MINISTRY OF EDUCATION
TE TĀHUHU O TE MĀTAURANGA

Briefing Note: Release of He Whakaaro 'Who exercises school choice? An analysis of out of zone students'

To:	Hon. Chris Hipkins, Minister of Education		
Date:	3 December 2019	**Priority:**	Medium
Security Level:	In Confidence	**METIS No:**	1213069
Drafter:	David Sanders	**DDI:**	s 9(2)(a) [redacted]
Key contact and number:	Andrew Webber	**DDI:**	
Messaging seen by Communications team:	N/A	**Round robin:**	No

Purpose of Report

This report responds to your request for advice on the characteristics of in-zone and out-of-zone students. The attached *He Whakaaro | Education Insights* report "Who exercises school choice? An analysis of out-of-zone students" (Annex 1) has been prepared and can be released on Education Counts should you wish to make this publicly available.

This *He Whakaaro* analyses the extent to which schools with enrolment zones attract the most advantaged students from their surrounding out-of-zone areas, a practice known internationally as 'cream-skimming'. It finds that students who attend out-of-zone schools tend to be more advantaged on a range of measures than their neighbourhood peers who go to the local (in-zone) school.

This report also notes that you have previously agreed to the release of a *He Whakaaro* report "How does school type impact on student outcomes". Given their complementarity to the Government response to the Tomorrow's Schools Taskforce reports, we suggest that these two *He Whakaaro* reports are released together.

We ask that you:

Note That the findings of the *He Whakaaro | Education Insights* report "Who exercises school choice? An analysis of out of zone students" provide supporting evidence for the Government's decision to transfer responsibility for developing and consulting on enrolment schemes to the proposed Education Service Agency;

Agree That the *He Whakaaro | Education Insights* report "Who exercises school choice? An analysis of out of zone students" be released on Education Counts on a date to be determined in consultation with your office;

Agree / Disagree

Proactively Released

Note That we propose to release these findings alongside another *He Whakaaro | Education Insights* report, "How does school type impact on student outcomes", which you have already approved for release (METIS 1181424 refers)

Agree That this briefing will be proactively released as per your expectation that information will be released as soon as possible. Any information which may need to be withheld will be done so in line with the provisions of the Official Information Act 1982.

Agree / Disagree

Dr Craig Jones
Deputy Secretary
Evidence, Data & Knowledge
3/12/2019

Hon Chris Hipkins
Minister of Education
15/12/19

Proactively Released

Document Set ID: 894502
Version: 1, Version Date: 13/03/2020

Background

1. At a strategy session in August, you asked for advice on the characteristics of in-zone compared with out-of-zone students. We developed a methodology for answering this question in the Statistics NZ Integrated Data Infrastructure (IDI) and have now completed the analysis.

2. We consider that this analysis does not specifically tell us about the effects of the presence or absence of zones. It instead uses zones as a measure to indicate which parents within an area are more likely to exercise school choice. This, when combined with existing evidence on the effects of how schools currently construct zones, has implications for the equity of the system.

3. This analysis has clear implications for the recent announcement around enrolment zones in the Government's response to the Tomorrow's Schools Review. We have outlined the results of that analysis below and attach a written report on the findings. We propose to release these findings alongside another report that has relevance for the Tomorrow's Schools Review and which you have already approved for release.

Findings from the analysis of out-of-zone students

4. This *He Whakaaro | Education Insights* report uses the IDI to examine the socio-economic, demographic, and early childhood experience characteristics of students enrolling in schools out-of-zone compared to their in-zone peers. The report makes two comparisons:
   - Within the same **neighbourhood**, students who attend the local in-zone school, compared to students who instead opt to attend a different school where they are out-of-zone;
   - Within the same **school**, students who attend as in-zone students (ie live locally), compared to students who attend out-of-zone (ie live in a different neighbourhood).

5. The report finds that:
   - Students who attend out-of-zone schools are substantially more advantaged than their peers in the same neighbourhoods who attend the local in-zone school, on most dimensions examined.
   - In particular, students who attend out-of-zone schools have parents who earn about 8 to 17 percent more, and are 1.2 to 1.7 times more likely to have Bachelor degrees.
   - Out-of-zone students are substantially less advantaged than their in-zone peers in the schools they go to.
   - The effect of school choice appears to be to concentrate disadvantage in the schools that students are opting out of, but potentially increase socio-economic diversity in the schools that students are opting into.

Implications of the findings for policy

6. This report presents strong evidence for cream-skimming effects as a result of school choice in New Zealand. This is most likely to affect the most disadvantaged neighbourhoods, as the more advantaged students in these areas attend alternative

Proactively Released

Document Set ID: 894502
Version: 1, Version Date: 13/03/2020

schools. This may have the effect of residualising disadvantage in the lowest decile schools.

7. This provides supporting evidence for the announced change in response to the Tomorrow's Schools Review that boards will no longer have a role in developing enrolment schemes. It indicates that – because disadvantaged students are less likely to exercise school choice by attending schools they are not zoned for – the 'default' school these students are assigned to (via zones) matters substantially.

