

Big Data and Social Policy – some reflections from the Antipodes

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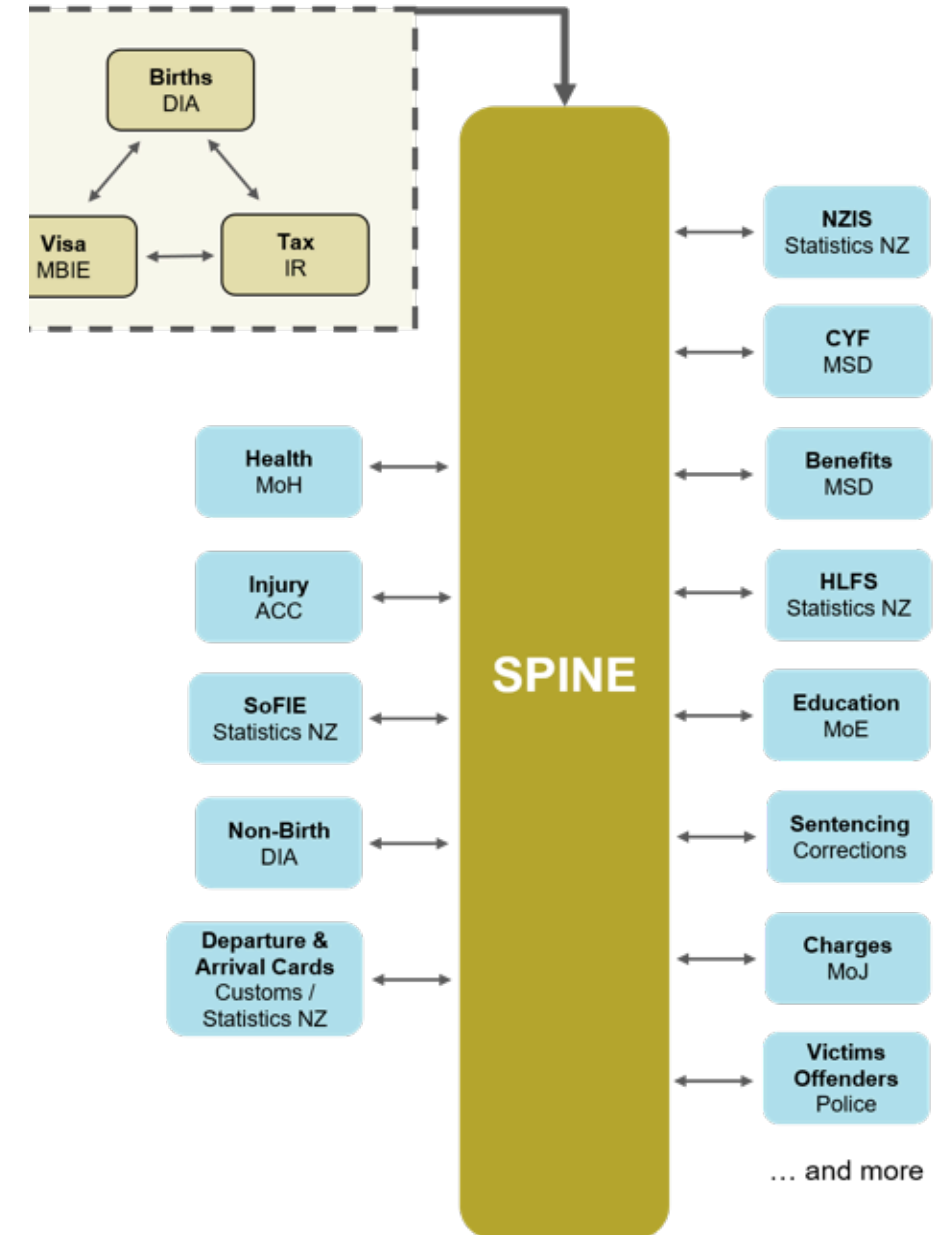
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- In 2010, the compelling argument was made that an investment in big data to identify and address service needs, effectiveness and efficiency in the social sector would be valuable.
- The Statistics agency was funded to start creating the Integrated Data Infrastructure (IDI) – basically an administrative spline linking administrative and gradually other data sets and data bases
- A data and analytics unit was created in Treasury and later formed as a separate agency – the Social Investment Agency (SIA)
- A broader range of data sets and by 2015 the promise of the agency was apparent at least those most involved.
- Use of the IDI became integral to department budget proposals in the social sector and some proposals showed evidence of policy silos being broken
- Academic use was encouraged



