

The Australian Inequality Index

Methodology, Data and Technical Notes



**Australian
Inequality
Index**

A Per Capita initiative

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FIGHTING INEQUALITY IN AUSTRALIA

Construction of the Australian Inequality Index (All)

The Australian Inequality Index (All) has been developed as a comprehensive measure of inequality, incorporating a set of sub-indices that examine key dimensions of inequality. The structure of the index was determined by Per Capita's Executive Director, Emma Dawson, and the Economic Research Group, including Chief Economist Michael D'Rosario and Research Economist Sam Ibrahim. The decision to construct the index arose from a significant lack of integrated measures encompassing critical dimensions of societal inequality.

Due to data limitations, certain desired indicators related to Ethnicity, People with Disabilities, and the Lesbian, Gay, Bisexual, Transgender, Queer, and Intersex (LGBTQI+) community were incorporated as a subset or flagged for future inclusion based on ongoing data collection initiatives facilitated by the government. Future iterations of the index will involve incorporating these crucial data series in consultation with relevant communities.

The selection of parameters for the index was driven by their inherent relevance to vital dimensions such as social engagement, labour market participation, economic capability, and resilience. Attention was directed towards choosing measures that demonstrated consistent availability and were accessible to the general public. This deliberate approach aimed to enhance comprehensibility, verifiability, and overall continuity of the initiative.

It is important to note that the primary focus of the Australian Inequality Index is on disparities or gaps rather than absolute levels. While recognizing the significance of absolute levels, particularly in the context of poverty, the index predominantly quantifies gaps or discrepancies. Therefore, level estimates are only employed when the inclusion of a gap estimate would be illogical or inappropriate.

Ensuring continuity of data availability is a crucial principle underlying this study, as it lays the foundation for the incorporation of additional variables in future data initiatives. This emphasis on continuity will facilitate the seamless integration of new data, enabling longitudinal analysis and exploration of emerging trends within the aforementioned critical dimensions.

Guiding Principles of the Australian Inequality Index:

The construction of the All is guided by four key principles: relevance of parameters, continuity of data availability, public ownership and custodianship of data sources, and an emphasis on gaps and ratio measures, supplemented by appropriate level measures.

Relevance

Parameters were selected based on their relevance to critical aspects such as social engagement, labour market participation, economic capability, and resilience. This ensures that the index captures dimensions that are significant in understanding and addressing inequality.

Continuity of Data Availability

Measures were chosen based on their consistent availability over time and broad accessibility to the public. This supports ease of understanding, allows for verification of the index's findings, and ensures the sustainability of the initiative.

Public Ownership and Custodianship of Data Sources

The All acknowledges the importance of public ownership and custodianship of data sources. This emphasizes the transparency and openness of the index, enabling stakeholders and the public to engage with the data and contribute to the discourse on inequality.

Emphasis on Gaps and Ratio Measures

The All places a critical focus on quantifying gaps or differences rather than absolute levels of inequality. While absolute levels are relevant in certain contexts, such as poverty, the index primarily examines disparities. Ratio measures are utilized when gap analysis is essential, while suitable level measures are employed in cases where gap estimates would be inappropriate.

Analytical approach to the construction of the index

In the context of inequality analysis and measurement, the choice between ratios, rates, and intervals is a crucial consideration. However, prior to delving into the rationale for employing ratios over rates or intervals, it is imperative to establish clarity and disambiguation, as the primary purpose of an index centres around its benefits in advocacy and education.

In the sphere of research, levels of measurement, often referred to as scales of measurement, offer insights into the precision with which variables are recorded. Variables, in this context, encompass any attribute that can assume diverse values across a dataset. Measurement may broadly be grouped into the following categories. Nominal, when variables that can only be categorized into distinct groups without any inherent order. Ordinal when variables that can be categorized and ranked according to a specific order. Interval, when variables that can be categorized, ranked, and possess equal intervals between values. Ratio, where variables that can be categorized, ranked, possess equal intervals, and feature a natural zero point.

The level of measurement associated with a variable significantly influences the extent to which data analysis can be conducted. A hierarchical relationship exists among these levels, wherein nominal represents the lowest level of complexity, while ratio reflects the highest level of precision.

Ratios are particularly employed when comparing quantities or elucidating relationships between two amounts or quantities. For instance, a ratio can be effectively employed to depict the ratio of monthly rent cost to the income earned within the same month. On the other hand, rates, a specialized form of ratio, are utilized to articulate relationships between different units of measurement, such as speed, wages, or prices. For example, one might describe a rate of labour market participation as a percentage per year, or indicate that an individual in the lowest income quintile earns \$50,000 annually.