8. Note that the paper does not address the intentions of families in the school choice process. We do not have any data on why families might choose one school over another, but this decision could include factors such as the perceived quality of the school, the curriculum offered, or the support available. We also have no evidence schools' decisions to construct zones in particular ways. This paper instead presents evidence on the effects of these decisions.

9. While these results should be viewed with some concern, the scale of this issue in New Zealand also needs to be considered. A recent OECD publication found that New Zealand has relatively low levels of socio-economic segregation relative to other countries (METIS 1184452 refers). This publication also reiterated the finding that most of New Zealand's inequity exists within schools, rather than between schools. Avoiding socio-economic segregation through a more coordinated and networked system of enrolment zones is certainly a positive direction. However, we need to be implementing policies that reduce inequity within schools at the same time. Quality teaching is the single most important in-school influence on student outcomes.

10. The school choice policy also provides support for school resourcing on the basis of student characteristics (such as the equity index), rather than area-based characteristics (such as school decile). Because the most advantaged students within a particular neighbourhood are the ones least likely to attend their local school, area-based measures such as decile are likely to be inaccurate in ways that disadvantage the schools that are most affected by cream-skimming.

He Whakaaro "How does school type impact on student outcomes?"

11. You have previously noted our *He Whakaaro* report "How does school type impact on student outcomes?" and agreed to its public release. This report looks at the question of whether some school types (full primaries, intermediates, composite schools etc) are better or worse for the outcomes of students in the middle years of schooling. The analysis reports on slight differences in outcomes between school types, but not ones that are regarded as educationally meaningful. A detailed discussion is available in the associated Briefing Note and the full *He Whakaaro* report (METIS 1181424 refers). Given the complementarity of these two *He Whakaaro* reports and their relationship to the Tomorrow's Schools Taskforce findings we recommend publishing these two reports together.

Proactively Released

Document Set ID: 894502
Version: 1, Version Date: 13/03/2020

Communications

12. As both *He Whakaaro* reports are broadly consistent with the recent response to the Tomorrow's Schools Review, we do not expect much media attention and no specific communications have been prepared. We will work with your office on a release date and provide any communications material if requested.

Proactive Release

13. We recommend that this Briefing is proactively released as per your expectation that information will be released as soon as possible. Any information which may need to be withheld will be done so in line with the provisions of the Official Information Act 1982.

Annexes

Annex 1: He Whakaaro | Education Insights "Who exercises school choice? An analysis of out-of-zone students."

Proactively Released

Document Set ID: 894502
Version: 1, Version Date: 13/03/2020

MINISTRY OF EDUCATION
TE TĀHUHU O TE MĀTAURANGA

He Whakaaro
EDUCATION INSIGHTS

Who exercises school choice? An analysis of out-of-zone students[1]

Most families in Aotearoa New Zealand have the choice of which school to attend, and many opt to attend schools other than their nearest school. This paper uses linked administrative data from Statistics NZ's Integrated Data Infrastructure (IDI) to examine the characteristics of students and families who actually make this choice. This analysis provides evidence on the extent to which schools with zones attract the most advantaged students from their surrounding out-of-zone areas – a practice known as 'cream-skimming'.

Key findings

The report finds:

- Students who attend out-of-zone schools are substantially more advantaged than their peers in the same neighbourhoods who attend the local in-zone school, on most dimensions we examine.
- In particular, students who attend out-of-zone schools have parents who earn about 8-17 percent more, and are 1.2-1.7 times more likely to have Bachelor degrees.
- Combined with evidence that school zones tend to be set up in a way that incorporate high SES areas and avoid low SES areas, this is strong evidence that the current combination of school choice and zones enables cream-skimming.
- Out-of-zone students are substantially less advantaged than their in-zone peers in the schools they go into.
- The effect of school choice appears to be to concentrate disadvantage in the schools that students are opting out of, but potentially increase socio-economic diversity in the schools that students are opting into.

1. *Authored by: Andrew Webber, November 2019*

Proactively Released
Document Set ID: 894502
Version: 1, Version Date: 13/03/2020

What is this paper about?

If school choice results in more advantage students moving out of their local school, the process is referred to as 'cream-skimming'.

Unlike in many other education systems, students in New Zealand are free to apply for enrolment in many different state schools, with the only restriction being available places. As a consequence, 93 percent of New Zealand principals report competing for students with at least one other local school, the 4th highest rate in the OECD (OECD, 2019).

This school choice has the potential to change the composition of schools. Without any school choice, schools should have the same composition as the community around them. The extent to which this changes when students have choice of schools depends on which students are exercising that choice. If choice is mostly exercised by the relatively advantaged students in a neighbourhood, then the composition of their local school will be more disadvantaged than if the choice wasn't available. The composition of the destination school these students are choosing might be more advantaged or disadvantaged, depending on the destination. If school choice results in more advantaged students moving out of their local school, the process is referred to as 'cream-skimming'.

There is a large literature (see Levin, 1998 for one review) establishing cream-skimming effects in other countries[2], and also evidence that the introduction of school choice in New Zealand changed the composition of schools in ways consistent with cream-skimming (Ladd & Fiske, 2001). Some research also finds evidence that cream-skimming may harm students who are left behind, due to the further concentration of disadvantage this can create (Dills, 2005). However, research in Sweden has indicated that the effects of school choice in promoting cream-skimming may be relatively small over the long-term (Böhlmark, Holmlund & Lindahl, 2016).