Social license

- Ex ante consideration of the social license issues was patchy.
- NZ has no holistic data governance and oversight system, other than a privacy commissioner.
- The Government did set up a broader big data consultation but its impact was patchy. It did identify that the public was much more relaxed about the private sector having their data than the government. But the implications of this were not followed through.
- As the data base was administered through Statistics NZ there was a view that their procedures and controls would provide sufficient confidence.
- Complex issues of data sovereignty and ownership soon emerged (for Māori).

Language matters

- The lead minister and other ministers started talking about it in terms of use for risk identification and targeting for specific services. This, in the public's eyes conflated issues of databases being used for compliance and for policy research
- The programme was presented under the rubric of “social Investment”: this term became politicized. While the government saw it be about enhancing the lives of citizens, the term ‘investment’ was seized on to say it was about saving money.
- In this context the government struggled to show this was about enhancing the wellbeing and of citizens with a citizen based focus in this context

IDI research supports better outcomes for families



The investment approach for families involves understanding vulnerable children and factors that lead to poor outcomes later in life.

Key to the approach is working across sectors and further development of operational insights. Direct operational information sharing (identifying individuals) occurs outside the IDI and is in development via the Social Investment Unit.

The IDI enables the family sector to work



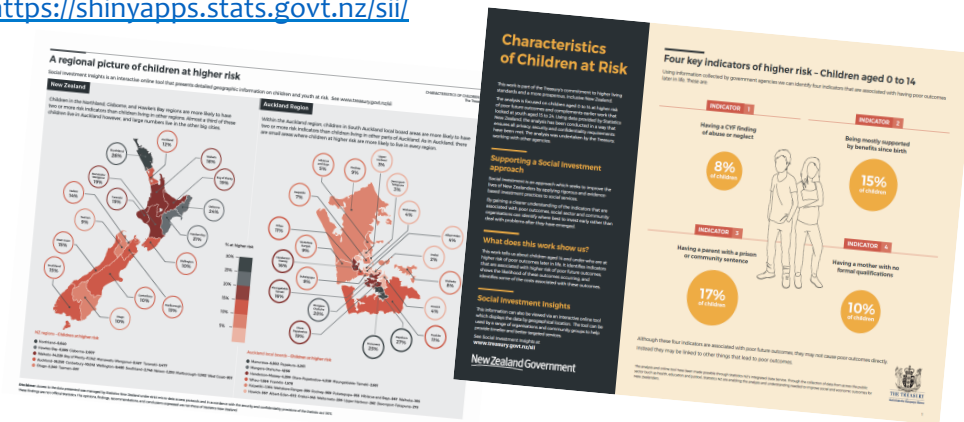
Policy response

- Government is modernising Child, Youth and Family (CYF) with the social investment approach to at-risk families, using information from the IDI to develop policy requirements.
- A “Youth Funding Review” and “Vulnerable Children’s Plan” outline plans to invest for better outcomes for youth and to link and monitor services.

Early results:

Vulnerable children

- Using the IDI, Treasury’s Analytics and Insights team have identified four key indicators for children at high risk of poor outcomes later in life.
- The work aims to indicate where to invest earlier rather than deal with problems after they have emerged.
- The work is shared with the community via an interactive tool: <https://shinyapps.stats.govt.nz/sii/>



IDI research supports the investment approach

New Zealand is using a 'social investment approach' that aims to improve the lives of New Zealanders by applying evidence-based investment practices to social services.

The social investment approach is being used in social service provision, as well as in the justice, health, and education sectors. Agencies are collaborating to build a shared understanding of social policy investment and outcomes.

The IDI is the tool that provides the evidence base. The following slides provide examples of how government agencies are using integrated data.

