MINISTRY OF SOCIAL DEVELOPMENT
TE MANATŪ WHAKAHIATO ORA

ORANGA TAMARIKI
Ministry for Children

Estimating the impact of Social Workers in Schools using linked administrative data

Working paper

February 2018

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Acknowledgements

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Published

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Glossary of Māori language terms

For the benefit of international readers, the Māori language (Te Reo Māori) is an official language of New Zealand, and Māori terms are commonly used within the English language to describe Māori concepts and to name organisations and programmes. This glossary provides an explanation of some key Māori terms and Māori names used in this report. The source used for many of the definitions is Te Aka Māori-English English-Māori Dictionary online: https://maoridictionary.co.nz/. Translations given are those most relevant to the use within this paper.

Hapū	kinship group, clan, subtribe
Iwi	tribe
Kaupapa Māori	Māori approach, incorporating the knowledge, skills, attitudes and values of Māori society
Kura	school
Kura kaupapa Māori	school operating under Māori custom and using Māori as the medium of instruction
Manaakitanga	hospitality, kindness, generosity, support - the process of showing respect, generosity and care for others
Māori	Indigenous peoples of Aotearoa New Zealand
Oranga tamariki	health or wellbeing of children
Puao te ata tu	day break
Runanga	tribal council
Tamariki	children
Tangata whenua	people born of the land, Indigenous people
Te Puni Kōkiri	Ministry of Māori Affairs
Whakapapa	genealogy, lineage, descent
Whānau	extended family, family group
Whanaungatanga	relationship, kinship, sense of family connection
Whakawhanaungatanga	process of establishing relationships, relating well to others
Whānau ora	Māori whānau wellness
Whānau Ora	health initiative in Aotearoa New Zealand driven by Māori cultural values

Executive summary

Purpose

Social Workers in Schools (SWiS) is a government-funded community social work service available in selected primary and intermediate schools and kura.

Previous evaluations and kaupapa Māori studies of SWiS have found strong support for the service. Schools and kura, families and whānau, and social workers themselves have said they see positive change for students as a result of the SWiS service across a wide range of areas. To date, however, there have been few attempts to measure the difference SWiS makes.

The purpose of this study is to add to the evidence base by addressing the question – what is the impact of SWiS on outcomes for students able to be measured using linked administrative data?

About SWiS

The aim of SWiS is to see safe, healthy and socialised children with a strong sense of identity, who are fully engaged in school. Another aim is to protect vulnerable children and ensure their safety, wellbeing and educational needs are met.

Services provided by the social workers include individual case work with children and their families and whānau, and group-based programmes delivered to selected groups of children or to the whole school community. Social workers are also responsible for community liaison and service coordination. Children and their families and whānau take part voluntarily.

The SWiS service is of low intensity at the school level. One social worker serves a school or cluster of schools and kura with a total roll of between 400 and 700 students. Currently, the average cost per school served is $35,000, and annual spending on the programme totals $21.4 million.

SWiS was first piloted by government in 1999, and was expanded over 2000 and 2001 (2000-01) and from 2005 to 2007 (2005-07). In 2012 and 2013 (2012-13), a major expansion saw the service expanded to all decile 1-3 primary and intermediate schools and kura. This expansion increased the number of schools and kura served from 300 to 700. It raised the proportion of schools and kura that were decile 1-3 at the time with access to SWiS from 41 percent to close to 100 percent. Most students in these schools and kura are Māori or Pacific.

Study method

We estimated the impact of SWiS on outcomes for students by looking at the major expansion of SWiS that occurred in 2012-13. We examined whether, for students enrolled in the schools and kura that newly received SWiS, there were reductions in:

- stand-downs and suspensions from school
- care and protection notifications to Child, Youth and Family (CYF)
- Police apprehensions for alleged offending.

These are three outcomes for students able to be measured using linked and de-identified administrative data in the Statistics New Zealand Integrated Data Infrastructure (the IDI).

We use a 'Difference-in-Differences' approach to estimate the impact the 2012-13 expansion of SWiS had on students' outcomes, after controlling for other factors. This involves comparing students in schools and kura that were the decile 1-3 schools newly served by SWiS as a result of the expansion with students in two groups of comparison schools and kura:

- schools that had SWiS already, before the expansion (mainly decile 1-3 schools)
- decile 4-5 schools that had never received SWiS.

The approach is illustrated below:
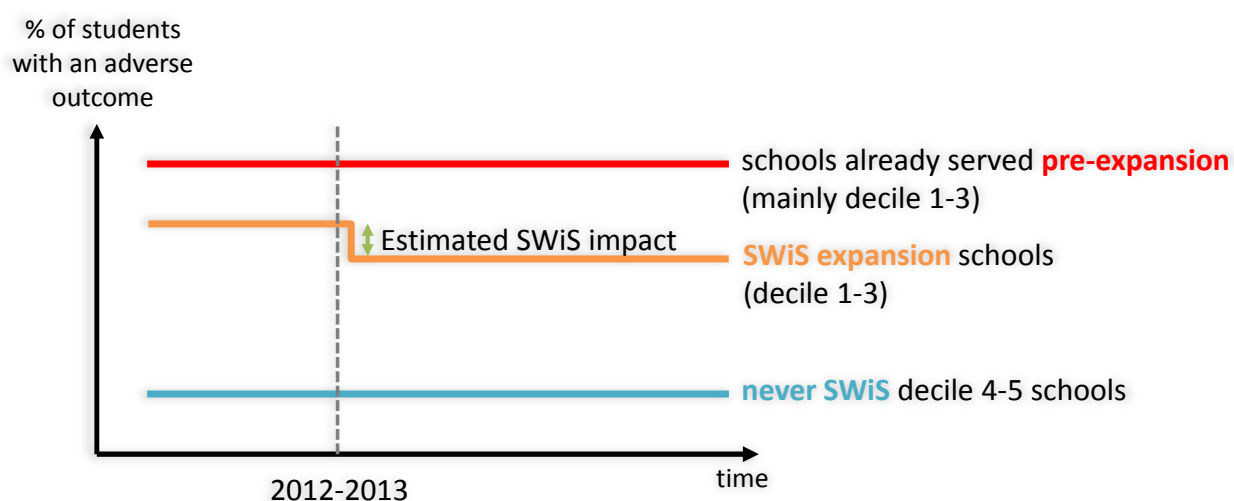
High-level findings

We find no statistically significant evidence that the SWiS expansion reduced the rate of the three outcomes examined for students overall in the schools and kura newly served.

- Lower rates of stand-downs and suspensions and CYF notifications occurred after 2012-13 in the expansion schools relative to the trends for students in comparison schools and kura, but the estimated impacts were small and not statistically significant.

- Higher rates of Police apprehensions for alleged offending occurred after 2012-13 in the expansion schools relative to the trends for students in comparison schools and kura. The differences were large and statistically significant. Although Police apprehensions declined in SWiS expansion schools, there were stronger declines in comparison schools and kura. We think that this is likely to reflect differential effects of changes to Police practices over the period, rather than the impact of the SWiS expansion.

That the SWiS expansion appears not to have significantly reduced the rate of the three outcomes for students overall in the schools affected is not surprising given the low ratio of social workers to students.

However, when we examine effects for subgroups of students who would be the most likely to be the direct recipients of individual case work, we find a general pattern of lower relative rates of adverse outcomes for these students in SWiS expansion schools after the expansion. Overall, 16 of the 21 subgroup effects we examine show lower relative rates of adverse outcomes associated with the expansion. Of these, five of the effects are statistically significant at the five percent level.

The suggestion of positive impacts on outcomes is strongest for Police apprehensions for offending for Māori boys enrolled in the 'base' SWiS expansion schools and kura where social workers had their office, and for CYF notifications for Pacific students.

If SWiS is effective in improving behaviour and reducing child welfare concerns for these school students, this is an important result. The downstream positive effects on the children and young people, and on their families and whānau, schools and kura, and communities, may be considerable.

Results for kura kaupapa Māori

We find no evidence that the impact of the expansion of SWiS was different in kura kaupapa Māori compared with mainstream schools. However, our results show associations between a student being enrolled in a kura kaupapa Māori and large improvements in each of the outcomes, all highly significant. This is after controlling for a range of other factors, including measures of whether students had a disadvantaged background before reaching age five and school decile.

These results are positive and clearly invite further study. Based on our study, we are unable to say whether the associations reflect the effects of kura kaupapa Māori on outcomes for their students or unobserved differences between the students who attend these kura and the students who attend mainstream schools we have not controlled for.

Conclusions

Linked administrative data in the IDI is a rich new source of information for programme evaluation and for research. But owing to its limitations, and given the complexity of the service environment in schools and kura, it can only tell us one part of the evaluative story. We suggest that it is best used alongside other sources to provide a picture of possible outcomes. It should not be viewed as a data source that can be used, in isolation, to identify existing programmes and services that should be continued and those that should be discontinued.

When we put our results with those from earlier studies of SWiS, the conclusion is that:

- SWiS offers an early intervention and preventive social work service that is acceptable to and engages families and whānau, and is experienced as helpful by schools and kura
- the service is seen as having a wide range of important benefits by families and whānau, schools and kura, and social workers
- there are indications of some encouraging impacts on outcomes that can be measured using linked administrative data for the students most likely to be the direct recipients of the service.

1. Introduction

This report examines the impact of more Social Workers in Schools (SWiS) on three outcomes for students able to be measured using linked administrative data. The study forms part of a programme of work that responds to calls to strengthen evidence on the effectiveness of social services funded by the New Zealand Government (MSD, 2015), and for linked administrative data to be used to support this work (New Zealand Productivity Commission, 2015).

The remainder of this introductory section describes the origins of SWiS and distinguishing features of the SWiS service, and outlines results from previous evaluations. It also describes a range of other programmes that have developed in schools and kura that overlap in aims, at least in part, with those of SWiS, and are important to take into account when interpreting the results. The introductory section also provides an overview of the existing evidence base on the quantitative impact of SWiS-like services in schools.

Section 2 describes the present study, which focuses on the effects of the expansion of SWiS to all decile 1-3 schools and kura in 2012-13. We describe the linked administrative data drawn upon, receipt of SWiS by schools and kura, and the statistical analysis that estimates the impact of SWiS on students in the schools and kura that were part of the expansion.

Section 3 discusses the results and important limitations. Drawing on the challenges faced in the present study, it provides some reflections on conditions under which impact evaluation of social programmes and services using linked administrative data will be most viable. Section 4 provides conclusions drawn from the study.

SWiS and its expansion

SWiS is a community social work service available in some primary and intermediate schools and kura. SWiS social workers are employed by contracted non-government social service providers (NGOs). They work in partnership with one or a cluster of schools and kura (depending on roll size and geographic spread). The intended ratio of social workers to students is between 1:400 and 1:700. This represents low service intensity at the school-level relative to the expected level of need in low decile schools.

Services provided by the social workers include individual case work with children referred to the service and their families and whānau, and group-based programmes delivered to selected groups of children or to the school community. Social workers are also responsible for community liaison and service coordination.

Referrals can be made by:

- children and their families and whānau (self-referrals)
- schools and kura
- statutory agencies (eg Child, Youth and Family (CYF)[1])
- health and community agencies working with families and whānau.

Participation by children and their families and whānau is voluntary.

The aim of the service is to see safe, healthy and socialised children with a strong sense of identity, who are fully engaged in school. Another aim is to protect vulnerable children and ensure their safety, wellbeing and educational needs are met (CYPFA, 1999; MSD, 2016).

The SWiS service was introduced in 1999, and expanded in 2000-01 and 2005-07. By 2010, 10 iwi providers were contracted to provide the service (English et al., 2011). In October 2011, Government announced funding to further expand SWiS services to all decile 1-3 primary and intermediate schools and kura from 2012-13. School deciles are currently used to indicate how many students in a school come from low socio-economic communities, and inform levels of school funding. Decile 1 schools and kura are the 10 percent of schools and kura with the highest proportion of students from low socio-economic communities. Decile 10 schools and kura are the 10 percent of schools and kura with the lowest proportion of these students.

The 2012-13 expansion increased the number of schools and kura served by SWiS from 300 to 700. The proportion of schools and kura that were decile 1-3 at the time with SWiS increased from 41 percent to close to 100 percent. The expansion was partly funded by reducing funding available for group programmes from $7,744 per social work position to $3,533. There has been no indexation of the per social worker funding for individual case work since at least financial year 2006/07. The total cost of the SWiS programme is currently $21.4 million annually or $35,000 on average per school served.

Origins and development of SWiS

In the early 1990s, New Zealand had little experience of delivering social services through schools and kura. In contrast, health services had been in primary schools back to the beginning of the twentieth century. There had been a long tradition of using schools for health interventions from immunisation to psychological services. This contrasted with many other developed nations, where schools had a wide array of social services available to them. This was partly to respond to the social needs of children, but also to ensure better educational outcomes, and contribute to the better functioning of the school itself.

In 1994, Massey University at Albany, under the initiative of Rajen Prasad and Michael Belgrave, developed a pilot on Auckland's North Shore funded by the Year of the Child. The initiative placed two social workers in three medium decile schools during 1995 (Belgrave and Brown, 1996). In 1999, as part of the government's Strengthening

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[1] Over the period covered by this study this was the New Zealand child welfare agency. CYF's functions transferred to Oranga Tamariki – Ministry for Children in 2017.

Families Strategy, a pilot SWiS programme was developed drawing on and extending the Massey model. This pilot placed 12 social worker positions in largely rural and small town schools across the North Island. Before a process evaluation for this pilot was completed, the scheme was expanded to 66.5 social work positions serving 171 schools throughout the country. The expansion was extensively evaluated in 2002 (Belgrave et. al., 2002).

The reason for setting up SWiS

Puao Te Ata Tu, the 1986 report into the Department of Social Welfare, exposed the deep distrust between Māori and state agencies dealing with children and whānau (Ministerial Advisory Committee on a Maori Perspective for the Department of Social Welfare, 1986). From October 1984, when government called iwi leaders to consult on Māori futures, leading voices demanded that government resource Māori to take responsibility for Māori across a wide range of social and economic areas. Many Māori accused government not just of failing Māori communities, but of furthering agendas of assimilation and institutional racism.

All of this occurred even before the Fourth Labour Government's reform agenda was known. A decade of dramatic restructuring followed. Māori whānau and tamariki took a heavy toll from the increasing levels of unemployment following 1984. They were also affected more than most by the restructuring of the state sector, particularly by the loss of government jobs in forestry, railways, rural development and communications. Māori youth unemployment soared, as did Māori youth suicide (UNICEF, 2002).

In the 1980s, the government's answer was devolution, funding Māori economic development and job training by recognising iwi authorities and subcontracting services to them. After the 1990 election, the notion of iwi self-government, proposed by the Runanga Iwi Act 1990, was purged from government policy. Contracting social, health and educational services to Māori providers emerged as a substitute for devolving state services to iwi. Pacifica, too, were promised greater involvement in the delivery of services.

The contracting model for social services used to deliver SWiS was still relatively new, introduced by the Fourth Labour Government in 1984, but was revised by the National Government from 1991 (Boston, 1995). Through the decade which followed this revision, social services and government agencies were finding their way in the new order. In the attempt to create a quasi-marketplace for social, health and educational services, government assumed that needs would be dealt with by a blanket of contracts, where government determined what activities it was prepared to fund, and negotiated contracts after competitive tendering to fulfil these needs.

