The Treasury

Education Funding System Review
Information Release

Release Document

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- [2]   9(2)(f)(iv) – to maintain the current constitutional conventions protecting the confidentiality of advice tendered by ministers and officials

- [3]   9(2)(g)(i) – to maintain the effective conduct of public affairs through the free and frank expression of opinions

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Treasury Report: Update on the Education Funding Review

Date:	17 December 2015	Report No:	T2015/2758
		File Number:	SH-4-5

Action Sought

	Action Sought	Deadline
Minister of Finance (Hon Bill English)	Note the contents of this report	None.

Contact for Telephone Discussion (if required)

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Actions for the Minister's Office Staff (if required)

Return the signed report to Treasury.

Note any feedback on the quality of the report	

Enclosure: No

Treasury Report: Update on the Education Funding Review

Executive Summary

The work to date identifies a number of potential funding reforms

The Minister of Education has indicated that she is working towards a Cabinet Paper and Discussion Document for February 2016, public consultation from March to May, with decisions to be made in August 2016.

The Minister of Education has shared copies of two independent reports that were commissioned to support the Funding Review. The Murray Jack review provides an analysis of a potential broad direction of reform, and within this there are a number of choices around the scope of the review. David Moore's report provides some initial analysis on differences in resource allocations and performance across schools.

If the proposals in the Murray Jack review were to be implemented in full this would involve a significant change. It would introduce a fully cashed-up model of resourcing based on 'efficient cost' of provision, with a clearer set of outcome measures and consequences. There are a number of dependencies to move to this model, including better outcome measures on the pathway to NCEA; and improved data and information to determine an efficient price. [2]

Potential areas to focus a Funding Review

This report provides an initial Treasury view on the various pieces of analysis undertaken to date, and considers which elements Ministers may wish to include as part of the review. While funding reform in itself is unlikely to have a significant impact on education outcomes, we do think there are opportunities to strengthen the focus of funding on the individual learner, and support efficiency objectives.

There are three broad reform themes to think about as part of the scoping of the Funding Review, set out in the table below.

Key themes	Guiding principles	Specific opportunities
Improve the way funding is allocated	Simplicity Transparency Efficiency Equity	Strengthen the systems focus on disadvantage. Make more transparent the cost of maintaining small schools, and the funding provided for student achievement. Re-distributing resources to different points along the learner pathway. Consider whether some existing programme spending would be better provided through the operational grant.
Supporting conditions needed to support funding model, including linkages to the wider social sector	Effectiveness Equity	Strengthening the use of data, and the range of outcome measures available. Accountability arrangements to support effective use of resources.

Key themes	Guiding principles	Specific opportunities
Linkages to wider social sector	Effectiveness Equity	More effective joint working focused on long-term outcomes. More effective leveraging of resources across social sector boundaries (e.g. linkages into place based funding).

We think there would be value in the review considering the following issues:

- **Transparency and simplicity** – There is an opportunity to roll together a number of funding components that go to schools into a per-student funding rate. One of the main benefits of this would be to make more transparent the amount of funding that is provided for school size and, therefore, the cost of our network of relatively small schools. This would also make more transparent the amount of funding available for student achievement. While we are unsure that there would be significant benefits from providing all staffing entitlement as direct funding to schools, we do think that there would be some benefits in simplifying some aspects of staffing entitlement and potentially providing some specific staffing entitlement as per-student funding.

- **Disadvantage funding** – There is an opportunity to improve the way that disadvantage funding is allocated and sharpen the systems focus on those students who need greatest support. Further analysis is needed to determine the options to do this, and the potential impacts across schools. Detailed work would also be needed to consider the best way to strengthen the incentives and accountabilities in relation to this funding (although there is unlikely to be a single straightforward and effective mechanism to do this).

- **Programme funding landscape** - There would be value in considering the role of different funded programmes. This would involve a more principled approach to what resourcing is provided through programmes. There would also be value in considering whether some programme or services funding could be streamlined and rolled together with the wider operational grant. This could either be considered as part of the Funding Review or as part of a subsequent set of funding changes.

- **Re-distribution across the pipeline** – We would be supportive of the review considering whether funding should be re-distributed across the 0-18 pipeline. At the moment we do not know enough about the pressures faced across different years of learning, and how schools are currently using existing funding flexibilities.

- **Outcome measures, data and accountability** – It will be important that any changes to the funding model are accompanied by a strengthening of the outcome and accountability framework. While the Murray Jack report provides some proposed directions here, further work is needed to consider options. We would emphasise the importance that any changes help to reinforce improved school practices and processes. Options include a strengthening of ERO's role in relation to school effectiveness for cohorts of students; and a strengthening of reporting in relation to those students.

We are engaging with the Ministry of Education on the work needed to support consideration of these issues over early 2016. In particular it will be important that analysis is undertaken to understand the distributional impacts across schools of re-allocating funding for disadvantage or to different points of the learning pipeline. Further work is also needed to better understand what aspects of the existing funding model could be simplified and the likely impacts for schools.

Further work is needed to consider accountability. We would not recommend a significant strengthening of accountability to the centre, instead we would focus on those measures that can both strengthen the focus on specific groups of students and strengthen overall professional accountability. Such changes will be tricky to design well and further detailed design work is needed. As well as considering potential changes to introduce new outcome measures or accountability mechanisms (e.g. outcome measures at the start of school, or at Year 9), there are a series of wider system changes that will be important to progress alongside the Funding Review (e.g. improved data and information on the programmes that each student receives).

Social investment

Further work is needed to consider how any education funding changes would link to wider social sector models, such as the place based model, as they develop over the next few years. At this stage our focus is on ensuring that the Funding Review is linked to the wider Social Sector Investment Change Programme, and that any funding changes do not close off the potential for options such as pooled funding for significantly disadvantaged students.

A key issue will be ensuring the wider changes needed to support a social investment approach are introduced. It may make sense to agree what the most important changes are. These changes could then become a set of agreed "supporting conditions" that will need to be introduced as part of or ahead of implementing any Funding Review changes. These "supporting conditions" could be useful touchstones between the Funding Review and other parts of the Minister of Education's reform programme.

You have previously said that you would like to move to a funding model that provides funding on the basis of the "efficient cost" of different students. While we do not currently have enough information to determine the "efficient cost" of providing an education, this could potentially be progressed as part of a medium term strategy for any funding changes. The David Moore work sets out some potential ways to progress this work. This would involve introducing stronger feedback loops between centrally made funding decisions and information and data about the use and impact of resources at the school level.

Fiscal strategy

[2]

Treasury analysis on disadvantage funding

This report also sets out some preliminary analysis from the Treasury's Analytics and Insights team to show the risk characteristics of students across existing school deciles. This analysis looks at the distributional impacts of alternative funding approaches for disadvantage. We have shared this analysis with the Ministry of Education.

