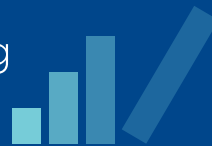**Research Insights / Breaking Down Barriers Rapid Analysis**

Breaking Down Barriers Community Profiles

An interactive web-based data visualisation tool providing key characteristics and insights across Australian communities. Tracking how Australia is progressing to end poverty and the factors that are associated with understanding poverty.

Breaking Down Barriers
Melbourne Institute research into understanding and overcoming disadvantage

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Policy implications

Many national priorities require an understanding of socio-economic issues at a community level. A good example of this is poverty. Nationally, studies[1,2] show that Australia's poverty rate is 18 percent across all households and around 20 percent for single parent households. However, at a community level, these poverty rates vary wildly ranging from near zero to more than 40 percent of all households. This variability illustrates the importance of capturing statistics at the level of individual communities, while also understanding how the composition of those communities influences their poverty rates. Australia's journey to eliminate poverty is a whole-of-country goal but it requires action at a community level.

Poverty is a complex matter and a wide range of social, health and economic factors contribute to it. The COVID-19 pandemic and other policy issues continue to impact the lives of Australians. The cost of living is increasing[3] and housing affordability poses a major challenge for many households in Australia. These factors can lead one into poverty, or affect one's ability to exit from poverty. Changing a person's circumstances not only relies on important decisions made by individuals, but also on available opportunities for positive change and dynamics within a community. As such, the success of programs and policies to support individuals and families observed in poverty is determined by a well-rounded understanding of the opportunities and challenges that communities face.

To eliminate poverty, more data are needed to support better decision making. Better access to richer datasets held by data custodians[4] is helping researchers inform better targeting and evaluation of programs.

But access to data alone is not enough. Data quality and appropriate understanding of what the data captures is an issue facing an increasing number of data analytics teams.

As part of our work for the Breaking Down Barriers project, funded by the Paul Ramsay Foundation, we are building the Breaking Down Barriers Shared Data Environment.

This environment aims to provide analysts with curated 'research ready' data assets from a range of sources to support faster, better-informed research into understanding poverty and disadvantage in Australia. We recently built the Breaking Down Barriers Community Profiles, an interactive web-based data visualisation tool, to showcase key insights from data held within the shared data environment, and to provide a community-level view of curated data for the public, services providers, policy makers, policy shapers and analysts.

> **Defining communities and regions:** (i)
>
> This research insight references different geographical area definitions. We utilise the Australian Statistical Geography Standards to define geographies in the Breaking Down Barries Shared Data Environment and the Community Profiles data tool. We refer to Statistical Area Level 2 (SA2) areas as communities (as SA2 areas are defined to broadly represent a community that interacts together socially and economically), and Statistical Area Level 3 (SA3) areas that consist of whole SA2 communities, as regions (as SA3 areas are usually clusters of communities that have a distinct identity with similar social and economic characteristics). A range of data are curated to be used in the Community Profiles data tool at community (SA2) level, but a 'Community Profile' report is only generated for suitable regions (SA3) in Australia. This aggregation of community-level data from our base data up to broader regions allows users to undertake deep dives to learn how the communities compare to each other within the region.

[1] Wilkins, R., Vera-Toscano, E., Botha, F., Wooden, M. and Trinh, T. (2022) "The Household, Income and Labour Dynamics in Australia Survey: Selected Findings from Waves 1 to 20". Melbourne Institute: Applied Economic & Social Research, University of Melbourne
[2] Davidson, P., Bradbury, B., and Wong, M. (2022) "Poverty in Australia 2022: A snapshot". Australian Council of Social Service (ACOSS) and UNSW Sydney
[3] Botha, F., Rondinel, A.G. and Payne, A.A. (2023) "Most Australians, not just the poor, are facing constraints in covering basic needs", Melbourne Institute Research Insight 04/23. Melbourne Institute: Applied Economic & Social Research, University of Melbourne
[4] Such as through recent reforms for data sharing and access for data held by Australian Government through the Data Availability and Transparency Act 2022 (Cth).

Key Insights

(1) Spatial variation of poverty rate is a key indicator

Our analyses indicate that the share of households observed in poverty across Australia has increased to 18.3 percent in 2021, up from 14.7 percent in 2016 (Figure 1 left hand side). By using data from the Australian Census, we demonstrate that poverty is prevalent among households in many communities (Figure 1 right hand side) and that the rate of poverty varies substantially across communities. In 2016, 60 percent of communities were observed with a community poverty rate of 12 percent or higher. In 2021, the share of communities with a community poverty rate of 12 percent or higher has jumped to 80 percent.