Significance of a true 0 concept in the discussion of inequality

The significance of the concept of zero within the realm of inequality analysis and discussion cannot be understated. A ratio scale, characterized by a quantitative framework, features a true zero point and equidistant intervals between adjacent values. In contrast, an interval scale lacks a true zero point and signifies a complete absence of the variable being measured. Nominal and ordinal variables fall under the category of categorical variables, while interval and ratio variables are deemed quantitative in nature.

Within a ratio scale, a zero value indicates the absence of the variable of interest. For instance, the number of children in a household or the years of work experience are examples of ratio variables, where respondents can possess no children or zero years of work experience. Certain variables within the index already adhere to a ratio scale, albeit in a specialized form, as rates that compare a specific metric frequency to a particular time interval. These variables, such as annual income or the number of recorded instances of racial discrimination per year, are typically examined in isolation and inform discussions regarding progress rather than inequality.

Focus on the ratio level rather than the change in ratio values

When examining, measuring, and discussing inequality, it is paramount to consider each measure in relation to an equivalent measure, while accounting for dimensions of disadvantage. This entails comparing the annual earnings of individuals in the lowest income quintile to those in the highest quintile. By employing a ratio scale that equates zero to the absence of inequality (representing equality), and any value greater than zero as a departure from equality, the interpretation becomes more accessible, as the desire for a true zero aligns with the absence of inequality.

It is worth noting that focusing solely on the rate of change or ratio change rates, derived by taking the first difference of levels, may prove beneficial in trend analysis. However, such an approach shifts the focus from absolute values to the rates of change themselves. While examining rates of change can be instructive, it is essential not to undermine or diminish the significance of discussing absolute levels of inequality. These levels are as critical, if not more so, than the analysis of isolated change rates and trends.

Furthermore, adopting a ratio scale in percentage levels, as opposed to focusing on changes in the ratio scale, offers insights into the "gaps" and the "trend in the gaps." This twofold benefit endows the ratio scale with a superiority over alternative approaches, as it provides a comprehensive understanding of the magnitude of inequality and its evolving trends.

Employing a common base year, or benchmark indicator

In the context of employing a common base year or interval and benchmark estimates, it is notable that the use of a reference or benchmark indicator was employed in only two instances. This practice aligns with other indices, such as the Gender Inequality Index (GII), where data truncation and reference rates are utilized to benchmark inequality. For certain indicators, such as racial discrimination and disability discrimination, a zero level of inequality is desirable. However, to include these indicators in the index, a reference rate becomes necessary, as a denominator value of zero is mathematically untenable.

As a result, the indicators related to disability and ethnicity incorporate reference rates as denominator values. Specifically, these reference rates consist of a truncated 2010 rate (50% of the 2010 rate) and the UK rate of racial discrimination. The adoption of these reference rates enables the construction of a viable ratio that facilitates the examination of trends. Nevertheless, it is important to acknowledge that the ideal rate of discrimination should be zero, rather than the truncated or threshold rates employed.

Employing a common percentage ratio scale rather than applying z-score transformation

Standardization, the practice of transforming values to a common scale, has been widely used in data analysis for facilitating comparisons. This and various alternative methods of standardisation were considered, however a ratio scale, with a common scale and unit of measure (% from equality) was employed to preserve the original meaning, provide critical context and avoid misinterpretation, while emphasising the gaps in values. The approach is consistent with international measures such as the Gender Gap Index. This approach also responds to potential concerns regarding the logical interpretation and graphical presentation of standardized ratios.

Loss of Original Meaning

Standardization entails converting ratios into z-scores, which represents the number of standard deviations away from the mean. While this enables comparability, it also leads to the loss of the ratios' original meaning and interpretation. The transformation masks the original units, thereby rendering it challenging to derive meaningful insights from standardized ratios. The detachment from real-world context hampers the interpretation of the data.

Loss of Context

Standardization erases the context and specific characteristics associated with the original ratios. Many ratios are reported with distinct scales and ranges to convey meaningful insights. For instance, financial ratios often employ percentages or proportions. Standardizing these ratios eliminates their original context, making it arduous to accurately interpret their implications. Consequently, the comprehensive understanding of the data is compromised due to the loss of contextual information.

