence and link exposure to outcomes. Current policies focus on potential hazards of commercial products and processes from these minerals, thereby missing those that are naturally occurring, yet triggered through human activity. This may be partly attributed to the lack of common usage or commercial application of the specific minerals, which means they have largely escaped toxicity assessment, for which the epidemiological analysis for targeted regulation is complex (Parliamentary Commissioner for the Environment, 2022). Furthermore, the national asbestos exposure register, which contains details of people exposed to asbestos and those diagnosed with asbestos-related diseases

in New Zealand, is no longer being maintained. This means that the evidence required to assess the latency of effects and to link cause and effect is no longer being stored (WorkSafe New Zealand, 2024a).

More recently, research suggests that erionite has the potential to present a risk to occupational and public health (Giordani et al., 2017; Brook et al., 2020). Yet there is limited medical evidence of the

**Table 1: Examples of erionite interventions, their intended aims, and ‘supportive’ or ‘restrictive’ classification (based on the literature or government official reports)**

Interventions and settings	Aim of intervention	Type of intervention
<b>National level: Turkey</b>		
Residents’ relocation	Separation from hazard	Restrictive
Set up malignant mesothelioma centres	Early detection	Supportive
Monitor early signs	Precaution	Supportive
Early detection of erionite-rich areas	Precaution	Restrictive
<b>National level: United States of America</b>		
National Toxicology Program designated erionite as a known human carcinogen	Awareness and information	Supportive
The US EPA recognised there is sufficient evidence in humans of the carcinogenicity of erionite and investigated the possible health effects of exposures	Awareness and information	Supportive
Precautions described in existing guidance for working in areas with NOA: for example, workplace practices are required to minimise asbestos emissions and minimise the use of asbestos-containing materials on unpaved road surfaces in California (California Air Resources Board, 2002)	Precaution	Restrictive
Risk reduction recommendations by the CDC for workers engaging in activities that may cause disturbance	Reduce exposure	Restrictive
<b>State level: Western Australia</b>		
Recognition of erionite as a mineral that ‘may have fibre characteristics that make them potentially hazardous as asbestiform minerals’	Awareness and information	Supportive
Management of fibrous minerals in mining operations	Mitigate exposure	Restrictive
<b>State level: North Dakota</b>		
Restrict the use of gravels containing erionite	Separation from hazard	Restrictive
Repave all roads that contain erionite	Mitigate exposure	Restrictive
Prohibit mining in areas where erionite is known or suspected	Restriction	Restrictive
Require that areas nearby be tested before mined	Precaution	Restrictive
Provide a testing and exclusion radius map	Information	Supportive
Provide information about erionite	Awareness and information	Supportive
<b>Local level: Dunn County</b>		
North Dakota Geographical Survey discuss sampling results with county commissioners	Awareness and information	Supportive
Provide local communities with information about erionite	Awareness and information	Supportive
Work with the EPA to investigate possible health effects of exposures	Information/ evidence	Supportive
Precautionary measures to reduce occupational exposures	Precaution	Restrictive

Sources: Carbone et al., 2007; Environmental Protection Agency and North Dakota Department of Health, 2010; Department of Mines and Petroleum, 2015; North Dakota Department of Health, 2009



effects of erionite on humans, despite laboratory results from cells and rats (Wagner et al., 1985; Coffin et al., 1992), and, alongside isolated geographical international cases (Carbone et al., 2011), the evidence base of its health consequences is limited. However, state-of-the-art toxicity tests recently undertaken indicate that erionite found in New Zealand is carcinogenic, and some forms of erionite are found to be more toxic than asbestos in causing malignant transformations (Scarfi et al., 2025).

The use of 'activity standards', such as those used to control emissions from solid fuel burners, have been shown to be

industrial activities that commercialise other rock or mineral products which are potentially contaminated with erionite or NOA-containing minerals (e.g., zeolites for use in cat litter, lining stock runs or gardening) (Harper, 2008; Bilgin, 2017) may also result in exposure pathways for both occupational and environmental exposures.

Standard occupational exposure limits or environmental exposure limits and policy levers are difficult to apply to RMD. While RMD in this category forms part of the particulate matter observed in the air, which is regulated under environmental standards in most jurisdictions as PM10 or

North Dakota: Carbone et al., 2011). Thus, the development of exposure limits for erionite has been slow, despite the continual emergence of new evidence of the presence of fibres in the air (Talbot et al., 2024; Fan et al., 2024).

Although there exists international evidence about erionite and its management, this evidence is not immediately transposable to other places like New Zealand. For example, erionite evidence and mitigations in Turkey, the US and Western Australia are more well-established than in other countries. However, these areas have significantly drier climates and very different vegetation, so it is difficult to draw relevant analogies from these cases and apply them to the New Zealand context. There is also a lack of information on whether it is a significant risk in New Zealand, due to the inability to quantify exposure and link this to medical outcomes. The evidence overseas may not be perceived by policy actors or stakeholders as adequate for establishing similar cause-and-effect links in the New Zealand context, partly due to differences in population size and mobility and to the prevalence of different exposure quantities and pathways.