This analysis provides you with early sight of the types of issues that will need to be considered as part of the review. [2]

[2]

International evidence suggests that the socio-economic status of a learner's peer environment has an influence on their achievement, independently of socio-economic status.

Recommended Action

We recommend that you:

a   **note** the contents of this report.

b   **note** that it is likely that the Minister of Education will share a draft Discussion Document and Cabinet Paper with you in early 2016; and

c   **note** that Treasury considers the following two issues will be particularly important to agree through the Cabinet Paper process, and that you may wish to discuss these issues with the Minister of Education:

- Fiscal strategy and options to manage fiscal risks through the review process.

- Options around a set of 'supporting conditions' that will need to be in place to support funding changes and the social investment approach for education; and

- Mechanisms needed to ensure the Funding Review is linked to wider Social Sector Investment Change Programme.

Grace Campbell-Macdonald
Manager, Education and Skills

Hon Bill English
Minister of Finance

Treasury Report: Update on the Education Funding Review

Purpose of Report

1. This report provides some background information and initial Treasury analysis on the Education Funding Review. It is intended to support you to consider the broad direction of reform ahead of receiving more detailed advice in 2016.

2. There are three sections to the report:

   - A synopsis of the key work undertaken to date:

     o Review of Funding for New Zealand's Early Childhood and Schooling Sectors by *Murray Jack.*

     o What is the cost of a good kiwi education? By *David Moore/Sapere research group*.

   - Initial Treasury views of the potential focus of reform identified. We cover three main issues in the analysis:

     o The approach to allocating resources across the 0-18 pipeline.

     o The supporting conditions needed to support funding (e.g. data and accountability).

     o Linkages to wider social sector.

   - Reform process next steps.

3. We have also set out at the end of this report some indicative distributional analysis undertaken by Treasury's Analytics and Insights Team. This analysis looks at the characteristics of students across schools, and analyses the impacts of potential changes to the way funding for disadvantage is determined and allocated.

Synopsis of work to date

4. The Minister of Education has received two draft reports on funding models. A summary of the high-level findings are set out below.

Murray Jack review

5. The Minister of Education commissioned Murray Jack to review funding model options. The review looked across the early childhood education (ECE) and schooling sectors.

6. Key conclusions set out in the review are:

   - An **individual student funding model** is the preferred option for funding both ECE and schooling sectors. An individual student funding model is described as "allocating funding based on individual students and the efficient unit cost of delivery of services, payable in cash".

   - **Staffing entitlements** and most other **in-kind funding** would be replaced by direct funding. Although some in-kind programmes may remain at the central level – for example special education.

- The main benefits of moving to an individual student model are the ability to more precisely target resources to deal with **disadvantage**; improved **performance**; increased **transparency and simplicity**; and increased **alignment** with the aims and objectives of the education system.

- The model would be implemented across the **entire** 0-18 system. This would be done via a per child subsidy to ECE providers; a per student rate based on the efficient unit cost per student for State, State Integrated, Māori medium and Partnership Schools; and a capped per student subsidy for Private schools.

- Per child funding for ECE should be determined by reference to **efficient costs** of service delivery. A small number of factors would be used as **predictors** of disadvantage with information used on the actual circumstances of students, rather than Census based proxies.

- Per student funding levels for schools should use **average costs** until such time as efficient unit costs of service delivery are available. The review also says that for a very large number of very **small schools** there is merit in evaluating the use of a **funded costs model**. A Funded cost model is described as "an an individual assessment of the costs of running each school. Assessments can be based on individual budget submissions and/or historical information".

- Schools should be provided with a base level of funding that reduces as schools increase in size.

- An **outcomes framework** needs to be developed with defined outcomes, effective **measurement**, and a graduated set of hard and soft consequences. The review sets out that financial incentives need to be significant to be effective (typically around 10% of the funding pool) and even then it is not clear that they would improve student outcomes. The report emphasises the importance of **soft consequences**, including "earned autonomy" and "transparent reporting of achievement".

- Murray Jack describes these proposed changes as "a significant change programme" which will require strong **capability** to execute and significant **support** for schools over the transition.

- Property **maintenance** should be funded as part of per student funding. There should be a **review** of the components of maintenance that should be **devolved** to schools and those that should be **ring fenced**. The current model for funding school property is preferred as there are economies of scale and expertise in managing the portfolio centrally.

Treasury comment on Murray Jack review

Murray Jack usefully brings together a number of ideas into a single proposal for a future funding model across ECE and schooling. The review also provides a useful assessment of the strengths of the proposed model against a set of policy criteria, which could be used to identify a number of potential review themes (e.g. simplicity, transparency and equity).

Because the scope of the review was high-level and had a wide span, the Ministry of Education may need to undertake further analysis to assess some of the specific propositions. Further work would be needed to consider:

- The link between a per-student cashed up model and school performance. It is not clear that this model would directly lead to more effective resource use and practice.

- How combining different existing funding components into a single per-student funding amount would work in practice. What specific funding lines would be included and what overall impacts would this have for schools? What approach should be taken for small schools?

- The specific options available to strengthen measurement, accountability and incentives.

- How the proposed reforms would be introduced and sequenced, and the relative impact of introducing only some of the proposed measures.

- How to link the proposals to the wider social investment work. Consideration needs to be given to long-term outcome measures; and how any education funding for the most 'at risk' students would link into wider place based social sector funding models that may evolve over the next few years.

David Moore (Sapere Research Group) report

7. David Moore was asked to report on *the cost of a good kiwi education?* A quantitative and qualitative approach was taken. Sapere developed a model using current funding rates, which was used to create stylised funding pathways for the average student at different schools (from which insights were drawn). We note that the report has yet to be quality assured by the Ministry, in order to ensure accurate data inputs and methodologies. The report also provides some qualitative insights from 11 school visits.

8. Key conclusions set out in the report are (Appendix A provides further information):

- Current government funding provided for a student progressing through school from Year 1 to Year 13, in large decile 10 schools, is $67,000 (this includes operating and staffing costs, but excludes capital and property funding).

- Relative to this base (i.e. $67,000) school **size effects** can account for an additional 8-14% of funding, and **decile effects** (decile 1A) can account for an additional 13-22% of funding.

- The report identifies a number of **frontier schools** who can achieve a given performance benchmark for the least cost among similar schools. Schools were segmented by decile and size, and a frontier school was identified for each segment. The benchmarks chosen in the analysis were 80% of students reaching national standards for primary schools; and 80% of school leavers reaching NCEA Level 2.