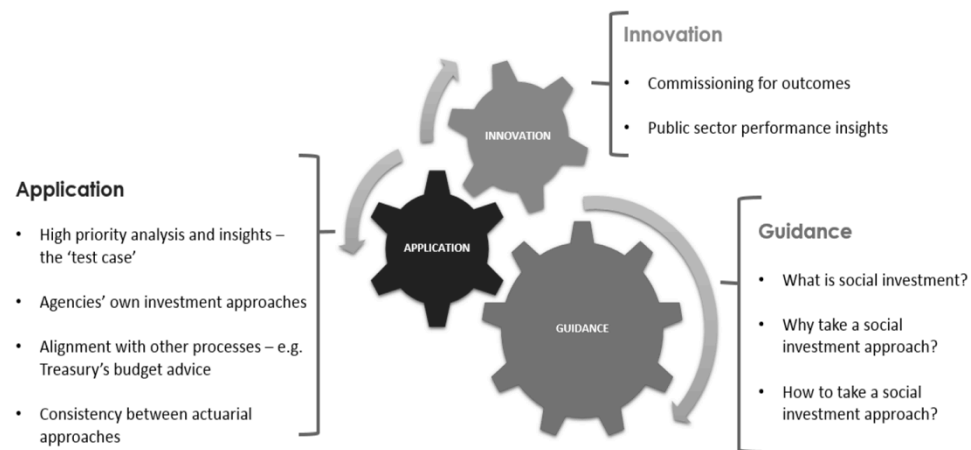
The social investment approach

The Social Investment Unit (SIU) is a cross-agency group responsible for overseeing and coordinating the Government's social investment approach.

The four main elements of social investment are:

- 1 Using data to better understand peoples' current and future needs
- 2 Systematically measuring the effectiveness of services in meeting people's needs
- 3 Measuring long-term outcomes for people over their lifetimes and feeding back into decision-making
- 4 Understanding the fiscal implications of better outcomes and help to manage the long-term costs to government.

Types of investment advice provided by SIU



(courtesy of SIU, 2016)

Issues emerged

- From the onset, the systems greatest value would be if details existed within the data base as to what specific service when to which specific citizen and what was the outcome for that citizen (Client level service information CLSI)
- But this would require very different contracts from the Government to service providers
- Importantly this would require social license both from citizens and from service providers (who would see issues of performance assessment)
- Unfortunately one ministry tried to demand in its own system CLSI from its providers and this issue rapidly exploded with public alarm, inquiries and political nervousness.
- Providers pushed back.

Politics and big data

- The election in 2018 saw the election of a left-central -green coalition
- In that context it took effort to persuade the new administration of its value. Yet the government's priorities (wellbeing, child poverty) needed the system
- Branding became an issue.
- On the other hand the hard evidence of success and value was limited
- Further because the budget for data collection, curation, integration and access lay with the Statistics agency, and not as a separate budget line, when issues emerged regarding the 2019 census, investment in the IDI was tightened



OFFICE OF THE PRIME MINISTER'S CHIEF SCIENCE ADVISOR

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**USING EVIDENCE TO INFORM SOCIAL
POLICY: THE ROLE OF CITIZEN-BASED
ANALYTICS.**

A DISCUSSION PAPER

Sir Peter Gluckman 19 June 2017

<https://www.pmcsa.org.nz/wp-content/uploads/17-06-19-Citizen-based-analytics.pdf>

Opportunities & Challenges

- Change in ministerial focus:
 - From outputs to causation
 - Crosses agencies
- Dealing with data and policy silos
- Naïve assumptions by politicians and policy makers over what big data could do
 - eg; prediction, false negatives and positives not well understood
 - Impatience in the absence of longitudinal data
- Over-reliance on metrics
- Does not obviate the basic principles of evidence informed policy making
- Need for individual level service provision data
 - Major implications for service contracting
- But
 - Joins up government
 - Allowed new questions to be asked
 - Could assist shift to a wellbeing approach

**Still looking for
its compelling
policy value**

**But it breaks
policy silos**

The fiscal returns from social housing

- Using linked data from the IDI, the impact of social housing on broader social sector outcomes, such as incarceration rates and school attendance was assessed together with calculating the fiscal impacts of those broader changes.
- The provision of social housing was found to reduce corrections spend by 25% for those who received the support, by reducing average jail time. However, it was found to result in a 6% increase in spending on education for recipients, and a 3.6% increase in welfare payments, due to children staying in school for longer and families accessing better support. So in this instance increased spending on social housing was found in net terms to lead to an increase in spending in other areas, rather than a decrease.
- These downstream changes in education and welfare outcomes are of course positive ones. Notwithstanding that, it remains useful for the government to better understand the likely fiscal impacts in areas such as education and corrections that are likely to result from increased spending on social housing.