This combination of factors means that potentially there is currently an insufficient risk management regime for the case where RMD such as erionite or NOA is disturbed and made respirable unintentionally through human activities and natural processes not directly related to commercial production or use of that mineral. It appears to be a risk management blind spot that could be leaving the population, particularly the most highly exposed populations, vulnerable to the risk of significant, latent and adverse health effects.

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effective in air quality management in New Zealand. In the case of erionite, a range of activities could potentially cause exposure to rock and soil materials containing NOA and erionite. These could be managed to proactively reduce the risks of exposure in relevant areas (Hendrickx, 2009). Such activities include excavation (e.g., mining, quarrying, construction, tunnelling, urban development and earthworks, agriculture, forestry), recreation (activities that can disturb the material, such as mountain and dirt biking, off-road four-wheel driving, landscape works, etc.) (Van Gosen et al., 2013), transportation (movement of quarried or excavated material), weathering processes (Hendrickx, 2009), and disposal, use or sale of spoil (Sharp et al., 2022). However, to date, there is little or no information about the impact of such activities on ambient concentrations or the resulting risk of exposure to airborne RMD. Although carcinogenic RMD such as NOA and erionite are not currently mined or quarried in New Zealand,

PM2.5, these standards are not designed to protect populations against highly toxic or carcinogenic particulate matter and may not provide adequate protection in areas where they occur naturally. For example, despite the International Agency for Research on Cancer and the World Health Organization listing erionite as carcinogenic to humans (group 1), there are currently no agreed guidelines or regulations for exposure limits in New Zealand or internationally.

Epidemiological evidence to link exposure to disease prevalence has been limited by the challenges of measuring highly variable concentrations of ambient fibres, often at low concentrations which are at, or near, measurement detection limits (Van Gosen et al., 2013). Efforts are further hampered by difficulties distinguishing individual erionite fibres from other, less toxic, mineral fibres, and the low-density and often highly mobile populations in areas where natural outcrops of erionite are found (such as

#### Challenges for regulating RMD in Aotearoa New Zealand

##### *Jurisdictional mobility of the issue and the lack of a 'home' policy sector*

The oversight responsibility for workplace and population risk mitigation is typically conceived as the role of governments and, therefore, embedded within national, federal or local government structures (Vaz, Koria and Prendeville, 2022). According to our interview participants, a potential RMD hazard response and management

**Table 2: Policy sectors, government departments (with potential policy responsibility) and their administration of legislation or regulations**

Sector	Government agencies or departments	Relevant legislation, regulation and/or policy
Occupational health and safety (including mining, quarrying and tunnelling operations)	WorkSafe New Zealand	Health and Safety at Work Act 2015  Health and Safety at Work (Hazardous Substances) Regulations 2017 Health and Safety at Work (Asbestos) Regulations 2016  Health and Safety at Work (Mining Operations and Quarrying Operations) Regulations 2016  'Managing asbestos in your building or workplace – for PCBUS' (2024)
Public health and health system	Ministry of Health	Hazard exposure register  Cancer Registry Act 1993
Hazardous substances	Environmental Protection Authority (reports to the minister for the environment, the associate minister for the environment, and the minister for climate change)	Environmental Protection Authority Act 2011  Hazardous Substances and New Organisms Act 1996
Ecosystem, resource management, environmental protection, emerging pollutants, land use, contaminants in soil and rock	Ministry for the Environment	Resource Management Act 1991  Hazardous Substances and New Organisms Act 1996  National environmental standard for assessing and managing contaminants in soil to protect human health regulations 2011  Hazardous Activities and Industries List (HAIL)
Economic development, business, employment, health and safety, insurance	Ministry of Business, Innovation and Employment (MBIE)  New Zealand Petroleum and Minerals (part of MBIE)	Health and Safety at Work Act 2015  Crown Minerals Act  Accident Compensation Act 2001
Primary sector	Ministry for Primary Industries	Hazardous Substances and New Organisms Act 1996 (relevant to MPI in respect of new organisms under section 97A)
Transportation (road construction, tunnelling, waste and hazardous substance transportation)	Ministry of Transport	Land Transport Act 1998  Land Transport Rule Dangerous Goods 2005 Rule 45001/2005
Insurance	ACC	Accident Compensation Act 2001
Regional and local authorities for implementation, monitoring and evaluation	Regional and local councils	Implementation, monitoring and enforcement of national directions and regional and local activities, including but not limited to: recreation, construction, trucking and tunnelling, forestry, transportation, infrastructure, contaminated land, land use, construction, transport, earthworks

regime could include the deployment of different instruments spanning at least nine distinct policy sectors (Table 2) in addressing the potential issues of exposure, mainly depending on the nature of human interaction with the hazard.

