



# Understanding Regional Data: Socio-Economic Indexes for Areas (SEIFA)

**Socio-Economic Indexes for Areas (SEIFA)** summarises the socio-economic characteristics of regions. It ranks areas, providing a mechanism to consider the differences in socio-economic factors between regions such as neighbouring suburbs or regional towns.

The Australian Bureau of Statistics (ABS) produces SEIFA. This factsheet provides an overview of how SEIFA is constructed and how to use and interpret the indexes.<sup>1</sup>



## What is SEIFA?

SEIFA is a group of four indexes that provides a relative measure of socio-economic advantage and disadvantage for small areas. It has been used to determine which areas require funding and services, to identify new business opportunities, and to support research on the relationships between socio-economic disadvantage and social outcomes. The ABS broadly defines advantage and disadvantage based on people's access to material and social resources, and their ability to participate in society. For more information, see: [Socio-Economic Indexes for Areas \(SEIFA\): Technical Paper](#).

The indexes are designed to reflect a summary of the area, not individual circumstances, and as such there may be relatively disadvantaged individuals living in an area with a relatively high SEIFA score. SEIFA combines Census data such as income, education, employment, occupation, housing and family structure to summarise the socio-economic characteristics of an area.

As SEIFA is constructed at a small area level, differences can be observed between adjacent locations. Each area is

given a SEIFA score (and rank) for each index, enabling comparison between areas. The four indexes provide a different socio-economic focus, so the same area can have a different score or rank between indexes.



## About the data

The indexes are built using Census data with results released every five years. The latest SEIFA data was released in 2023, based on the 2021 Census data.

The four SEIFA indexes are:

- Index of Relative Socio-Economic Disadvantage (IRSD)
- Index of Relative Socio-Economic Advantage and Disadvantage (IRSAD)
- Index of Economic Resources (IER)
- Index of Education and Occupation (IEO)

A description of each index is provided at the end of the factsheet. The most recent SEIFA datasets are available for download on the [ABS website](#). They can also be accessed through the ABS online tool [TableBuilder](#). SEIFA is also available as a web service for each of the four indexes through [ABS StatMaps](#).

## Geography

SEIFA indexes are produced for five geographical areas, using the Australian Statistical Geography Standard (ASGS) Edition 3 (2021)<sup>2</sup>:

- Statistical Areas Level 1 (SA1)
- Statistical Areas Level 2 (SA2)
- Local Government Areas (LGA)
- Suburbs and Localities (SAL)
- Postal Areas (POA)

SEIFA is designed to be a small-area data source, primarily intended for analysis at the SA1 level. For the other geographical areas listed above, SEIFA scores are calculated using population weighted averages of the SA1 scores within each area. SEIFA data enables observation of socio-economic differences between individual towns and communities across urban and rural settings. These differences would not be apparent at a larger geographical scale.

<sup>1</sup> This factsheet draws on advice from the ABS website.

<sup>2</sup> See BCARR's [Understanding statistical geography](#) in this series.



## Principal Component Analysis

SEIFA scores are calculated using a method called Principal Component Analysis (PCA). PCA is used to summarise a large number of correlated variables into a set of new uncorrelated components, each of which is a linear combination of the original variables. There are as many principal components as there are variables. If the original variables are highly correlated, much of the variation can be summarised by a reduced set of components, enabling easier analysis. The specific PCA methodology used for SEIFA is discussed in detail in the [Socio-Economic Indexes for Areas \(SEIFA\): Technical Paper](#).



## SEIFA Variables

Each of the four SEIFA indexes has a different focus, and this is reflected in the initial variables used and therefore the weights derived from PCA. The Index of Relative Socio-economic Disadvantage (IRSD) focusses on variables that reflect disadvantage only, such as low levels of education. The other three indexes include variables for measuring both advantage and disadvantage. For example, IRSAD and IER include both the proportion of households with low income and the proportion of households with high income, while IRSD only includes the low-income variable. Therefore, it is

important to be careful when considering results across different indexes.

The variables used for each SEIFA index are included in [Socio-Economic Indexes for Areas \(SEIFA\), Australian methodology](#) and are presented in this factsheet's appendix.



## Four SEIFA Indexes

### Index of Relative Socio-Economic Advantage and Disadvantage (IRSAD)

IRSAD is a general measure of advantage and disadvantage, summarising the economic and social conditions of people and households. It ranks areas from most disadvantaged to most advantaged.

The score calculation includes factors such as income, education and employment. An area with a low IRSAD score indicates relatively high disadvantage, due to factors such as a high proportion of households with low income or a high proportion of people with low education levels, for example. An area with a high IRSAD score reflects factors such as high income or a high proportion of people in skilled occupations.

### Index of Relative Socio-Economic Disadvantage (IRSD)

IRSD measures relative disadvantage for each area. A low IRSD score indicates

high disadvantage, while a high score indicates low disadvantage. It is not possible to use this index to assess areas of advantage. Low IRSD score regions may have a high proportion of households with low income or low rent, or a high number of unemployed people or jobless families, for example.

### Index of Education and Occupation (IEO)

IEO is concerned with education and occupational aspects of advantage and disadvantage. Education indicators include the highest level of study undertaken by residents. Occupation indicators include unemployment levels and the skill levels of jobs, using the [Australian and New Zealand Standard Classification of Occupations \(ANZSCO\)](#).