- While the analysis shows that frontier schools consistently receive **lower** per-pupil funding than other similar schools, it is **unclear** what is driving this and further analysis is needed. Differences in funding levels between the frontier and average funding level will likely reflect a mix of factors including access to contestable funding, the actual FTE costs associated with each school, differences in the way school transport is funded, and access to RTLB funding. Not all this funding will necessarily be available to be used by a school to support achievement outcomes.

- Further work is required to understand the characteristics of frontier schools. David Moore makes the point that some schools may be so **different** that they couldn't realistically achieve the performance benchmark with the same funding as the benchmark school.

- The report does not set out who these frontier schools are and whether there are any special characteristics associated with them (e.g. if they are State Integrated schools).

- The report considered whether there is a general relationship between performance and funding. A regression model was used to examine how much of the variation of performance can be explained by decile, type of institution and level of public funding. The results of the model showed that while the relationship between funding and performance is **negative**, the effect is **small** and has **limited power** for explaining performance. The authors recommend caution in interpreting these results, given there are a number of factors that have not been controlled for in the analysis.

- Sapere also undertook "cluster analysis". This analysis grouped schools into broadly similar segments as defined by their size, decile, funding and rurality. A **performance gap** was calculated for each school in each segment based on their performance relative to the average for each segment. Regression analysis shows that **public funding** has **no statistically significant** effect on differences in school performance.

- The model suggests that a 1% increase in private funding is associated with higher performance outcomes. The report does not provide any further analysis around what may be driving the private funding effect or consider the nature of private funding sources. Further work would be needed to understand the correlation, which could reflect a number of different factors (e.g. levels of parent engagement associated with donations, a relationship between school effectiveness and ability to attract private funding, and possible interactions relating to international student fees).

Treasury comment on David Moore report

The David Moore report highlights the challenge of identifying an efficient unit cost for schools. It demonstrates that we currently have insufficient information to determine an efficient level of funding. We do not have good information on the size of the learning challenge faced across similar school; and we do not know if and how higher and lower performing schools are using their resources differently. This supports Murray Jack's conclusion that initially a new funding model would need to use 'average costs'.

The report does provide some useful insights to suggest that some schools may be better at using existing resourcing to deliver outcomes. We have paid more attention to the secondary school analysis, than the Primary school analysis which relies on un-moderated National Standards data.

The report also highlights that lower decile schools are less likely to achieve a given performance benchmark. The report shows that frontier schools at lower decile schools are more likely to be funded at the average level, which may suggest marginal funding matters more at these schools. This would be worthy of further exploration, although we would be cautious to draw any conclusions at this stage. The report provides a useful methodological approach to identify funding differences across similar schools, and there would be value in further developing it as part of the review process. Further work would be needed to build the robustness of the model, particularly around the funding inputs used, and undertake some qualitative analysis to better understand what is happening in each frontier school. Over the medium-term there may be potential to develop this approach sufficiently in order to determine an "efficient unit cost".

Strategic choices for reform

9. The work to date has identified a number of potential areas that could be progressed as part of the Funding Review. Different combinations of these reform areas could be progressed, and there is a choice about how they could be sequenced.

10. We think there are three broad issues to consider as part of or alongside the Funding Review:

   - The approach to allocating resources across the 0-18 pipeline.

   - The supporting conditions needed to support funding (e.g. data and accountability).

   - Linkages to wider social sector and Community of Learning model.

Allocating resources

11. The table below sets out the key choices relating to the allocation of resources across the 0-18 pipeline:

Area of potential reform	Key choices
Cashed up per student funding *(Operating funding, programmes, staffing, and property)*	- Which funding components to roll together into a single student funding rate. - Whether to provide existing staffing entitlement as direct funding, or consider other options to simplify staffing entitlements. - Whether to include programme funding as part of the review. - The approach taken to property maintenance funding, and whether this should be separated or part of the per-student funding amount.
Disadvantage funding	- Measures used to determine disadvantage (i.e. actual student characteristic information; or census based proxies). - Balance between funding in relation to the individual and concentration of disadvantage. - Overall level of funding available. - Extent to which funding and associated accountability is tied to individual students *versus* cohorts.
Approach across ECE and schooling	- Move to a fully per-child funding model for ECE. - Greater targeting of ECE funding to individual children.
Funding levels across the pipeline	Whether to reallocate resources to different points of the 0-18 pipeline. For example, from years 12 to 13 to years 9 and 10.

Cashed up per-student funding

12. The idea of a fully cashed up per-student funding is proposed in the Murray Jack report. While there would be advantages of moving towards a model that combines more funding components into a per-student and base funding amount, it is unclear that there would be significant benefits from fully cashing up the staffing entitlement.

Operating funding and programme expenditure

13. A funding model that is made up of fewer blocks of funding - with more components of funding rolled into a single per pupil amount - would have transparency benefits. It would more clearly show the total amount of resourcing available for each student in a school, which would be beneficial if also supported by effective school planning and reporting around the use of that funding. It would also increase transparency around the trade-offs associated with a given network configuration (as funding for school size would be more clearly identifiable within a single base funding component). The model could also better support equity and transparency between and across different models of schooling (e.g. Partnership schools and State Integrated schools).

14. A key decision would be which components of funding to roll into a per student amount. As a minimum it would make sense to combine and simplify a number of different operating grant components (e.g. relief teacher grants). There are also a number of different areas of in-kind support that could be included (e.g. literacy programmes, or other targeted programmes) although this would add significantly to the scope of the review. Detailed policy work and modelling would need to be undertaken to look at each individual component of resourcing and determine if and how it should be allocated into any per-student model.

Staffing entitlement

15. A fully cashed up model would involve cashing up staffing components into both a per-student funding amount and a base funding amount (to reflect the impact of school size on staffing numbers). This would also transfer greater financial management responsibility to schools.

16. There would be some advantages to such a change. It would give schools greater flexibility to trade-off between an additional teacher and other initiatives or types of specialist staffing (e.g. management expertise, or specialist support for disadvantaged students). It may also better support innovation in the provision of education, for example if it better enabled the provision of virtual learning.

17. However, we think that it is unclear that a fully cashed up model would have significant benefits. We know that many schools already use their operating grant to purchase additional teachers, which suggests cashing up may not result in a large change to the numbers of teachers employed by schools.

18. We judge that it is unlikely that directly funding staffing, in itself, would lead to a re-distribution of staffing resources to where they would have most benefit. This is partly because there would remain a strong incentive for all schools to compete for the best teachers and leaders at each pay grade. It is also the case that existing career steps don't provide a good proxy for teaching effectiveness. We also know that on average the age and experience of teachers doesn't differ significantly across deciles.

