



1 April 2021



Tēnā koe 

Thank you for your email of 26 February 2021 to the Ministry of Education requesting the following information:

- 1. Any reports or analyses done into the equity index and its implementation since September 2019. This includes any reports modelling what various schools might get under the new index compared to the old*
- 2. All correspondence between the Ministry and the Minister about the equity index in this same time frame*
- 3. All documents relating to how the equity index itself was designed and how it was decided what stayed in and what was important. Who designed the algorithm?*
- 4. Details of how the score in the Equity Index is arrived at - is it a computer-generated number, or is it added up by a human?*
- 5. What weight is given to each variable? Please provide a number for each.*
- 6. Please detail when the Equity Index will be introduced.*

Your request has been considered under the Official Information Act 1982 (the Act).

- 1. Any reports or analyses done into the equity index and its implementation since September 2019. This includes any reports modelling what various schools might get under the new index compared to the old***

We have identified two Education Reports in scope of this part of your request. However, both reports are pre-budget material and are still being considered by the Education Minister. Therefore, we are withholding both of these reports in full under section 9(2)(f)(iv) of the Act as releasing these reports may prejudice advice tendered by Ministers and undermine future decisions regarding the implementation of the equity index.

**2. All correspondence between the Ministry and the Minister about the equity index in this same time frame**

We interpret correspondence between the Ministry and the Minister as the advice we provide in the forms of briefing notes, education reports and other analysis. With this in mind, our response to part two of your request is consistent with that provided for part one above.

**3. All documents relating to how the equity index itself was designed and how it was decided what stayed in and what was important. Who designed the algorithm?**

We have identified two reports in scope which we are releasing to you in full as the attached **Appendix A**. The first document is a Treasury Report which also details how the score system works for the index. The second is an equity index summary of changes provided by the Ministry to the relevant teams involved in this project.

There are two other technical reports that fall in scope of your request that we are refusing under section 18(d) of the Act as they are already publicly available at the links shown below:

The Equity Index Technical Report:

[https://www.educationcounts.govt.nz/\\_data/assets/pdf\\_file/0003/196005/Equity-Index-Technical-Report-Final.pdf](https://www.educationcounts.govt.nz/_data/assets/pdf_file/0003/196005/Equity-Index-Technical-Report-Final.pdf)

He Whaakaro: Accounting for educational disadvantage:

<https://www.educationcounts.govt.nz/publications/series/he-whakaaro/he-whakaaro-accounting-for-educational-disadvantage>.

Please note, as development of the index has progressed, some of the work to improve the model has already taken place. Some of the key improvements to the model are outlined below:

- The dependent variable has been updated from a binary 'pass/fail' measure to a continuous measure of 'score weighted credits from NCEA Level 1 and 2'. This is consistent with findings from the 2019 technical report referenced above.
- The index now looks at the average level of disadvantage in each school, rather than identifying the proportion of students at each school who are among the top 25% most disadvantaged children in New Zealand. Using a school's mean equity index reflects the average level of socio-economic barriers a school's community faces. This takes into account the circumstances of all students at the school and is more reflective of a school's socio-economic profile as a whole.
- General refinement of variables included in the model.

**4. Details of how the score in the Equity Index is arrived at - is it a computer-generated number, or is it added up by a human?**

Equity index values are calculated using a human-designed algorithm. Each input is selected based on research and the model-design decisions are made by humans.

**5. What weight is given to each variable? Please provide a number for each.**

This information is not held by the Ministry of Education but would need to be created in order to respond to your request. This is because the equity index has been developed within the Statistics New Zealand's Integrated Data Infrastructure (IDI) and the coefficient or weight of each independent variable within the model has not been approved for release from the IDI. For this reason, we are refusing this request under section 18(g) of the Act.

While the Ministry does not hold this information, it is also important to note the coefficients on their own would not provide any reliable or accurate insight into the model.

There are not, strictly speaking, weights involved in creating the equity index, as would be the case of arithmetically creating a compound index (e.g. 0.5 to factor 1 and 0.5 to factor 2). The equity index is based on a statistical model which examines the relationship between the whole suite of factors and educational outcomes. Because all of these factors are related to each other (what statisticians call 'multicollinearity'), it would be incorrect to interpret any parameters in this model as the 'weight' put on a particular factor.

The statistical model is estimated by a researcher using a computer and hundreds of thousands of data points. It is not a computer algorithm where an "unsupervised" computer model chooses what to put in and what to take out. Experienced researchers have determined the final specification based on a combination of previous research and analysis, an external technical reference group, and stakeholders from across the sector.

**6. Please detail when the Equity Index will be introduced.**

Implementation details for the equity index are subject to Budget 2021 decisions and as such, implementation timeframes can be confirmed following Budget decisions by Ministers and Cabinet.

Please note, the Ministry now proactively publishes OIA responses on our website. As such, we may publish this response on our website after five working days. Your name and contact details will be removed.

Thank you again for your email. If you have further questions please feel free to contact our media team in the first instance at [media.team@education.govt.nz](mailto:media.team@education.govt.nz). If you are unsatisfied with my response, you have the right to ask an Ombudsman to review it. You can do this by writing to [info@ombudsman.parliament.nz](mailto:info@ombudsman.parliament.nz) or Office of the Ombudsman, PO Box 10152, Wellington 6143.

Nāku noa, nā



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