Interviews with government officials across sectors with potential policy responsibility revealed a desire to see 'more evidence of the health risk associated with it [exposure]'. They argued that 'if it were possible to draw a clear link between some cases of mesothelioma or other respiratory disease and erionite', then regulation would

be more desirable. This lack of available local evidence, combined with the latency of health risks posed by erionite, contributes to low issue salience, which in turn inhibits urgent policy or regulatory attention. Moreover, commercial interests (mining, quarrying, forestry) and physical infrastructure pressures (roading, construction, tunnelling) have high salience on national and regional policy agendas. This is further compounded by a lack of inter-sectoral and inter-jurisdictional policy coordination across the hazard exposure life cycle. For example,

one industry representative interviewed said there were cases of RMD-containing soil being removed from the construction site in the workplace setting but then left to dry outside the work site. For such a scenario, it remains unclear who would be the lead regulator.

Indeed, although international efforts to provide guidance for both NOA and erionite could inform a New Zealand response on risk management, key informant interviews undertaken for this study emphasised the barriers caused by lack of clarity as to which government

agency is, can or should be responsible for managing the risks posed by RMD. Geographical differences were also cited as reasons for not following the example of other jurisdictions. For instance, several policy actors identified the guidance provided for erionite management in Western Australia as a prompt for policy consideration in New Zealand. However, variations in the local wind, climate and vegetation, and predominant patterns of land use in international cases, combined with the unique composition of political bodies and stakeholders, may constrain the effectiveness of learning from international

not be adequate for specific risks associated with highly toxic or carcinogenic materials. For example, the Ministry for the Environment introduced an annual and daily standard for environmental PM<sub>2.5</sub> concentrations based on levels recommended by the World Health Organization (Ministry for the Environment, 2020). There are also occupational health limits for exposure to PM<sub>2.5</sub> designed to mitigate the risks for workers. However, unlike the asbestos regulations (Health and Safety at Work (Asbestos) Regulations 2016), neither of these reflects the specific health risks

in various ways (Table 2). That is, while RMD risk management mainly concerns the occupational health and safety and environment sectors, regulations in other policy sectors, such as transportation, land use, primary industries, insurance and waste management, could also play a role in an anticipatory strategy to reduce the risk.

The complexity of hazard disturbance activities, exposure pathways and intervention points administered by multiple policy sectors make managing the risks of RMD even more challenging. This situation makes it easy for risks from naturally occurring RMD with latent effects to go unnoticed, especially where there are competing financial incentives or a lack of willingness or capability to be anticipatory. Sectors may not fully analyse the potential interactions or spillover effects of their respective mandates and instruments with those of other policy sectors or those at different administrative levels. Our research reinforced the potential benefits offered by an anticipatory strategy that takes a life-cycle approach to managing naturally occurring RMD like erionite, especially when considered together with strengthened inter-sectoral coordination. As commented by an interviewee, 'If you think about the life cycle, there's a motivation for a new asset of some kind, or programme'.

#### *Issue salience challenges*

Key informant interviews also depicted a distinct 'lack of foresight capacity in managing hazards with latent effects', and the absence of a specific decision framework for latent risks such as those posed by RMD in New Zealand. Maintaining a life-long exposure register with long-term administrative support and resources that are accessible by health practitioners and authorities could help. However, as of December 2023 WorkSafe no longer even operates the asbestos exposure register, let alone adding a mineral for which the evidence base is only emerging. Similarly, although there was a New Zealand mesothelioma register, it is no longer available.

By contrast, in Ontario, Canada, the Ontario Asbestos Workers Registry was created in 1986 to notify the workers and

As the New Zealand record shows, institutional structures cannot protect an institution indefinitely, but it is worth considering what might make some structures more effective and resilient than others.

measures to mitigate risk here in New Zealand.

Due to the difficulties in monitoring and measuring ambient concentrations, the absence of quantitative evidence documenting the causal pathways of this hazard and the lack of local epidemiological evidence, quantitative risk assessment has been notoriously difficult to establish. New Zealand's occupational health and safety regulator, WorkSafe, requires a 'person conducting a business or undertaking' to manage worker health risks caused by exposure to different types of airborne dust, and specifically clarified the inclusion of asbestos and respirable crystalline silica dust (WorkSafe New Zealand, 2024b). Erionite has been added to the list of agents included in the New Zealand Carcinogens Survey 2021 (WorkSafe New Zealand, 2021). However, the potential risk management framework or approach for erionite has not been clearly articulated or explained as of January 2025.