One limitation of these studies is that they tend to examine cream-skimming across relatively broad measures of advantage, such as ethnicity or country of birth. This paper uses linked administrative data from Statistics New Zealand's Integrated Data Infrastructure (IDI) to explore the extent to which students who actively choose schools that are not their local school differ in their socio-economic characteristics compared to their peers who attend their local schools. The IDI lets us examine differences in many detailed areas, including health, income, parental education, and contact with the justice system.

How we are using school zones in this report

Zones function to allocate students a 'default' school.

The Ministry of Education uses enrolment schemes (more commonly referred to as school zones) to stop overcrowding in the most popular state schools. All state-integrated schools have capped enrolments, but only a small number of state-integrated schools also have zones. A school zone is a defined geographic area surrounding the school. Once defined, students living within the zone are guaranteed admission to the school, if they want it, whereas students from outside the zone are randomly allocated a place[3], until the school reaches capacity.

This paper uses the status of whether a student lives in or out of the zone of the school they attend as a proxy measure of whether students have exercised school choice. Because zones are tools for managing demand, the zones for different schools are generally constructed to minimise overlap.[4] Only 11 percent of meshblocks[5] have more than one in-zone option for coed state primary schools, and 4 percent have more than one in-zone option for coed state secondary schools. This implies that zones also function to allocate students a 'default' school (or small set of default schools).

2 *Much of this work is based in the United States, where the schools doing the cream-skimming tend to be a combination of private schools, Catholic schools, charter schools, and academically selective (magnet) public schools.*

3 *Schools must prioritise some types of out-of-zone students in this process. For more information, see https://parents.education.govt.nz/primary-school/schooling-in-nz/enrolment-schemes-zoning*

4 *There are some exceptions to this. Generally speaking, zones for schools with particular characteristics such as state integrated and single sex schools may overlap substantially with zones for coeducational state schools. This is to enable choice between single sex and coed schools, or between state and state integrated schools.*

5 *A meshblock is the smallest geographic unit that is defined by Statistics New Zealand. This report uses the meshblocks that were defined for the 2013 Census. There are 46,629 meshblocks in New Zealand and on average they each have a resident population of about 900.*

Proactively Released

Document Set ID: 894502
Version: 1, Version Date: 13/03/2020

If we observe a student who lives within the zone of a school instead enrolling as an out-of-zone student in a different school, this student must be actively exercising the school choice option.

One limitation of the school zone data in this report is important to note. The IDI does not yet contain data on whether individual students are enrolled as in-zone or out-of-zone. It also does not contain data on precise geographies of zones. However, we do have data on which meshblocks are included in the zone of each school. If a student address is in a meshblock that is also contained within a school's zone, we define that student as living in-zone for that school. It is possible that the student in fact lives in a part of a meshblock that is not within the zone (on the wrong side of a street, for example). The result is that our data might slightly overestimate the number of students living in-zone, and slightly underestimate the number of students living out-of-zone. However, meshblocks tend to be quite small, especially in urban areas (where schools are most likely to have zones). Maps showing meshblocks in Wellington and Auckland are included in the appendix (*Figures A1-A2*). Most of these meshblocks are about the size of a street block, or smaller. It is therefore unlikely that our measure of zones is substantially inaccurate.

What comparisons are we making?

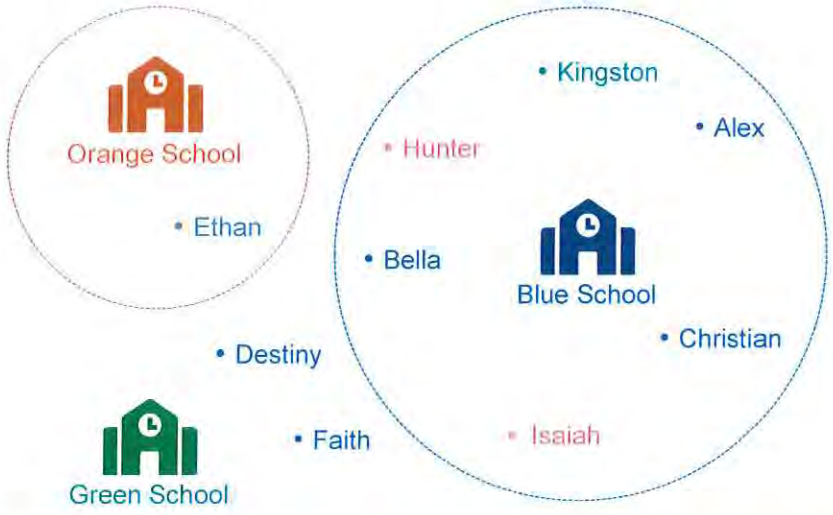
To illustrate the comparisons we are making in this report, consider three hypothetical schools:

- Blue School is a school with a zone that contains only one meshblock
- Orange School is a different school with a zone that also contains one meshblock, but does not overlap with Blue School
- Green School is a school without a zone.