A high IEO score could reflect an area with a high number of people working in skilled jobs and high incidence of educational qualifications, for example. A low IEO score could reflect for example a high number of people with education levels below Year 12, or working in low skilled jobs or unemployed. IEO does not include variables related to income or housing.

### Index of Economic Resources (IER)

IER is about the financial aspects of advantage and disadvantage. It focuses on direct measures of economic resources collected in the Census, such as income

and housing. It also includes some variables usually associated with high or low wealth. Wealth itself is not in the Census and cannot be directly captured by SEIFA.

A high IER score indicates that an area has greater access to economic resources and a low IER score indicates more limited access. For example, a low IER score could represent a high proportion of households with low income and rent. A high IER score may reflect high proportions of high-income households, larger homes and homes owned outright.



## A note on the variables used

SEIFA measures advantage and disadvantage through variables that describe factors of accessibility to social and economic resources, such as housing and income. The variables included are restricted to what is collected in the Census, so the scope of SEIFA may differ to other external definitions of advantage and disadvantage. Potentially useful variables to understand advantage and disadvantage not captured by the Census relate to wealth, the environment, crime, key infrastructure and related essential services.

For further information, see: [Using and interpreting SEIFA | Australian Bureau of Statistics \(abs.gov.au\)](#)



The ABS produces SEIFA population distribution data cubes for Local Government Areas and other larger geographic boundaries, including Statistical Areas Level 3 (SA3), Statistical Areas Level 4 (SA4), and States and Territories. These divide SEIFA scores into ranges and show the percentage of people living in SA1s with scores within each score range. They provide useful (and ready-made) visualisations of SEIFA population distribution data for your region of interest. The ABS also provides data on the number of SA1s in each decile for these larger regions.

While larger regions do not have individual SEIFA scores, this data can be used to understand the degree of socio-economic diversity between SA1 areas within these regions. This allows the user to create a broader picture of socio-economic conditions without losing important spatial detail.

### Understanding SEIFA scores

The scores for each area correspond to whether the area is relatively advantaged or disadvantaged for that index. A lower index score indicates that an area has more disadvantage relative to other areas with a higher score. It is important to note that the index scores are ordinal and do not represent a quantity of advantage or disadvantage. An LGA with a score of 1000 is not twice as advantaged as an LGA with a score of 500, for example.

SEIFA scores are designed as a relative measure, intended for enabling comparison between areas, rather than the scores having intrinsic meaning or a reflection of outcomes for individuals in the region. Rankings and quantiles (such as deciles, discussed below) should be used in most analysis, rather than the scores themselves.

Because the scores refer to the region, and not to individuals, there may be relatively disadvantaged individuals living in an SA1 area with a relatively high SEIFA score, and vice versa.

### Deciles and percentiles

All areas are ordered from lowest to highest score for each index and are grouped into ten equally-sized segments: deciles. Areas that fall in the lowest 10 per cent of scores are in decile 1, while areas in the highest 10 per cent of scores are in decile 10. Similarly, the ordered areas are also divided into 100 equally-sized percentile groups, with percentile one comprising the most disadvantaged 1 per cent of areas and percentile 100 comprising the most advantaged 1 per cent.

### Timing

All SEIFA indexes are constructed to measure socio-economic advantage and disadvantage at a single point in time. They should not be used for comparison over time as the calculation of scores can change significantly between releases. Issues that make these indexes hard to compare over time can include changes in geographical boundaries and the total number of small areas, definitional changes, the addition and removal of variables used to calculate the scores, changes to the weight given to each variable, changes in the distribution of the standardised index scores and changes in score and rank distribution.

An area given a score of 500 in one year and an area given a score of 500 in another year are not necessarily at the same level of advantage across time periods. The two calculations used to determine each score of 500 may have significant underlying differences. Similarly, if the score of an area went from 500 to 600 between time periods, this does not necessarily mean that the level of advantage has increased. The ABS recommend that if comparisons are to be made over time, then deciles and percentiles should be used rather than scores or ranks.

For more details from the ABS, see [Socio-Economic Indexes for Areas \(SEIFA\), Australia methodology, 2021](#) and [Using and interpreting SEIFA](#).



## Data presentation

SEIFA data can be presented in several ways to help facilitate comparison of advantage and disadvantage between areas, depending on the aims of the user.