19. If staffing was cashed up on the basis of average costs, transition paths would need to be agreed; and even then for very small schools a transition may be impossible. Murray Jack proposes that funding for small schools is agreed through a separate mechanism based on actual costs. It is worth noting that this would add additional complexity and potential incentive problems to the overall funding model (as there would be two different approaches for determining a school's funding).

20. If Ministers did not want to move to a fully cashed up model for staffing, alternative options could be considered. For example, some specific staffing components (e.g. management time) could be provided as per-student funding. If you wanted the review to have a focus on the efficient allocation of staffing resources across the schooling system, you could look at the way existing FTE allocations and Community of Learning roles are targeted.

School property

21. There are a series of issues to consider relating to the funding and management of school property. A key decision would be whether to separate out maintenance funding from per-student funding and ring-fence funding for maintenance purposes. Key considerations here are how this would impact on a school's flexibility to manage funding needs using their total operational resources, as well as transparency and accountability objectives. We will provide further advice to you in early 2016 on the review of school property.

22. The Minister of Education also intends to look at the relationship between the Crown and the integrated school sector, and enter negotiations with the sector to provide greater certainty over school property funding. We will provide you with further advice on these proposals next year.

Disadvantage funding

23. The Treasury considers that there is scope to improve the way that disadvantage funding is allocated, and an opportunity to sharpen the focus on students who need greater support. We think that the review can usefully consider the potential for improved ways to determine disadvantage. Alongside this we would put emphasis on strengthening accountability; and feedback loops between the local and central level. The big opportunity is to strengthen the funding signal that additional funding for disadvantage is there to lift educational outcomes of specific students.

24. The existing decile funding model allocates funding based on the extent to which the school's students live in the most disadvantaged communities, updated every 5 years[1]. This approach also reflects the important impact of concentration effects within schools. However, the existing mix of measures used to determine disadvantage may not be the best ones to use, and it is unclear if the current weighting given to concentration effects is optimal. It is also the case that the existing funding model essentially provides decile funding for all students within a school, which leads to a relatively weak signal around its purpose and provides no clear link between funding and accountability for disadvantaged students.

25. The chart below sets out analysis from the Treasury's Analytics and Insights Team showing the distribution of students by risk of not achieving NCEA Level 2, across school decile. It is noticeable that while there are a significant number of at risk students in low decile schools (around 50% of students in risk decile bands 1-3, are in decile 1-3 schools), there are also a large number at higher deciles schools.

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[1] School decile is based on census meshblock information linked to each individual student at the school. The five factors used are: Household income in bottom 20% nationally; whether parents occupation is in lowest skill level; household crowding; parental qualification; and whether parents are on income support).

Figure 1: Distribution of students in each school decile across estimated risk deciles
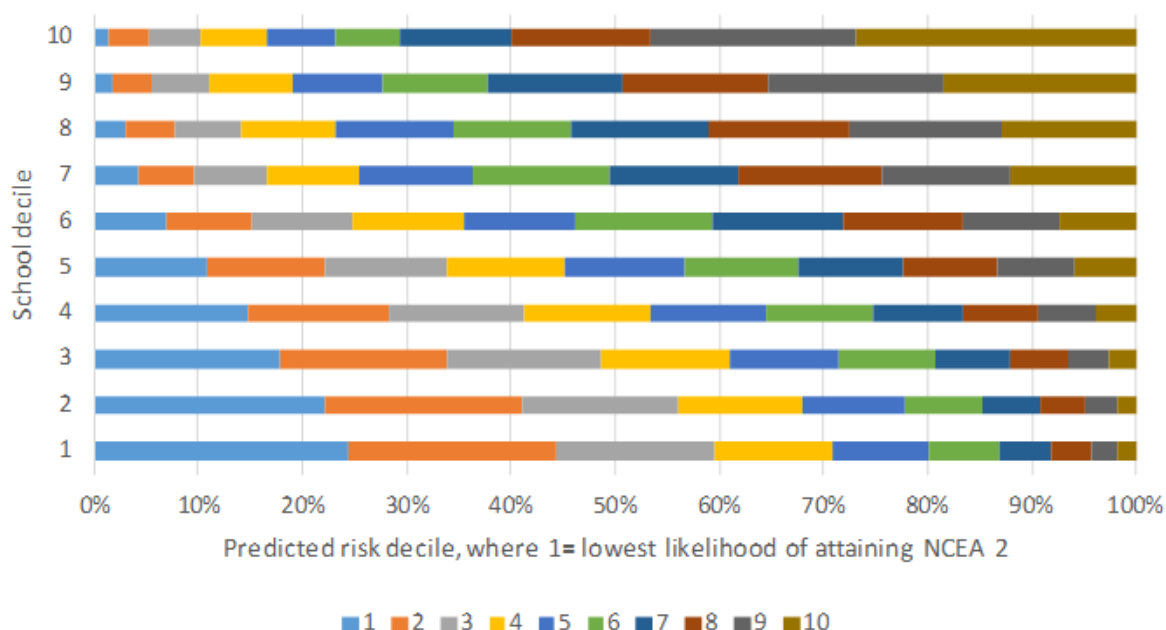
26. There are three broad potential approaches to move to a more individual student based funding model. The first would be to base funding on a 'risk index' for each child which would use all available administrative information. The second approach would be to identify disadvantage based on a smaller number of measures, potentially classifying students into 'high risk' and 'medium risk' groupings. The third would be to continue to use the existing decile measures (or a refined version), but link this funding to the individual student rather than the school. Implicit within these approaches is a move away from relative measures to absolute measures of disadvantage.

27. Further analysis is needed across these three options, but our initial view is that the additional predictive power of using a fuller risk index, may not outweigh the costs associated with complexity and loss of transparency. The question then becomes which smaller set of measures would be most predictive. A key judgement needs to be how much focus should be given to getting the allocation of funding accurate, versus strengthening the signals in the system between funding and outcomes. Making progress on only the first could create a lot of noise without any significant benefit.

28. A key consideration will also be the relative balance between funding for each individual student's risk characteristics, versus also providing a level of funding associated with concentration effects. International evidence suggests that the socio-economic status of a learner's peer environment has an influence on their achievement, independently of their own socio-economic status.

29. Further work is needed to consider what changes would be needed in order to collect the information needed to determine disadvantage and/or to allow that information to be used for individual student funding decisions. This will include consideration of information sharing arrangements, privacy issues, and how to manage the direct collection of information from parents.

30. Another issue of consideration is the extent to which 'at risk' students should be individually identifiable, and accountability should be linked to the outcomes of those specific students. Because predictive risk measurement will always have a number of false positives and false negatives, it would make sense to avoid designing a system that is focused too rigidly on centrally identified students. We would encourage a focus on thinking about linking accountabilities to cohorts of students, and strengthening the feedback loops between locally identified need and central identification of risk.