Family start


- Family Start is a voluntary, intensive home visiting programme available to vulnerable pregnant mothers and families with pre-school children.
- There was debate around its value
- While a number of studies and reviews of the programme had been previously undertaken, until recently none of them had been able to thoroughly assess the effectiveness of the programme in improving outcomes for children and mothers.
- Using linked data from the IDI, researchers were able to do that for the first time.
- The most striking finding from the study is that Family Start reduced post neonatal mortality, in particular sudden unexplained deaths in Infancy and injury deaths.
- The study also concluded that children who received Family Start support had a higher likelihood of being fully immunised at one or more milestone in their first 2 years and a higher rate of participation in early childhood education at age 4.
- After receiving these findings the NZ government reprioritised to increase in the size of the Family Start programme.

Clustering of health, crime and social-welfare inequality in 4 million citizens from two nations

Leah S. Richmond-Rakerd et al

Health and social scientists have documented the hospital revolving-door problem, the concentration of crime, and long-term welfare dependence. Have these distinct fields identified the same citizens? Using administrative databases linked to 1.7 million New Zealanders, we quantified and monetized inequality in distributions of health and social problems and tested whether they aggregate within individuals. Marked inequality was observed: Gini coefficients equalled 0.96 for criminal convictions, 0.91 for public-hospital nights, 0.86 for welfare benefits, 0.74 for prescription-drug fills and 0.54 for injury-insurance claims. Marked aggregation was uncovered: a small population segment accounted for a disproportionate share of use-events and costs across multiple sectors. These findings were replicated in 2.3 million Danes. We then integrated the New Zealand data-bases with the four-decade-long Dunedin Study. The high-need/high-cost population segment experienced early-life factors that reduce workforce readiness, including low education and poor mental health. In midlife they reported low life satisfaction. Investing in young people's education and training potential could reduce health and social inequalities and enhance population wellbeing.

Vegetation diversity protects against childhood asthma: results from a large New Zealand birth cohort

Geoffrey H. Donovan ^{1,2*}, Demetrios Gatzliolis², Ian Longley³ and Jeroen Douwes¹

Association between exposure to the natural environment, rurality, and attention-deficit hyperactivity disorder in children in New Zealand: a linkage study

Geoffrey H. Donovan, Yvonne L. Michael, Demetrios Gatzliolis, Andrea 't Mannetje, Jeroen Douwes



Lessons

- Language matters
- Social license is critical and complex
- Politicisation is harmful
- Needs very clear and trusted oversight
- Be clear that it is a policy development tool, not a compliance tool
- Needs separation from routine data services
- Needs a fit-for-purpose design – it is not simply a spill-over from administrative statistics.
- Flexibility and piloting
- Policy makers and politicians need to understand what it can do and must not do.

In retrospect

- Needs its own apolitical agency
- A priori social license
- Separate system
 - Designed for the purposes it can address (ie for the questions it needs to answer rather than take advantage solely of data available on someone else's terms)
 - Funding
 - Data quality
 - Priorities especially for new data entry and flexibility to take pilot data and do pilot analyses
 - Project governance
- Designed to purpose, rather than just soaking up what is there
 - Needs strong constitutional data governance and oversight
 - Separate compliance data uses clearly from policy research
 - Stakeholder involvement in oversight

Some deeper reasons why the use of data in this way is hard

- The blurring of fact and reason (post truth)
- Low trust in State institutions
- There are not well-established oversight norms for data
- The balance between surveillance and autonomy in a democracy
- Citizens have varying perceptions of safety, security, collective altruism and cohesion
- Social cohesion is falling, democratic institutions are unstable and there is a blurring relationship between democracy and authoritarianism