



Australian Government

Department of Education,  
Skills and Employment

# Refinement of the Direct Measure of Income (DMI) methodology

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## 1 Overview

Following the National School Resourcing Board's (the Board) review of the socio-economic status score final report, the Australian Government released its response to the Board's review on 20 September 2018. The Government accepted all the Board's recommendations and agreed to implement a new measure of capacity to contribute for non-government school funding informed by the incomes of parents and/or guardians at the school as opposed to the existing area based methodology.

Through innovative data available in the Multi Agency Data Integration Project (MADIP) the Government is helping implement the direct income measure by providing an estimated additional \$3.4 billion in funding for the non-government school sector during transition from 2020 to 2029. The use of integrated data through MADIP has underpinned policy resulting in the refinement of the Capacity to Contribute measure; creating a fairer and more accurate method to allocate funding to non-government schools.

The implementation of the new measure will commence from 2020 with non-government schools transitioning to the new direct income measure in either 2020, 2021 or 2022 when it is financially beneficial to do so.

## 2 Background

### Establishment of the Direct Income Measure of Capacity to Contribute Technical Working Group

A Direct Income Measure of Capacity to Contribute Technical Working Group was established in November 2018 to provide advice on technical issues related to the implementation of a new direct measure of capacity of a school community to financially contribute to the cost of schooling based on the income of parents and guardians of students at a school.

This Technical Working Group included key stakeholders representing the National Catholic Education Commission (NCEC), Independent Schools Council of Australia (ISCA), Australian Bureau of Statistics (ABS), Australian Taxation Office, state education representatives from South Australia, New South Wales and the Northern Territory as well as the Australian Government Department of Education.

Members were provided with papers covering theoretical aspects and analysis relating to the direct measure to seek their technical advice on the statistical merits, strengths and weaknesses of each option. The Technical Working Group considered refinements to the direct measure, including the consideration of income type, the treatment of missing data and accounting for family size.

## 3 Refinements to the direct measure of income

### Using adjusted taxable income is consistent with other Government payments

The National School Resourcing Board (the Board) recommended that the direct income of parents/guardians should be used to determine the capacity of a school's community capacity to

financially contribute to costs of schooling. Analysis undertaken by the Board applied the total (gross) income of individuals. The Board did not provide a recommendation regarding which income measure should be used however; the final report noted that total income is better than taxable income as the latter is subject to bias arising from tax minimisation strategies.

Following consultations with the non-government sector, there is widespread stakeholder support for the inclusion of adjusted taxable income (ATI) in the methodology from both the Catholic and Independent sectors.

Using ATI measures the total amount of economic resources available to an individual to meet their daily needs. The table 1 below provides an overview of different types of income that the Technical Working Group have considered.

**Table 1 – Income Type**

Income measure	Definition	Purpose/Intention
<b>Total income</b>	All reported income	Measures the total amount of income
<b>Taxable income</b>	Total income less allowable deductions	Measures the total amount of income an individual is obligated to pay tax on
<b>Adjusted taxable income</b>	Taxable income plus specific provisions added back	Measures the total amount of economic resources available to an individual to meet their daily needs
<b>Disposable income</b>	Income available after taxes	Measures the total amount of income an individual has available after taxes

ATI is used to determine eligibility for some Government payments such as Family Tax Benefits and the Child Care Subsidy. ATI includes a range of additional sources of income, such as particular fringe benefits, net investment losses and reportable superannuation contributions, and will have a particularly pronounced effect on individuals and families that make greater use of these forms of income.

Analysis has been undertaken to estimate a direct median household income score for each non-government school using personal income tax data linked to student addresses for both total income and ATI. The results indicate that the scores using both total income and ATI are highly correlated, providing confidence in the use of ATI.