Figure 1:
Introduction of a localised community-level poverty rate and observations in poverty from 2016 to 2021
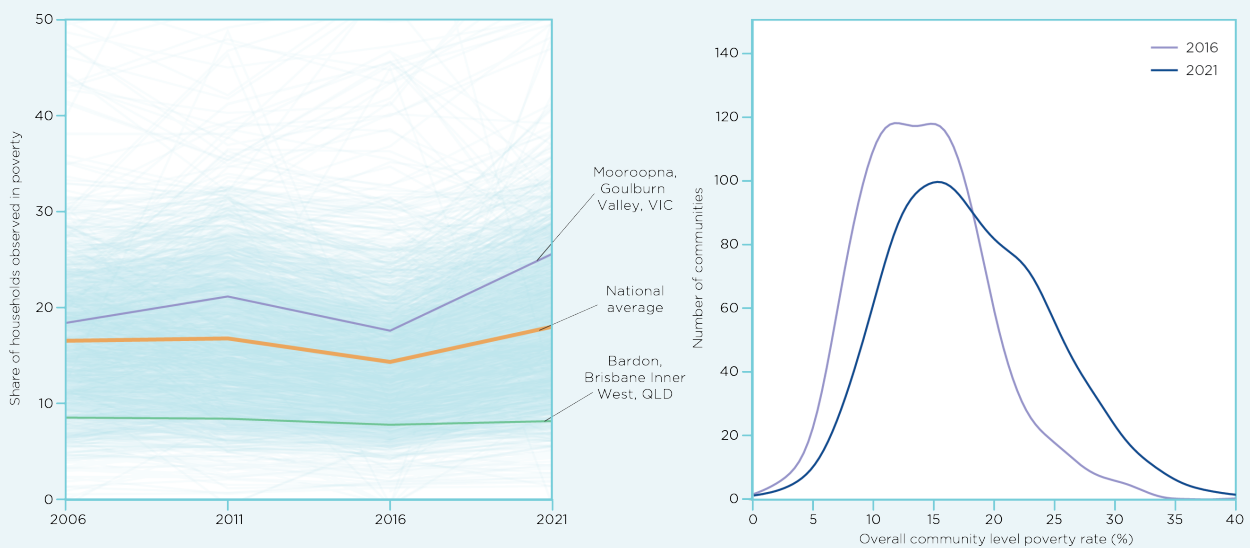
Notes: Data for these figures are derived from the Community-level Poverty Dataset. Community-level poverty rates are derived from equivalised household income data from the Australian Census for census years 2006 to the latest census in 2021. A household is determined to be observed in poverty if their equivalised household income is below 60 percent of the median equivalised household income for all households. *Left:* Each blue line represents the trends in local poverty for 2,343 communities across Australia. Purple and green lines represent two communities in the Goulburn Valley in regional Victoria and the Brisbane metropolitan area in Queensland respectively. The thick orange line represents the national average of community-level poverty rates across Australia. *Right:* Faint stepped lines represent histograms (for Census years 2016 and 2021) which show the distribution of the number of households observed in poverty for a given year, and solid thicker lines represent their smoothed counterparts. For more information on how these data are constructed, please refer to Further Information.

2   Spatial distribution of poverty varies across Australia

Overlaying local poverty rate data over a map of Australia shows the heterogeneity and distribution of poverty across Australia (Figure 2). Our analyses and data provide a view of poverty observed at a community level, but a Community Profile report is available for group of communities within a broader region (See Box: Defining communities and regions for more detail).

This definition used throughout the Community Profiles data tool at a regional and community level permits the user to compare and contrast community-level information in the same region. We also report statistics that permit the user to compare regions to the overall statistics in a state and for the country.

