




Australian Government
Commonwealth Grants Commission

2025 Methodology Review

Socio-economic status
consultation paper

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CONTENTS

Overview of category	4
Current assessment method – 2020 Review	4
Data used in the assessment	5
Assessing socio-economic status	5
GST distribution in the 2023 Update	5
What has changed since the 2020 Review?	6
New data have become available, and the Commission has identified an alternative approach	6
Implications for assessment	7
Should the Commission use an annual measure of socio-economic status for non-Indigenous Australians?	7
Is the 2021 census a reliable indicator of socio-economic status?	9
Proposed assessment	9
Differences from the 2020 Review approach	9
New data requirements	9
Consultation	10
Appendix 1: An area-based measure of socio-economic status from MADIP	11
Is an annual measure of socio-economic status available?	11

Overview of category

- 1 Socio-economic status encompasses a person's income, education, employment and other social experiences. Collectively these influence a person's health and wellbeing, and outcomes in other aspects of their lives.
- 2 State governments provide some services exclusively for people of lower socio-economic status, such as public housing and concessions. Other services, such as hospitals, are provided universally, but people of low socio-economic status use these services more frequently or at a higher cost to states.
- 3 Measuring socio-economic status is important for the Commission because it is a significant driver of state expenditure needs. It is used in 6 expense assessments and flows through to the investment assessment.

Current assessment method – 2020 Review

- 4 The ABS produces Socio-Economic Indexes for Areas (SEIFA), which is widely used as the predominant measure of socio-economic status in Australia.¹
- 5 The First Nations population is a very small proportion of the population in most of Australia. The SEIFA score for an area does not necessarily reflect the socio-economic status of the First Nations population in that area. Therefore, the Commission uses a First Nations specific area-based measure of socio-economic status, the Indigenous Relative Socio-Economic Outcomes index, produced by the Centre for Aboriginal Economic and Population Research at the ANU. For the non-Indigenous population, the Commission has replicated SEIFA for the non-Indigenous population (Non-Indigenous SEIFA).
- 6 Both Non-Indigenous SEIFA and the Indigenous Relative Socio-Economic Outcomes rank the socio-economic status of all areas in Australia from most disadvantaged to least disadvantaged. Each area in Australia can then be classified into one of 5 quintiles, each with 20% of the national population. Several of the Commission's expense assessments then measure the national average state spend on people in each quintile for each service and apply that to the population in each state in each quintile. This is done as part of a disaggregated matrix using additional socio-demographic variables.
- 7 For example, states' hospital spending is influenced by socio-demographic variables. On average, in 2021-22, states spent \$691 more on a 0-14 year old non-Indigenous major city resident in the most disadvantaged quintile of non-Indigenous SEIFA compared to the least disadvantaged quintile. The Commission applies these

¹ SEIFA includes a suite of 4 indexes. The Commission uses the Index of Relative Socio-economic Disadvantage. Throughout this paper, unless otherwise specified, the term SEIFA is used to refer to this index.

differences in spend rates to the relevant population in each state for these and other groups. It uses this to calculate a total assessed need for hospital spending.

- 8 Socio-economic status is measured in slightly different ways in the Commission’s schools and social housing assessments. In schools, the Australian Curriculum Assessment and Reporting Authority produces a measure of the socio-educational advantage of individual students based primarily on parental attributes. The Commission uses this measure in its regression. In the housing assessment, the Commission uses census data on household equivalised income.²

Data used in the assessment

- 9 Non-Indigenous SEIFA and the Indigenous relative socio-economic outcomes indexes are produced from the 5-yearly census of population and housing.

Assessing socio-economic status

- 10 Socio-economic status is a driver in 6 expense assessments. In 2021-22, the components that incorporated socio-economic status included \$169 billion of state spending, or 58% of total state recurrent spending.

Table 1 Expenses assessed using socio-economic status

	2017-18	2018-19	2019-20	2020-21	2021-22
	\$b	\$b	\$b	\$b	\$b
Schools	34	36	38	38	41
Post-secondary education	6	6	6	7	6
Health	64	68	71	77	86
Housing	2	2	2	3	4
Welfare	6	6	7	8	8
Justice	18	20	21	22	23
Total	130	138	145	154	169
Proportion of total expenses (%)	60	62	60	59	58

Source: Commission calculation, 2023 Update.