31.   An illustration of the kind of concept that could be explored further, would be an approach where the Ministry of Education informed each school of the number of students in each school year who are at risk. The school would be required to undertake their own identification. The school would be informed of the percentage match, but would not know the individual names of each student that funding is attached to.

32.   Some indicative Treasury analysis on the distributional impacts of a range of options is set out in Appendix B of this report.

Approach across ECE and schooling

33.   A key issue will be the integration of any changes across the ECE and schooling sectors. While the different structures of the sectors means that the funding models will continue to look different, there is an opportunity to better align the model for disadvantage funding. There are a number of issues to consider:

*   *Scope of reform to ECE* – Do Ministers wish to progress work to consider options to move to a fully per-child funding model for ECE, including options to consider greater targeting of ECE funding?

*   *Implementation phasing* – Would ECE and schooling changes be implemented simultaneously or phased one after the other? One approach would be to consult on and implement funding changes to both sectors at the same time, but you could equally choose to phase one after the other.

*   *Population alignment* – There is a choice as to whether to fully or partly align disadvantage funding across the two sectors. A fully aligned approach would see exactly the same children attract a funding premium at both ECE and schooling, although the level of funding would likely be different. A partly aligned system would use the same measures to determine disadvantage across the sectors but would continue to have different treatment in terms of the specific population targeted.

*   *MSD childcare subsidy* – Consideration of a per-child funding system would also need to consider the childcare subsidy and entitlement settings across the two systems. The different objectives of MSD and Education funding will need to be worked through.

*   *Performance and accountability* – Further work is needed to consider how performance and accountabilities would be aligned across the sectors. As part of this consideration could be given to strengthening the focus on outcomes at the ECE level (although this would need the introduction of outcome measures).

34.   A change to align per-student funding across ECE and schooling, would make differences in levels of funding for disadvantage across the sectors more transparent. There would also be transition issues to consider with aligning the two models of funding for disadvantage/equity.

35.   We will be engaging with the Ministry of Education in early 2016 to consider the overall approach across ECE and schooling. A key issue to be considered is the evidence around the case for additional targeted funding for ECE.

Funding levels across the pipeline

36. The David Moore report illustrates that there is significant variability in the levels of resourcing schools receive across different year levels (Appendix A sets this out). This reflects historic policy decisions, which have resulted in differences in student staff ratios, per student funding rates, and management staffing ratios across school years.

37. It is timely to consider whether the overall shape of funding across school years continues to best reflect the funding needs. For example, it is not clear that higher management staffing rates at Years 12 and 13 are justified given the size of achievement challenges further down the education pipeline.

38. Further work is needed to understand how schools actually use their resourcing across school years, and the specific funding needs and pressure points across different stages of learning. While schools receive significantly more staffing support for Year 1 students, there is flexibility for this resource to be spread across all school years. This means the actual impacts of adjusting funding levels across some years may not be significant.

39. Any re-distribution of funding across the pipeline would create winners and losers. While some of these impacts would be absorbed within a given school, there would still be absolute impacts for individual schools particularly if funding was re-allocated down the pipe-line into primary schools and early secondary school. Intermediate and Junior High schools currently receive on average lower funding than Extended Secondary or Senior High schools.

Supporting conditions for funding reform

40. The table below sets out some of the key choices relating to putting in place the supporting conditions necessary to support funding changes.

Area of potential reform	Key choices
Outcome measures	• Whether to introduce new outcome measures. For example, at the start of Primary School or Year 9.
Accountability and incentives	• The balance between 'hard' and 'soft' accountability measures. • Specific measures to strengthen accountability (e.g. role of ERO, and planning and reporting).
Data infrastructure	• The data and information available to schools, parents and the Ministry as system steward.

Outcome measures

41. Murray Jack sets out that there is a need for a clearer outcomes framework with effective measurement. His report also sets out that there are definition, measurement and attribution challenges that need to be worked through. Unfortunately, the report does not offer a detailed guide or proposed pathway through these issues.

42. A key decision will be determining whether the scope of the Funding Review will consider ways to either introduce additional outcome measures and/or strengthen the link between existing outcome measures and funding. Additional measurement earlier down the pipe-line would help support a social investment approach for education, but would need to be balanced against the risk of additional pressure on school resources. Options could include the introduction of a start of school measurement of cognitive and non-cognitive skills, moderation of National Standards. or the introduction of some form of outcome measure at Year 9. [2]

43.   The Treasury would emphasis the role of these measures to support schools own practices and learning to support individual student need, and through the development of locally determined goals and achievement challenges determined at the school or Community of Learning (CoL) level. We would encourage a broader focus than academic achievement to also include measures of student engagement.

44.   The review would also need to link into other areas of social investment work. In particular, consideration of how to link student outcomes at NCEA to measurement of longer term outcomes and how this information could be shared with schools and CoL's. It will also be important to think about how any funding changes can better support a data system that measures how school resources are used for each child, to help inform practice and learning at the school and system level.

Accountability and incentives for outcomes

45.   The Murray Jack report sets out a role for both hard and soft incentives, but puts a relative focus on the softer end of the spectrum. The report is cautious about the potential benefit of introducing funding penalties or funding rewards for schools, saying that is unclear that this would have benefit and could lead to an over funding of some schools.

46.   Murray Jack points towards earned autonomy, transparent reporting of achievement information, and perceived reputation as having more potential impact. Further work is needed to explore these ideas and specific options for each. Because schools already have significant flexibility over their resources and the curriculum, it isn't clear what kind of additional autonomy schools would value. For this reason we would want to engage with the sector to explore the idea. We agree that transparency of information, particularly if it leads to more effective engagement between learners, parents, communities, providers and central government, would help to incentivise and enable improved performance. For such incentives to work effectively there needs to be strong professional capability in place in order to respond effectively to the information.

47.   Changes to planning and reporting being considered through the Education Act provide an opportunity to strengthen professional accountability. There would be an opportunity to specifically strengthen the focus of these processes on the outcomes of disadvantaged students. Consideration could also be given to introducing a stronger role for the Education Review Office to monitor the effectiveness of school for cohorts of disadvantaged students.

48.   The Act/Funding Review could consider a range of other 'soft' measures that could strengthen performance incentives, but which have an overarching focus on system effectiveness. For example, additional resources could be made available to high performing schools to provide support to the wider network of schools through CoL's; or additional PLD support could be provided to leaders in performing schools in order to further build and leverage capability. `

Data infrastructure

49.   [2]

                                    The Ministry has also begun to operationalise the use of student information more fully to support BPS targets through the 'ARoNA' plan (which will increasingly identify the resources at risk students receive at the school level).