### SEIFA Maps

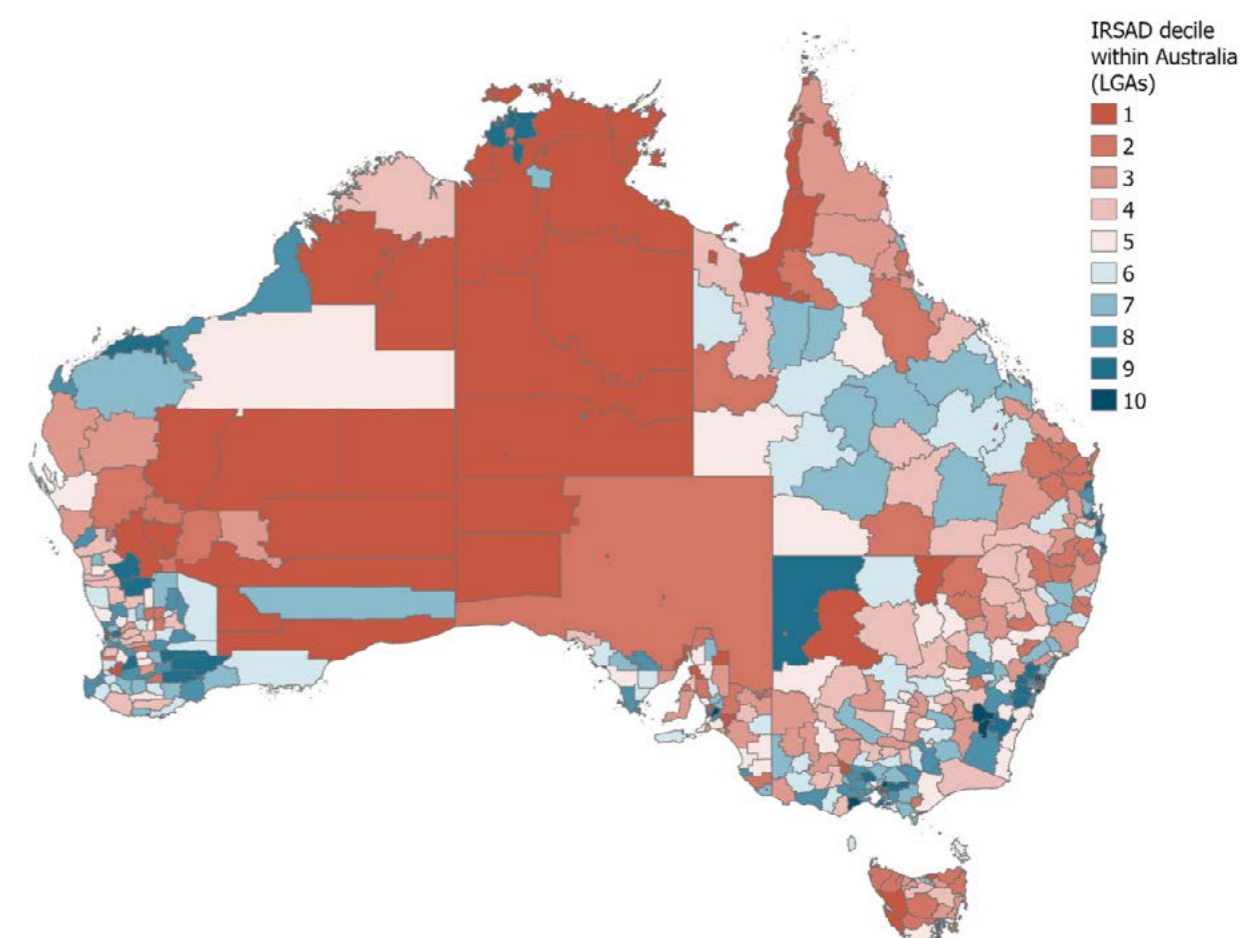
As SEIFA is produced using a geographical framework, maps are a natural choice for displaying the distribution of scores, deciles or rankings across an area.

The ABS publishes [interactive maps](#) which display each index for the five geographic areas for which SEIFA is produced. The maps use quintiles, which means the distribution of scores is divided into five equal groups. Areas with a quintile value of one are in the lowest 20 per cent of scores, while areas with a quintile value of five are in the highest 20 per cent<sup>3</sup>.

Users can also create their own maps with SEIFA data. For example, Figure 1 presents the decile distribution for one of the SEIFA indexes (IRSAD) at the LGA level across Australia. The SEIFA score for an LGA is calculated by the ABS using a population weighted average of all SA1 areas within the LGA.

<sup>3</sup> The Regional Data Hub [Interactive Local Government Area Maps](#) also include a map of the SEIFA Index of Relative Socio-economic Advantage and Disadvantage (IRSAD).

Figure 1: Decile Distribution Map for the Index of Relative Socio Economic Advantage and Disadvantage (IRSAD), LGAs



Source: BCARR analysis of the ABS Index of Relative Socio-Economic Advantage and Disadvantage (IRSAD), 2021.