These schools are shown in *Figure 1*. School zones are shown as shaded areas, and hypothetical students are shown colour coded to the schools they attend. In this report, we make two different comparisons of students' characteristics:

1. Within each meshblock, students who attend schools as in-zone students (Alex, Bella and Christian) are compared with students who have the option to attend a school as an in-zone student but instead attend schools as out-of-zone students (Hunter and Isaiah)
2. Within each school, students who attend as in-zone students (Alex, Bella and Christian) are compared with students who attend as out-of-zone students (Destiny, Ethan and Faith).[6]

Figure 1: Students enrolled in broad school types over Years 7-8



6 *Note that in each of these comparisons, we exclude Kingston, the student who attends a school without a zone.*

Proactively Released

Document Set ID: 894502
Version: 1, Version Date: 13/03/2020

These comparisons are done through fixed-effects regression models, which essentially take the difference between in-zone and out-of-zone students in each meshblock (or school, for comparison 3), and then average that difference across all meshblocks in the country. We run separate models for primary, middle, and secondary school-aged students.[7] We use these models to compare a range of demographic, socio-economic, and life outcome variables between in-zone and out-of-zone students:[8]

- **Demographics:** We include student's ethnicity (taken from the 2013 Census) and gender (taken from MoE enrolment records).
- **Health:** This includes student birth weight, gestational age at birth, and two parental questionnaires from the B4 School Check at age 4 – the Strengths and Difficulties Questionnaire (SDQ) and the Parental Evaluation of Developmental Status (PEDS).[9] This also includes a question from the 2013 Census on whether the student is disabled.
- **Parental education:** We categorise the highest qualification for the student's birth mother and father, taken from a combination of the 2013 Census and MoE data.
- **Parental income:** The log of 2017 total income for the student's birth mother and father, taken from tax data.
- **Parental justice outcomes:** Whether the student's birth mother or father had ever been charged with a crime, or served a custodial sentence, taken from MoJ data.
- **OT experience:** Whether the student has ever been the subject of a notification of possible abuse or neglect to CYF/Oranga Tamariki, and whether the student has ever had either a care and protection or a youth justice placement.

How are students who exercise school choice different?

Out-of-zone students are generally more advantaged across a range of measures than students in the same meshblock who attend the local school.

Tables 1 and *2* provide a comparison of the characteristics for out-of-zone students with in-zone students in the same meshblock. *Table 1* shows differences in continuous measures (such as the student's birth weight). Positive numbers in this table indicate that out-of-zone students in a meshblock (ie those who exercise school choice) have higher values of these characteristics than their neighbours in the same meshblock who go to the local in-zone school. *Table 2* shows differences in binary measures (such as whether the student had low birth weight). These are shown as odds ratios – numbers greater than 1 in this table indicate that out-of-zone students are more likely to have these characteristics than their neighbours who go to the local in-zone school.

These results indicate that out-of-zone students are generally more advantaged across a range of measures than students in the same meshblock who attend the local school. Out-of-zone students have lower SDQ scores (indicating less behavioural difficulties at age 4), higher parental income, and higher parental education. Out-of-zone students are also less likely to be male, Pacific, have parents with contact with the justice system, or be the subject of an OT notification (all of which predict educational disadvantage), and are more likely to be European or Asian (which predict educational advantage). There are some characteristics that go in the opposite direction. Out-of-zone secondary school students are more likely to have low birth weight (less than 2.5kg), and out-of-zone middle school students are less likely to have been born at term (after 38 weeks gestation).

Of these differences, the largest relate to parental income and education. Parents of out-of-zone students earn on average 8-17 percent more than the parents of students who attend the local in-zone school. Parents of out-of-zone students are also about 1.2-1.7 times

7 *The primary model includes contributing (Year 1-6), full primary (1-8), composite (1-13) and special schools. The middle model includes full primary (1-8), intermediate (7-8), middle (7-10), secondary (7-13), composite (1-13) and special schools. The secondary model includes secondary (7-13), secondary (9-13), composite (1-13), and special schools.*

8 *We run a separate model predicting each student characteristic as a dependent variable, with a single independent variable: whether the student was out-of-zone (as well as controlling for meshblock or school fixed effects). This means that the relationships we report do not control for other characteristics – reported differences in income have not controlled for differences in ethnicity, for example.*

9 *Note that B4 School Check data is only not available for secondary school-aged students, due to the age of this dataset.*

Proactively Released

Document Set ID: 894502
Version: 1, Version Date: 13/03/2020

more likely to have Bachelor degrees and about 0.7-0.8 times as likely to have no school qualification. This is likely to substantially affect the composition of schools – the single greatest predictor of students' educational attainment is the education of their parents.