GST distribution in the 2023 Update

- 11 Table 2 shows the estimated GST impact (difference from equal per capita) of socio-economic status within the various assessments. Socio-economic status distributed \$1,054 million (\$40 per capita) away from an equal per capita distribution in the 2023 Update.³
- 12 The influence of socio-economic status among First Nations people reduces the GST received by the Northern Territory. This may appear counterintuitive, as a large

² This is household income adjusted for the composition of the household.

³ Because socio-economic status is assessed as part of a broader assessment of remoteness, Indigenous status, and age, the allocation of the combined effects to one of these individual drivers reflects the Commission’s analytical framework.

share of the most disadvantaged First Nations people in Australia live in the Northern Territory. This outcome arises because the influence of socio-economic status among First Nations people measures the difference in GST distribution that is not attributed to either the size or the remoteness of that population.

Table 2 GST impact of the assessment of socio-economic status

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total effect
	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m
310 Schools	26	-234	162	-25	22	63	-81	67	340
320 Post-secondary education	-14	5	10	-4	24	1	-16	-5	39
410 Health	-9	-5	115	-88	318	37	-157	-213	471
510 Housing	-13	-1	-7	-5	39	2	-20	4	45
520 Welfare	23	-30	14	-37	41	18	-27	-3	97
610 Justice	35	-58	31	-38	121	-7	-68	-17	188
Socio-educational advantage	26	-234	162	-25	22	63	-81	67	340
Socio-economic status among First Nations people	45	-52	-13	69	46	-70	-7	-18	160
Non-Indigenous socio-economic status	-23	-37	176	-242	497	121	-281	-216	796
Total	48	-323	325	-198	564	114	-370	-166	1,054
Total (\$pc)	6	-48	60	-70	304	194	-785	-639	40

Note: Commission calculation, 2023 Update.

What has changed since the 2020 Review?

New data have become available, and the Commission has identified an alternative approach

- 13 The Multi-Agency Data Integration Project (MADIP) is coordinated by the ABS and involves personal data from a range of mostly Commonwealth agencies being linked together. It relates the attributes of individuals as measured by the census, the Department of Social Services, the Australian Tax Office, Medicare, the Pharmaceutical Benefits Scheme and other datasets. Data developed through this project have matured significantly and become more accessible since the 2020 Review. This data environment allows for the individual records of all Australians from a range of datasets to be linked. It is now possible to relate the attributes of people as identified in tax, social security, Medicare, Pharmaceutical Benefits Scheme, census and other datasets.
- 14 Data from MADIP offer the potential to produce a more contemporaneous (i.e., annual) measure of socio-economic status. They also allow for more detailed analysis of issues affecting socio-economic status.