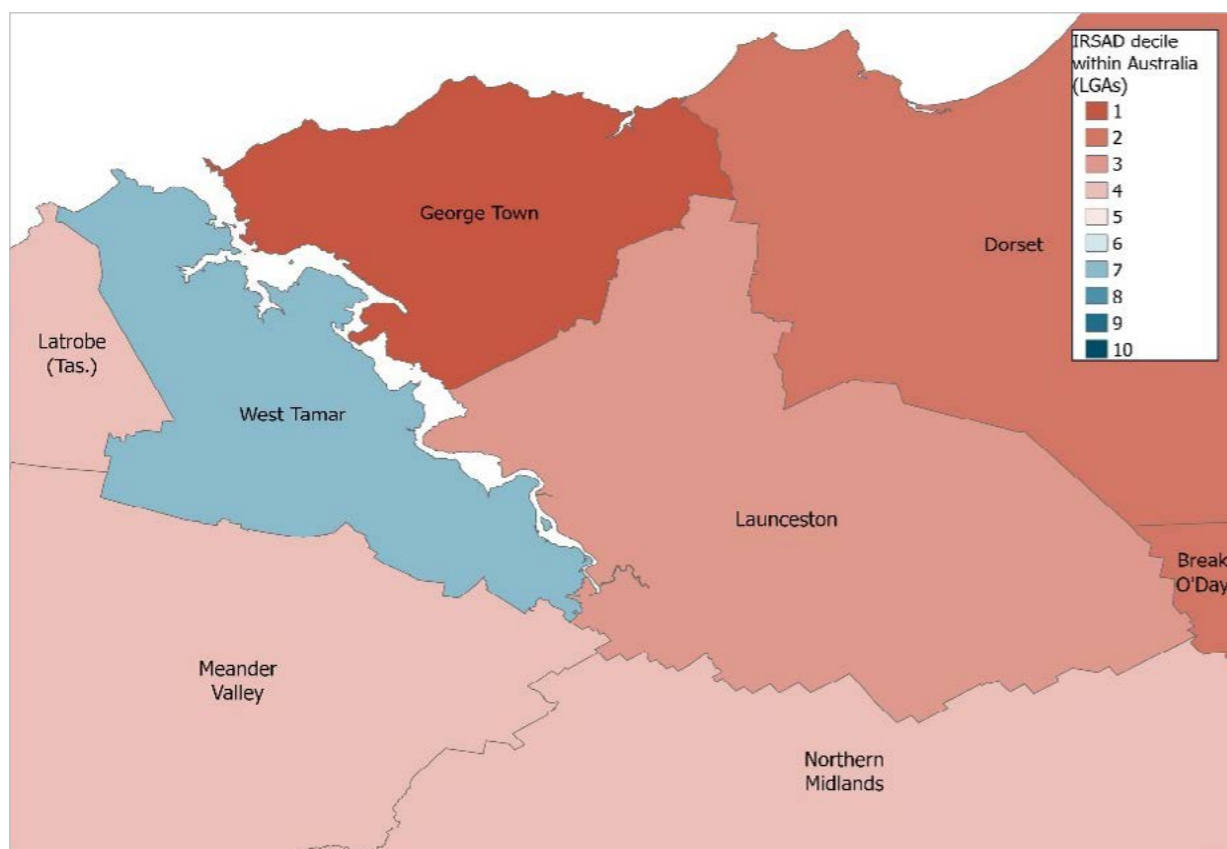
Note: Unincorporated NSW is non-contiguous and this may affect the calculation of its IRSAD decile value of 9. Please refer to the ABS SEIFA website for more information.

While a single SEIFA score for each LGA is useful for comparing relative advantage and disadvantage between LGAs, it inevitably masks diversity within regions. Mapping at a finer level of detail is valuable for better understanding inequalities within larger regions, such as an LGA.