50. We will engage further with the Ministry early next year on how these initiatives, and other changes to support data use, will fit with the funding reform strategy.

Linkages to the wider social sector and Communities of Learning

51. You may want to consider how school funding reform could help support more effective joint working across the social sector. For example, you could consider options that would provide a level of 'pooled funding' for schools to use in collaboration with other social sector providers to help overcome non-school barriers to learning. There are other potential approaches to strengthen linkages across sectors, including provision of direct integrated programme support for learners; and greater integration of strategies, goals and reporting at the local level.

52. Considering 'pooled funding' through the Funding Review would significantly increase the scope of the review. It could also add greater contention into the review process; particularly, if it was felt that existing school funding was at risk of being moved out of school control. For this reason we would recommend considering the issues through existing cross-social sector processes, in particular the place based work and external review of CYF.

53. Mechanisms will be needed to ensure the Funding Review is linked into this wider work. The Cabinet Paper in February next year could be used to agree those mechanisms.

54. We have not provided advice on how a reformed funding model could interact with the CoL model. We assume that any funding changes would need to be future proofed in order to fit with potential future evolutions of the CoL model. In particular, we need to ensure that it allows for funding to be directed to the CoL level if groups of schools want to move towards 'harder' collaborative models in the future.

Reform process next steps, and linkages to wider strategy

55. The Minister of Education has indicated that she is working towards a Cabinet Paper and Discussion Document for February 2016, with a first set of Funding Review decisions being made in August 2016.

56. We suggest you check in on progress in January 2016, and discuss with the Minister of Education overall progress towards a Discussion Document. You may want to use a check in to discuss and agree:

- The overall scope and framing of the review.

- The fiscal strategy for the review.

- A set of agreed 'supporting conditions' around the wider data and accountability changes needed to be in place to support any funding changes. These would be key planks of a social investment approach for education funding.

57. We intend to engage with the Ministry on the following issues over early 2016:

- The types of analysis and timing of that analysis, that will be needed to consider options for disadvantage funding and options for re-distributing funding across years of learning.

- Consideration of the different funding options available for disadvantage, including the specific indicators of disadvantage/risk that we would recommend using.

- Further work to understand the funding pressures and patterns across schools, including at different stages of the funding pipeline.

- The specific options available to strengthen outcome measures, incentives and accountability.

- Timeframe options for funding changes, including dependencies with the implementation of the Education Resourcing System.

[2]

58. There are some issues that will likely be beyond the scope of the review, but will be important for the success of any funding changes. These issues are:

- Improved data and information about the use and effectiveness of resources; and wider improvements to the accountability model. One approach to deal with this would be to agree a set of 'supporting conditions' which articulate where wider system reform needs to be at the point any funding reforms are implemented. This potentially becomes a helpful touchstone between the Funding Review and the wider education reform programme.

- How the Funding Review would support wider reforms to introduce a cross-social sector approach to investment. There will need to be clear processes to ensure that the Funding Review is linked to wider work in the Social Sector Investment Change Programme.

Appendix A – Detailed analysis from the David Moore report

1.   Figure 2 shows that there is significant variation in the total resourcing levels schools receive across year levels. A number of factors contribute to these differences including: teacher : student ratios; curriculum funding; variation in per student funding with age; and variable management weightings. These differences are shown in figure 3 below.

**Figure 2: Cost (public funding) per student across year levels 1-13 – stylised pathways**
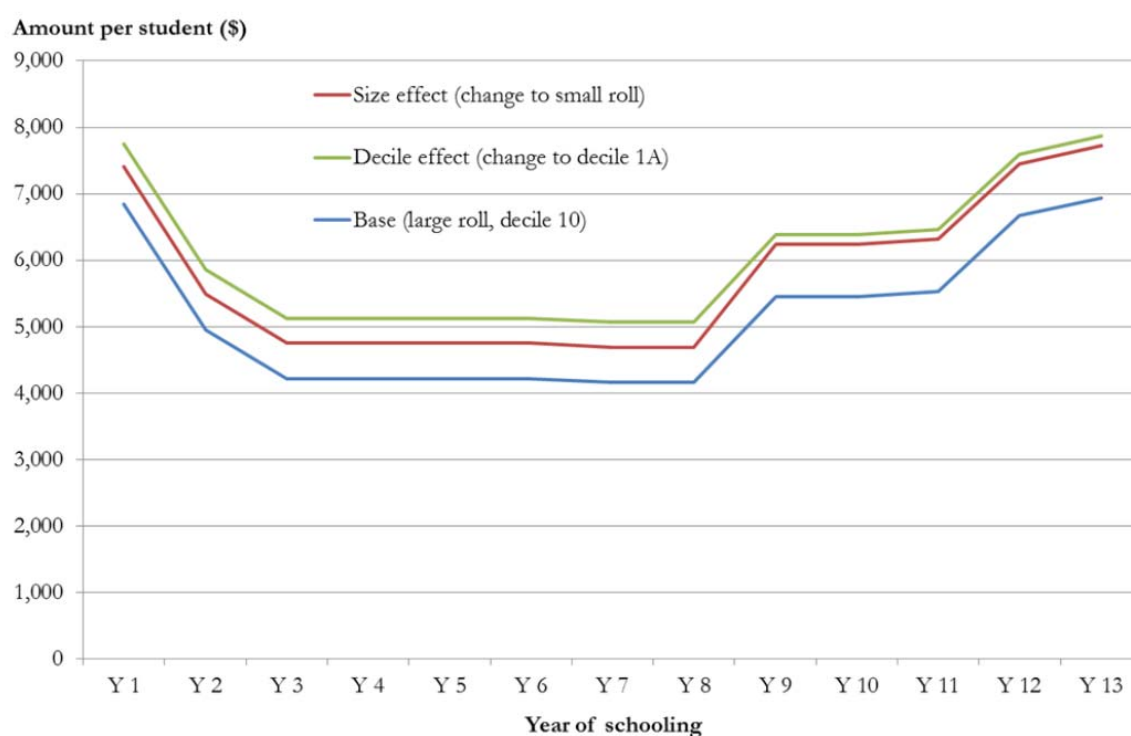
**Figure 3: Funding per students across years 1-13 (comparing small and large rolls at decile 10)**
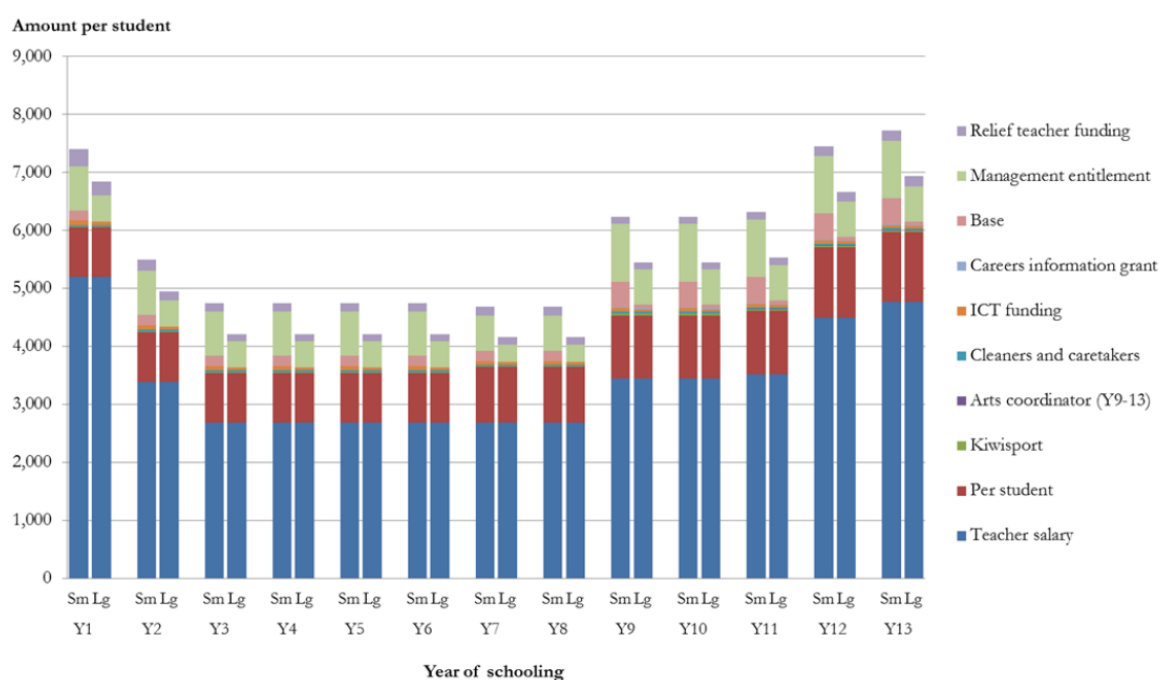
2. The report provides some analysis of school performance (NCEA Level 2) by school decile and level of school funding. The analysis shows a greater clustering of performance at higher decile schools, and more significant variation at lower decile schools. This is shown in figure 4 below.