However, by the late 1990s, government had recognised a number of weaknesses in the model. The emphasis on funding outputs made it difficult to assess whether anyone was better off as a result of government spending. The whole system lacked co-ordination and integration. Contracts for health, social services and education ignored aspects of need that crossed these boundaries. At the same time, individual clients were often served by many different agencies, each under different contracts, and too often with no-one clearly responsible for co-ordinating these services.

Strengthening Families, introduced in 1997, was an attempt to overcome these problems. It forced agencies to work together co-ordinating the services provided to individual clients. At the same time, it created a policy environment which prioritised outcomes rather than outputs, and whole of government approaches to social policy delivery (Garlick, 2012).

SWiS fitted well with the major objectives of Strengthening Families. Social workers could be lead practitioners, taking primary responsible for individual clients, while at the same time developing partnership networks with other providers to ensure coordinated and appropriate services. Some early providers also anticipated that SWiS would become a substitute for referral to Child, Youth and Family, but this was never considered by government.

SWiS was not just a stand-alone package, but was expected to be part of a suite of new interventions contributing to Strengthening Families, including Family Start and Resource Teachers of Learning and Behaviour (RTLBs). The dramatic impact of the restructuring of the state created considerable uncertainty. Schools contributing to the 2000 SWiS evaluation felt that they had few options available to address what they saw as the ever more complex and multi-faceted needs of some of their children (Belgrave et al., 2000).

Social work practice was also under attack from Māori who accused the profession of marginalising the professional skills of whānau. *Puao Te Atata Tu* was as much an attack on social workers as it was on the Department of Social Welfare (Ministerial Advisory Committee on a Maori Perspective for the Department of Social Welfare, 1986). Some SWiS providers and their staff avoided the term social worker, preferring instead to call themselves whānau or support workers. Many school social workers considered that they needed to overcome prejudice against the term social worker. As Awhina Hollis-English and Rachael Selby explained, this 'was in large part because there was some negativity towards the historical role that statutory social workers had played in separating children from families' (Hollis-English and Selby, 2014, p. 3).

The 2002 evaluation demonstrated both that clients had deeply held negative views on social workers, and that these attitudes could be turned around by good quality and responsive engagement by the school social workers (Belgrave et. al., 2002).

Initiatives under the Clark Labour-led government under Closing the Gaps, aimed at reducing disparities between Māori and non-Māori, and more recently Whānau Ora, provided some opportunities for Māori to take greater (if far from complete) control over service delivery. These opportunities remain broadly within the contracting regime which had emerged by 1999, when the first SWiS, as they became known, were appointed.

Despite these challenges, at the end of the 1990s, the social service sector entered a period of substantial stability, following a decade of dramatic transformation. None of this was clear at the time, but the fact that the SWiS model has remained largely unchanged since that time, reflects growing stability within the sector.

The SWiS model

The SWiS programme's most critical objective, and one very different from school social work models applied elsewhere, was seeing the social worker not as an agent of the school, but as an independent resource for children and families, using the school as a site for social service delivery (Belgrave et. al., 2000; 2002). The idea of independence from the school, while still assisting the principal and teachers, was crucial. Social workers were to be independent enough, so that they could advocate for children and families where there were tensions between the school and whānau. While developing a working relationship with the school was essential, this would be undertaken as part of a partnering process, not by the direct employment of the social worker in the school itself (although this principle was not always possible in practice).

Another of the central objectives of the model was that social workers would practice social work, working directly with clients. In some fields, such as in health, social work was being channelled away from client work, towards case management, where social workers would undertake assessments, and then provide intervention plans which were largely carried out by others. The social worker may have been the primary worker for the individual client, but most of the social work practice would be done by someone else.

The SWiS model accepted that there would be referrals, to whatever agency was appropriate and best able to provide for the needs of clients. But at the same time, where the social workers had specific skills in working with families or in developing and running group programmes, they were expected to do many of these tasks. A pupil to social worker ratio of around 16:1 for individual case work was chosen specifically to allow for this to take place. SWiS would allow social workers to practice social work, not to simply be social service travel agents, developing itineraries of care and support.

The model focussed on accessible, strength-based, child-focussed case work, and appropriate services to children and families, at a time when it was commonly assumed that rationing, user pays and the reform of New Zealand's welfare state were limiting access to professional help. Participation was entirely voluntary, but refusals to accept the service were rare.

The 2000 and 2002 evaluations

The 2000 and 2002 evaluations (Belgrave et. al., 2000; 2002) demonstrated that for all its objectives, the SWiS pilot had been largely successful. Schools (and especially principals) were particularly enthusiastic about having accessible professional services from social workers who could respond immediately if necessary, particularly when issues of care and protection emerged. Social workers could take responsibility for a burden that many principals considered onerous and increasing.

Families and children, the recipients of the service, shared much of this enthusiasm. The most significant evidence of this was in their transforming understanding of the nature of social work, from at best suspicion and at worst active hostility, to being strong supporters of social workers. They appreciated that social workers were able to work at their level, listened and understood their situation in ways that were non-judgemental. Above all social workers were able to bring resources into the family to deal with what for many appeared unfixable and long-term problems. In some of the case studies, the change was life-changing.

However, in trying to assess the impact of the programme, the 2002 evaluation was held back by the methodology and information available at the time. SWiS aimed to be an early intervention and preventive programme, yet there was no way to assess the extent of long-term improvement. At best, the evaluation could look at interventions from referral to closure. It provided some attempts to review change from referral to closure statistically, but difficulties in data collection by the social workers made it unreliable. Unsurprisingly, there was also a tendency by clients, as much as by social workers, to overstate the value of the intervention at its close. Yet even if these forms of data collection had been more reliable, they would still have only been useful in exploring change for clients during the period of the intervention, and lacked any counterfactual, or comparison group.

One of the early strengths of SWiS was the substantial involvement of Māori and Pacific providers. The 2002 evaluation demonstrated common principles for success. These included:

- relationship building with clients and whānau

- positive community attitudes

- timeliness and responsiveness

- the ability to draw in appropriate resources.

While these features cut across cultural differences between social workers and clients, Māori providers and Māori social workers were able to take these strengths and use them within a kaupapa Māori framework for social service delivery, one emphasising whakapapa, whanaungatanga and manaakitanga.

The studies undertaken by Rachel Selby, Awhina Hollis-English and Hayley Bell have affirmed the value of SWiS as part of a package of programmes delivered by Māori providers (English, Selby and Bell, 2011; Hollis-English and Selby, 2014). Many of these providers are now working within Whānau Ora, despite SWiS remaining outside of that policy and funding stream. Māori providers have been able to adapt SWiS to suit their broader objectives for Māori wellbeing, while at the same time delivering SWiS to clients from a wide range of different ethnic groups.

The 2002 evaluation did show some significant weaknesses with implementing the programme, largely because it was a new and different approach. Providers were inexperienced in running the contracts, professional supervisors knew little of the pressures on SWiS, and the social workers were often working alone. Social workers were professionally vulnerable; particularly those without professional qualifications, to feeling marginalised alongside other more secure professionals in education and health. High levels of social worker turnover and alienation were evident at this time, despite social workers being enthusiastic about what the service could achieve.

SWiS from 2002 to date

Following the recommendations of the 2000 and 2002 evaluations, CYF and then MSD[2] took a substantial leadership role in supporting SWiS, establishing a small team at National Office, who most importantly worked directly with social workers and with providers, and earned a substantial degree of support from both. The 2002 evaluation findings informed the development and expansion of SWiS. A 2005-07 expansion, for example, focussed on reducing social worker isolation, increasing responsiveness to Māori and Pacific families and whānau, and promoting good working relationships between social workers and schools. MSD provided monitoring, supported providers in difficulty, developed training support, fostered new models of professional supervision and ran, with substantial social worker involvement, an annual conference for the workers themselves until 2009.

From 2006, government supported the up-skilling of SWiS by assisting social workers to become professionally educated and registered. When first introduced, there had been no requirement that social workers should have formal qualifications, and the need for greater training and professional support had been highlighted in the 2002 evaluation (Belgrave et al., 2002). Current service specifications require that social workers hold a social work qualification recognised by the New Zealand Social Workers Registration Board.[3]

By 2009, when New Zealand hosted the Fourth International School Social Work Conference in Auckland, school social work had emerged as a mature specialty within New Zealand's fields of social work. The annual conferences did much to allow for Māori social workers to take a leadership role in the development of the field. The annual conference provided school social workers the opportunity to develop a common sense of SWiS as a specialty, share from their own experience and develop their own confidence in the field. The significant number of Māori social workers attending these conferences had a major influence on the development of this ethos, one that supported Māori social workers employed by non-Māori agencies, and provided an input into the standards of professional practice required of non-Māori social workers in mainstream agencies.

From 2009, government reduced the level of centralised support, which reflected the service's maturity, but also undermined the ability of MSD to lead in the professional development of the programme. Since the initial expansion, the scheme has been extended on a number of occasions. The model had proved remarkably popular and generated considerable enthusiasm from principals, teachers, and more importantly from families themselves. This enthusiasm was sustained in a smaller 2007 process evaluation (Davidson, 2007). The 2012-13 expansion – which is the focus of this study – was in response to frequent requests from schools wishing to receive the service.

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[2] CYF was merged with and became a distinct unit within MSD in 2006 (Garlick, 2012).

[3] Where it is not possible to recruit a suitably skilled and qualified social worker, providers may employ a social worker who is actively working towards a recognised social work qualification (MSD, 2016).

No evaluation accompanied the 2012-13 expansion and as a result there is little information on its implementation or the experiences of school communities that newly received the service at that time. Operational documents highlight some challenges with the implementation. This included difficulties finding suitable providers, and in securing quality service delivery in remote rural areas given the travel costs involved, the lack of any indexation of the SWiS rate, and difficulties providers experienced recruiting qualified social workers.

Hollis-English and Selby (2014) saw both opportunities and challenges in the 2012-13 expansion. It provided an opportunity for many more social workers to work in schools and kura. But the loss of funding for group programmes reduced their ability to deliver some of the specialist support that had been seen as contributing to the success of the service. And an important challenge for the SWiS profession and schools of social work would be responding to the need for bi-lingual Māori social workers in kura kaupapa Māori.

Other programmes and services in schools and kura

Alongside the development and expansion of SWiS, a range of other programmes and services in schools and kura aimed at improving the health and wellbeing of students have emerged.[4] These include:

- national programmes providing food, clothing and other resources, such as
    - KidsCan (from 2005)
    - Fruit in Schools (from the mid-2000s)
    - KickStart Breakfast programme (from 2009)
    - Milk for Schools (from 2012-13)
- Health Promoting Schools
- school-based health services and other initiatives in secondary schools that were introduced or expanded as part of the Prime Minister's Youth Mental Health Project (SuPERU, 2015)
- the Resource Teacher Learning and Behaviour service which works together with teachers and schools and kura to support the achievement of students in Years 1-10 who have learning and/or behaviour difficulties – this service was first introduced at the same time as SWiS as part of the Special Education 2000 initiative[5], and transformed in 2012[6]
- Starpath, a school-wide intervention project in Auckland and Northland aimed at enabling more students from lower decile secondary schools, especially Māori and Pasifika students, to progress to degree-level study (Kiro et al., 2016).

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[4] For a more detailed overview of these and other programmes, see Wilson et al. (forthcoming).

[5] This involved reorganisation of funding for students with special needs with a focus on inclusive education, and involved some gains and some loss of resource for different groups of students. See http://rtlb.tki.org.nz/The-RTLB-service/History-of-the-RTLB-service. The service replaced the Resource Teachers of the Deaf programme.

[6] See http://rtlb.tki.org.nz/The-RTLB-service/RTLB-transformation-2012

In 2009, the Ministry of Education implemented initiatives aimed at reducing use of stand-downs and suspensions. Good practice guidelines released in that year offered guidance for managing behaviour, such as intervening early to prevent behavioural problems in the school from escalating, and alternatives to stand-downs and suspensions (Ministry of Education, 2009).

The period since 2010 has seen the progressive development and roll-out of the Ministry of Education's Positive Behaviour for Learning (PB4L) programmes, including PB4L School-Wide, an approach aimed at building a consistent and positive school-wide climate to support student learning (Box 1 shows components operating in schools and kura with Year 1-8 students). The tiered service design of PB4L School-Wide aligned with that of SWiS. In addition, the service outcomes sought by PB4L (eg improved student wellbeing, learning and school engagement) overlap with those potentially influenced by SWiS. Schools were expected to take between three and five years to implement all three tiers of School-Wide (Boyd and Felgate, 2015). At the time of the SWiS expansion, few schools and kura had progressed to Tier 2.

Box 1: Positive Behaviour for Learning (PB4L)

PB4L is a long-term, systemic approach involving ten initiatives. These include whole-school change initiatives, targeted group programmes, and individual student support services that aim to help parents, whānau, teachers, early childhood centres, and schools address problem behaviour, improve children's wellbeing, and increase educational achievement.[7]

PB4L was initiated following the Taumata Whanonga behaviour summit in 2009 which recommended that the Ministry of Education look internationally for successful initiatives with a strong research and evidence base. A number of initiatives were identified and adapted to ensure they were culturally responsive and had a good fit with the New

Zealand context. A commitment was made to also support local programmes developed by Māori for Māori (Ministry of Education, 2015).

The programme most extensively implemented in primary and intermediate schools and kura is PB4L School-Wide, a New Zealand version of an evidence-based United States programme called School-Wide Positive Behaviour Support (Advisory Group on Conduct Problems, 2011). Implementation began in 2010.[8] Each year around 100 schools and kura join.

School-Wide 'offers primary, intermediate and secondary schools a way of building a consistent and positive school-wide climate to support learning based around shared values and behaviour expectations. School-Wide is a framework of key features that schools implement in ways that suit their context. It aims to engage the whole school community in adapting school structures, practices and philosophies related to behaviour, and in developing systems that everyone can use in a consistent way. Each school forms a team to implement School-Wide in a way that is collaborative,

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[7] See http://pb4l.tki.org.nz/

[8] Evaluation was led by The New Zealand Council for Educational Research. See http://www.educationcounts.govt.nz/publications/series/pb4l-school-wide

data-driven and problem solving. School staff are offered a package of School-Wide training and support which includes training days, cluster meetings with local schools and access to regionally-based School-Wide Practitioners who work with schools as they implement School-Wide.' (Boyd and Felgate, 2015, p1)

The programme has three tiers:

- Tier 1 involves schools and kura putting in place a core set of behaviour support systems and practices designed to be used consistently by all to encourage positive behaviour. Once the core features of Tier 1 are in place schools and kura can move to Tier 2.

- Tier 2 involves developing and delivering targeted interventions for small groups of students who need additional support.

- Tier 3 involves developing and delivering specialised interventions for students who need individualised support.

Other initiatives operating on a smaller scale for Year 1-8 students include Huakina Mai, Te Mana Tikitiki, PB4L Restorative Practice, Incredible Years Parent, Incredible Years Teacher, and the Intensive Wraparound Service (Ministry of Education, 2015).