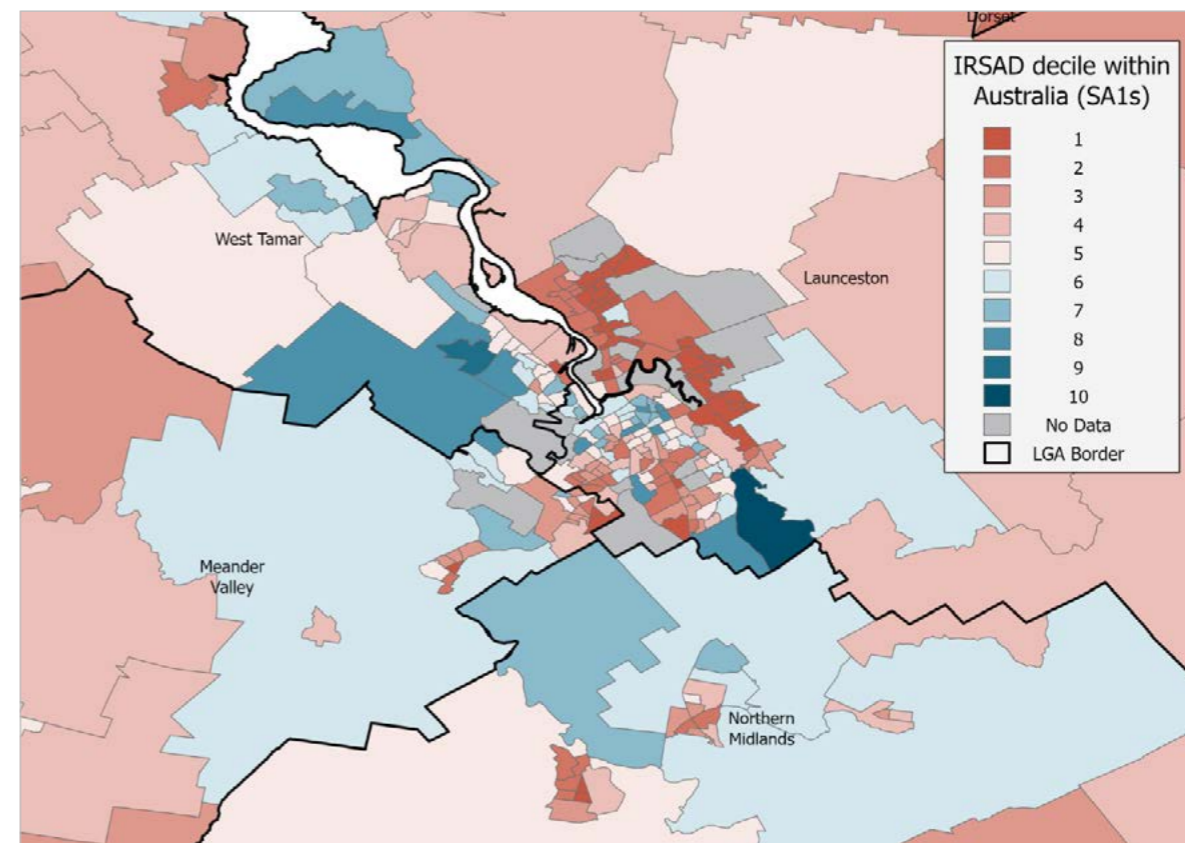


Figure 2 shows the difference between decile distributions when looking at the LGA-level and the SA1-level geographies for Launceston and its surrounds. In the first map, the LGA of West Tamar (the area west of the river) appears relatively advantaged compared to George Town and Launceston on the east side. The second map shows much greater detail, and it becomes clear that within each LGA there are pockets of areas with higher and lower deciles than the single LGA value. For example, Launceston appears relatively more disadvantaged compared to West Tamar in the first map, but in the second map we can see that the LGA of Launceston includes an SA1 area that is in the top decile for advantage, a higher decile than any of the SA1 areas in West Tamar. This illustrates the additional insights of exploring SEIFA in finer SA1 detail, even if the primary aim is to compare across larger geographical boundaries.

**Figure 2: Comparison of LGA and SA1 Decile Distribution Map for Northern Tasmania, Index of Relative Socio-Economic Advantage and Disadvantage (IRSAD)**



Source: BCARR analysis of the ABS Index of Relative Socio-Economic Advantage and Disadvantage (IRSAD), 2021.



Source: BCARR analysis of the ABS Index of Relative Socio-Economic Advantage and Disadvantage (IRSAD), 2021.

## Histograms

You can also use histograms to display the distribution of SEIFA scores within a region, showing the spread of relative advantage and disadvantage. For instance, histograms can show the distribution of a region's population by the scores of the SA1s they live in, or the number or percentage of SA1s in each decile or percentile group.

Histograms can also be used to compare the distribution of SEIFA scores between regions. For example, we can compare the number of SA1 areas within each decile for different geography groups. Figure 3 shows the percentage of SA1 areas within each decile for Greater Capital City Statistical Areas (GCCSAs) (capital cities and the combined rest of state areas) for the IRSAD index.



**Figure 3: Index of Relative Socio-Economic Advantage and Disadvantage (IRSAD), percentage of SA1s per decile, GCCSAs**

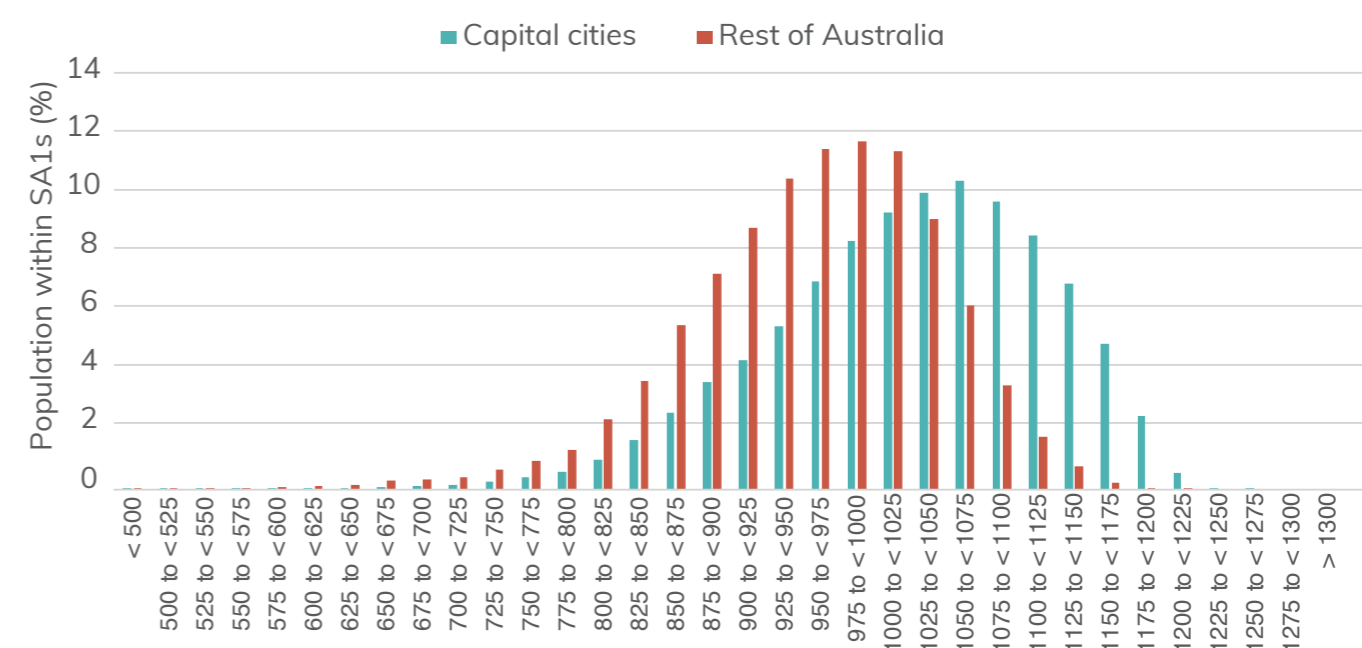


Source: BCARR analysis of the ABS Index of Relative Socio-Economic Advantage and Disadvantage (IRSAD), 2021.

Another way to look at the data is to calculate the population living in SA1s within a particular score group or decile, rather than just the number of SA1s. This provides insight into the diversity of the SA1 SEIFA scores within larger areas. If an area has a diverse range of SA1 scores, then the population will be spread widely across the scores. An area with a low level of diversity will have most of the population falling within a small range of scores.