Figure 4: Scatterplot of secondary school performance and funding by decile, 2014
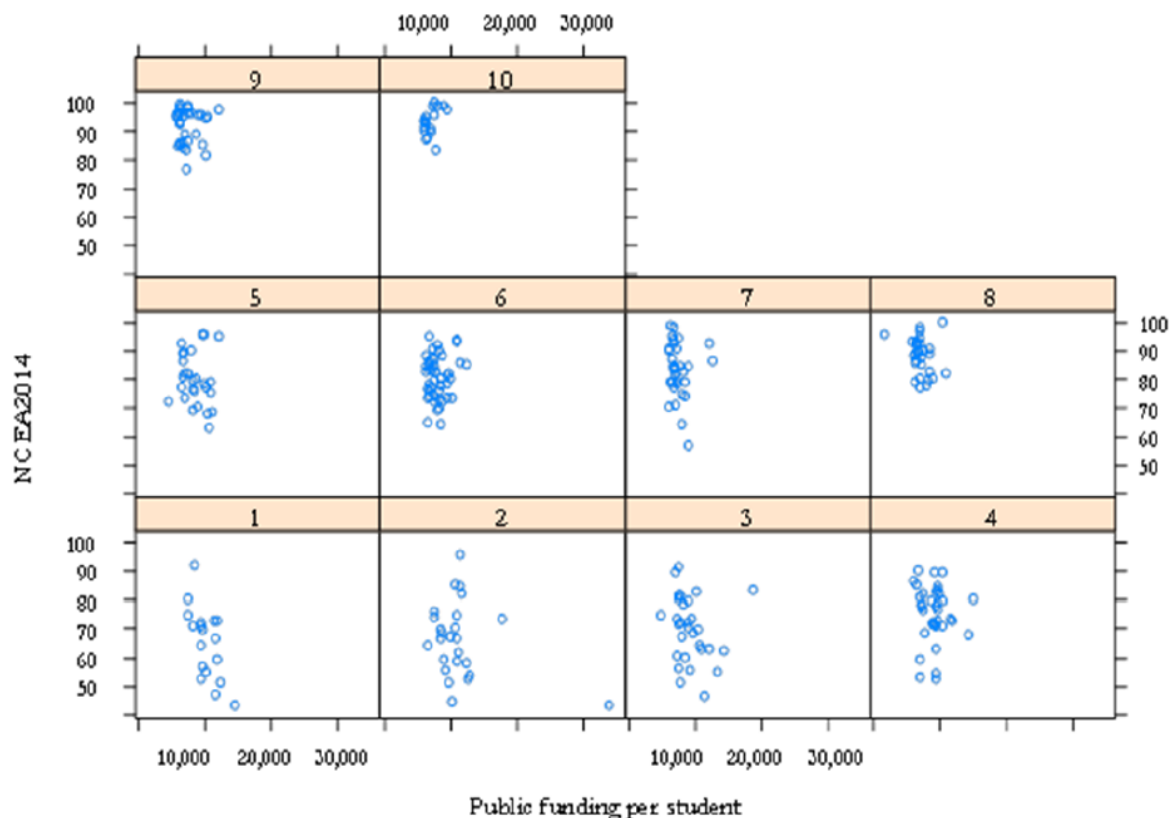
3. The report also identifies frontier schools who meet the performance benchmark (80% of students achieving NCEA Level 2) for the least cost among similar schools. The charts below show the levels of funding that frontier schools receive relative to other schools of the same decile. This breaks down funding by public funding only, and total funding includes all revenue received by schools.

Figure 5: Funding received by schools by decile and size[2], comparing frontier schools with the average funded school.