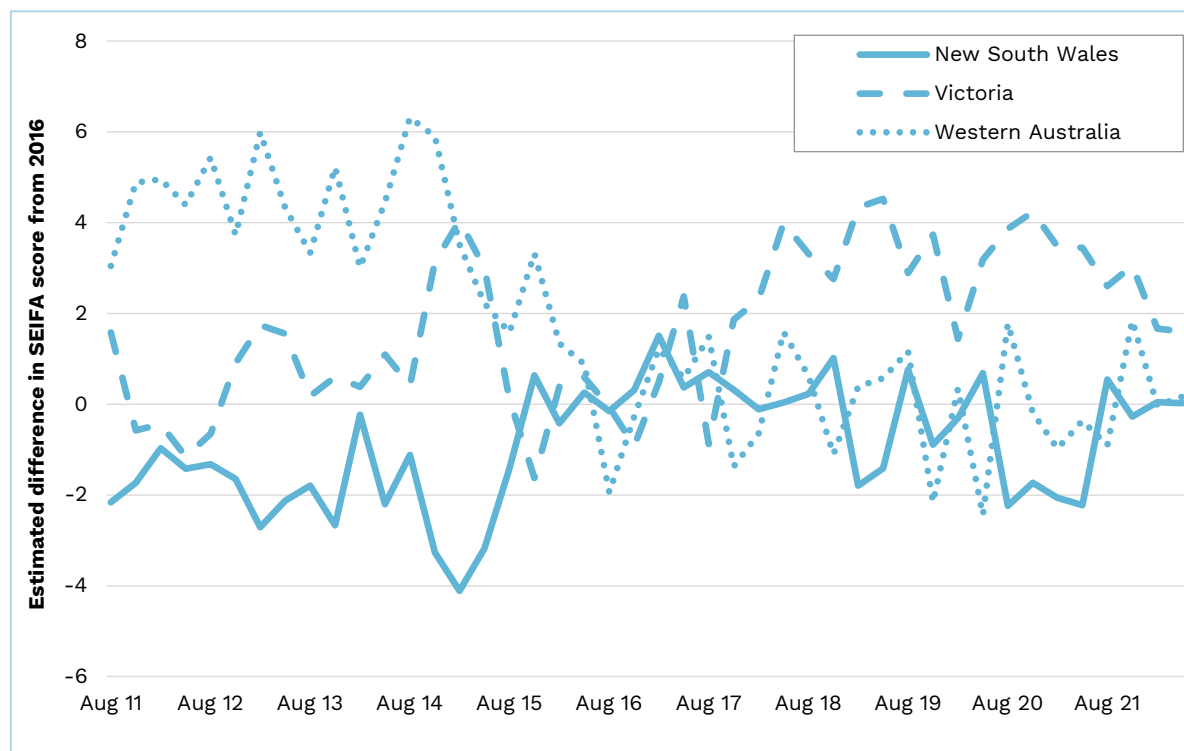
Implications for assessment

- 15 The Commission has identified one issue for consideration.
- Based on the newly available MADIP data, should the Commission use an annual measure of socio-economic status?
- 16 The Commission has also investigated and found that the 2021 census indicators of socio-economic status were not affected by lockdowns. As such, they could continue to provide a reliable indicator of socio-economic status if an alternative, annual, measure is not adopted in this Review.

Should the Commission use an annual measure of socio-economic status for non-Indigenous Australians?

- 17 The SEIFA score of an area at census time is not necessarily a good indication of the likely score over the next 5 years. This raises questions about whether a five-yearly census appropriately reflects state circumstances in each assessment year.
- 18 Each SEIFA point equates to an estimated \$7 per capita in GST. For illustrative purposes only, it is plausible that the average SEIFA score across Western Australia could have been 4-6 points higher had a census been run between 2011 and 2014 than when it was run in 2016 (Figure 1). Similarly, economic conditions in Victoria improved after 2016, so its average SEIFA score could have been up to 4 points higher had a census been run in 2018 to 2020 than in 2016.

Figure 1 Estimated quarterly change in SEIFA points, selected states



Source: Commission calculation using ABS labour force survey data.

- 19 The Commission has identified an approach using MADIP data that combines 3 measures of socio-economic status. It is based on the proportion of non-Indigenous people in an area that receive selected Department of Social Services pensions, that have a prescription for certain lifestyle-related conditions, and that have high incomes. This combined measure predicts independent outcomes driven by socio-economic status with about the same accuracy as census based measures in the census year. It is available annually, and in intercensal years represents a better measure of socio-economic status. The Commission's alternative approach to measuring socio-economic status for the non-Indigenous population is described in more detail in Appendix 1.
- 20 The Commission is in discussions with the ABS about this alternative measure. Commission staff intend to engage with states from July 2023 to explain the approach in detail and to get feedback on any concerns and suggestions for improvement. ABS formal feedback will not be available to inform tranche 1 state submissions, but will be available as part of ongoing consultation with states on the development of this assessment.
- 21 The Commission has not developed a similar measure for First Nations people. It would need to do this in consultation with First Nations people, and the Commission has not yet received the required approval to use First Nations specific data sets. Until such a measure is developed, the ANU Centre for Aboriginal Economic and Population Research's Indigenous Relative Socio-Economic Outcomes measures remains the most reliable measure of socio-economic status for First Nations people. This measure would only be updated five-yearly with census data.
- 22 The Commission's preliminary view is that an annual measure of socio-economic status for non-Indigenous people, using the specification in Attachment 1, will provide more contemporaneous data for its assessments. Subject to the results of analysis on the 2021 Census based MADIP (when available), feedback from the ABS, and in consultation with states, the Commission proposes to use an annual measure of socio-economic status similar to Attachment 1. The Commission will keep states informed of the results of further analysis and the ABS feedback as this information becomes available.