Figure 4 presents the same index as Figure 3 (IRSAD), with two differences. It is based on the population living within SA1s rather than the number of SA1s, using groups of scores rather than deciles. Different regions can be compared on the basis of how their populations are distributed within the SA1 score groupings.

**Figure 4: Index of Relative Socio-Economic Advantage and Disadvantage (IRSAD), percentage of population living in SA1s within SA1 score groups, GCCSAs**



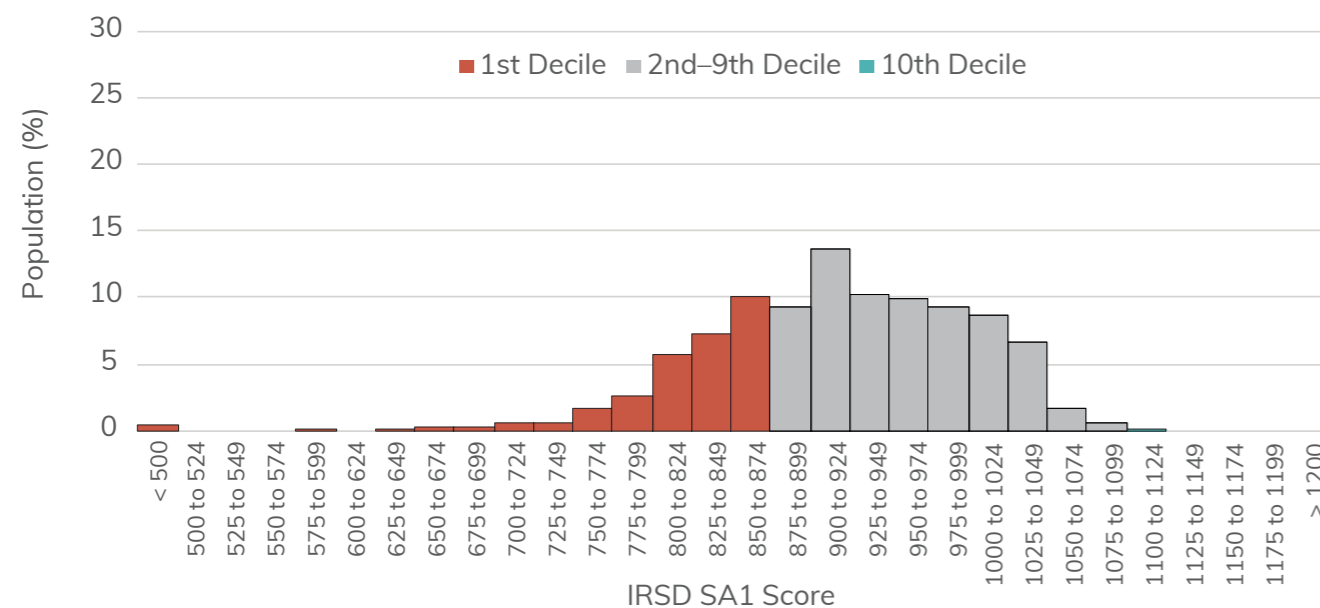
Source: BCARR analysis of the ABS Index of Relative Socio-Economic Advantage and Disadvantage (IRSAD), 2021.

Figures 5 to 8 show the population distribution of SA1-level scores for select SA4 areas, using the SEIFA Index of Relative Socio-Economic Disadvantage (IRSD). This index measures relative disadvantage across areas, so a low score indicates high relative disadvantage and a high score indicates low relative disadvantage.

The following histograms show the percentage of the SA4 population living in SA1s within each score range. Note that this represents the population size of SA1s with particular scores. It does not mean that everyone within an SA1 with a low score, for example, will be very disadvantaged. The score refers to the area, and not everyone within it. Colours are used to highlight the deciles for Australia, with the first decile representing the most disadvantaged and the tenth decile representing the least disadvantaged.