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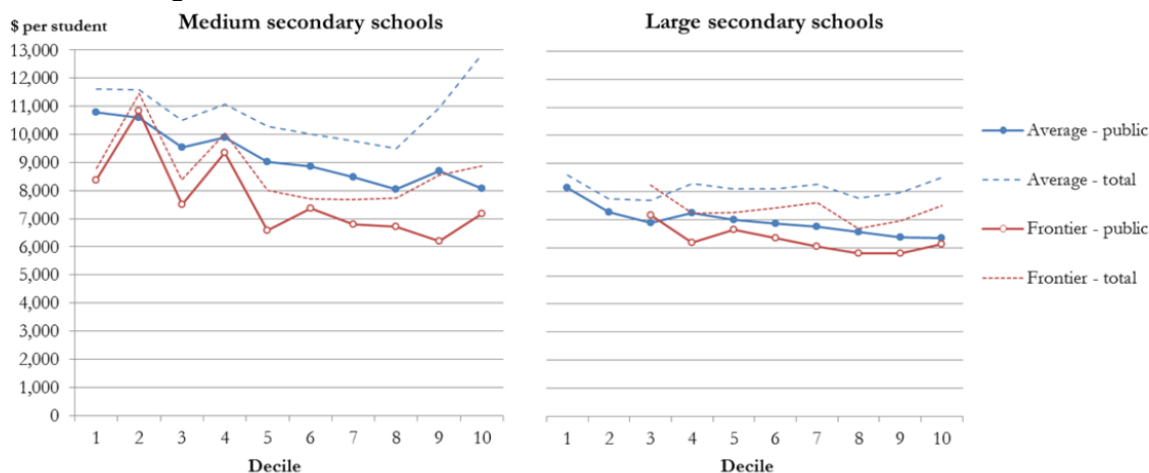
[2] Medium school is defined as 81-930 students, and a large school is 930+ students.

4. The methodologies and data inputs into this analysis need further testing. We think that there is value in undertaking further analysis using this methodological approach. The approach can usefully provide insights into funding and performance differences between schools. However, the NCEA performance measure is relatively blunt as it provides limited insight to schools effectiveness relative to their own contexts. In addition, we need to better understand what is contributing to the different levels of funding schools of similar decile and size receive as well as the robustness of the data.

5. A number of different factors could be contributing to differences in funding levels between schools shown in the charts above. These factors include access to special programmes and RTLB funding.

Appendix B - Initial Treasury analysis on disadvantage funding

59. Treasury's Analytics and Insights team has analysed the distributional impact of three alternative approaches to provide funding for disadvantage[3]. This work provides some insights into where across the school system children with different risk characteristics are located. This analysis shows the potential scale of impacts of a changed approach.

60. The approaches considered may not be the best specific approaches to examine as part of the Funding Review. Further work would be needed to determine which types of measures would best support the objectives for the review. In addition, there would be a series of choices when translating the approach to a model of funding (e.g. how to reflect concentration effects) which would lead to a different set of impacts. Nonetheless, this modelling does provide an indication of the types of impacts that could be expected from an alternative funding approach.

61. It is also worth noting that the actual overall impact for a school would depend on the nature of any wider changes to the funding model. For example, changes to funding across school year levels could either counteract or further amplify gains or losses for a given school.

Analytical approach

62. Three alternative approaches were used to determine disadvantage and model the impacts of reallocating existing decile funding on a per-student basis. These were:

- **Risk deciles** – This approach uses all relevant available administrative data in the IDI to determine the risk profile of each child in the current student population. Risk is estimated for each child using coefficients from a series of age-specific logistic regression models. Children are allocated to 'risk deciles' according to their ranking on the estimated likelihood of achieving NCEA (on scale 0-1)[4]. Existing decile funding is then reallocated to each student according to their 'risk decile'[5].

- **Lowest four risk deciles** – This approach uses the same 'risk deciles' as above. However, instead of allocating existing disadvantage funding across all 10 'risk deciles', all funding is allocated across the lowest four risk deciles according to the current funding gradient used for school decile funding.

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[3] Access to the anonymised data used in this report was provided by Statistics NZ in accordance with the security and confidentiality provisions of the Statistics Act 1975 and the secrecy provisions of the Tax Administration Act 1994. The results of this paper have been confidentialised to protect individual persons, households, businesses and organisations from identification. The results are the work of Treasury, not Statistics NZ.

[4] The explanatory variables used were: gender, birth cohort, ethnic group, migrant status, migrant type, proportion of childhood spent out of NZ, Mother or female caregiver has no qualification, Territorial Authority, time supported by a parent's benefit, benefit type, parent or caregiver served a custodial or community sentence, CYF history, stand-downs, suspension, truancy, and special education history.
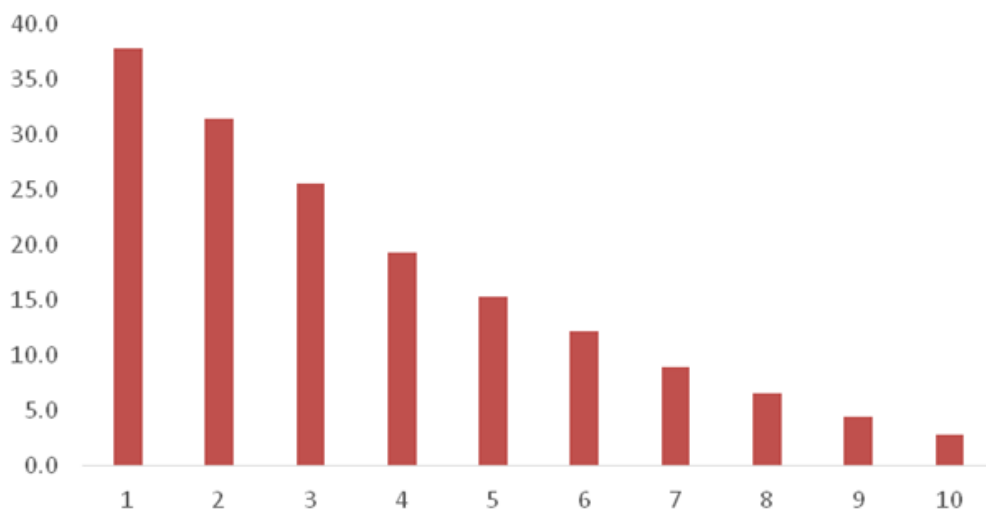
[5] For this analysis, the size of each 'risk decile' is determined by the number of students in the current school deciles (i.e. 8.2% of all students are currently in decile one schools, therefore only 8.2% of students are placed in the first 'risk decile').

- **2/4 factors** – This approach identifies all students who have 2 or more of the following indicators of disadvantage (and reallocates all existing decile funding to this group):

    o Parent supported by a benefit for 50% or more of the child's life (19%).

    o Has been the subject of a CYF finding of abuse or neglect (7.7%).

    o Has had a parent or caregiver who served a Department of Corrections sentence (15.2%).

    o Their mother or female caregiver has no qualification (11.1% - but for 19% of the total this information is not available).

Distribution of students

63. Figure 6 shows the distribution of disadvantaged students using the 2/4 factors approach across schools.

Figure 6: Percentage of students in each decile who are deemed to be disadvantaged using 2/4 factors.

[2]

[2]