Figure 2: Spatial distribution of localised poverty rates in 2021
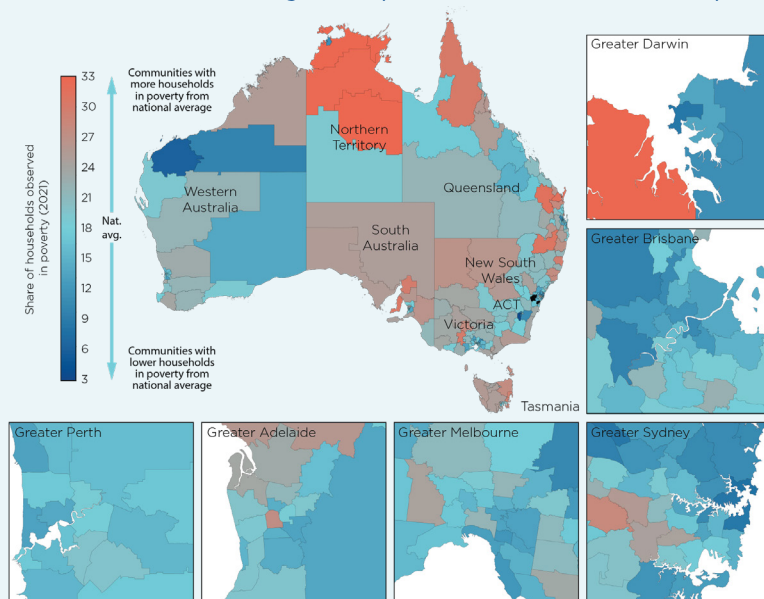
Notes: Map of Australia demonstrating overall poverty rate observed for regions in 2021. These measures are derived by aggregating localised community-level poverty rates. Colour coding of regions ranges from dark blue for regions with lower poverty rates to red for regions with higher poverty rates. Black regions represent regions with low counts of households that have been excluded from our analyses. For more information on exclusion criteria, please refer to Further Information.

3   Community profiles as a web-based interactive tool

The Breaking Down Barriers Community Profiles web-based interactive data visualisation tool (Figure 3) is live and can be accessed using this link (complete link address provided under Further information). This tool provides localised socio-economic data for 338 regions in Australia with commentary from Melbourne Institute researchers and analysts.

Each Community Profile has three distinct sections: key characteristics of the region and how they compare to the rest of the state and the rest of Australia; differences between communities in the region; and trends in key socio-economic indicators since 2006. Each section dives into the region's socio-economic indicators derived from data in the Breaking Down Barriers Shared Data Environment. In its initial release, the Community Profiles tool uses data for demographic characteristics such as age, family structure, birth/Indigenous status and residential movement, and it provides statistics on education attainment, employment characteristics and primary residence characteristics. We also include community-level poverty rates for three definitions of poverty: households with incomes below 25 percent of the median, households with incomes between 25 and 50 percent of the median, and households with incomes between 50 and 60 percent of the median.

Figure 3: Screenshots from the Breaking Down Barriers Community Profiles web-based data visualisation tool
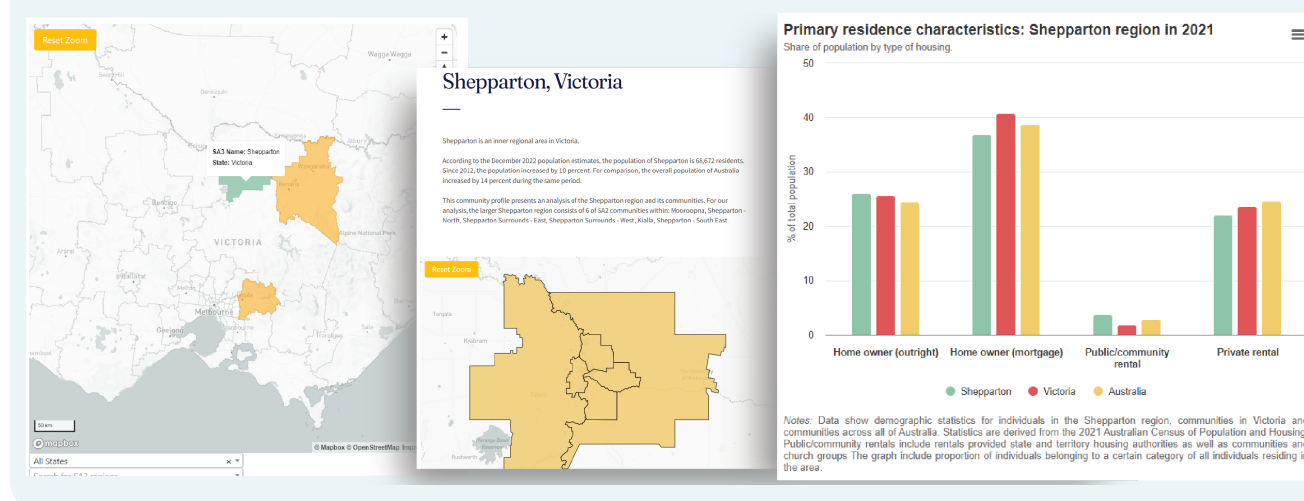
4   Community level analysis enables deeper study of communities