Consultation question

- Q1. Do states agree that an annual MADIP-based measure of socio-economic status for non-Indigenous people has the potential for a more contemporaneous assessment?

Is the 2021 census a reliable indicator of socio-economic status?

- 23 If the Commission does not adopt an annual measure of socio-economic status, it will be important to know whether lockdowns affected 2021 SEIFA.
- 24 To test this, the Commission used the ABS's labour force survey to produce quarterly estimates of the average SEIFA score in each state. This approach tracks changes in the employment, education and some family variables from SEIFA. While employment patterns during lockdown were different to those outside lockdown periods, this did not affect the specific variables used in SEIFA. There are no identifiable differences in the average SEIFA score of any states in August 2021 compared to other periods (Figure 1). The quarterly variability during the COVID-19 period cannot be readily distinguished from other periods. This is also true of the 8 individual indicators that make up SEIFA and that can be measured quarterly.
- 25 Based on this analysis, the Commission considers that SEIFA data have not been significantly impacted by COVID-19 lockdowns.

Proposed assessment

Differences from the 2020 Review approach

- 26 The Commission's preliminary view is to change the assessment of socio-economic status to use an annual measure for the non-Indigenous population using data from MADIP.
- 27 Socio-economic status of an area will continue to be used as under the 2020 Review methods. It will continue to be classified into one of 5 quintiles. Only the way it is calculated for the non-Indigenous population would be changed.

New data requirements

- 28 No new data are required from states. The Commission has used the 2016 based MADIP for its exploratory work. It intends to replicate these methods using the 2021 based MADIP for each year in the period of the 2025 Review.

Consultation

29 The Commission welcomes state views on the consultation question identified in this paper (outlined below) and the proposed assessment. State submissions should accord with the 2025 Review framework. States are welcome to raise other relevant issues with the Commission.

Q1. Do states agree that an annual MADIP-based measure of socio-economic status for non-Indigenous people has the potential for a more contemporaneous assessment?

Appendix 1: An area-based measure of socio-economic status from MADIP

Is an annual measure of socio-economic status available?

- 30 Socio-economic status can vary significantly within the 5-year life of the SEIFA indexes. The Commission has examined whether data available through MADIP can produce a reliable measure of socio-economic status for small areas.
- 31 The Commission has identified 2 criteria that any possible measures should meet.
- They need to draw on sufficiently prevalent attributes to produce reliable measures. Very rare attributes are subject to high levels of random volatility, and therefore cannot reliably reflect levels of disadvantage.
 - They must not reflect accessibility of service provision. For example, there are measures of poor health outcomes identifiable from Medicare data with a relationship to socio-economic status. However, use of Medicare services also varies based on proximity, cost and wait-time barriers to accessing bulk billing and non-bulk billing doctors, and hospital emergency departments. These barriers vary across the country, and so prevent Medicare service use from being a consistent measure of socio-economic status.
- 32 The Commission has identified 3 measures available from MADIP data that, when taken together, appear to reliably measure socio-economic status. These are discussed individually below. Each measure is available annually and for statistical area 1.⁴