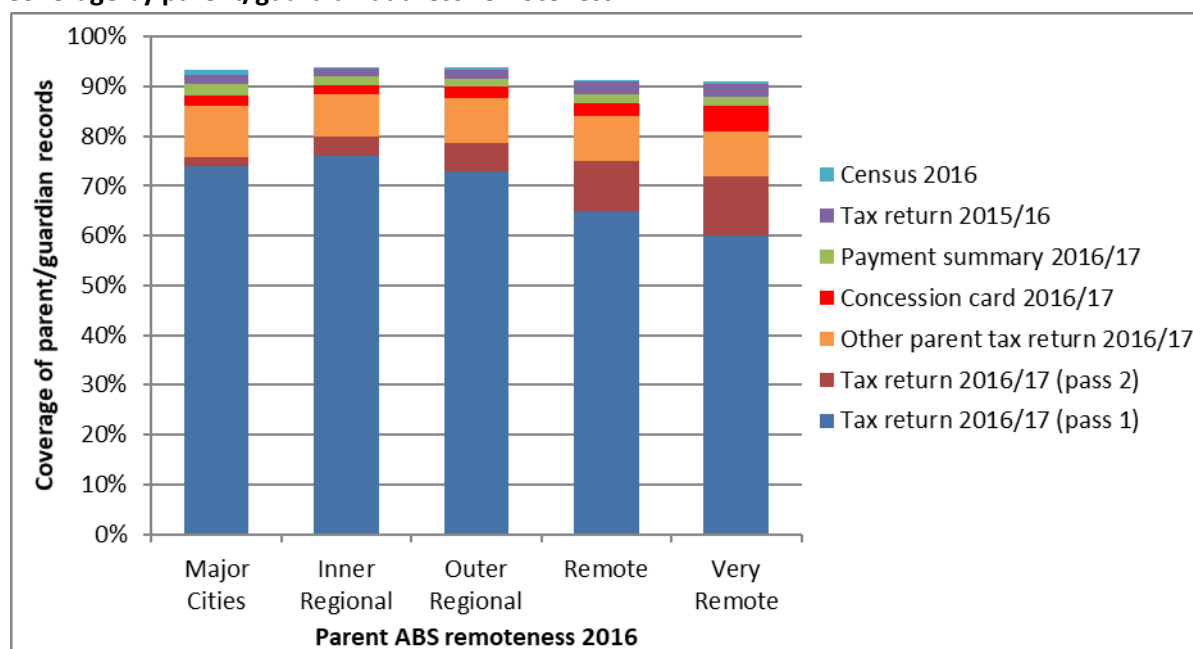
### Linking on parent/guardian names and addresses improves coverage for rural and remote regions

The National School Resourcing Board's analysis used data from the 2017 student address collection that linked on student address only. Addresses that failed to geocode to an ABS address register identifier were not linked and subsequently excluded from the school population when calculating the median income. The Board's analysis indicated regional addresses were more likely to be excluded due to a failure to find an exact match.



The 2018 and 2019 address collections included both names and addresses for parents/guardians of students at a given school. Collecting and linking based on parent/guardian names provides additional options for linkage, notably to broaden the location constraint (i.e. expand the geographical area we are attempting to match within) allows linkage of these addresses to MADIP if the parent/guardian's name is unique in the area (pass 2).

#### Coverage by parent/guardian address remoteness



#### Using supplementary data to improve coverage and reduce bias in missed links

The 2019 address and other information collection collected name and address records of 2.5 million parent/guardians for 1.3 million students attending non-government schools across Australia. Schools were required to submit at least one and at most two parents/guardians for each student at the school. Only one parent was submitted for 6 per cent of students.

Of the 94 per cent of students where two parent/guardian records were submitted, 63 per cent had both parents/guardians successfully linked to 2016-17 tax return, 19 per cent had one parent linked and the other not linked, and 12 per cent had both parents/guardians not linked.

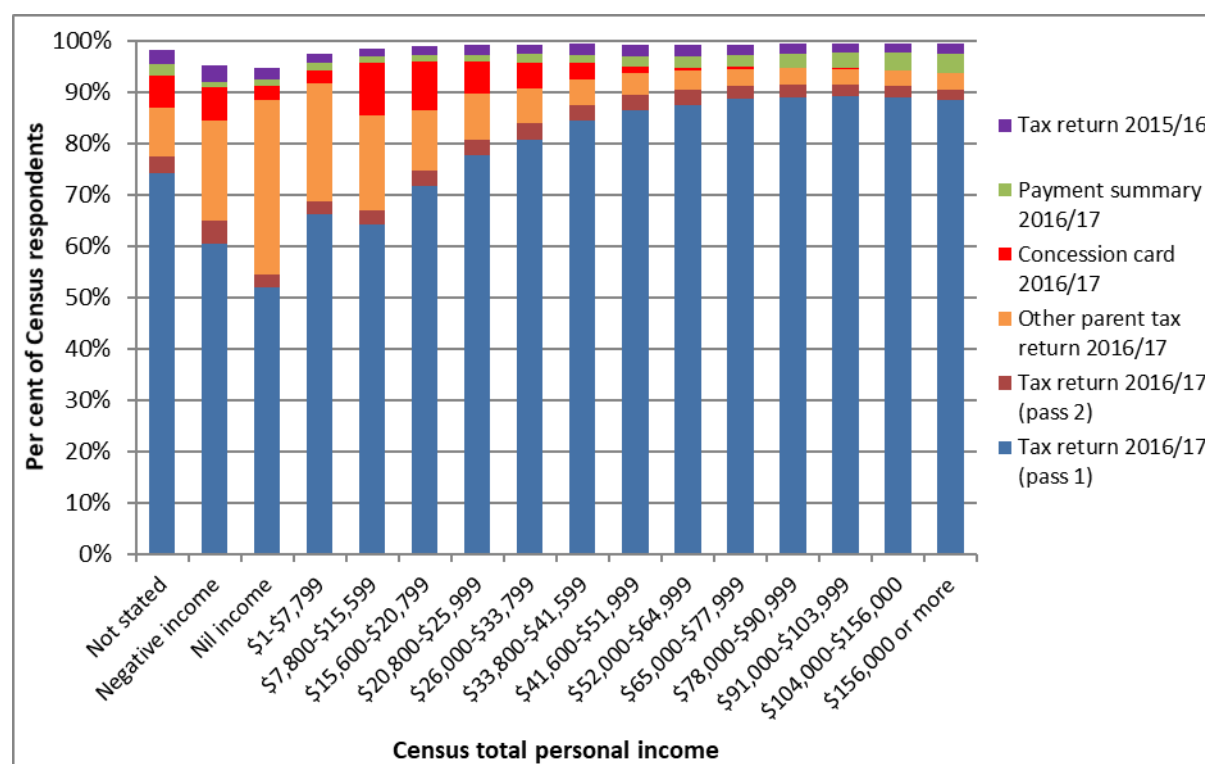
The ability to link on parent/guardian names using the 2018 and 2019 address collection has provided access to a range of additional data sources within the MADIP environment that can be used when a personal income tax record is not found. This has a dual effect of improving coverage and reducing bias in missed links.