The availability of data over multiple Census years enables us to study the diversity in community-level poverty rates. We rank the communities based on their overall community-level poverty rate for a given year into groups that contain the top 20 percent of communities that have the highest poverty rates, and the bottom 20 percent of communities that have the lowest poverty rates. This allows us to use a Sankey[5] diagram to illustrate the flow of communities based on observed poverty rates (Figure 4). Here we look at how communities moved across poverty groupings over a period of 10 years from 2011 to the latest Census date of 2021. A high proportion of communities (68 percent) remain in the group with the highest poverty rates (315 communities, as depicted by the red band) between 2011 and 2016.[6] 60 percent of communities in the group with the highest poverty rates (280 communities) in 2021 have been in the top 20 percent of high poverty communities since 2011. 35 communities were observed to show trends of reducing poverty among households in 2016, but were observed to have increased poverty rates to end up in the top 20 percent of communities with the highest poverty again in 2021 (depicted by the yellow bands). A total of 150 communities were observed to have 'transitioned out' of high poverty in 2016 as depicted by the green bands.

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[5] A diagram used to visualise flows with arrows depicting the flow rate, first used in Engineering in 1898 (Kennedy, Alex B. W.; Sankey, H. Riall (1898) "The Thermal Efficiency of Steam Engines". Minutes of the Proceedings of the Institution of Civil Engineers, 125-1896, pp.182—212).

[6] Flow of communities in to and out of poverty between Census years 2011 and 2016 first investigated in Payne and Samarage (2020).

Figure 4: Flow of communities based on localised poverty rates, 2011 to 2021
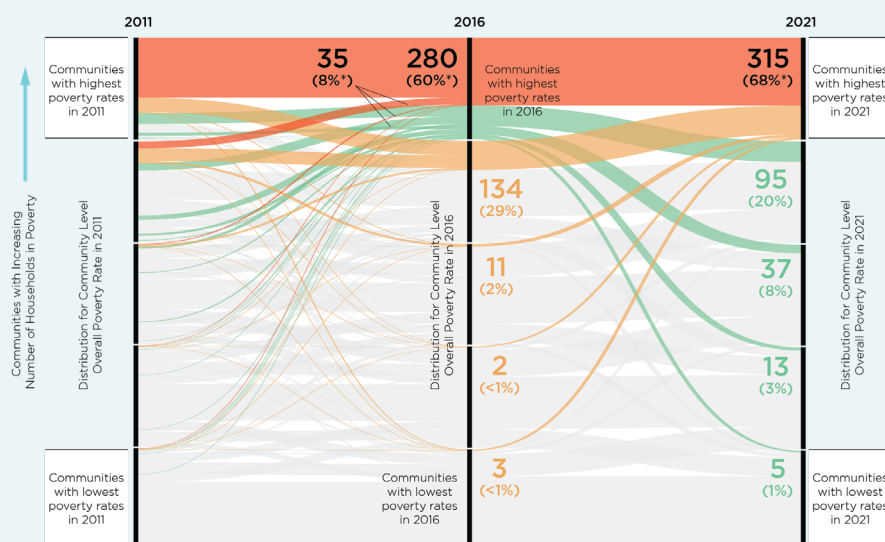

Notes: Communities are grouped based on the overall poverty rate for a community (SA2) in the given year. Overall poverty rate is defined as the number of households whose equivalised income is less than 60 percent of the median income across Australia. The groupings are based on quintiles (i.e. equal divisions of the data into five groups). The top most quintile captures the top 20 percent of communities with the highest poverty rates while the bottom quintile captures the bottom 20 percent of communities with the lowest poverty rates.

Flows coloured in red depict the communities that are identified as being in the top 20 percent of poverty rates in 2011 and/ or 2016 and that remain in the top 20 percent in 2021. Flows coloured in orange depict communities that are within the top 20 percent of poverty rates by 2021. Flows coloured in green depict communities with community poverty rates that have fallen by 2021 (although some increased between 2006 and 2011).

5 Association between measures further extends the capability for richer analyses

Community-level data offers insights on associations between various indicators. Figures 5a and 5b show the association between family total income level with primary residency characteristics and monthly rent/ mortgage payments (if applicable) for two regions: Shepparton (Victoria) and Inner Brisbane (Queensland).