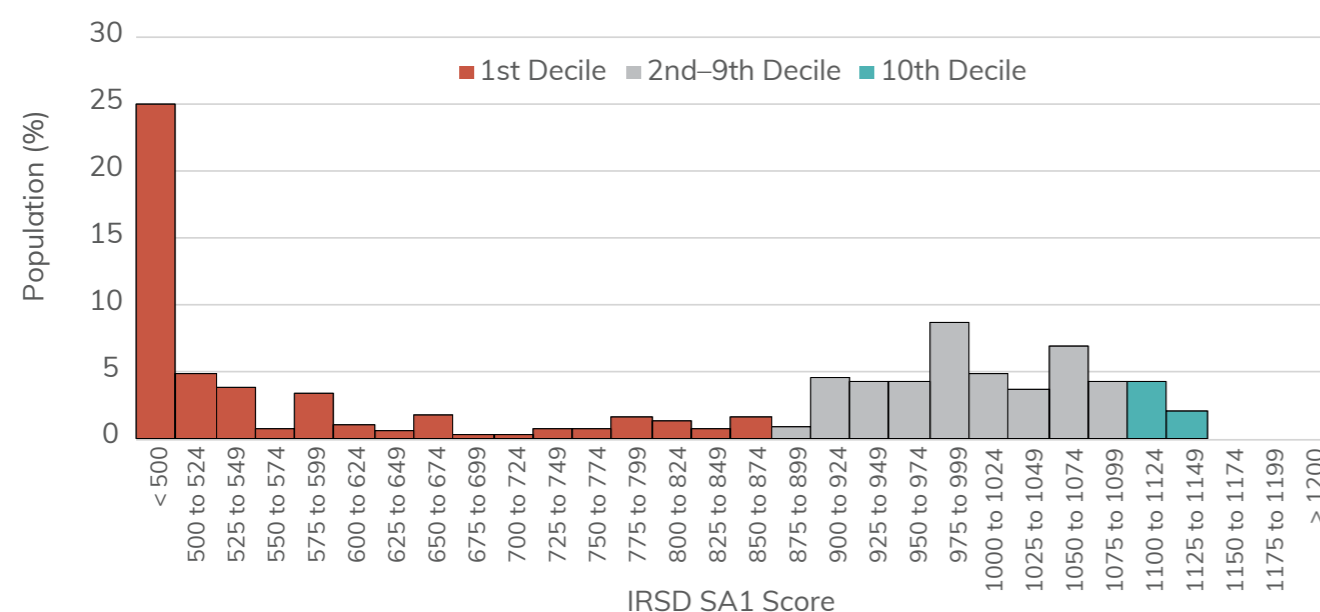


**Figure 5: Index of Relative Socio-Economic Disadvantage (IRSD), percentage of population living in SA1s within SA1 score groups, Wide Bay, Queensland**



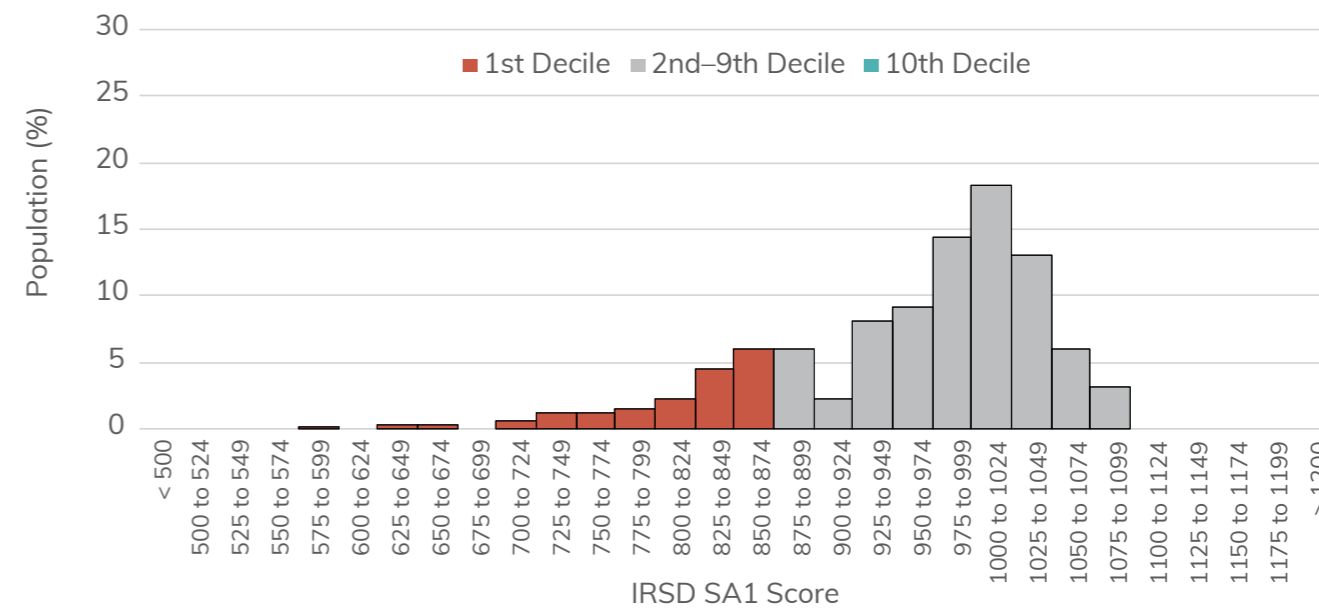
Source: Reproduced from the ABS Index of Relative Socio-Economic Disadvantage (IRSD), 2021. Note: includes the following localities: Bundaberg, Gympie, Kingaroy and Gayndah.

**Figure 6: Index of Relative Socio-Economic Disadvantage (IRSD), percentage of population living in SA1s within SA1 score groups, Outback, Northern Territory**