Existing evidence on quantitative impacts

Internationally, school social work has a long history and continues to grow – 36 countries responded to a recent survey on school social work practice (Huxtable, 2016). However, few studies to date have assessed impacts on student outcomes. Existing evidence reviews indicate some positive impacts and few negative impacts. But for many of the outcomes programmes seek to influence there is little or no evidence of positive impacts. Reviews highlight the need for more robust studies (Franklin et al., 2009; Allen-Meares et al., 2013; Moore et al., 2014).

A 2014 review (Moore et al., 2014) examined US evidence on different models of 'Integrated Student Supports'. Common features of these models are that they seek to promote students' school engagement and educational attainment by coordinating tiered supports that target both academic and non-academic barriers to learning. The review found only 11 evaluations of three models, including four randomised controlled trials and seven quasi-experimental studies.

Quasi-experimental studies reviewed found significant, positive impacts on student progress (for three out of four evaluations), school attendance (three out of three evaluations), maths achievement (four out of six evaluations), overall grade point average (two out two evaluations), and reading achievement (four out of six evaluations). Randomised controlled trials were less likely to find positive impacts, with one out of four evaluations showing at least one significant impact for maths achievement and school attendance. Of the randomised controlled trials that examined reading achievement, student progress and overall grade point average, none found positive impacts. Drawing on these emerging findings and theory, the review concluded that integrating student support services and connecting them with schools is a promising approach to helping disadvantaged students stay engaged with school and increase their attainment, and advocated for more evaluations to further build the evidence base (Moore et al., 2014).

Of the models reviewed, 'Communities in Schools' is similar to SWiS in that the core of the service is a co-ordinator who offers school-wide and group preventive programmes designed to foster a positive school climate and address school-level risk factors, as well as more intensive and individually tailored case management and service co-ordination for high-risk students. Two impact studies were released in 2017 (Box 2).

Box 2: Communities in Schools Impact Studies

A randomised controlled trial was implemented in schools that had more eligible students than could be included on site coordinators' caseloads. Students were randomly assigned within these schools to be on the site coordinator's caseload or receive 'business as usual' supports. Results showed that Communities in Schools case management increased students' participation in support activities such as goal setting, mentoring and tutorials. It also improved several of their non-academic outcomes – students who received case management were more likely to report having a caring adult at home, at school, and outside of home and school, and maintained more positive and supportive relationships with peers, were more engaged and had more positive attitudes toward school, and held stronger beliefs that education has value for their future. After two years, case management had no statistically significant impact on students' attendance, academic performance, or behaviour. It may be that this study did not track outcomes for long enough for the positive effects of case management on students' non-academic outcomes to translate into positive effects on their more traditional school outcomes (Parise et al., 2017).

A quasi-experimental study that examined results for students overall in the schools where Communities in Schools operates relative to matched comparison schools found that in elementary (primary) schools, attendance rates improved in schools that implemented the Communities in Schools model more than they did in a group of comparison schools. State test scores improved for elementary students in schools that had implemented the model, but they improved by similar amounts in the comparison schools. At the middle school level, attendance rates did not improve, and state test scores in English/language arts and maths did not improve in schools implementing Communities in Schools, whereas they did improve in the comparison schools. For high schools, attendance and on-time graduation rates increased and dropout rates decreased relative to what would have been expected given those schools' baseline trends, but this occurred in both study schools and in the comparison schools suggesting that the model may be at least as effective as approaches being applied in other schools. Matched comparison schools may have chosen to implement other interventions to improve outcomes for their students, highlighting difficulties with this study design. The study was unable to assess whether Communities in Schools improved students' behavioural outcomes (Somers and Haider, 2017).

In a United Kingdom (UK) review (Oliver and Mooney, 2010), one evaluation examines a school-based initiative that included elements similar to SWiS as part of a wider programme of change. One possible component of the 'Behaviour Improvement Programme' was a learning mentor who worked flexibly with a focus on the pastoral needs of at-risk students, their parents, and the school. Other components included whole-of-school approaches to promote good behaviour, use of school premises to provide a range of services, activities and additional learning opportunities, and specialist support teams. Compared with control schools, there was a significant improvement in attendance in primary and secondary school, and reduced fixed-period exclusions in secondary schools. No difference in attainment was found over the short follow-up window.[9] While the work of learning mentors was found to be highly valued, the evaluation did not seek to isolate the contribution of this programme component (Hallam et al., 2005).

Integrating social work into school settings has been the focus of pilots in two areas in the UK (Baginsky et al., 2011). Evaluation of the operation of the pilots raised similar themes to the evaluations of SWiS (Belgrave et al., 2000; Belgrave et al., 2002), including both the potential for valuable preventive changes in the lives of students and their families, and the importance of relationship building and clear roles to success. No impact evaluation of the pilots was undertaken.

Prior to the present study, a preliminary quasi-experimental study of the New Zealand SWiS service compared outcomes for children who attended SWiS schools that were part of the 2005-07 expansion of the service with similar children who attended similar schools that at the time were not part of the SWiS programme (Jiang et al., forthcoming). Due to restrictions on the data available at the time, the study focussed only on children who were enrolled in a SWiS school in Years 7 or 8 (intermediate school years) prior to starting high school during 2009 and 2010 and compared them with matched children who were enrolled in similar schools that did not have access to SWiS. Outcomes were measured in the first three to four years of high school (subsequent to departing their SWiS school). Results suggest reductions in non-enrolment days overall and for girls, increased NCEA Level 1 attainment, and reduced CYF Youth Justice referrals. A limitation of the study was that it did not take into account the possible confounding effects of differences in services available to students in high school settings, including the expansion of PB4L and other initiatives. Further study was recommended.

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[9] One of the aims of the programme was to reduce criminal behaviour. However, the available data did not allow changes in crime to be assessed.

2. Estimating the impact of the 2012-13 expansion

Data sources and definitions

The primary data source for the present study was the Statistics New Zealand Integrated Data Infrastructure (IDI), a collection of de-identified linked administrative and survey data made available for approved research (Statistics New Zealand, 2017). The research proposal did not fall within the scope of Health and Disability Ethics Committee Review. The research team, therefore, sought independent ethical review from Dr Barry Smith, a member of the Health Research Council Ethics Committee, before proceeding.

Study schools

The SWiS expansion was targeted to publicly funded schools and kura with Year 1-8 students on the basis of school decile. Reflecting this, we restricted the study to schools and kura with a valid decile ranking throughout the study period. We further restricted our attention to schools and kura that served Year 1-8 students in 2013 (contributing, full primary, and intermediate schools and kura, and composite schools and kura with Year 1-8 students), and that were in existence for all of the study period, based on inspection of published directories of schools.[10]

These restrictions had the effect of excluding special schools, Te Aho o Te Kura Pounamu - The Correspondence School, most private schools, and home schools. They also meant that schools and kura that were closed and merged with another school, closed entirely, or newly established over the period were excluded – changes of this nature disproportionately affected the Christchurch region following the 2011 earthquake. In total, 2,223 decile 1-10 schools and kura were retained for study.

Study students

The study population comprised domestic students enrolled in these schools and kura based on records in the Ministry of Education's ENROL data held in the IDI.[11] We limited the study to those students who were present in NZ for all of the time in the school year, or for whom time spent out of the country in the year was less than 15 days.[12] This was to ensure that all students in the study had a chance of being recorded as having the outcomes of interest in New Zealand administrative data. We also required the student to be able to be linked to the 'spine' of the IDI.[13] This allowed Ministry of Education

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[10] http://www.educationcounts.govt.nz/statistics/schooling/student-numbers/6028

[11] We dropped records for a very small number of students for whom Ministry of Education demographic data in were not available from the Ministry of Education 'student_personal' file in the IDI. International students and students on Government-approved exchange schemes were excluded.

[12] Periods absent from the country were established using Ministry of Business, Innovation and Employment border movements data summarised in the IDI Person_overseas_spell file.

[13] The IDI spine included individuals who were either (i) present in tax data from 1999; (ii) present in births data from 1920; or (iii) present in visa data from 1997. Visa data included any person accepted for a visa to enter New Zealand, other than on a visitor's or transit visa. Of the domestic students in our study sample, 97.4 percent were able to be linked to the IDI spine.

records for the student to be linked with records from other administrative systems (Black, 2016).

Data was organised into student-school-year observations, each of which represented a spell of enrolment in a distinct school in a school year.

SWiS expansion information

Information on which schools and kura received the SWiS service over time was supplied by MSD teams that now sit within Oranga Tamariki. This information included lists of schools and kura that were receiving SWiS prior to the 2012-13 expansion, and lists of schools and kura that newly received SWiS in the different stages of that expansion. It included details of around 60 schools that were not included in the 2012-13 expansion because they were at the time classified as decile 4+ based on the 2006 Census, but were later re-classified as decile 1-3 based on the 2013 Census. This group of schools has, to date, never received SWiS.

The SWiS expansion information also included lists of schools and kura that were the 'base' schools and kura where social workers had their primary location and office. At present, there are no centrally-held data on which students are the direct recipients of SWiS services available for research.

Outcomes

A limitation of this study is that the data source we are using is not able to directly capture the outcomes sought by the service (safe, healthy and socialised children with a strong sense of identity and fully engaged in school; safety, wellbeing and educational needs met for vulnerable children).

We were instead interested in whether the expansion of SWiS was associated with indications of general improvement in the wellbeing of students in administrative data, including:

- positive educational outcomes suggesting improvements in engagement with school and behaviour in school

- a reduction in child welfare events suggesting improvements in their care and safety (noting that SWiS could potentially increase reports of concern in the short term as a result of SWiS bringing previously unrecognised concerns to attention (Davidson, 2007))

- a reduction in offending-related service contacts indicative of improved behaviour in and out of school.

The indicators able to be examined were, in turn, limited to those for which data were available in the IDI for the study students. Because data on school attendance were not available in the IDI, and information on which students received truancy-related interventions was only available from 2013[14], these outcomes were not able to be examined. In addition, as attainment data was only available for older secondary school students, given our limited follow-up period it was not possible to examine students' attainment. Our examination of positive educational outcomes was limited to assessing

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[14] Truancy data became available following the introduction of a new Attendance Service.

whether the SWiS expansion was associated with a reduction in stand-downs (which involve formal removal of a student from school for a short period) and suspensions (which involve formal removal of a student from school until the board of trustees decides the outcome – suspension is imposed in the most serious cases).[15]

We examined three outcomes for students:

- having a stand-down or suspension from school

- being the subject of a care and protection notification to CYF[16]

- being apprehended by Police for alleged offending.

The first and third of these are rare for children in the age group we study.

A flag indicating whether each outcome occurred was attached to each student-school-year observation. For children enrolled in one school continuously, these flags indicated the occurrence of the outcomes within each school year. For children with spells enrolled in different schools and kura within in a year, these flags indicated the occurrence of the outcomes in each spell. The Appendix provides more details on the outcome measures and their derivation.

Controls for student characteristics and background

Measures of student characteristics and background were derived from a range of sources. Age, ethnic groups and gender came from Ministry of Education information held in the IDI.[17] Up to three ethnic groups were recorded for each school student (Statistics New Zealand, 2015). The most common combinations were derived from these data, yielding a 'single/combination' categorisation of ethnic groups (Statistics New Zealand, 2004).

The length of time supported by a main benefit before age five[18] was included as a proxy for the student's exposure to poverty and its persistence in their early years. Parental benefit receipt has a strong association with child poverty (Perry 2017a) and measured material deprivation (Perry, 2017b). International research increasingly points to family incomes as having a causal impact on outcomes for children. Evidence is strongest for cognitive development and school achievement, and for social and behavioural development (see Cooper and Stewart, 2013, and Boston and Chapple, 2014 for reviews).

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[15] One of the outcomes for a Year 1-8 student may be expulsion (this involves the formal removal of a student aged under 16 years from the school and the requirement that the student enrol elsewhere). We did not examine expulsions because this outcome is extremely rare for Year 1-8 students.

[16] Police Family Violence notifications were excluded from the measure. Instability in administrative processes resulted in a large increase and subsequent decrease in these notifications (Mansell et al., 2011; CSRE, 2012; MSD, 2014).

[17] These came from the 'student_personal' file which collates demographic information entered in the ENROL system by schools.

[18] Derived from MSD Benefit Dynamics data (Wilson and Soughtton, 2009) in the IDI.

A measure of contact with child welfare services before reaching school age was derived from CYF data. This indicated whether a notification was recorded by CYF in respect of the child by age five.[19] Early adversity, including abuse and neglect, is associated with a range of measures of subsequent health and life opportunities (Gilbert et al., 2009; Metzler et al, 2017). In the New Zealand setting, coming to the attention of CYF has associations with a range of adverse administratively recorded education and other outcomes over the early lifecourse (Templeton et al., 2016).

School characteristics and services in schools and kura

School-level data from published directories of schools and kura were taken into the IDI to be combined with other study data. These directories provided information on a range of school characteristics (rural/urban status, school type, school decile, and whether a kura kaupapa Māori). The size of the roll was derived using enrolment data.

In addition, information on participation in the following national programmes was able to be sourced and taken into the IDI for inclusion in the study:

- PB4L School-Wide (data provided by Ministry of Education)
- The KickStart Breakfast programme (data provided by Fonterra)
- Fruit in Schools (data provided by the Ministry of Health).

This is a small subset of the school and service information that is relevant. It excludes, for example, the Milk for Schools and Health Promoting Schools initiatives (Wilson et al., forthcoming).

The schools and kura with SWiS

Figures 1-3 show time trends in access to SWiS across different groups of schools and kura, together with their receipt of other programmes for which we were able to source data. Schools and kura are categorised by their school decile as at 2013 (ie before any re-categorisation as a result of the 2013 Census – school decile as at 2013 was the basis on which schools and kura to be included in the expansion were determined). Tables 1 and 2 show the profile of schools and kura and their students by their SWiS expansion status.

The proportion of decile 1-3 schools and kura that received SWiS increased from 41 percent to close to 100 percent with the expansion (only a handful of schools and kura refused the service). Six percent of pre-expansion SWiS schools and kura and 12 percent of SWiS expansion schools and kura were kura kaupapa Māori. The proportion of decile 4-5 schools and kura receiving SWiS remained at nine percent throughout the period. These were schools and kura that had received SWiS as part of earlier expansions that were not exclusively focussed on decile 1-3 schools and kura.

Decile 4-5 schools and kura were less likely than decile 1-3 schools and kura to participate in the other programmes for which we have data. Uptake of KickStart increased in these schools in 2014 following the expansion of KickStart to schools and kura with a decile ranking above four. The major increase in participation in KickStart in decile 1-3 schools occurred before the SWiS expansion, although from mid-2013 these

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[19] Police family violence notifications were excluded from the measure.

schools and kura were able to access the programme for five days a week instead of two, and Milk for Schools became available from 2012-13, increasing the volume of food available to students through these programmes over the same time period as SWiS was expanded (Wilson et al., forthcoming). Receipt of Fruit in Schools in decile 1-3 schools and kura was unchanged through the period of the SWiS expansion.

The proportion of schools and kura participating in PB4L School-Wide Tier 1 increased at a steady rate over the study period. In 2013, 23 percent of decile 1-3 schools and kura participated in PB4L School-Wide Tier 1 (32 percent of pre-expansion SWiS schools and kura and 17 percent of SWiS expansion schools and kura), and three percent participated in PB4L School-Wide Tier 2.