Table 1: Out-of-zone relative to in-zone in the same meshblock (continuous outcomes)

Characteristic	Primary	Middle	Secondary
Health			
SDQ – Total difficulties score	-0.38 ***	2.71	N/A
PEDS – Number of significant concerns	0.00	0.03	N/A
PEDS – Number of non-significant concerns	0.00	0.28 *	N/A
Birth weight (kg)	0.02	-0.06	-0.01
Parent characteristics			
Mother's income (log)	0.16 ***	0.10	0.17 ***
Father's income (log)	0.09 ***	0.12	0.08 **
Fixed effects	Meshblock	Meshblock	Meshblock

Note: The numbers in this table refer to the coefficients on the *out-of-zone* variable. Positive numbers indicate that, relative to students in the same meshblock attending schools as in-zone students, students choosing to attend out-of-zone have more of this characteristic *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Table 2: Out-of-zone relative to in-zone in the same meshblock (binary outcomes)

Characteristic	Primary	Middle	Secondary
Demographics			
European	1.31 ***	1.21	0.99
Maori	1.04	0.65 **	0.99
Pacific	0.79 ***	0.61 **	0.85 ***
Asian	1.00	1.42 *	1.24 ***
MELAA	0.97	1.14	0.95
Other ethnicity	0.86	1.77	1.00
Male	0.98	0.96	0.82 ***
Health			
Disabled	1.00	0.66	0.65 ***
Birth weight <2.5kg	0.84 *	1.57	1.23 **
Gestation age <37 weeks	1.01	1.35	1.07
Gestation age 37-38 weeks	0.89 **	1.53 **	1.05
Gestation age >38 weeks	1.10 **	0.64 **	0.94
Parental education			
Mother's quals – None	0.71 ***	0.64	0.76 ***
Mother's quals – School	0.81 ***	1.05	0.96
Mother's quals – Diploma	1.17 ***	0.74	0.92
Mother's quals – Bachelor	1.32 ***	1.22	1.21 ***
Mother's quals – Post-grad	1.11	2.00 *	1.36 ***
Father's quals – None	0.87 *	0.87	0.81 ***
Father's quals – School	0.89 **	0.98	0.92
Father's quals – Diploma	1.14 **	0.82	1.12 *
Father's quals – Bachelor	1.18 **	1.69 **	1.17 **
Father's quals – Post-grad	0.94	1.00	1.14
Parental justice			
Mother ever been charged	0.94	0.73	0.84 **
Mother ever been sentenced	0.94	0.73	0.85 **
Father ever been charged	0.95	0.81	0.97
Father ever been sentenced	0.95	0.81	0.97
OT experiences			
Ever had notification	1.01	0.85	0.82 ***
C&P or YJ placement	1.10	1.33	1.03
Fixed effects	Meshblock	Meshblock	Meshblock

Note: The numbers in this table refer to the coefficients on the *out-of-zone* variable. Positive numbers indicate that, relative to students in the same meshblock attending schools as in-zone students, students choosing to attend out-of-zone have more of this characteristic *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Proactively Released

Document Set ID: 894502
Version: 1, Version Date: 13/03/2020

What are the characteristics of out-of-zone students relative to the peers they attend school with?

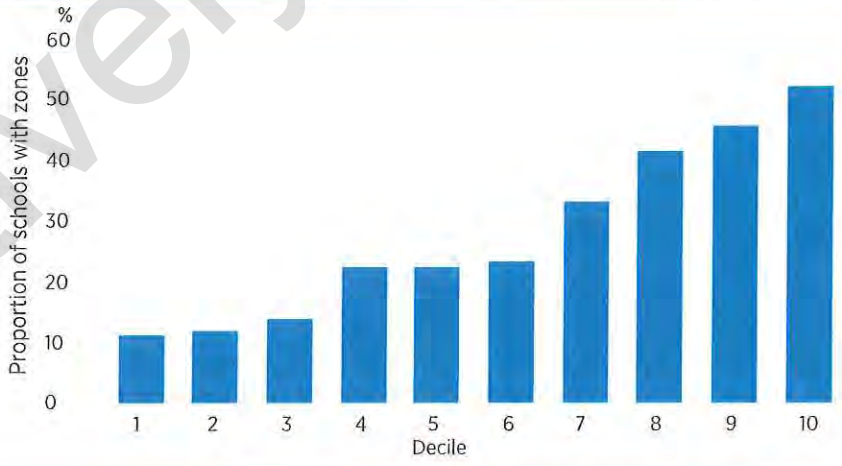
These results indicate that out-of-zone students are more disadvantaged than in-zone students at the same schools.

Tables 3 and *4* compare students who are enrolled out-of-zone to students in the same school who are enrolled as in-zone students. Whereas the first comparison in this paper (*Tables 1* and *2*) compared students who lived in the same location but attended different schools, these tables compare students who attend the same school but live in different locations.

In general, these results indicate that out-of-zone students are more disadvantaged than in-zone students at the same school. Out-of-zone students are more likely to be Māori, Pacific, or disabled, have experiences in care, less educated parents, and parents with experiences in the justice system. The only differences indicating less disadvantage in the out-of-zone group are a small increased likelihood of being female, a slightly higher birth weight (although no difference in probability of low birth weight), and a slightly higher income of mothers (of around 2 percent).

This result indicating that out-of-zone students tend to have more disadvantaged backgrounds is consistent with other evidence we know about school zones. High decile schools are substantially more likely to have zones than low decile schools (*Figure 2*). In other research, Lubienski, Lee and Gordon (2013) examine school zones in Auckland secondary schools and find evidence that zones tend to be constructed in a distorted way, so that they systematically overrepresent advantaged meshblocks and underrepresent disadvantaged meshblocks, relative to the geographic area 2 kilometres around the school. This would indicate that when students apply to enrol in a school from out of zone, it is likely that they are more disadvantaged than the in-zone student population.

