Australian Bureau of Statistics

CAPACITY TO CONTRIBUTE: INTRODUCTION TO INCOME EQUIVALISATION

Direct measure of income refinement working group paper

March 2021

CAPACITY TO CONTRIBUTE: INTRODUCTION TO INCOME EQUIVALISATION

Introduction

1. The Australian Bureau of Statistics (ABS) has been engaged by the Department of Education, Skills and Employment (DESE) to investigate the fitness-for-purpose of data and methods for incorporating family composition into a refined Direct Measure of Income (DMI) methodology.
2. Family composition – that is, family size and structure – is not currently accounted for in the DMI methodology for Capacity to Contribute (CTC). However, under the current policy framework, average family size at a school may be considered as part of the CTC review process [1]. Consideration of family composition in the review process is consistent with the treatment of family composition under the previous Socio-Economic Status (SES) methodology for CTC.
3. This paper describes how family composition is typically taken into account in measures of income, known as income equivalisation, and outlines the analysis the ABS will undertake as part of this engagement. This includes:
    - examining the fitness-for-purpose of available family composition data;
    - considering the available income data and its limitations for the purposes of equivalisation;
    - if feasible, creating and examining scores based on equivalised income; and
    - examining the impact of missing data on those scores.
4. The ABS will present the results of the investigation at the April DMI Refinement Working Group meeting.

What is income equivalisation?

5. As family size increases, consumption needs also increase, but there are economies of scale. Income equivalisation represents an adjustment to family or household incomes that takes account of the economies of scale that flow from sharing resources, and enables more meaningful comparison of relative economic wellbeing across different types of families. For example, if two families had the same income, but were of different size, the smaller family would be considered to have a greater relative economic wellbeing (holding other factors constant) [2].
6. ABS and other National Statistical Organisations (NSOs) typically equivalise household and family incomes in their official statistics. [3] [4]
7. For CTC, using an equivalised family income, should such an approach prove fit-for-purpose, would allow the different composition of families to be taken into account in the calculation of a school's median income.
8. Equivalised income is calculated by adjusting family or household income using an equivalence scale. Equivalence scales assign each family or household member a value or weight.

9. There has been considerable research into appropriate values for equivalence scales, however no single standard has been found to fit all situations. Many factors have been considered in the literature on equivalisation, such as the number of adults and children in the family, the ages of children (older children require more resources than younger children) as well as other factors such as the cost of or expenditure on consumption
10. The ABS, as well as other statistical agencies such as Statistics New Zealand [5], Eurostat [6] and the United Kingdom's Office for National Statistics [7], use the 'modified OECD' equivalence scale to equivalise incomes in official statistical publications.
11. The 'modified OECD' equivalence scale allocates points to each person in a family or household. Taking the first adult as having a weight of 1 point, each additional person over the age of 15 years is allocated 0.5 points and each child under the age of 15 years is allocated 0.3 points. 'Equivalised income' is derived by dividing the total family or household income by a factor equal to the sum of the equivalence points. Table 1 provides an example of how this is done.

Table 1: Income equivalisation for households of different composition.

Family composition	*Total family income*	*Equivalence factor*	*Equivalised income*
 *Lone person*	$100,000	1	$100,000 ÷1 = $100,000
 *Two adults and two children under 15 years*	$100,000	1 + 0.5 + 0.3 + 0.3 = 2.1	$100,000 ÷ 2.1 = $47,619
 *Two adults and four children under 15 years*	$100,000	1 + 0.5 + 0.3 + 0.3 + 0.3 + 0.3 = 2.7	$100,000 ÷ 2.7 = $37,037

Incorporating family composition into the DMI methodology

12. As part of investigating the fitness-for-purpose of data and methods to account for family composition in a refined DMI methodology, ABS will undertake analysis in the following four areas:
    - the fitness-for-purpose of available data on family composition;
    - the fitness-for-purpose of income data for members of the CTC population in the DMI methodology;
    - an analysis of scores based on equivalised income; and

- the impact of missingness on scores based on equivalised income.

13. ABS will investigate available data sources for information about family members including their ages and compare the possibility of deriving family composition (for example, the number of adults, dependent children 15 and over and dependent children under 15 in the family), from those data sources. The data sources include the Address Collection, Australian Taxation Office (ATO) data, DOMINO Centrelink Administrative data and Census of Population and Housing (Census) data.
14. Each data source has limitations in determining family composition. The limitations include the differences in the definition of dependent children in the data sources, the timeliness and frequency of the data sources, in particular, that of the Census, and the extent to which data are available for members of the CTC population. For example, it is likely that information about dependants is available for some members of the CTC population in taxation data, for others in DOMINO data, and for others, such as those who do not link to MADIP, the only information available may be from the Address Collection. ABS will assess the coherence and fitness-for-purpose of each data source and provide recommendations regarding their possible use in a refined DMI methodology.
15. The standard approach to income equivalisation is based on the total family income within a household, which includes income from all related members of the household, including grandparents, adult children and non-dependent children. However, under the DMI methodology, income information is only available for up to two parents or guardians in a family and therefore, the standard household income equivalisation approach may not be appropriate for CTC.
16. Another complication for CTC is that in some cases the parents or guardians of students do not reside in the same house. In such cases there is limited information available about other income earners and dependants who may reside in the respective households. There is also limited, if any, information available about the proportion of time a child spends living with each parent, or the proportion of financial responsibility each parent has for the child. Therefore, a particular challenge in assessing the feasibility of income equivalisation in the DMI methodology is determining how to treat circumstances of shared care of a child or children.
17. If feasible, given the limitations noted above, the ABS will produce school DMI scores incorporating equivalised income into the DMI methodology. ABS will assess the extent of changes to school scores and will investigate the sensitivity of school scores to missing data.

Next steps

18. ABS will present the key findings of analysis into family size and income equivalisation to the DMI Refinement Working Group at the April meeting.

References

[1] For more information about the CTC review process, see the fact sheet 'What is the Capacity to Contribute review process?' available at: https://www.education.gov.au/what-capacity-contribute-review-process.

[2] For more information regarding income equivalisation, see the ABS fact sheet 'Understanding measures of income and wealth'.

[3] ABS Publication: Household Income and Wealth, Australia
https://www.abs.gov.au/statistics/economy/finance/household-income-and-wealth-australia/latest-release

[4] Canberra Group Handbook on Household Income Statistics – Second Edition (2011)
https://unstats.un.org/unsd/EconStatKB/KnowledgebaseArticle10347.aspx

[5] Stats NZ Household income and housing-cost statistics: Year ended June 2020:
https://www.stats.govt.nz/information-releases/household-income-and-housing-cost-statistics-year-ended-june-2020

[6] Eurostat Statistics Explained:
https://ec.europa.eu/eurostat/statistics-explained/index.php/Glossary:Equivalised_disposable_income

[7] Household income inequality, UK: financial year ending 2020:
https://www.ons.gov.uk/peoplepopulationandcommunity/personalandhouseholdfinances/incomeandwealth/bulletins/householdincomeinequalityfinancial/financialyearending2020#analysis-of-income-inequality