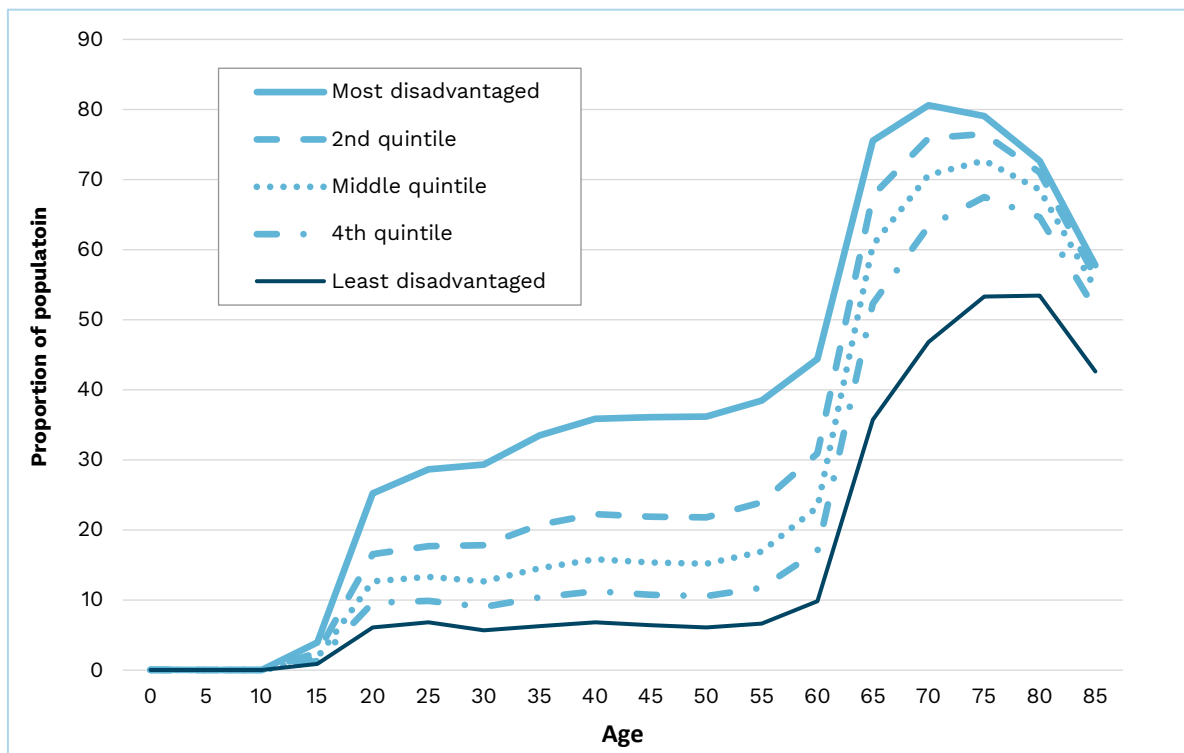
Population receiving selected income support payments

- 33 The Commission has identified 6 income support payments that strongly correlate with other measures of disadvantage and has used those payments in its possible indicator. These payments are:
- Age pension
 - Youth allowance
 - Newstart allowance
 - Disability support pension
 - Single parent payment
 - Partnered parent payment
- 34 Other payments, including Austudy and family tax benefit part B, include eligibility criteria that reflect advantage, or are not strongly correlated with disadvantage. As such, these payments have not been included in the Commission's measure.
- 35 Receipt of income support payments is strongly correlated with age. To ensure that an area is not misclassified because it has an atypical age structure, the

⁴ Australia is divided into 57,523 Statistical Area 1s, with an average population of approximately 400. This is the level of geography the ABS uses to calculate SEIFA.

Commission has age standardised this, and other indicators. Its measure of the socio-economic status in an area is the number of people receiving a selected payment divided by the number that would be expected if the people in that area received those payments at the national rate for their age group (Figure A1).

Figure A1 Population receiving selected income support payments by SEIFA quintile and age



Source: Commission calculation using social security data from MADIP.