Table 2 shows that most students in decile 1-3 schools and kura were Māori or Pacific. SWiS expansion schools and kura were less likely than decile 1-3 schools and kura already served by SWiS pre-expansion to be decile 1 and 2. Consistent with higher levels of student need among decile 1-3 schools and kura already receiving SWiS prior to the expansion, expansion schools and kura were less likely than pre-expansion SWiS schools and kura to have students who had come to the attention of CYF prior to starting school, and their students had on average spent fewer years supported by a main welfare benefit prior to starting school.

Figure 1: Proportion of schools and kura with SWIS and other services, by decile
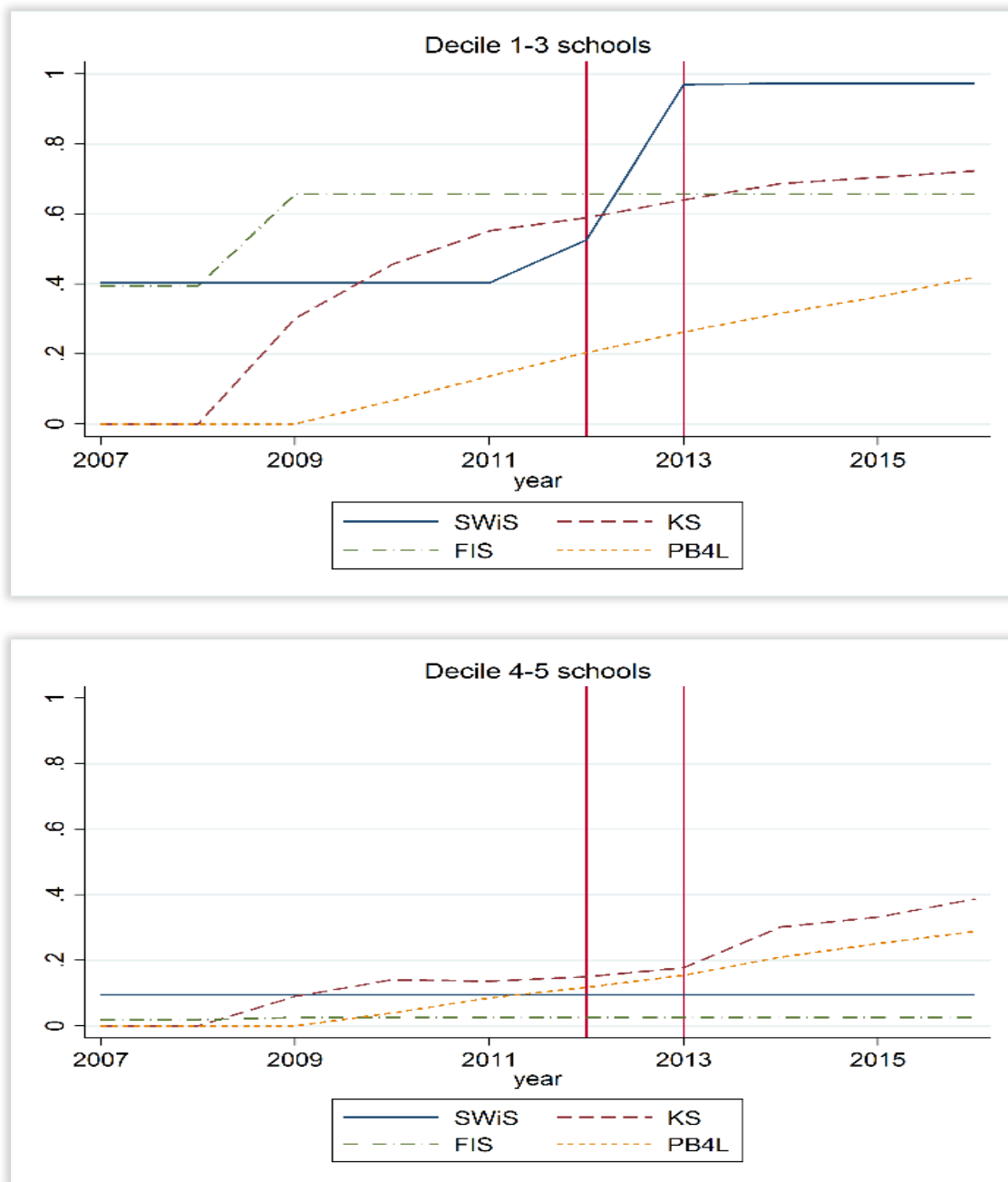
Note: Decile rankings are as at 2013 (prior to re-categorisation following the 2013 Census). Other services are KickStart Breakfasts (KS), Fruit in Schools (FIS), and Positive Behaviour for Learning (PB4L).

Figure 2: Proportion of schools and kura with SWIS and other services, by SWIS expansion status
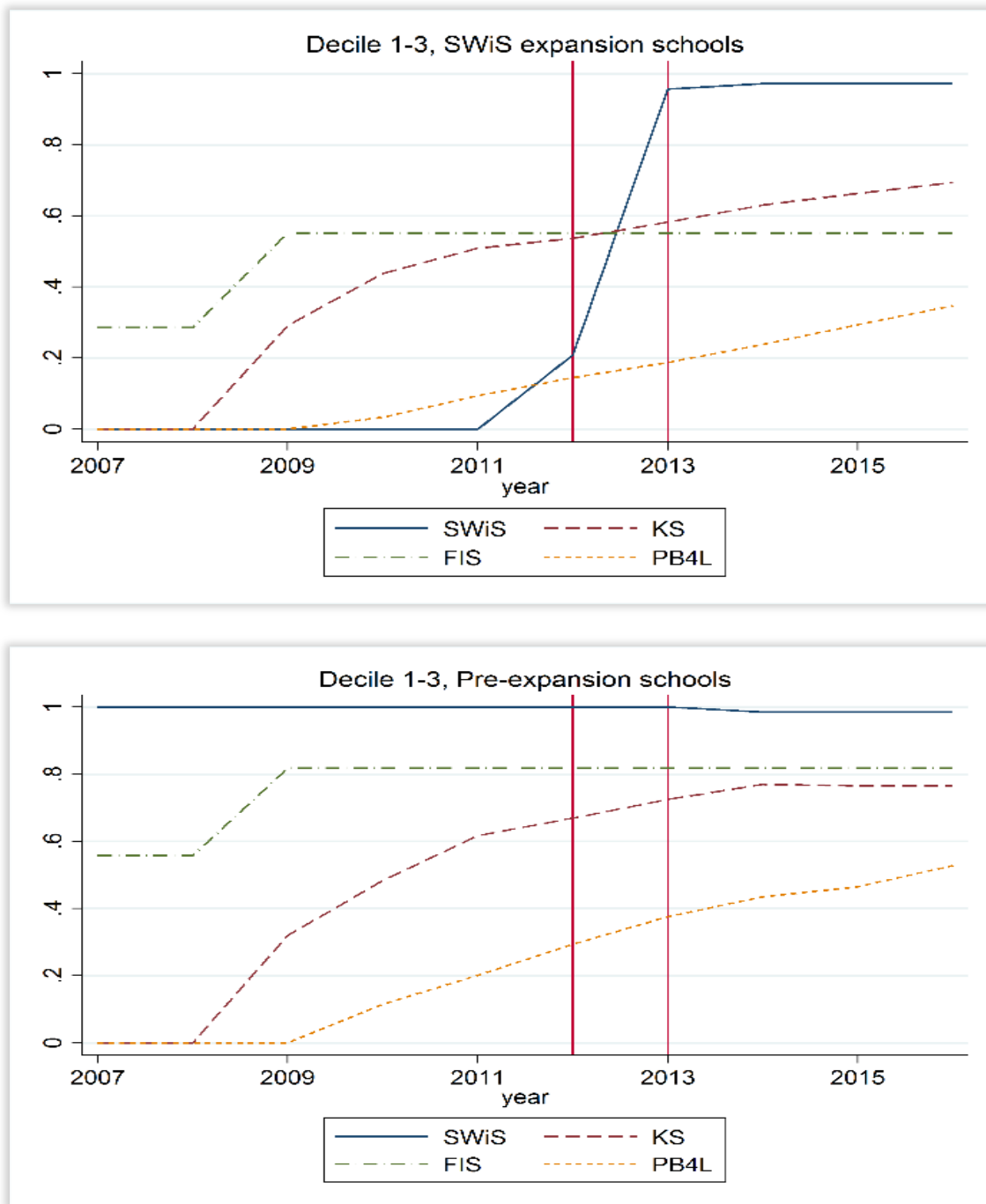
Note: Decile rankings are as at 2013 (prior to re-categorisation following the 2013 Census). Other services are KickStart Breakfasts (KS), Fruit in Schools (FIS), and Positive Behaviour for Learning (PB4L).

Figure 3: Proportion of kura kaupapa Māori with SWIS and other services

Note: Other services are KickStart Breakfasts (KS), Fruit in Schools (FIS), and Positive Behaviour for Learning (PB4L).

Table 1: Mean characteristics of schools and kura by SWiS expansion status and decile (standard deviations in italics)

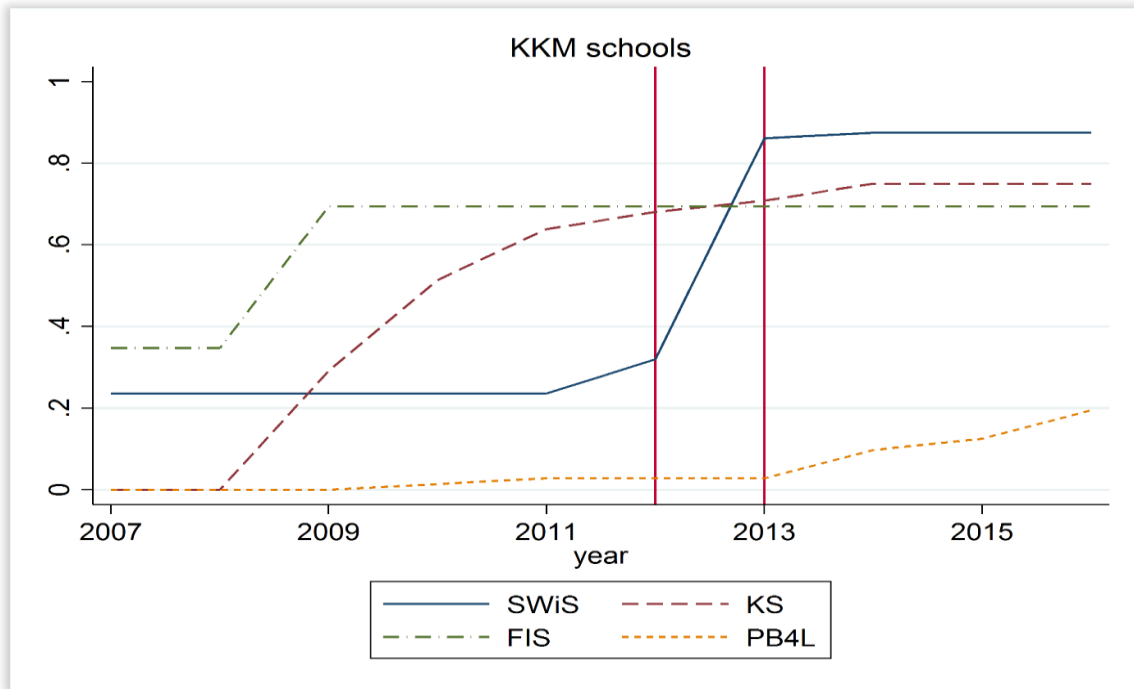|	All schools and kura decile 1-10	Pre-expansion SWIS schools and kura decile 1-3	SWIS expansion schools and kura decile 1-3	All schools and kura decile 4-5
No. students aged<=13	224	225	178	208
	177	*160*	*166*	*172*
Proportion with each school type:				
Primary	0.486	0.483	0.480	0.478
	0.500	*0.500*	*0.500*	*0.500*
Contributing (Year 1-6)	0.348	0.383	0.318	0.346
	0.476	*0.486*	*0.466*	*0.476*
Intermediate	0.054	0.055	0.048	0.080
	0.226	*0.228*	*0.214*	*0.272*
Misc. school	0.112	0.078	0.154	0.096
	0.315	*0.269*	*0.361*	*0.295*
Proportion Kura kaupapa Māori	0.032	0.060	0.121	0.017
	0.177	*0.238*	*0.326*	*0.131*
Proportion with each rural/urban status:				
Main urban	0.513	0.517	0.535	0.404
	0.500	*0.500*	*0.499*	*0.491*
Minor urban	0.170	0.287	0.165	0.231
	0.376	*0.452*	*0.371*	*0.422*
Rural	0.317	0.196	0.301	0.364
	0.465	*0.397*	*0.459*	*0.481*
Proportion with other services as at 2013:				
KickStart Breakfasts	0.231	0.676	0.562	0.207
	0.421	*0.468*	*0.496*	*0.405*
Fruit in Schools	0.202	0.820	0.553	0.025
	0.402	*0.384*	*0.497*	*0.156*
PB4L School-Wide Tier 1	0.121	0.317	0.166	0.144
	0.327	*0.466*	*0.372*	*0.351*
PB4L School-Wide Tier 2	0.017	0.055	0.018	0.022
	0.129	*0.228*	*0.135*	*0.147*
PB4L Restorative Practice	0.001	0.001	0.001	0.001
	0.037	*0.035*	*0.036*	*0.034*
Number of schools and kura	2,223	270	390	432

Note: Decile rankings are as at 2013 (prior to re-categorisation following the 2013 Census).

Table 2: Mean characteristics of students by their school or kura's SWiS expansion status and decile (standard deviations in italics)

	All schools and kura decile 1-10	Pre-expansion SWIS schools and kura decile 1-3	SWIS expansion schools and kura decile 1-3	All schools and kura decile 4-5
Mean age	8.6	8.4	8.6	8.7
	1.3	*1.0*	*1.2*	*1.4*
Proportion female	0.487	0.483	0.486	0.485
	0.100	*0.052*	*0.080*	*0.087*
Proportion in each single/combination ethnic group:				
European	0.538	0.188	0.219	0.557
	0.298	*0.209*	*0.233*	*0.218*
Māori	0.221	0.467	0.463	0.209
	0.255	*0.288*	*0.313*	*0.169*
Pacific	0.061	0.163	0.130	0.044
	0.141	*0.226*	*0.216*	*0.083*
Asian	0.048	0.028	0.035	0.041
	0.086	*0.052*	*0.078*	*0.082*
Other	0.014	0.008	0.011	0.013
	0.025	*0.017*	*0.032*	*0.025*
Māori + European	0.067	0.073	0.073	0.086
	0.056	*0.058*	*0.064*	*0.063*
Other combination	0.016	0.020	0.020	0.016
	0.021	*0.019*	*0.025*	*0.023*
Not recorded	0.001	0.001	0.001	0.001
	0.007	*0.004*	*0.004*	*0.005*
Proportion with CYF notification before age 5	0.117	0.230	0.193	0.125
	0.095	*0.094*	*0.099*	*0.070*
Mean benefit years before age 5	1.2	2.4	2.1	1.3
	0.9	*0.6*	*0.7*	*0.5*
Mean rate of outcomes 2009-15:				
Suspensions or stand-downs	0.009	0.018	0.014	0.011
	0.020	*0.030*	*0.028*	*0.020*
CYF notifications	0.044	0.090	0.071	0.047
	0.046	*0.056*	*0.054*	*0.040*
Police apprehensions	0.004	0.008	0.006	0.004
	0.010	*0.015*	*0.014*	*0.010*

Note: Decile rankings are as at 2013 (prior to re-categorisation following the 2013 Census).