Spouse reported income from one parent's tax return controls for bias in favour of dual income families where only one parent is linked; using the existence of a low-income concession card to control for bias against low income individuals that are not required to submit a tax return; and using Pay As You Go (PAYG) and previous year tax returns to capture individuals who submitted their tax return late, with analysis indicating that these individuals are more likely to be in the higher income range.

To understand the impact of these supplementary data items, the department analysed the characteristics of missing parent/guardian records from personal income taxation data against the 2016 Census of Population and Housing.

The chart below shows the per cent of Census respondents by total personal income as reported on the Census. Parents who reported lower income in the Census are more likely to be missing from personal income tax. The use of concession card data provides significant improvement in coverage for those in low-income brackets whilst PAYG improves coverage of mostly moderate to high-income individuals.

**Per cent of Census respondents by 2016 Census total income range**



## Reducing volatility

While the use of a direct measure of capacity to contribute is more accurate and reliable than the current area-based methodology, stakeholders have raised concerns around volatility of such a measure. Funding volatility could have an impact for some schools, however, this is an expected result of a responsive, direct measure.

In its report, the Board recommended the calculation of a rolling average for a stable direct measure of median parent and guardian income for a school (Recommendation 4) and found that three years' of data should be used at a minimum. The Technical Working Group and broader stakeholder consultation have supported the use of a rolling average.

The Technical Working Group also noted that using a three year rolling average of scores (rather than median incomes) to calculate the rolling average would reduce volatility and provide schools with greater transparency including the likely trend in the following year.

Analysis indicates that after applying a three year rolling average, CTC scores for the vast majority of schools would be stable over time, however CTC scores of some very small school would still be volatile. Between the 2018 and 2019 single year DMI scores, 14 small schools characterised as having less than 200 students changed by more than 6 points, which means CTC scores for these schools could change by more than two points year on year. To provide additional stability on top of the rolling average, CTC score changes for small schools will be capped at two points from 2022.

The Board intended that their preliminary DMI scores based on 2017 addresses could be used in the calculation of the three year rolling average for 2020. However, the 2017 dataset collected student addresses only, whereas the 2018 and 2019 datasets include parent and/or guardian names and addresses. Incorporating the 2017 DMI scores based student addresses only and no concession card data may reduce the accuracy of the measure. For 2020, only two years of linked parent data will be used to calculate the rolling average for those schools where it is financially beneficial for them to transition onto the direct income measure.

## Appendix 1 – Calculation of median income

The direct measure of income is based on the median income of parents or guardians at the school.

Parent/guardian income is based on the first direct source available in MADIP from the list below:

- adjusted taxable income (ATI) from tax returns of the relevant financial year
- other linked parents' reported spouse ATI from their tax returns, if greater than zero
- pay as you go (PAYG) gross income from payment summaries, if greater than zero
- Pensioner Concession Card or Health Care Card information (excluding foster child and carer allowance), impute zero income
- ATI from previous year tax return indexed by the wage price index.

Using these direct income sources brings overall coverage rate of each state and territory to at least 85 per cent, with the majority of states between 90 and 95 per cent.

## Overall parent/guardian coverage by state and territory (2019 cohort linked to 2016-17 MADIP)