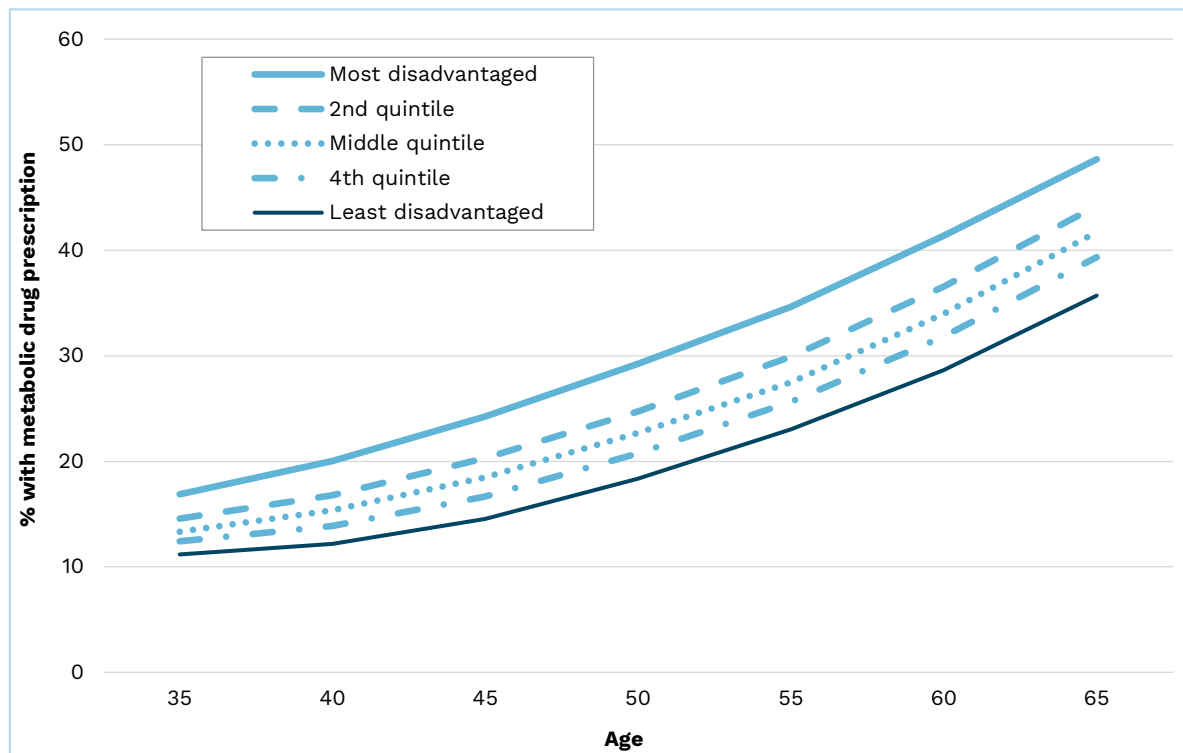
Population receiving prescription medication for alimentary tract and metabolism related disorders

- 36 Drugs for alimentary tract and metabolism related disorders includes medications for diabetes and other lifestyle related conditions that are recognised in the literature to have a strong relationship with socio-economic status.⁵
- 37 As with income support payments, there is a strong relationship with age. At very young ages and very old ages, the relationship with socio-economic status decreases. At young ages, lifestyle-related drivers become less important as determinants of the conditions treated by these drugs. The optimal indicator appears to be using the age standardised prescription rate among people aged 35 to 64 (Figure A2).
- 38 There should be minimal bias from differential access or ability to pay for these prescriptions. This is because access to the Pharmaceutical Benefits Scheme is

⁵ AIHW. (2023). Diabetes: Australian Facts. Canberra: AIHW.

universal, regardless of whether a prescription is generated through a general practitioner, a hospital or other health setting.⁶

Figure A2 Population proportion prescribed alimentary canal and metabolic drugs by SEIFA quintile and age



Source: Commission calculation using Pharmaceutical Benefits Scheme data in MADIP.