Impact analysis

We estimated the impact of the SWiS expansion on students' outcomes using a Difference-in-Differences (DiD) regression with controls for other factors able to be observed in the linked data. The DiD approach compared changes in outcomes of students in SWiS expansion schools and kura before and after the expansion, with changes in outcomes of students in pre-expansion SWiS schools and kura, and changes in outcomes of students in decile 4-5 non-SWiS schools and kura, over the same period. Having two comparison groups facilitated a test of the 'common trends' assumption associated with DiD, via a placebo test of whether the two non-expansion groups had the same change in average outcomes before and after the expansion.

As an initial descriptive step, Figures 4-6 show time trends in the rates of the outcomes of interest.

Figure 4: Proportion of students with a stand-down or suspension

Note: Decile rankings are as at 2013 (prior to re-categorisation following the 2013 Census).

Stand-downs and suspensions trended downwards across all school types (Figure 4). CYF notifications increased between 2007 and 2012 and show some signs of levelling off from 2012-13 for students in lower decile schools and kura, with a short-lived decline in rates in SWiS expansion schools and kura between 2012 and 2013 (Figure 5). Police apprehensions show a steep decline from 2010. The decline was more rapid in pre-expansion SWiS schools and kura than SWiS expansion schools and kura (Figure 6).

Figure 5: Proportion of students with a CYF notification
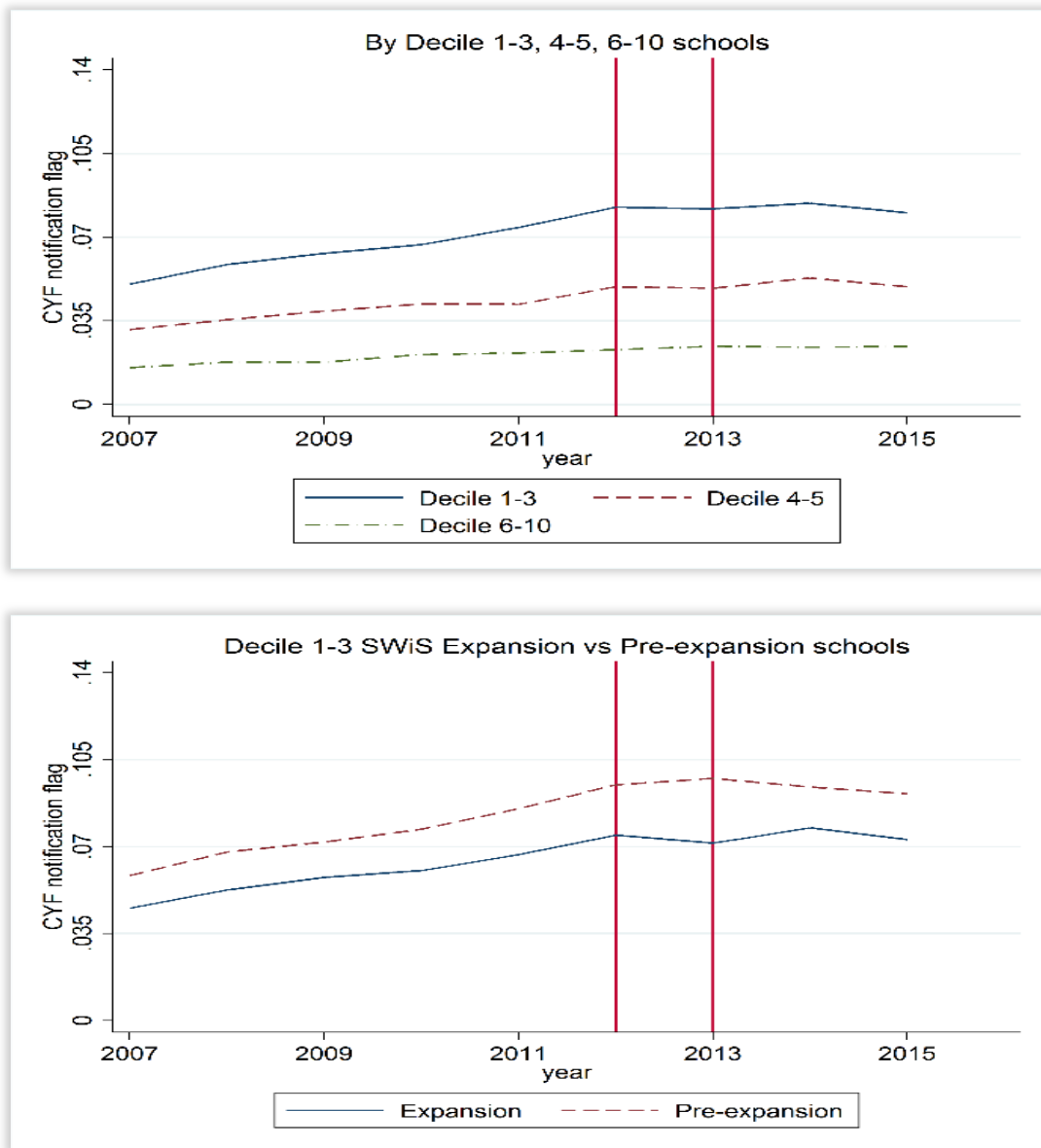
Note: Decile rankings are as at 2013 (prior to re-categorisation following the 2013 Census).

Figure 6: Proportion of students with a Police apprehension for offending
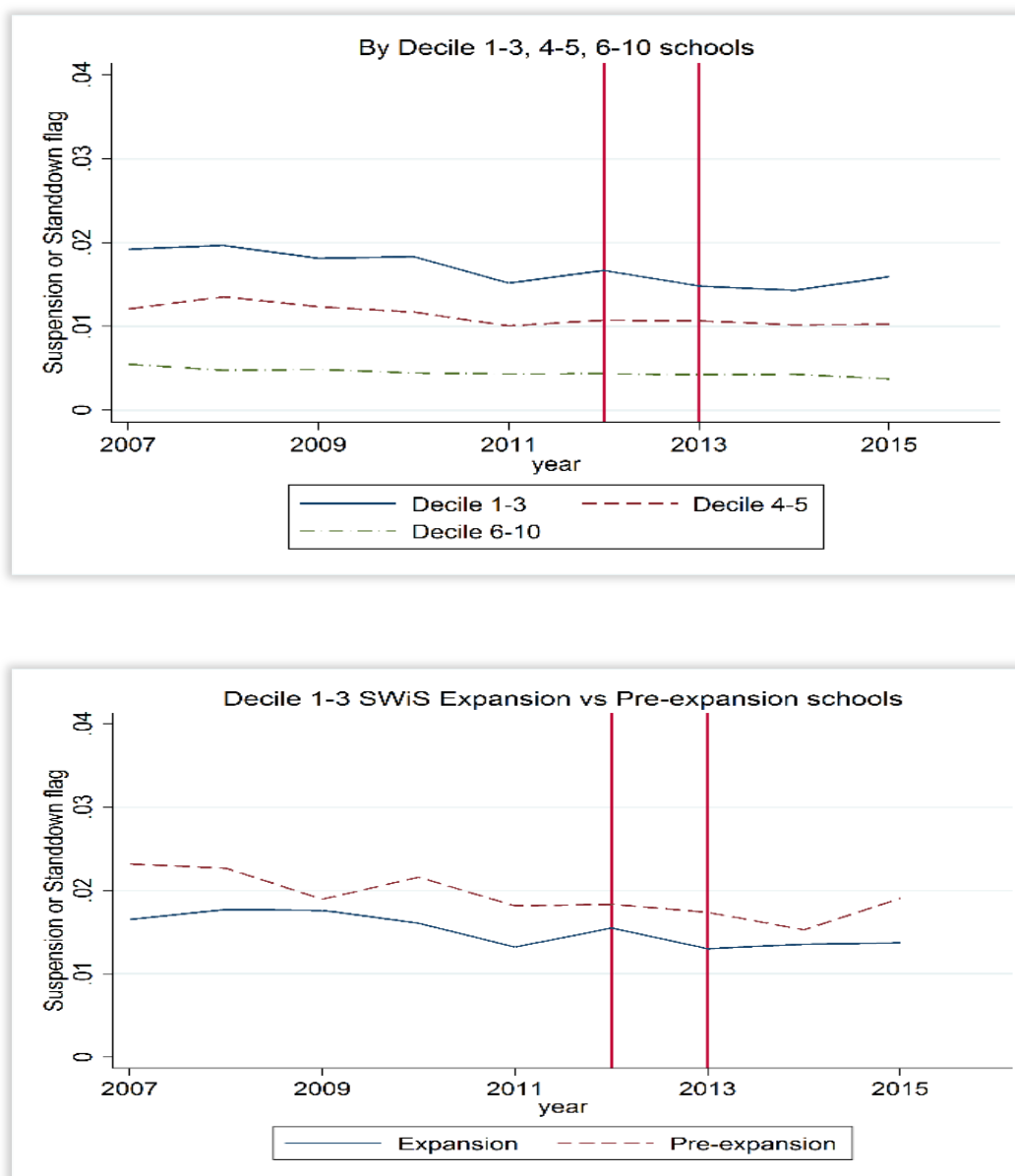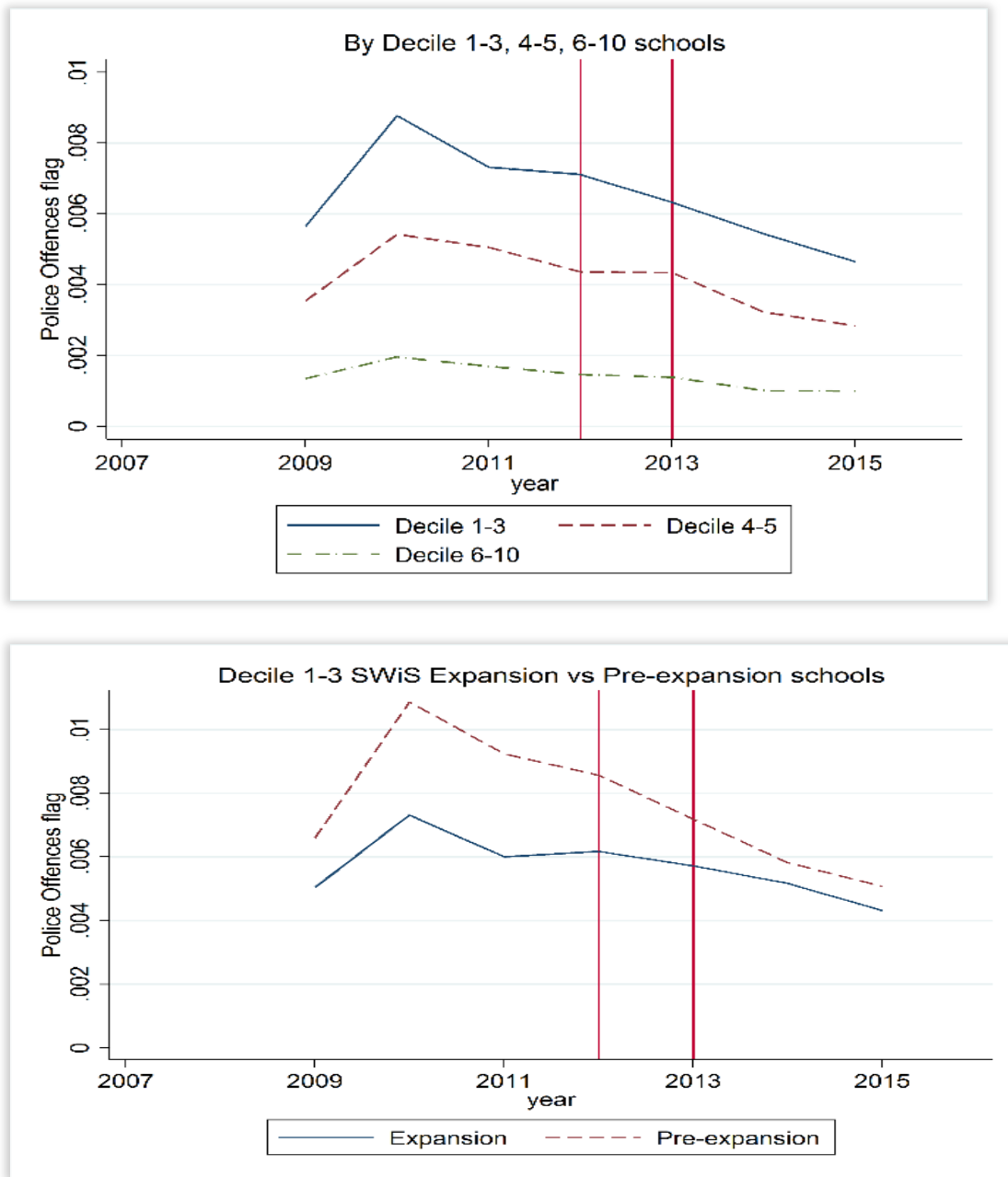

Note: Decile rankings are as at 2013 (prior to re-categorisation following the 2013 Census).

In regression analysis, we estimated the impact of the SWiS expansion after controlling for other factors. Box 3 sets out the model specification for the regressions.

Box 3: Model specification

We estimated linear probability model regressions of the form:

$$Y_{it} = \alpha_0 + \alpha_1 PreXSWiS_{it} + \alpha_2 XSWiS_{it} + \beta_0 XPost_{it} + X_{it}\beta + \epsilon_{it}$$

where Y_{it} is an outcome of interest for student-i in year-t (i.e. Y is an indicator variable for whether the student experienced a school suspension or stand-down, CYF notification, or Police apprehension); $PreXSWiS_{it}$ is an indicator variable for whether the student was in a school that had received SWiS from *before* the 2012-13 expansion; $XSWiS_{it}$ is an indicator variable for whether the student was in a school that received SWiS as part of the 2012-13 expansion; $XPost_{it}$ is the DiD interaction variable for whether the student was observed in a SWiS expansion school *after* the 2012-13 expansion; X_{it} is a vector of other control variables; and ϵ_{it} is a regression residual that captures the effect of other unobserved factors. β_0, the coefficient on the $XPost$ variable, is the SWiS expansion impact of interest.

Controlling for other factors (X_{it}), the essential DiD identification is as follows:

- students in the three groups of schools and kura may have different average outcomes before the expansion, equal to α_0 for $NeverSWiS$ schools and kura, $\alpha_0 + \alpha_1$ for $PreXSWiS$ schools and kura, and $\alpha_0 + \alpha_2$ for $XSWiS$ schools and kura;

- the average outcomes of all students may differ before and after the expansion, which we allow by including year-specific dummy variables in X_{it}; and

- the SWiS expansion impact of interest (β_0) allows the average outcomes for students in SWiS expansion schools and kura after the expansion to differ from the time changes for students in other schools and kura.

We extended this regression to allow for time-varying impacts of the SWiS expansion by allowing separate $XPost$ dummy variables for each year after the expansion.