Potential Misinterpretation

Graphical presentation of standardized ratios introduces the risk of misinterpretation. Visual representations, such as plots and charts, may create the illusion of significant differences or relationships that do not exist in the original data. The imposition of a common scale through standardization can magnify or diminish certain patterns, leading to misleading conclusions. Consequently, the validity and reliability of graphical representations are compromised when standardized ratios are utilized.

Weighting of Indicators and Sub-Indices

The Australian Inequality Index encompasses various sub-indices that explore the intersecting dimensions impacting social and economic inequality in Australia. These sub-indices utilize a diverse set of indicators. Each indicator holds equal weightage within its corresponding sub-index, and in turn, each sub-index contributes equally to the composite Index. This approach ensures a balanced representation of the

different dimensions of inequality. The Australian Inequality Index stands as the pioneering effort in providing an integrated measure of inequality spanning the decade between 2010 and 2021.

Interpreting the Index Charts and Values

Consistent with other measures of inequality, the Australian Inequality Index represents inequality as a value ranging from 0 to 100, where 0 signifies perfect equality. Values exceeding 0 indicate the presence of inequality across the considered measures, with higher values indicating greater levels of inequality. As all values are expressed in ratio terms, they can be interpreted as the distance from equality. For instance, if wealth inequality is rated at 70, it suggests that the wealth of the highest income group would need to decrease by 70% for equality to be attained. Notably, all index values are on the same ratio scale, allowing for meaningful comparisons.

Understanding Points versus Percentages

To ensure clarity and avoid confusion, the index employs both points and percentages in the report and online tool, depending on the context and suitability in each instance. For instance, when describing a change in the index from 47 to 54, the shift may be articulated as an increase of 7 points rather than 7 percent, as the latter could potentially cause confusion. Alternatively, the change could also be expressed as 14.89% increase (7/47). However, considering that the index itself may already be interpreted as a percentage (as explained in the previous section), the use of percentages in this context may introduce ambiguity.

Chart Scale and Presentation

The charts presented within the index adopt a common scale for consistency. The x-axis represents a shared range across all charts, while the y-axis varies depending on the observed variation within each indicator. In instances where the variation is significant, the y-axis range is expanded, whereas indicators with lower variation entail a narrower y-axis. This approach ensures that the change in the variable or indicator/index is visually discernible. Although the variable or indicator scale remains constant across all charts, the presented range may differ to emphasize the observed variation.

Community Consultations & Future index adjustments

It is envisioned that the Australian Inequality Index (All) will undergo further expansion to encompass additional measures, facilitated by the extension of the Australian Bureau of Statistics' (ABS) data capture program and increased investment in data pertaining to critical areas of welfare and well-being. Per Capita expresses a specific interest in extending the indices that focus on Culturally and Linguistically Diverse (CALD) persons, Disabled Persons, and Intergenerational Inequality. The intention is to continually enhance the comprehensiveness and depth of the All, enabling a more comprehensive assessment of inequality across various dimensions.

Opportunity for stakeholder engagement

At Per Capita, we firmly believe in the power of collaboration and inclusivity in the pursuit of understanding and addressing inequality. As part of our ongoing commitment to these principles, we are

pleased to announce that a process of community consultation with relevant stakeholder groups will be initiated regarding the expansion of the Australian Inequality Index, its use, and dissemination.

We recognize that a comprehensive and robust measure of inequality requires input from a diverse range of perspectives, experiences, and expertise. By engaging with stakeholders representing various sectors, communities, and fields of study, we aim to enrich the Australian Inequality Index and ensure its relevance and effectiveness in capturing the complexity of inequality in Australia.

The community consultation process will provide an opportunity for stakeholders to contribute their insights, suggestions, and recommendations regarding the expansion of the index. We value your expertise and knowledge, and we encourage you to participate in this important dialogue. Your engagement will help shape the future development and refinement of the Australian Inequality Index, enabling a more comprehensive understanding of inequality in our society.

If you are interested in participating in the community consultation process or if you have any further questions or suggestions, we invite you to reach out to us. Your input is vital to fostering a collaborative approach that reflects the diverse perspectives and needs of our society.

Contact Us

For any further inquiries, questions, or thoughts regarding the methodology and construction of the Australian Inequality Index, please feel free to contact Michael D'Rosario, the Chief Economist at Per Capita, via email at m.d'rosario@percapita.org.au. Your feedback and engagement are greatly appreciated, as they contribute to the ongoing refinement and development of the index.