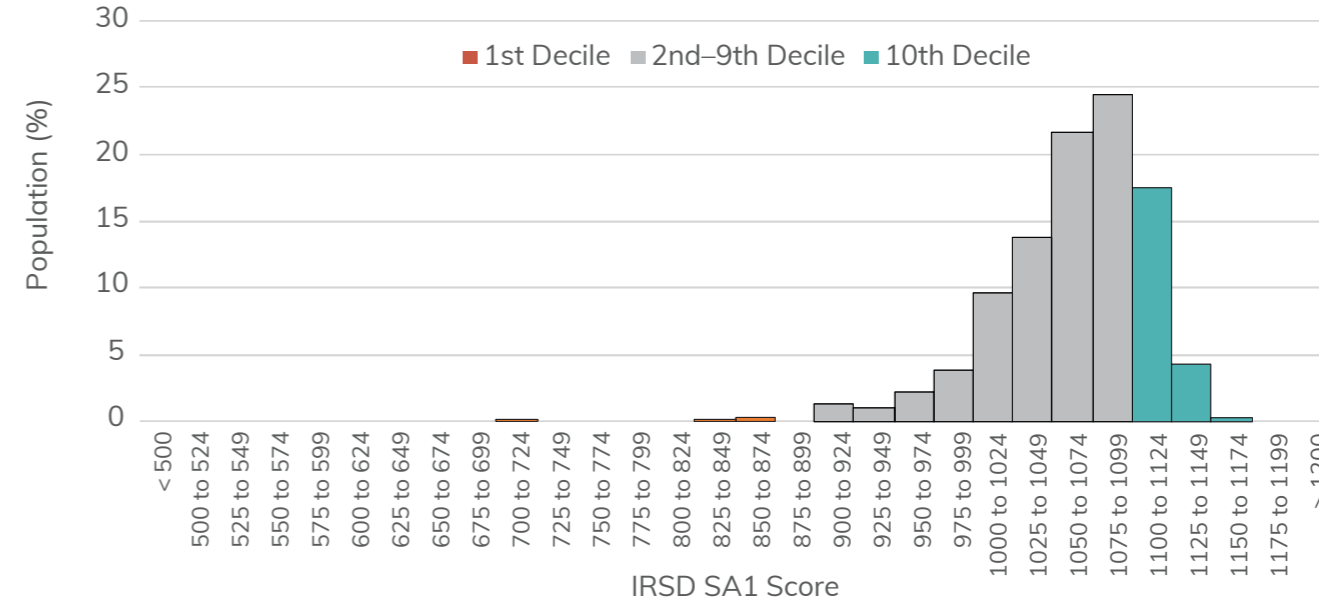
Source: Reproduced from the ABS Index of Relative Socio-Economic Disadvantage (IRSD), 2021. Note: includes all of the Northern Territory outside Greater Darwin.

**Figure 7: Index of Relative Socio-Economic Disadvantage (IRSD), percentage of population living in SA1s within SA1 score groups, Mandurah, Western Australia**



Source: Reproduced from the ABS Index of Relative Socio-Economic Disadvantage (IRSD), 2021. Note: includes the following localities: Mandurah, Coolup, Murray Lakes, North Dandalup and Pinjarra.

**Figure 8: Index of Relative Socio-Economic Disadvantage (IRSD), percentage of population living in SA1s within SA1 score groups, for Melbourne – Inner East**



Source: Reproduced from the ABS Index of Relative Socio-Economic Disadvantage (IRSD), 2021. Note: includes the following localities: Surrey Hills, Box Hill, Kew, Doncaster and Ashburton.



## Appendix: SEIFA Variables

Table 1 below shows the candidate variables the ABS used as inputs to the Principal Component Analysis. The variables used in the final indexes are highlighted in the table. Not all indexes included all candidate variables as inputs; for example, IRSD only includes variables which reflect disadvantage.

Source: [Construction of the indexes | Australian Bureau of Statistics \(abs.gov.au\)](#)

**Table 1: SEIFA variables by index**

Income	IRSD	IRSAD	IER	IEO
Households with high income		Advantage	Advantage	
Households with low income	Disadvantage	Disadvantage	Disadvantage	

Education	IRSD	IRSAD	IER	IEO
No education	Disadvantage	Disadvantage		
Highest education is year 11 or lower	Disadvantage	Disadvantage		Disadvantage
Highest education is Cert. III and IV		Disadvantage		Disadvantage
Highest education is diploma		Advantage		Advantage
Highest education is Bachelor degree or higher				
People 15 and over at secondary school				
People 15 and over at university		Advantage		Advantage

Employment	IRSD	IRSAD	IER	IEO
Unemployed in labour force	Disadvantage	Disadvantage		Disadvantage
People 15 and over who are unemployed			Disadvantage	

Occupation	IRSD	IRSAD	IER	IEO
People employed as machinery operators and drivers	Disadvantage	Disadvantage		
People employed as labourers	Disadvantage	Disadvantage		
People employed as managers		Advantage		
People employed as professionals		Advantage		
People employed as low-skill sales workers		Disadvantage		
People employed as low-skill service workers	Disadvantage	Disadvantage		
People who work in a skill level 1 occupation				Advantage
People who work in a skill level 2 occupation				
People who work in a skill level 4 occupation				Disadvantage
People who work in a skill level 5 occupation				Disadvantage

Housing	IRSD	IRSAD	IER	IEO
Private dwellings with one or no bedrooms				
Private dwellings with four or more bedrooms		Advantage	Advantage	
Private dwellings with high mortgage repayments		Advantage	Advantage	
Private dwellings paying high rent		Advantage		
Private dwellings paying low rent	Disadvantage	Disadvantage	Disadvantage	
Private dwellings owned without a mortgage			Advantage	
Private dwellings owned with a mortgage			Advantage	
Overcrowded dwellings	Disadvantage	Disadvantage	Disadvantage	
Private dwellings with spare bedrooms				

Miscellaneous	IRSD	IRSAD	IER	IEO
Families with children under 15 and jobless parents	Disadvantage	Disadvantage		
People under 70 needing assistance (disability or health)	Disadvantage	Disadvantage		
People with limited English	Disadvantage			
Group occupied private dwellings			Disadvantage	
Dwellings with three or more cars				
Dwellings with no cars	Disadvantage		Disadvantage	
Private dwellings occupied by lone persons			Disadvantage	
Dependent offspring families with one parent	Disadvantage	Disadvantage	Disadvantage	
People who are separated or divorced	Disadvantage	Disadvantage		
Dwellings with owner of an unincorporated enterprise			Advantage	

Indicators of advantage

Indicators of disadvantage