Our preferred specification controlled for school-level fixed effects. These were intended to capture those observed factors that were constant at the school level over the period, such as the school type, rural/urban location, whether a kura kaupapa Māori, and community socio-economic status proxied by the school's decile ranking based on the 2013 Census.

Controls for school-level fixed effects also potentially capture *unobserved time invariant differences* between schools and kura, such as aspects of school climate that were unchanged over the period. This approach remains susceptible to failing to capture *time-varying unobserved differences* between schools and kura (uncorrelated with observed characteristics). These could include factors such as changes over the period in approaches to pastoral care, differences between schools and kura in the time it took initial implementation difficulties in the SWiS expansion to be resolved, or changes over time in social worker training.

The preferred regression was applied to all student-school-year observations over the period 2010-15 weighted by the length of the enrolment spell.[20] Estimated standard errors were clustered at the school-year level.

The estimate of impact was interacted with an indicator of whether the school was a base school. This was done to test whether the effect of the programme was greater in the schools and kura that were the base school for the SWiS social worker. We also used this approach to explore whether the effect of the SWiS expansion was different in kura kaupapa Māori.

As noted, we included a 'placebo test' that examined whether improvements in outcomes occurred for students in pre-expansion SWiS schools and kura after the SWiS expansion occurred, when compared with decile 4-5 schools and kura that did not receive SWiS.

Results

Table 3 provides selected model estimates. Estimates show the percentage point change in the proportion of students with the outcome associated with each variable.

The results show lower levels of stand-downs and suspensions and CYF notifications were associated with the expansion (the post-expansion impact) when compared with the trends in comparison schools and kura, but the estimates are not statistically significant.[21]

The results also show a *higher* level of Police apprehensions for alleged offending associated with the expansion when compared with the trends in comparison schools and kura (0.15 percentage points higher, significant at the one percent level).[22] Although Police apprehensions declined in SWiS expansion schools and kura, there were stronger declines in decile 4-5 schools and kura and decile 1-3 pre-expansion SWiS schools and kura (Figure 6). This is likely to be associated with differential effects of changes to Police practices associated first with the Policing Excellence initiative from 2010 (NZ Police, 2014) and then with the implementation of the Youth Crime Action Plan from 2014 (Ministry of Justice, 2013).

In sum, we find no significant association suggesting that the expansion of SWiS was associated with a reduction in the rate of the three outcomes for students overall in the schools and kura newly served. This result is unsurprising given the very low ratio of social workers to students.

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[20] As the timing of the outcome variables coincides with the students' school enrolments, weighting handles cases of students who were enrolled in multiple schools during a year, and also gives less weighted to students who are enrolled in school for less than the full year.

[21] The estimates are also small relative to the rates of events for students in decile 1-3 expansion schools. For example, the post-expansion impact estimate of 0.04 percentage points for a suspension or stand-down is a three percent reduction compared with the average rate of 1.4 percent in decile 1-3 expansion schools over the 2009-15 period (from Table 2). The post-expansion estimate of 0.10 percentage points for CYF notifications is a 1.4 percent reduction compared with the average rate of 7.1 percent in decile 1-3 expansion schools.

[22] Given the rate of apprehensions in decile 1-3 expansion schools averages 0.6 percent over the 2009-15 period, this effect is large, representing a 25 percent increase in apprehensions relative to trends in comparison schools.

The one exception is a reduction in CYF notifications in the implementation year in the expansion schools and kura (significant at the one percent level). This reduction is apparent in Figure 5, and may reflect a short-term reduction in schools' notifications to CYF associated with the anticipated arrival of a school social worker.

For Police apprehensions and CYF notifications, coefficients on the impact estimates interacted with the school being a base school for SWiS were negative but only statistically significant at the 10 percent level for Police apprehensions.

Table 3: Selected regression coefficients (standard errors in brackets)

	Suspension or stand-down	CYF notification	Police apprehension
Post-expansion impact	-0.040	-0.102	0.153**
	(0.099)	(0.160)	(0.052)
Post-expansion impact x base school	0.149	-0.094	-0.104+
	(0.112)	(0.205)	(0.054)
Post-expansion impact x kura kaupapa Māori	0.111	-0.558	-0.098
	(0.137)	(0.471)	(0.112)
Implementation year impact	-0.040	-0.511**	0.012
	(0.088)	(0.149)	(0.044)
Pre-expansion SWiS school x post-expansion (placebo test)	0.048	-0.300*	-0.074+
	(0.076)	(0.127)	(0.043)
Observations	1,317,066	1,317,066	1,317,066
R-squared	0.038	0.083	0.021

Notes:

Estimates show the percentage point change in the proportion of students with the outcome associated with each variable. For interacted variables percentage point change is relative to the category omitted. Effects are additive.

** Significant at the 1 percent level

* Significant at the 5 percent level

+ Significant at the 10 percent level

Estimated standard errors are clustered at the school-year level.

Results for our placebo test show that after the SWiS expansion was introduced, CYF notifications and Police apprehensions for students in schools and kura that already had SWiS were reduced relative to those for students in decile 4-5 schools and kura without SWiS (significant at the five and 10 percent levels respectively). Formally, this rejects the assumption that, in the absence of the SWiS expansion, the three groups (the SWiS expansion schools and kura, existing SWiS schools and kura, and the decile 4-5 schools and kura without SWiS) had common trends in the outcomes, and is problematic for the identification strategy. In the case of Police apprehensions, this is consistent with the patterns in Figure 6. Rejection of the common trends assumption suggests that the relatively higher level of Police apprehensions for alleged offending for the SWiS expansion students over time cannot be attributed to the SWiS expansion.

For CYF notifications, the results imply that students in the existing SWiS schools and kura experienced an improvement in this outcome relative to the decile 4-5 schools and kura without SWiS after the 2012-13 expansion. To the extent that this improvement was associated with a broader change in outcomes for students in decile 1-3 schools and kura, this may drive the estimated SWiS expansion effects, but this is difficult to assess.

Interpretation of the results is made more difficult by the fact that in many cases existing SWiS providers served both the new and existing SWiS schools and kura. While rejection of common trends assumption could suggest that our identification strategy was capturing changes that could not be attributed to the SWiS expansion, it is also possible that the expansion may have had spill-over effects on existing SWiS schools and kura. Providers that covered both expansion and pre-expansion SWiS schools and kura may have used some of the new social work positions to increase the resources going to pre-expansion SWiS schools and kura if they saw them as having the greatest need for services.

A range of control variables had statistically significant associations with the outcomes.[23] These included age (with strong positive associations with single year of age from 10 for all three outcomes), CYF notification history and benefit history, gender (for stand-downs and suspensions and Police apprehensions but not CYF notifications), ethnic group, school size (for Police apprehensions) and calendar year.

Participating in KickStart and participating in PB4L School-Wide in any given year were both associated with a higher rate of CYF notifications (significant at the five percent level). This is likely to reflect the selection of schools and kura with higher levels of contemporary need into these programmes.

Results for kura kaupapa Māori

We find no evidence that the impact of the expansion was different for students in kura kaupapa Māori compared with other schools.

Because our preferred specification included school-level fixed effects that controlled for time invariant features of the school, it did not produce estimates for the association between enrolling in a kura kaupapa Māori and the three outcomes. However, results from an alternative specification that excluded the fixed school-level effects and instead controlled for observable school characteristics are of note.[24] These showed strong associations between enrolling in a kura kaupapa Māori and improvements in each of the outcomes, all significant at the one percent level.

Controlling for other factors (including the students' CYF notifications history and benefit history before starting school, age and ethnic groups, school decile, and rural/urban status), compared with students enrolled in mainstream schools, kura kaupapa Māori students were:

- 2.1 percentage points less likely to have a stand-down or suspension
- 2.9 percentage points less likely to have a CYF notification
- 0.5 percentage points less likely to have a Police apprehension for offending.

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[23] Detailed regression results are available from the authors.

[24] Detailed regression results are available from the authors.

These positive results clearly invite further study. Based the present analysis, we are unable to say whether the associations reflect the effects of the kura kaupapa Māori on outcomes for their students or unobserved differences between the students who attend kura kaupapa Māori and the students who attend mainstream schools that we have not controlled for.

Interaction effects

The regression estimates in Table 3 assumed the associative effects of the SWiS expansion to be constant across all students in expansion schools and kura. However, while all students in the school could benefit from group programmes and from any improvements in school climate and peer relationships that result from SWiS, we would expect students who were direct recipients of individual case work to benefit the most. There is, currently, no centralised data that tell us which types of students receive SWIS services, but data from early in the implementation suggest that boys and Māori students, for example, were the most likely to receive case work (Belgrave et al., 2004).

We examined the possibility of differential effects by interacting the SWiS expansion variable in the regression with observable characteristics that might proxy for greater likelihood of being a direct recipient of the programme and then extended the regression to include these interaction variables. Assuming the identification problems associated with the rejection of common trends are confined to the main effects, the interaction effects will be meaningful.

In results from regressions that include a variety of interactions, the interpretation of the coefficients on the interacted variables is that each represents the effect of the SWiS expansion for that subgroup relative to the omitted group (eg relative to girls in the case of the interaction for boys). Interactions are additive across the subgroups defined by the various student and school characteristics, and the *main* 'post-expansion impact' estimates represent the impacts for students omitted from all interaction groups. As a result, interpretation of these estimates is less straightforward.

Table 4 shows the results. The estimated main post-expansion impact coefficients were positive for two of the outcomes, implying an increase in the rate of the outcomes coincided with the expansion of SWiS. However, the pattern of interaction coefficient estimates suggests the expansion of SWiS had encouraging effects on those most likely to be direct recipients of individual case work. Overall, 16 of the 21 interaction effect coefficients are negative, of which five are significant at the one or five percent level:

- Pacific students were less likely to have a CYF notification (significant at the five percent level)
- boys and Māori students were less likely to have Police apprehensions (both significant at the one percent level), as were students who had longer periods spent supported by main benefits before age five (significant at the five percent level), and students enrolled in a base school for SWiS (significant at the five percent level).

As with Table 3, the interactions for Police apprehensions occur against a backdrop of declining Police apprehensions that was more rapid in pre-expansion than in SWiS expansion schools and kura resulting in a positive post-expansion impact estimate. Despite this backdrop, given the additive nature of the estimates, the results sum to negative overall impact estimates for some subgroups. For example, for Māori boys enrolled in SWiS base schools and kura the sum of impact estimates for Police

apprehensions is negative, indicating a reduction in apprehensions was associated with the SWiS expansion, relative to trends for similar students in comparison schools and kura.

These results suggest encouraging effects on identifiable subgroups of students and schools and kura.

Table 4: Selected regression coefficients with interactions (standard errors in brackets)

	Suspension or stand-down	CYF notification	Police apprehension
Implementation year impact	-0.036	-0.532**	0.017
	(0.088)	(0.149)	(0.044)
Post-expansion impact	0.234+	-0.114	0.409**
	(0.137)	(0.219)	(0.067)
Post-expansion school-type impact interaction:			
x base school	0.143	-0.009	-0.139*
	(0.115)	(0.207)	(0.055)
Post-expansion student characteristic impact interactions:			
x boy	-0.121	-0.060	-0.206**
	(0.124)	(0.169)	(0.057)
x Māori	-0.198	-0.013	-0.226**
	(0.139)	(0.267)	(0.073)
x European and Māori	-0.136	0.383	0.091
	(0.170)	(0.424)	(0.109)
x Pacific	-0.134	-0.455*	0.056
	(0.091)	(0.225)	(0.051)
x CYF notification before age five	-0.093	-0.147	-0.127
	(0.151)	(0.405)	(0.098)
x benefit years before age five	-0.044+	0.057	-0.031*
	(0.025)	(0.054)	(0.014)
Observations	1,317,066	1,317,066	1,317,066
R-squared	0.038	0.083	0.021

Notes: Estimates show the percentage point change in the proportion of students with the outcome associated with each variable. For interacted categorical variables percentage point change is relative to the category omitted. For interacted mean benefit years, percentage point change is for a one year increase.

** Significant at the one percent level

* Significant at the five percent level

+ Significant at the 10 percent level

Estimated standard errors are clustered at the school-year level.

Sensitivity tests

Results were broadly similar when:

- regressions were applied at the school level and weighted by school roll (rather than at the student level)
- controls for observable school characteristics were included (rather than school-level fixed effects that controlled for time invariant features of the school)

- impacts were allowed to vary with time since SWiS started (rather than fixed over the post-expansion period)
- counts of events (eg the number of Police apprehensions) were examined (rather than a flag of whether any event occurred for the student)
- the focus was shifted just to students aged 10 to 13 years for whom the rate of the outcomes examined was highest (rather than all students aged five to 13 years)
- the regressions for Police apprehensions were re-estimated excluding observations for students in schools and kura that had SWiS pre-expansion (ie excluding as a comparison group for the DiD estimation the group with the very steep decline in apprehensions most likely to have been driven by changes in Police practice).

3. Discussion

Results from this study suggest that, relative to trends for similar students in comparison schools, the expansion of SWiS was associated with improvement in some outcomes for the students most likely to be direct recipients of individual case work, and was associated with some improvement in outcomes for students in schools and kura in which social workers would be expected to have the greatest presence. Although these results are not strong statistically, they should be seen as encouraging.

The suggestion of improvement in outcomes is strongest for Police apprehensions for offending for Māori boys in SWiS base schools and kura, and for CYF notifications for Pacific students.

One possible explanation for the pattern of interaction effects for by subgroup for Police apprehensions is that they reflect the greater effect of the Police initiatives over the period on these subgroups, rather than the effect of SWiS. In practice the expansion of SWiS and Police initiatives may have worked in tandem. Both emphasise community liaison and engagement with community partners to address the needs of children and young people at risk.

A preliminary study based on linked administrative data by Jiang and colleagues also found a suggestion of reduced offending behaviour as a result of SWiS. In that study, CYF youth justice referrals after starting secondary school were lower for students who had been enrolled in SWiS schools at Years 7-8 than for matched students in similar schools without SWiS at Years 7-8. The difference was marginally short of being statistically significant at the five percent level, and was larger than average for Māori and Pacific students and for boys (Jiang et al., forthcoming). CYF youth justice referrals involve the referral of a child or young person to CYF for a Family Group Conference, and tend to occur where the level and nature of the offending is more serious, or raises concerns about the care and protection of the child.[25]

If SWiS is indeed effective in reducing offending and anti-social behaviour and reducing child welfare concerns for some students, this is an important result. The downstream positive effects on children and young people themselves, and their families and whānau, schools and kura and communities may be considerable (Ministry of Justice, 2013; Advisory Group on Conduct Problems, 2011).

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[25] These are referrals to CYF to convene a Youth Justice Family Group Conference (FGC). The New Zealand youth justice system has an emphasis on diversion from prosecution. In many cases following an apprehension by a Police Officer, the Police will engage with the young person and whānau to attempt to resolve the offending without further action. There are three circumstances in which a referrals to CYF to convene a Youth Justice FGC can occur. If police are concerned that a child aged 10-13 years is in need of care and protection due to the nature or level of their offending, they can refer the child to CYF to convene a 'child offender' FGC. Children can be prosecuted for a limited number of serious offences, while young people can be prosecuted for any offence. When police believe prosecution is required they have a choice of referring the youth to CYF to convene an 'intention-to-charge' FGC to resolve the offence, or lay the offence in the Youth Court. If the youth does not deny the offending, the Youth Court will make a referral to CYF to convene a 'court-ordered' FGC to consider how the offence should be resolved.