Figure 2: Proportion of schools with zones, by decile



Proactively Released

Document Set ID: 894502
Version: 1, Version Date: 13/03/2020

Table 3: Out-of-zone relative to in-zone in the same meshblock (continuous outcomes)

Characteristic	Primary	Middle	Secondary
Health			
SDQ – Total difficulties score	0.10 ***	-0.04	N/A
PEDS – Number of significant concerns	0.00	0.02	N/A
PEDS – Number of non-significant concerns	0.00	0.03	N/A
Birth weight (kg)	1.04 ***	0.83 ***	0.74 ***
Parent characteristics			
Mother's income (log)	0.00	0.02 **	0.01
Father's income (log)	-0.01	0.03	0.01
Fixed effects	School	School	School

Note: The numbers in this table refer to the coefficients on the *out-of-zone* variable. Positive numbers indicate that, relative to students in the same school attending as in-zone students, students who come from out-of-zone have more of this characteristic *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Table 4: Out-of-zone relative to in-zone in the same meshblock (binary outcomes)

Characteristic	Primary	Middle	Secondary
Demographics			
European	0.93 ***	0.88 ***	0.96 ***
Maori	1.20 ***	1.10 ***	1.26 ***
Pacific	1.22 ***	1.21 ***	1.29 ***
Asian	0.99	1.03	0.88 ***
MELAA	1.06 *	1.00	1.01
Other ethnicity	0.88 ***	1.00	0.96
Male	0.98 **	0.99	0.96 ***
Health			
Disabled	1.22 ***	0.95	1.09 **
Birth weight <2.5kg	0.98	0.98	0.99
Gestation age <37 weeks	0.99	0.94	0.99
Gestation age 37-38 weeks	1.00	0.98	0.97 *
Gestation age >38 weeks	1.00	1.03	1.03 *
Parental education			
Mother's quals – None	1.05 **	0.95	1.10 ***
Mother's quals – School	1.07 ***	1.16 ***	1.11 ***
Mother's quals – Diploma	1.06 ***	1.05	1.04 **
Mother's quals – Bachelor	0.95 ***	0.89 ***	0.89 ***
Mother's quals – Post-grad	0.83 ***	0.81 ***	0.82 ***
Father's quals – None	1.12 ***	1.04	1.12 ***
Father's quals – School	1.11 ***	1.10 ***	1.10 ***
Father's quals – Diploma	1.03 **	1.05 *	1.07 ***
Father's quals – Bachelor	0.89 ***	0.89 ***	0.84 ***
Father's quals – Post-grad	0.80 ***	0.78 ***	0.74 ***
Parental justice			
Mother ever been charged	1.19 ***	1.17 ***	1.20 ***
Mother ever been sentenced	1.19 ***	1.16 ***	1.20 ***
Father ever been charged	1.23 ***	1.12 ***	1.18 ***
Father ever been sentenced	1.23 ***	1.12 ***	1.19 ***
OT experiences			
Ever had notification	1.24 ***	1.11 ***	1.22 ***
C&P or YJ placement	1.16 ***	1.30 ***	1.41 ***
Fixed effects	School	School	School

Note: The numbers in this table refer to the coefficients on the *out-of-zone* variable. Positive numbers indicate that, relative to students in the same school attending as in-zone students, students who come from out-of-zone have more of this characteristic *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Proactively Released

Document Set ID: 894502
Version: 1, Version Date: 13/03/2020

What are the implications for policy?

This paper has shown strong evidence for cream-skimming effects as a result of school choice in New Zealand.

This paper has shown strong evidence for cream-skimming effects as a result of school choice in New Zealand. Students exercising school choice – as measured by students attending out-of-zone schools when there is an available in-zone option – have characteristics associated with educational advantage on a range of dimensions, including ethnicity, gender, early childhood behavioural difficulties, contact with Oranga Tamariki, parental justice system experience, and especially parental income and education. This indicates that the cream-skimming effect is likely to affect the most disadvantaged neighbourhoods, potentially 'residualising' the local schools and further concentrating disadvantage, as more advantaged students in the area instead attend alternative schools.

However, this report also finds evidence that students exercising choice are less advantaged than in-zone peers in the schools they are opting into. This indicates that while school choice is likely to decrease socio-economic diversity (and also decrease the overall level of disadvantage) in the local in-zone school, it is likely to be increasing socio-economic diversity (but decreasing the overall level of disadvantage) in the destination schools. The impact of cream-skimming on overall segregation between schools is not obvious.

These movements of students between schools have implications for the accuracy of the decile system to measure school level disadvantage. Because decile is based on the characteristics of the meshblock each student lives in (and not the student's own characteristics), it treats all students within the meshblock identically. This means that the presence of a 'cream-skimmed' student causes their destination school to have a decile that is too low (because on average, the student has higher SES than their surrounding meshblock). It also means that the cream-skimmed student's local school has a decile that is too high (because this comparatively advantaged student is included in the local school's decile calculation, even though the student actually attends a different school). This provides further support for transitioning to a funding system that is based on the characteristics of students, rather than areas.