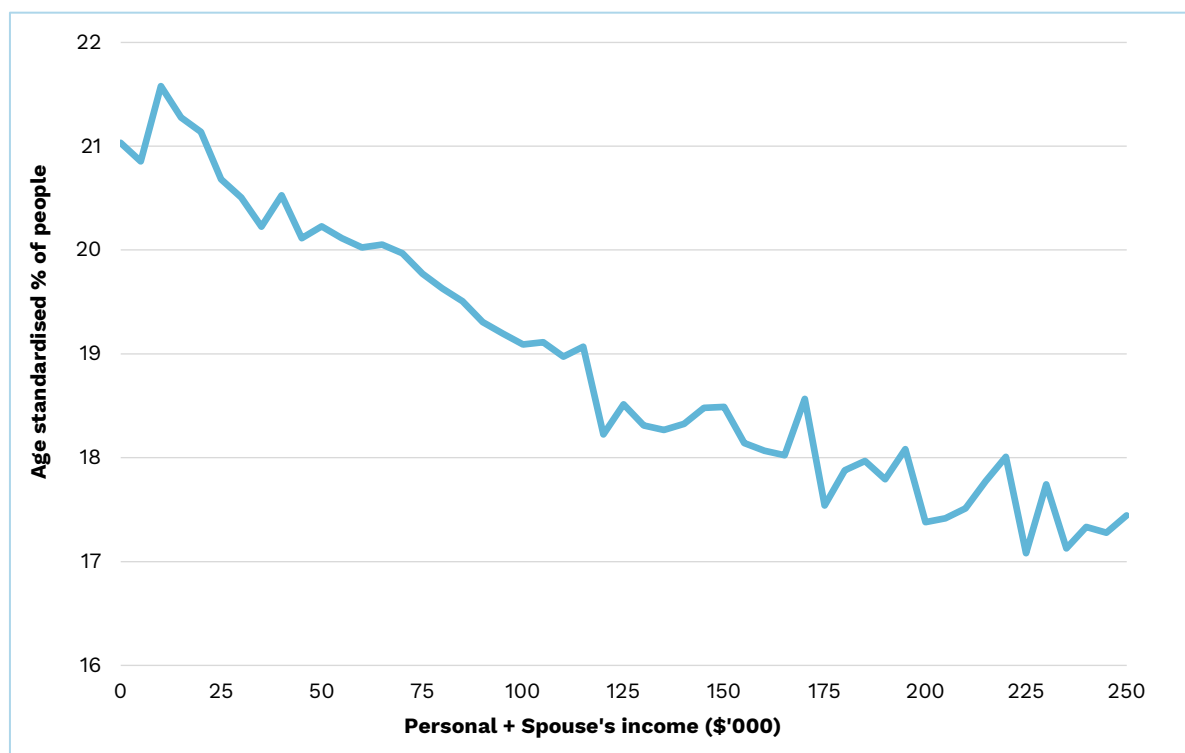
Couple income over \$200,000 per annum

- 39 Socio-economic determinants of health are not simply about the prevalence of disadvantage in a community. Socio-economic status is a continuum, and the incidence of poor health and other outcomes gradually decreases with increasing income, or education or any other aspect of socio-economic status. An area with a low proportion of high-income earners has lower socio-economic status than an area with a high proportion. Because many low-income earners are not required to submit tax returns, Australian Taxation Office data are not effective at measuring low socio-economic status. However, they are effective at distinguishing between medium and higher levels of socio-economic status.
- 40 The Commission has found that couple income is more strongly correlated with other measures of socio-economic status than personal income.⁷ Dividing income into above or below \$200,000 per year provides a highly effective cut-off, giving a sufficiently large sample of high-income earners, and having a strong correlation with other measures (Figure A3).

⁶ The level of subsidy does vary with Concession card holders receiving low-cost prescriptions. However, access is universal, with all Australians prescribed these drugs receiving some subsidy.

⁷ This is couple income for individuals in a relationship for tax purposes, and individual income for others.

Figure A3 Couple income and the prescription rate for metabolic prescriptions



Source: Commission calculation using Tax office data from MADIP.