School communities' ongoing support for SWiS is a key reason why there has been no reassessment of the model since 2002. A reassessment is overdue. The model emerged out of a period of considerable turmoil in the government policy over social service delivery, and over the nature of social work practice, and one that redefined the relationships between government and NGOs and especially between Māori, as iwi, hapū and whānau, in their relationships with the Crown.

It also reflected the mix of interventions in schools and for whānau available at the time. SWiS was never designed to be a standalone programme, but was part of a range of connected services that took a holistic approach to meeting need. By mobilising a whole range of programmes through partnership agreements under Strengthening Families, it was intended to lead to a range of mutually supportive and integrated interventions. Making the system work was more important than its individual parts.

The mix of services available in 2017 is very different. SWiS social workers are now part of a much more complex interplay of social service and education and health interventions available to schools and kura. Reassessing the model in the light of these developments, exploring not just what social workers do, but how this interlinks or even overlaps with other services is clearly worthwhile. Certainly the emergence of Oranga Tamariki makes such a reassessment timely, as does the question of the relationship between SWiS and Whānau Ora, and the need to meet the needs of students in schools and kura not currently served by SWiS.

Strengths and limitations of this analysis

Being able to reconsider the impact of SWiS using linked administrative data in the IDI provides both new opportunities and challenges. The IDI overcomes some of the unavoidable data deficiencies in the original evaluations. In common with other administrative data linkages, it offers the ability to examine outcomes across domains traditionally studied in silo (education, child welfare, and justice in our case). It also offers a long and growing longitudinal data source unaffected by non-response bias, a large and in our case comprehensive sample of the populations of interest allowing examination of some relatively rare outcomes, and the potential for examining longer-term programme outcomes (Connelly et at. 2016; Currie, 2013).[26]

We focussed here on the programme's short-term impact. This was necessitated by the limited follow-up since the expansion, but it also had the advantage of avoiding the need to take account of complex changes in services and supports in secondary schools encountered in other studies (Kiro et al., 2016; Superu, 2015; Jiang et al., forthcoming). It is important not to discount the value of short-term effects. Social workers in schools often deal with crises and their ability to resolve these may or may not have long-term effects, but make a significant difference in the immediate circumstances of children, their families and whānau, and their school communities.

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[26] Two sets of limitations inherent to the IDI apply to our study: IDI data linking is generally probabilistic and some errors are inevitable in this process; and the administrative data it holds capture information collected or generated in the process of administering government services, and inevitably embody any errors in measurement, reporting and recording that occur in those processes.

We looked at outcomes across groups of students in the school. An advantage of this is that the analysis captures potential spill-overs (eg via improved relationships with peers), and any impacts arising from less intensive programme components such as group or school-wide preventive programmes. Such effects would not be able to be identified in a randomised controlled trial or other study focussed on estimating impacts just for those students receiving individual case work (Parise et al., 2017).

But using IDI data still requires a clear understanding of what the SWiS social workers actually do. This programme did not aim to achieve a single quantifiable end. The whole objective was to place social workers into an environment where they would be an appreciated and accessible part of the school community, able to practice social work in all its diversity, and driven by the different needs of clients, the theoretical and professional tools available, and the potential resources which could be wrapped around children and whānau.

Given the wide variation in client needs, and in the services provided in response, large effects on specific outcomes would not be expected. As with wrap-around home visiting programmes aimed at improving the wellbeing of at-risk mothers and infants, an effective service would be expected to show a 'pattern of small but pervasive benefits' across a range of areas (Fergusson et al., 2012, p. 29). This, combined with the modest size of the social work resources going into schools and kura relative to the school roll, made detecting impacts in this study very challenging.

A further limitation is that the IDI did not enable us to look at a range of outcomes for which strong perceptions of positive change in the lives of students and their whānau have been reported in other studies (Davidson, 2007; English et al., 2011; Belgrave et al. 2002). At the time of writing, the IDI offered no measures of whānau, or whānau wellbeing (Kukutai, Sporle & Roskruge, 2017). It could not be used to quantitatively assess a range of outcomes of importance to Māori.

In the research conducted by Hollis-English, Selby and Bell, among the indicators Māori social workers looked for when assessing whether families they worked with were achieving greater independence, confidence and skills were living 'more positively as a cohesive unit with evidence of self-management and self-reliance' and 'positive change in their appearance, a willingness to engage in activities both within the school and after school' (Hollis-English and Selby, 2014). Our study was not able to assess whether these outcomes improved, or whether whakawhanaungatanga was improved in kura kaupapa Māori or other schools (whether SWiS fostered more positive relationships between teachers and students, and between schools and kura and families and whānau).

We were also unable to look at the quality of children's relationships with their peers, access to supportive adults, or their sense of engagement with school. In the randomised controlled trial of Communities in Schools, it was outcomes of this nature that improved the most in the two to three year follow-up (Parise et al., 2017).

In addition, in many cases the administrative measures that were available in the IDI were imperfect proxies for the outcomes of interest. We examined Police apprehensions as a proxy for offending behaviour but, as already noted, Police apprehensions are likely to have been influenced by Police policies and procedures, as well as by the underlying rate of offending. We used stand-downs and suspensions as an indicator of student behaviour in school. But changes in the rate at which these interventions are used by schools may reflect changes in policies for managing student behaviour rather than

changes in student behaviour (Hallam et al., 2005; Boyd and Felgate, 2015). We used notifications to CYF as a proxy for the care and safety of students. But SWiS could potentially increase reports of concern as a result of social workers bringing previously unrecognised concerns to attention (Davidson, 2007) causing an increase in notifications without any real change in circumstances occurring, or masking an improvement in the care and safety of students.

In a similar vein, our two measures of events earlier in students' lifecourse likely to be associated with their level of need for social work services in their school years had limitations. Notifications to CYF before starting school capture only some of the abuse and neglect that occurs over this part of the lifecourse (Gilbert et al., 2012), and incidence may be influenced by structural drivers including poverty and bias (Metzler et al., Slack et al., 2017; Cram et al., 2015), and by policies and programmes that affect community reporting (Mansell et al., 2011; Vaithianathan et al., 2016). We proxied exposure to poverty based on students' time spent included by welfare benefits before age five. But children whose parents work make up a substantial minority of children in poverty (Perry, 2017a), and proxies for exposure to poverty inclusive of these children would be a useful addition.

Our study highlights the difficulty of separately identifying the impact of a single programme when it operates in the context of a complex system of potentially mutually reinforcing initiatives. We sought to control for the existence of some of the other initiatives operating in schools and kura, but will not have captured detailed aspects of participation likely to have been important (eg the intensity of uptake of KickStart Breakfasts (Wilson et al., forthcoming), or the level of adoption of PB4L School-Wide Tier 1 as captured by SET[27] assessments (Boyd and Felgate, 2015)).

Taken together, these limitations speak to important constraints that may limit the ability of researchers to use the IDI to establish whether programmes make a positive difference. Impact evaluation using the IDI will be most viable under conditions that are rarely met for education and social programmes:

- the programme is well defined, and is not expected to largely rely on or interrelate with other programmes for its impact
- intended outcomes are well defined, and the programme is expected to have moderate or large effects on those outcomes
- data on most of the primary intended outcomes are captured in the IDI
- those data offer unambiguous, unbiased and consistent measures of the intended outcomes over time
- a clear counterfactual exists either because the programme was randomly allocated or due to a naturally occurring experiment within its implementation, or because the counterfactual is able to be estimated using a robust quasi-experimental design (see Angrist and Pischke, 2015).

In this study, the large step change in the coverage of SWiS as a result of the 2012-13 expansion provided a good opportunity for quasi-experimental impact evaluation but, to varying degrees, other conditions were not met. This meant that while we were able to

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[27] School-Wide Evaluation Tool (SET) data documents the extent to which essential features of School-Wide are in place and consistently understood and used.

measure some encouraging and potentially important results, we were unable to draw firm conclusions about the overall effectiveness of the programme.

Linked administrative data are a rich new source of information for programme evaluation and for research. But owing to its limitations, it will often only tell us one part of the story. We suggest that it is best used alongside other sources of evidence to provide a richer picture of possible outcomes. It should not be viewed as a data source that can be used, in isolation, to identify existing social programmes and services that should be continued and those that should be discontinued.

Directions for further research

Structured use of the Strengths and Difficulty Questionnaire has recently been incorporated into SWiS practice and this may, in the future, contribute valuable information on change for students throughout the course of their participation in SWiS. An updated qualitative study of SWiS would contribute important new information to inform the way forward for SWiS.

Possible directions for further quantitative analysis include working with SWiS providers to incorporate information on which students participate in SWiS services into the de-identified data linkage held in the IDI. Participant data would help build understanding of the backgrounds and outcomes of the children who are the direct recipients of SWiS services. They may also assist with impact analysis. They could, for example, be used to explore the impact of the 'natural experiment' that occurred when some schools and kura that are currently decile 1-3 missed out on the 2012-13 expansion because they were at the time categorised as decile 4+ based on the 2006 Census, but were later re-categorised as decile 1-3 based on the Census taken in 2013.

However, the value of participant data for impact evaluation will inevitably be limited by uncertainty about the degree to which unobserved selection effects that cause some students and families and whānau but not others to participate have been controlled for. It will also be limited by enduring evaluation challenges associated with controlling, for example, differences between students and schools and kura in the SWiS service they receive.

Going forwards, there may be opportunities to build robust impact evaluation into any future enhancement or expansion of SWiS. This could involve, for example, piloting and then trialling the delivery of an evidence-based programme or a Māori-led innovation that nests with PB4L School-Wide Tier 2 or 3 by SWiS social workers, or trialling an increase in the social worker to student ratio in schools and kura where demand for SWiS exceeds supply. The ethical justification for such studies would need to be carefully considered. Their value and relevance would be maximised if they did not rely solely on IDI data for measures of outcomes, and drew on both western science and kaupapa Māori knowledge streams in both service development and evaluation (Advisory Group on Conduct Problems, 2011).

4. Conclusion

Previous evaluations and kaupapa Māori studies of SWiS have found strong support for the service from schools and kura, families and whānau, and social workers, and perceptions of positive change for students across a wide range of domains.

In this study, due to data limitations we examine only a limited number of outcomes with the potential to be improved by SWiS. We find no strong statistical results that would suggest that the expansion of SWiS in 2012-13 significantly reduced the rate of stand-downs and suspensions, care and protection notifications to CYF, or Police apprehensions for alleged offending for students overall in the schools and kura newly served. This result is unsurprising given the low ratio of SWiS social workers to students, and given that large effects on specific outcomes would not be expected.

However, when we examine effects for the subgroups of students expected to be the most likely to have been the direct recipients of individual case work, we find a general pattern of lower relative rates of adverse outcomes after the SWiS expansion. We also find indications of improvement for students in the SWiS base schools and kura in which social workers would be expected to have the greatest presence. The suggestion of improvement is strongest for Police apprehensions for offending for Māori boys in SWiS base schools, and for CYF notifications for Pacific students.

Linked administrative data are a rich new source of information for programme evaluation and for research. But owing to its limitations, and given the complexity of the service environment in schools and kura, it can only tell us one part of the evaluative story. We suggest that it is best used alongside other sources to provide a picture of possible outcomes. It should not be viewed as a data source that can be used, in isolation, to identify existing programmes and services that should be continued and those that should be discontinued.

The conclusion from drawing our results together with those from earlier studies is that SWiS offers an early intervention and preventive social work service that is acceptable to families and whānau and helpful to schools and kura, is seen as having important benefits by schools and kura, social workers, and families and whānau, and has indications of some encouraging impacts on outcomes that can be measured using linked administrative data for subgroups of students most likely to be the direct recipients of the service.

References

Allen-Meares, P., Montgomery, K. L., and Kim, J. S. (2013). School-based social work interventions: A cross-National systematic review. *Social Work,* 58(3) 253-262.

Angrist, J. D. and Pischke,J. S. (2015). *Mastering 'Metrics: The Path from Cause to Effect*. Princeton: Princeton University Press.

Advisory Group on Conduct Problems (2011) *Conduct Problems: Effective Programmes for 8-12 Year Olds*. Ministry of Social Development.

Baginsky, M., Teague, C., Emsley, L., Price, C., Sames, K. and Truong, Y., Children's Workforce Development Council (CWDC), corp creator. (2011). *A summative report on the qualitative evaluation on the eleven remodelling social work pilots 2008-11.*

Belgrave, M and Brown L. (1996). *The Social Work in Schools Programme: North Shore Pilot: An Evaluation.* Massey University.

Belgrave, M., Milne, S., Munford, R., Lunt, N., Sanders, J., Kiro, C., Kaa, H., Tulloch, T., Macfarlane, N., Milne, N., Mataira, P., Vianny, D., Mataira, A., Harrison, D., Ackroyd, S., Selby, R., van Daatselaar, S., Quinnell, J., Baskerville, M. A., and Kupa, S. (2000). *Evaluation of the Social Workers in Schools Pilot Programme Summary Report.* 15 December 2000.

Belgrave M., Jakob-Hoff, M., Milne, S., Selby, R., Asiasiga, L., Mataira, P., Brandt, T., Sanders, J., Millard, M., van Daatselaar, S., Munford, R., Walsh-Tapiata, W., Hawkins, K., Kaa, H., Schuster, A., Ackroyd, S., and Thorpe, A. (2002). *Social Workers in Schools Expansion Evaluation Report*. Ministry of Social Development / Te Manatū Whakahiato Ora, December 2002. Available at: http://www.msd.govt.nz/about-msd-and-our-work/publications-resources/evaluation/social-workers-in-schools/index.html

Belgrave, M., Postlethwaite, J, Fox, M., and Jakob-Hoff, M. (2004). *Report on Data from the Database Kept by Social Workers in Schools*. Unpublished.

Black, A (2016). *The IDI prototype spine's creation and coverage*. Statistics New Zealand Working Paper No 16–03. Retrieved from www.stats.govt.nz.

Boston, J. (1995). *The State Under Contract*, Bridget Williams Books, Wellington.

Boston, J. and Chapple, S. (2014). *Child Poverty in New Zealand*. Wellington: Bridget Williams Books.

Boyd, S. and Felgate, R. (2015). *Final report from the evaluation of PB4L School-Wide. New Zealand Council for Educational Research, Wellington.* Available at: http://www.educationcounts.govt.nz/publications/series/pb4l-school-wide/a-positive-culture-of-support-pb4l-school-wide-final-evaluation-report

Centre for Social Research and Evaluation. (2012). *Children's Contact with MSD Services. Ministry of Social Development.* Available from: http://www.msd.govt.nz/about-msd-and-ourwork/publications-resources/research/childrens-contact-with-msd-services/index.html

Children, Young Persons and their Families Agency (CYPFA)]. (1999). *Social Workers in Schools Operating Protocols.*

Connelly, R., Playford, C. J., Gayle, V., & Dibben, C. (2016). The role of administrative data in the big data revolution in social science research. *Social Science Research*, *59*, 1–12. https://doi.org/10.1016/j.ssresearch.2016.04.015

Cooper, K. and Stewart, K (2013). *Does money affect children's outcomes? A systematic review*. Joseph Rowntree Foundation. https://www.jrf.org.uk/sites/default/files/jrf/migrated/files/money-children-outcomes-full.pdf

Cram, F., Gulliver, P., Ota, R. and Wilson, M. (2015). Understanding over-representation of indigenous children in child welfare data: An application of the Drake risk and bias models. *Child Maltreatment* Apr 22. [Epub ahead of print]

Currie, J. (2013). ''Big data'' versus ''Big brother'': On the appropriate use of large-scale data collections in paediatrics. *Pediatrics,* 131:S127-S132.