These findings are relevant to issues raised in the recent report written by the Tomorrow's Schools Independent Taskforce (2019). That paper provided suggestive evidence that higher decile schools are more popular than lower decile schools, and that this gap in popularity is increasing over time ('decile drift'). This research is consistent with that analysis, and also demonstrates that this trend is not just due to higher population growth occurring near higher decile schools – students from other areas (with valid in-zone options) are nevertheless choosing to attend non-local higher SES schools, and advantaged students are much more likely to exercise this choice than other students.

However, while it is clear that school choice disproportionately serves the interests of the relatively advantaged students within each neighbourhood, it is also not clear how families might respond in an alternative without school choice. Jurisdictions that do not allow students the option to choose schools generally allocate students to schools based on geographic proximity. This usually leads to increased property prices in the catchments of the most popular schools. This phenomenon exists with school zones in New Zealand, too, albeit probably to a lesser extent than if out-of-zone enrolment was not an option (Gibson, Sabel, Boe-Gibson & Kim, 2006). Many jurisdictions with less school choice in the public system also have substantially larger private school sectors than New Zealand. Given the findings here that students exercising school choice have substantially higher parental income (and therefore greater ability to move or afford school fees) than students staying in their local schools, it is not obvious that socio-economic segregation would be markedly better in a system with no choice.

Proactively Released

Document Set ID: 894502
Version: 1, Version Date: 13/03/2020

Disclaimer

The results in this report are not official statistics, they have been created for research purposes from the Integrated Data Infrastructure (IDI), managed by Statistics New Zealand. The opinions, findings, recommendations, and conclusions expressed in this report are those of the author, not Statistics NZ or Department of Education.

Access to the anonymised data used in this study was provided by Statistics NZ in accordance with security and confidentiality provisions of the Statistics Act 1975. Only people authorised by the Statistics Act 1975 are allowed to see data about a particular person, household, business, or organisation, and the results in this report have been confidentialised to protect these groups from identification.

The results are based in part on tax data supplied by Inland Revenue to Statistics NZ under the Tax Administration Act 1994. This tax data must be used only for statistical purposes, and no individual information may be published or disclosed in any other form, or provided to Inland Revenue for administrative or regulatory purposes.

Any person who has had access to the unit record data has certified that they have been shown, have read, and have understood section 81 of the Tax Administration Act 1994, which relates to secrecy. Any discussion of data limitations or weaknesses is in the context of using the IDI for statistical purposes, and is not related to the data's ability to support Inland Revenue's core operational requirements.

Careful consideration has been given to the privacy, security, and confidentiality issues associated with using administrative and survey data in the IDI. Further detail can be found in the privacy impact assessment for the Integrated Data Infrastructure available from www.stats.govt.nz.

References

Atkinson, J., Salmond, C. & Crampton, P. (2014). *NZDep2013 Index of Deprivation*. Retrieved from University of Otago website: https://www.otago.ac.nz/wellington/departments/publichealth/research/hirp/otago020194.html.

Böhlmark, A., Holmlund, H. & Lindahl, M. (2016). Parental choice, neighbourhood segregation or cream skimming? An analysis of school segregation after a generalised school reform. *Journal of Population Economics*, 29(4), p.1155-1190.

Dills, A. (2005). Does cream-skimming curdle the milk? A study of peer effects. *Economics of Education Review*, 24, p.19-28.

Gibson, J., Sabel, C., Bow-Gibson, G. & Kim, B. (2006). *House Prices and School Zones: Does Geography Matter?* Paper presented to the New Zealand Association of Economists Conference. June 2006.

Ladd, H. & Fiske, E. (2001). The uneven playing field of school choice: Evidence from New Zealand. *Journal of Policy Analysis and Management*, 20(1), p.43-64.

Levin, H. (1998). Educational vouchers: Effectiveness, choice and costs. *Journal of Policy Analysis and Management*, 17(3), p.373-392.

Lubienski, C., Lee, J. & Gordon, L. (2013). Self-managing schools and access for disadvantaged students: Organisational behaviour and school admissions. *New Zealand Journal of Educational Studies*, 48(1), p.82-98.

OECD (2019). *Balancing School Choice and Equity: An International Perspective Based on PISA*. Available online at https://www.oecd-ilibrary.org/education/balancing-school-choice-and-equity_2592c974-en

Tomorrow's Schools Independent Taskforce (2019). *Supporting all students to succeed: Reform of the Tomorrow's Schools system*. Available online at https://conversation.education.govt.nz/conversations/tomorrows-schools-review

Proactively Released

Document Set ID: 894502
Version: 1, Version Date: 13/03/2020

Appendix

Figure A1: Meshblocks in Wellington

Figure A2: Meshblocks in Auckland

For other issues go to:
www.educationcounts.govt.nz/goto/whakaaro

Look out in your inbox for the next He Whakaaro.