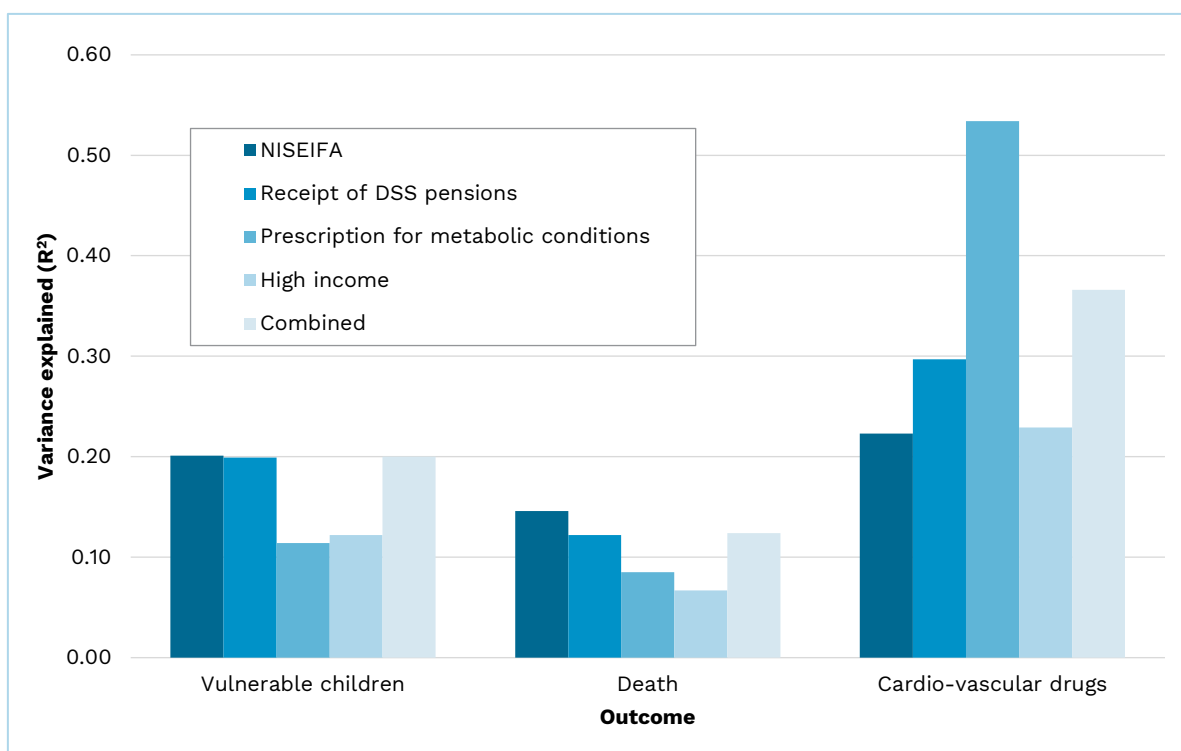
How proposed measures compare with SEIFA in predicting service use

- 41 While each of the proposed measures appears to reflect socio-economic status to some extent, it is possible to combine them using the same principal components analysis that the ABS uses to produce SEIFA. This extracts the element that all 3 measures have in common. Using all three measures effectively increases the sample size used to measure that concept.
- 42 The Commission has used 2016 data to test how well the various indicators predict socio-economic outcomes in that year.
- 43 MADIP contains other measures of socio-economic outcomes. Because of the small numbers of people involved, these measures are too variable to be used as indicators of socio-economic status for small areas. They are still valuable to validate the proposed indicators.
- 44 The Australian Early Development Census asks teachers in the first year of full-time education to assess their students against a range of criteria, and determine which children are vulnerable in a range of domains. Most statistical area 1s typically only contain a very small number of 5-year-olds, and the number of those that are vulnerable across two or more domains is highly variable. Therefore, this indicator cannot be used directly to measure socio-economic status. However, the proportion of people receiving income support payments can explain as much variance in this measure as Non-Indigenous SEIFA. The fact that both can only explain 20% of

variance (A4) is largely because of the highly variable nature of this indicator, being based on very small numbers.

- 45 The number of deaths in an area, having accounted for the age structure of the area, is a widely used proxy for the health needs of an area. Once again, variability in this indicator reflects the low number of deaths for most age groups, and in total. Non-Indigenous SEIFA is a better predictor of non-Indigenous deaths than any of the MADIP measures.
- 46 As with metabolic and alimentary canal drug use, cardio-vascular drug use has a relationship with socio-economic status. The proposed indicators all out-perform Non-Indigenous SEIFA as predictors for cardio-vascular drug use. However, the fact that metabolic and alimentary canal drug use is highly effective at predicting cardio-vascular drug use may reflect the co-morbidity of certain conditions and so this relationship should be treated with caution. The other MADIP indicators out-perform Non-Indigenous SEIFA for this outcome.
- 47 The 3 MADIP -based measures, and a fourth measure based on a combination of all 3, are highly effective at predicting independent elements of socio-economic status, across the young (Australian early development census), middle to older ages (cardio-vascular drug use) and the aged (death).⁸

Figure A4 Predictive power of various indicators of socio-economic status, 2016



Source: Commission calculation using Multi-Agency Data Integration Project data.

⁸ The first principal component of the three individual indicators.

48 The above analysis showed that when Non-Indigenous SEIFA is at its most relevant (in the year it references) it can perform about as well as the MADIP indicators: marginally better on some measures, marginally worse on others. However, when SEIFA is more dated, it performs slightly worse, and potentially with a state bias. The Commission's preliminary view is that it should use a MADIP based indicator to best reflect the state circumstances in each assessment year.