Davidson, S. (2007). *Process Evaluation of Social Workers in Schools.* Unpublished report prepared for Centre for Social Research and Evaluation. Ministry of Social Development.

English, A., Selby, R. and Bell, H. (2011). W*orking with whānau: Maōri social work in schools*. Ōtaki, NZ: Te Wānanga o Raukawa.

Fergusson, D., Boden, J., and Horwood, J. (2012). *Early Start Evaluation Report: Nine Year Follow-up*. Wellington: Ministry of Social Development.

Franklin, C., Kim, J. S., and Tripodi, J. (2009). A meta-analysis of published school social work practice studies: 1980-2007. *Research on Social Work Practice* 19(6) 667-677.

Garlick, T. (2012). *Social Developments: An Organisational History of the Ministry of Social Development and its Predecessors, 1860-2011*. Wellington: Steele Roberts Aotearoa.

Gilbert, R., Widom, C.S., Browne, K., and Fergusson, D. and Webb, E. (2009). Burden and consequences of child maltreatment in high-income countries. *The Lancet*, 373.9657 (Jan 3-Jan 9): 68-81.

Gilbert, R., Fluke, J., O'Donnell, M., Gonzalez-Izquierdo, A., Brownell, M., Gulliver, P., Janson, S. and Sidebotham, P. (2012). Child maltreatment: variation in trends and policies in six developed countries. *The Lancet* 379.9817:758–772.

Hallam, S. Castle, F., Roger, S., Creech, A. Rhamie, J., Kokotsaki, D. (2005) Research and Evaluation of the Behaviour Improvement Programme. RR702. London: Department for Education and Skills.

Hollis-English, A., and Selby, R. (2014). Social Work in Schools in New Zealand: Indigenous Social Work Practice, *Journal of Indigenous Development*, 3(2).

Huxtable, M. (2016). *2016 International Survey of School Social Work*. International Network for School Social Work.

Jiang, N., Maloney, T., Staneva, A., Wilson, M. and Vaithianathan, R. (forthcoming). *The Impact of Social Workers in Schools: A Preliminary Investigation using Linked Administrative Data*. Working Paper. Ministry of Social Development.

Kiro, C., Hynds, A., Eaton, J., Irving, E., Wilson, A., Bendikson, L., Cockle, V., Broadwith, M., Linley-Richardson, T. and Rangi, M. (2016). *Starpath Phase 2. Final Evaluation Report*. Auckland, Starpath Project, the University of Auckland.

Kukutai, T., Sporle, A., and Roskruge, M. (2017). *Subjective whānau wellbeing in Te Kupenga*. Wellington: Superu.

Mansell, J., Ota, R., Erasmus, R. and Marks, K. (2011). Reframing child protection: A response to a constant crisis of confidence in child protection, *Children and Youth Services Review*, 33(11).

Metzler, M., Merrick, M. T., Kleven S. J., Ports, K. A., and Ford, D. C. (2017). Adverse childhood experiences and life opportunities: Shifting the narrative. *Children and Youth Services Review*, 72, 141-149.

Ministry of Education (2009). *Good Practice: Guidelines for principals and boards of trustees for managing behaviour that may or may not lead to stand-downs, suspensions, exclusions and expulsions Part II*. https://education.govt.nz/assets/Documents/School/Managing-and-supporting-students/Stand-downs-suspensions-exclusions-and-expulsions-guidelines/SuspensionGoodPracticeWEB.pdf

Ministry of Education (2015). *Positive Behaviour for Learning: 2015 Overview.* Ministry of Education.

Ministry of Justice (2013). *Youth Crime Action Plan 2013-2023*. Wellington: Ministry of Justice.

Ministry of Social Development (2014). *The feasibility of using predictive risk modelling to identify new-born children who are high priority for preventive services*. https://www.msd.govt.nz/about-msd-and-our-work/publications-resources/research/predicitve-modelling/

Ministerial Advisory Committee on a Maori Perspective for the Department of Social Welfare (1986). *Puao-te-ata-tu (Day Break): The Report of the Ministerial Advisory Committee on a Maori Perspective for the Department of Social Welfare.* Wellington: Department of Social Welfare.

Ministry of Social Development. (2015). *Community Investment Strategy*. Wellington: Ministry of Social Development.

Ministry of Social Development. (2016). *Social Workers in Schools: Service Specifications*. https://www.msd.govt.nz/documents/about-msd-and-our-work/publications-resources/service-guidelines/swis-service-guidelines-2016.pdf

Moore, K.A., Caal, S., Carney, R., Lippman, L., Li, W., Muenks, K., Murphey, D., Princiotta, D., Ramirez, A., Rojas, A., Ryberg, R., Schmitz, H., Stratford, B., and Terzian, M. (2014). *Making the Grade: Assessing Evidence for Integrated Student Supports.* Bethesda, MD: Child Trends.

New Zealand Police (2014). *Policing Excellence - The Transformation of New Zealand Police 2009–2014*. Wellington: New Zealand Police.

New Zealand Productivity Commission (2015). *More Effective Social Services.* Wellington: New Zealand Productivity Commission. http://www.productivity.govt.nz/sites/default/files/social-services-final-report-main.pdf

Oliver, C. and Mooney,A. with June Statham (2010). *Integrated Working: A Review of the Evidence*, Thomas Coram Research Unit, Institute of Education, University of London.

Parise, L., Corrin, W., Granito, K., Haider, Z., Somers, M.-A and Cerna, O. (2017). *Two Years of Case Management: Final Findings from the Communities in Schools Random Assignment Evaluation*. MDRC.

Perry, B. (2017a). *Household incomes in New Zealand: Trends in indicators of inequality and hardship 1982 to 2016*. Wellington: Ministry of Social Development.

Perry, B. (2017b). *The material wellbeing of New Zealand households: trends and relativities using non-income measures, with international comparisons*. Wellington: Ministry of Social Development.

Slack, K. S., Berger, L. M. and Noyes, J. L. (2017). Introduction to the special issue on the economic causes and consequences of child maltreatment. *Children and Youth Services Review*, 72, 1–4.

Social Policy Evaluation and Research Unit (Superu) (2015). *Youth Mental Health Project Formative Evaluation Report.* Wellington: Superu. http://www.superu.govt.nz/sites/default/files/YMHP_Formative_Evaluation_Report_2015%20Superu.pdf

Somers, M.-A. and Haider, Z. (2017). *Using Integrated Student Supports to Keep Kids in School - A Quasi-Experimental Evaluation of Communities In Schools*. MDRC.

Statistics New Zealand (2015). *IDI Data Dictionary: Primary and secondary schools data (June 2015 edition).* Available from www.stats.govt.nz.

Statistics New Zealand (2004). *Report of the Review of the measurement of Ethnicity.* Retrieved from http://www.stats.govt.nz/browse_for_stats/population/census_counts/review-measurement-of-ethnicity/papers.aspx

Statistics New Zealand (2017). *Data in the IDI April 2017.* Retrieved from http://www.stats.govt.nz/browse_for_stats/snapshots-of-nz/integrated-data-infrastructure/idi-data/idi-data-overview.aspx

Templeton, R., Crichton, S., Tumen, S., Rea, D., Ota, R., and Small, D. (2016). *Research Using Administrative Data to Support the Work of the Expert Panel on Modernising Child, Youth and Family.* Treasury Analytical Paper 16(03).

UNICEF International Child Development Centre. (2002). *When the invisible hand rocks the cradle: New Zealand children in a time of change*, Innocenti Working Paper, no. 93, Florence.

Vaithianathan, R., Wilson, M., Maloney, T., & Baird, S. (2016). *The Impact of the Family Start Home Visiting Programme on Outcomes for Mothers and Children A Quasi-Experimental Study*. Retrieved from http://thehub.superu.govt.nz/project/impact-family-start-home-visiting-programme-outcomes-mothers-and-children-quasi-experimental

Wilson, M., and Soughtton, D. (2009). Children in families supported by main benefits: An update, *Social Policy Journal of New Zealand*, Issue 36.

Wilson, M., Hyslop, D., Vette, M., and McMillen, P. (forthcoming). *KickStart Breakfasts and Indicators of Child Health in Linked Administrative Data*. Wellington: Ministry of Social Development.

Appendix:
Outcome variables and their derivation

For each student-school-year observation, we defined enrolment start and end dates for at the relevant school in the year based on Ministry of Education ENROL data (Statistics New Zealand 2015):

- start date was set to the approximate start of the school year (5 February) or the recorded start date of the enrolment spell (if later)
- end date was set to the approximate end date of the school year (15 December) or the recorded end date of the enrolment spell (if earlier).

We then derived the following outcome measures for each student-school-year observation.

Stand-downs and suspensions

A stand-down is the formal removal of a student from school for a short period[28] for reason of either (i) continual disobedience (regularly or deliberately disregarding rules or refusing to do as they are told) which is harmful or dangerous to other students, (ii) gross misconduct (serious misbehaviour) which is harmful or dangerous to other students, or (iii) behaviour that risks serious harm if the student is not suspended.

Suspensions are imposed in the most serious cases and the suspension process can lead to an exclusion (for students under 16) or expulsion (for students over 16). A suspension is the formal removal of the child by the principal until the board of trustees meets to decide whether to lift or extend the suspension, or to seek to exclude[29] or expel the student. Stand-downs and suspensions should only be used by schools and kura as a last resort.[30]

Based on Ministry of Education data in the IDI,[31] we derived a flag that indicated that a student had a stand-down or a suspension within the spell of enrolment at the school or kura within the school year.[32]

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[28] Stand-downs of a student can total no more than five school days in any term, or 10 days in a school year. At the end of a stand-down, students automatically return to school.

[29] In order to exclude a student aged under 16, the school must first identify an alternative school that will accept the student. In some cases an exclusion will be imposed but the student will remain enrolled because no alternative school can be found. For this reason, information on exclusion held in ENROL's reason for leaving codes will understate exclusions imposed – in some cases an exclusion will have been imposed during the course of an enrolment but the ultimate reason for leaving will not be exclusion.

[30] See https://parents.education.govt.nz/primary-school/your-child-at-school/standdowns-suspensions-exclusions-expulsions/ and https://education.govt.nz/school/managing-and-supporting-students/enrolling-students/guide-to-using-enrol/stand-downs-and-suspensions/

[31] Data on stand-downs and suspensions are contained in both the ENROL data in the IDI and a separate 'interventions' file. Following advice provided by system experts, we used the data in the interventions file.

[32] At the time of our analysis, stand-down and suspension data in the IDI were not recorded on a consistent basis over time. Records prior to 2012 were loaded into ENROL in 2012, and captured

Care and protection reports of concern recorded by Child, Youth and Family (CYF)[33]

When a member of the public or an agency expressed a concern about the care or protection of a child to CYF, a National Contact Centre social worker decided whether the concern met the threshold for CYF action. If so, the notification was recorded as a report of concern (Crichton et al., 2016; Modernising Child, Youth and Family Expert Panel: Interim Report, July 2015, pp.52-55).

Based on CYF data held in the IDI, we derived a flag that indicated that a student had a report of concern recorded by CYF within the spell of enrolment at the school within the school year.

We excluded reports of concern associated with Police Family Violence (PFV) notifications made by Police as these were inconsistently recorded over time due to changes in administrative procedures. Changes in Police procedures during the late 1990s and early 2000s saw the introduction of notifications to CYF relating to children present or normally resident at the scene of family violence incidents attended by Police ('PFV notifications'). The new procedures involved collecting information about children present or normally resident at the scene, and then forwarding this information to CYF. They were gradually rolled out across New Zealand from 2000-05, with a high degree of variation in volumes across sites (Mansell, 2006).

Up until mid-2010, all of these reports were treated as notifications (and recorded as PFV notifications). A further change was introduced in July 2010. From that date, following attendance at an incident, Police could elect to either (i) make a report of concern to CYF (where a child was assessed as needing an immediate CYF response), or (ii) make a referral to a local Family Violence Interagency Response System (FVIARS) team. Consideration by that team would then result in either: (i) a report of concern to CYF where a child was assessed as needing an immediate CYF response, or (ii) details of the case being faxed to CYF for their information (Gulliver and Fanslow, 2013), and recorded as 'contact records'. The effect of the July 2010 change was to therefore spread what were previously all reported as PFV notifications across PFV reports of concern and contact records.

Police apprehensions for offending

The IDI includes data on all alleged offenders who have been proceeded against by Police from July 2009 (Statistics New Zealand, 2016). Proceeded against means police have taken some action as a result of the offending which could be a formal warning, Alternative Action, referral to CYF for a Family Group Conference, or prosecution. These

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the most recent view of the status of a stand-down or suspension event as at the date these records were loaded (ie a stand-down or suspension that had been applied and then fully lifted and removed from the student's record *would not* appear in ENROL). From 2012, the data in the IDI capture the view of the event as at the date it was first recorded (ie a stand-down or suspension that had been applied and then fully lifted and removed from the student's record *would* appear in ENROL). In our analysis, we take care to control for this discontinuity by controlling for calendar year.

[33] As noted, over the period of study, this was the agency responsible for child welfare matters. In 2017, these functions have since transferred to Oranga Tamariki.

data include information on Police apprehensions of children and young people for alleged offending.

We used this data to derive a flag that indicated that a student was apprehended and proceeded against by Police for an alleged offence at least once within the spell of enrolment at the school within the school year.[34]

References

Crichton, S. et al. (2015). *Using Integrated Administrative Data to Understand Children at Risk of Poor Outcomes as Young Adults*, Treasury Analytical Paper 15/01, The Treasury. http://www.treasury.govt.nz/publications/research-policy/ap/2015/15-01/

Gulliver, P. and Fanslow, J. (2013). *Family Violence Indicators: Can National Administrative Data Sets be used to Measure Trends in Family Violence in New Zealand?* Social Policy Evaluation and Research Unit Research Report 3/13. Available from: http://www.superu.govt.nz/publication/family-violence-indicators-can-national-administrative-data-sets-be-used-measure-trends

Mansell, J. (2006). The underlying instability in statutory child protection: Understanding the system dynamics driving risk assurance levels, *Social Policy Journal of New Zealand*, Issue 28. Available from: http://www.msd.govt.nz/about-msd-and-our-work/publications-resources/journals-and-magazines/social-policy-journal/spj28/index.html

Modernising Child, Youth and Family Expert Panel: Interim Report, July 2015. https://www.msd.govt.nz/documents/about-msd-and-our-work/work-programmes/cyf-modernisation/interim-report-expert-panel.pdf

Statistics New Zealand (2015). *IDI Data Dictionary: Primary and secondary schools data (June 2015 edition).* Available from www.stats.govt.nz

Statistics New Zealand (2016). *IDI Data Dictionary: Recorded crime offenders data* (May 2016 edition). Available from www.stats.govt.nz

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[34] Where the proceeding date for the offence fell within the spell.