For further information, questions or discussion around additional analysis and potential topics for an Education Insights please contact Requests.EDk@education.govt.nz

Document Set ID: 894502
Version: 1, Version Date: 13/03/2020

ORIGINAL SENT TO
21 MAR 2019
MINISTERS OFFICE

MINISTRY OF EDUCATION
TE TĀHUHU O TE MĀTAURANGA

Briefing Note: *He Whakaaro | Education Insights paper: "How does school type impact on student outcomes?"*

RECEIVED
21 MAR 2019
BY: John

To:	Hon. Chris Hipkins, Minister of Education		
Date:	21 March 2019	**Priority:**	Medium
Security Level:	In Confidence	**METIS No:**	1181424
Drafter:	Andrew Webber	**DDI:**	s 9(2)(a) [redacted]
Key Contact:	Andrew Webber	**DDI:**	
Messaging seen by Communications team:	Yes	**Round Robin:**	No

Purpose of Report

The purpose of this paper is for you to:

1. **Note** that the latest *He Whakaaro/Education Insights* paper examines whether some school types impact on student outcomes differently than others, and investigates the role that structural transitions (at the beginning of Year 7 and Year 9) play in affecting student outcomes.

2. **Note** that the Ministry has previously shared the analysis with the *Tomorrow's Schools Taskforce* as one input into their process.

3. **Note** that the Ministry plans to publish the attached *He Whakaaro | Education Insights* paper on Education Counts on 29 March 2019, and will liaise with your office on the communications.

4. **Agree** that this Briefing will be proactively released.

Agree / **Disagree**

Summary

- The latest *He Whakaaro – Education Insights* paper examines whether some school types impact on student outcomes differently than others, and investigates the role that structural transitions (at the beginning of Year 7 and Year 9) play in affecting student outcomes. The analysis improves upon some limitations of previous analyses.

- The research is relevant to one of the recommendations of the Tomorrow's Schools Taskforce, which suggested phasing out intermediate schools in favour of full primary (Year 1-8) schools, middle (Year 7-10) schools, or composite (Year 1-13) schools.

Proactively Released

- Overall the analysis finds that there are not educationally meaningful differences – either positive of negative – between intermediate schools and other school types in terms of student outcomes.
- These results were shared with the *Tomorrow's Schools Taskforce* as one input into their advice and consultation process.
- The Ministry plans to release this *He Whakaaro* on the Education Counts website on 29 March and communications messages and questions and answers are attached.
- We will liaise with your office on the communications and any further material required.

Dr Craig Jones
Deputy Secretary
Evidence, Data & Knowledge

21/03/2019

Hon Chris Hipkins
Minister of Education

15/12/19

Proactively Released

Document Set ID: 894502
Version: 1, Version Date: 13/03/2020

Background

1. The *He Whakaaro/Education Insights* series on the Education Counts website aims to provide relevant and insightful evidence and to provoke further thought and discussion on key education issues. The series is for policy analysts, people working in the programme and intervention area, educators interested in knowing more about education evidence and data, as well as the general public.

2. The question of what structure of schooling works best for students in the middle years is the subject of some debate and has arisen as part of the Tomorrow's Schools Review.

3. Some recent research in New Zealand has found evidence of a slowing down of student progress in the middle years (Ministry of Education, 2018[1]), leading to a question around whether this might be affected by structural changes in schools experienced over this period.

Key findings

4. The key findings of this insights paper are:

    a. There were not educationally meaningful differences – either positive or negative – between intermediate schools and other school types in terms of student outcomes.
    b. Secondary and composite schools were associated with slightly higher NCEA attainment and performance than intermediate schools.
    c. Full primary and middle schools were associated with slightly lower NCEA attainment than intermediate schools (but only at Level 3 NCEA).
    d. The effects of school type on attendance in Year 8 were generally the opposite of the effects on NCEA attainment and performance.
    e. Some of the small differences between school types appear to be explained by intermediate schools requiring more structural moves than full primary, secondary, or composite schools.
    f. But there are also differences between school types that are left over after adjusting for structural moves. Some of these differences slightly benefit intermediate schools over other types of schools. We don't have the data to determine what might be causing these differences.
    g. This study is limited in that we do not have data on the abilities of students before the middle years, so cannot directly measure progress.

5. This analysis improves on previous work by adjusting for differences in student characteristics and for student movements that are not just between levels of schooling so that they can be ruled out as a reason for differences in student outcomes in intermediate schools.

6. Despite its limitations it represents the best available evidence on the effect of attending different types of schools in Year 7 and Year 8 on the outcomes of New Zealand students.

Communications Approach

7. Communications messages together with Questions and Answers will follow. We will work with your office on the communications.

[1] Ministry of Education (2018). *Understanding student progress and achievement*.

Proactively Released

Document Set ID: 894502
Version: 1, Version Date: 13/03/2020

8. The Ministry will inform the Chair of the Tomorrow's School's Taskforce of the release date when confirmed.

Proactive Release

9. We recommend that this Briefing is proactively released following the release of the *He Whakaaro/Education Insights* paper. Any information which may need to be withheld will be done so in line with the provisions of the Official Information Act 1982.

Annexes

Annex 1: *He Whakaaro: How does school type impact on student outcomes?*

Proactively Released

Document Set ID: 894502
Version: 1, Version Date: 13/03/2020

Annex one: *He Whakaaro | Education Insights: How does school type impact on student outcomes?*

Proactively Released

Document Set ID: 894502
Version: 1, Version Date: 13/03/2020