Indeed, legislation applied to environmental risks more broadly may also

associated with RMD. Further, neither the Ministry for the Environment's daily standards nor occupational health limits have provisions to protect against specific risks for people inhaling RMD when undertaking activities which may expose them inadvertently: for example, dusty activities such as emptying zeolite-based kitty litter (which may be contaminated with erionite) into the tray, or those working in stores putting bulk products into bags or bins, or working with zeolite-based fertiliser or garden material. Similarly, current standards might not provide sufficient protection for people living close to worksites which inadvertently disturb rock materials, including quarries, roadworks and construction.

#### *Complexity of cross-sectoral interactions and inter-linkages in Aotearoa New Zealand*

Depending on the rock- or soil-disrupting activity and/or the stage of that activity, nine policy sectors were identified as having the potential to mitigate the risk posed by RMD

their physicians of the need for a medical examination if their asbestos exposure reaches a certain threshold (2000 hours) (Pefoyo et al., 2014). While the association between exposure to fibrous erionite and human mesothelioma is not as well established as it is with asbestos, a robust record of historical exposures linked to geographic and health data would help to better understand the risks in the local context.

It is crucial to consider how governance frameworks and associated policy instruments could address different exposure scenarios across the life cycle of RMD and their latent impacts over decades. However, the lack of meaningful action (and, indeed, a reversal of previous actions) on this gap is exacerbated by political short-termism and market-driven activities (Nel and Stevenson, 2014), as well as the promotion of urban development and infrastructure building. For effective actions at key points of intervention, a strategic framework would need to

encompass even those policy sectors that deal indirectly with erionite or NOA, as it is disturbed in different ways over time (e.g., digging/quarrying, transportation, disposal, sale of fill, etc.).

#### **Discussion and conclusion: lessons learnt from the examples of mitigating RMD risks**

The case examples of erionite and naturally occurring asbestos demonstrate that managing this particular type of hazard is challenging in Aotearoa New Zealand. Our analysis of the complex policy landscape of responsibility for naturally occurring RMD highlighted three key factors that impede proactive mitigative action: jurisdictional ambiguity and lack of a 'home' policy sector; complex cross-sectoral interactions and interlinkages over the course of the hazard life-cycle; and issue salience challenges. At the same time, we have shown the importance of taking a life-cycle approach that can coordinate across policy sectors, levels and jurisdictions, and the need for anticipatory foresight that

transcends typical policymaking horizons.

Finally, the case of RMD points to the need for better long-term and independent risk identification and analysis at the national level. Evidence-informed horizon scanning and ongoing monitoring are essential activities, yet both are currently lacking in Aotearoa New Zealand. The establishment of an independent risk identification and analysis mechanism (in whatever form this might take) could address long-term, complex and latent risks that transcend single sectors, jurisdictions and time horizons. Such a mechanism, along with an integrated approach to policies that have an impact on land use (Parliamentary Commissioner for the Environment, 2024), can develop a forward-looking and coordinated approach to complex policy issues that transcend single sectors, jurisdictions and time horizons. It would also be relevant to supporting ongoing reforms of regulatory frameworks for resource management, among others, in Aotearoa New Zealand.

## **Appendix: Semi-structured interview topics and interview questions**

### **1) Perceptions of risk and its salience**

- a) Tell us about the risks you deal with in your role and how these are addressed; tell us about the risks you think the construction sectors are facing.
- b. Can you rank these risks in terms of how important it is that they are addressed?
- c. Can you tell us how you ranked them?
- d. Can you tell us how you came to view these issues as risks?
- e. Thinking about the different functional groups you work with, do you think others would view the issues you named in the same way? Who? Why or why not?
- f. Have you heard about erionite in the soil of some areas around Auckland? Would something like that make it onto your list of risks, and why?
- g. Do you think others would place it there also? Why or why not?

### **2) Potential solutions and capacity to mitigate the risks**

- a. Of the risks you named, do any NOT have satisfactory methods or strategies to manage them? If that's the case, why do you think that is?
- b. Based on what is known about erionite, do you think it would be easy or difficult to address the risk it might pose? Why? Probe ...

### **3) Motivations to act or not**

- a. Thinking about the top risks you named, which groups or individuals do you think would be most concerned about whether and how that risk is managed? Why?
- b. Of the groups or individuals you named, who do you think has the most influence in how that risk is managed? Why?
- c. If erionite were to make it onto your list of risks, who would be most influential in managing the risk and why?

### **4) Standards of evidence: what is effective, and what else is needed?**

- a. Thinking about the top risks you mentioned, what evidence (and/or advice) do you provide/are provided and what is most effective in promoting mitigative action? What else might be needed? What are the standards of evidence?
- b. Thinking about risks of which the consequences/impacts don't show up for quite a long time after exposure, what evidence (and/or advice) do you think would make it easier to take mitigative action? And why?
- c. For a potential risk that is just starting to be understood, like erionite, what kind of evidence would you look for, and what evidence would you need to see to motivate a significant management response?



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