Figure 5a:
Flow of families based on share of equivalised median household incomes and primary residence characteristics, for two regions in Australia.
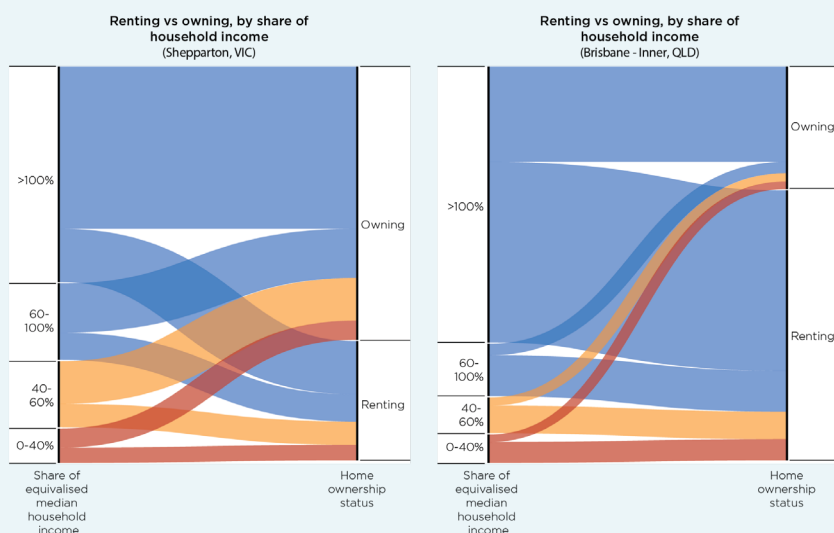
Notes: For two regions in Australia, Shepparton in Victoria and Brisbane Inner in Queensland, observed families are grouped based on share of equivalised household income and home ownership status for all observed families. Families observed with incomes below the poverty threshold of under 60 percent of median household income are coloured in orange (income between 40 and 60 percent of median household income) and red (incomes under 40 percent of median household income).

Several notable observations stand out here:

a) Families above the median income are more likely to own their home (with or without mortgage) than people with lower incomes. In Shepparton, homeowners dominate all income categories. In Brisbane Inner, renters dominate all income categories.
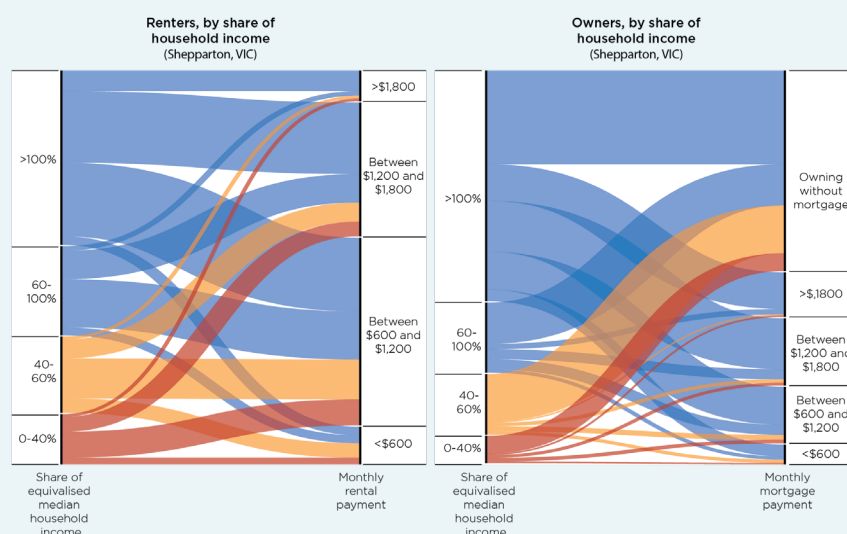
b) Among the owners, families in the lowest income category are overrepresented among those without mortgage — a fact that can be explained by their inability to secure a mortgage.

(c) Families with above median income are more likely to be in the category of the highest mortgage payments than the highest rental payments. This is likely to be by their preference to pay more for a mortgage than more for rent.

(d) In general, for those who pay a mortgage, the size of the payment is positively associated with family income, but the effect is asymmetric: higher-income families are less likely to be in lower-payment category than lower-income families are in the higher payment category.

Figure 5B:
Flow of families based on share of equivalised median household incomes and monthly payment for primary residence, for the region of Shepparton in Victoria.

Notes: For the region of Shepparton in Victoria, observed families in the region are grouped based on share of equivalised household income and monthly rental payment for families that rent their home from private providers or community providers (left); and monthly mortgage payment for families that own a home outright or are paying a mortgage (right).

Further Information

The Breaking Down Barriers Community Profiles web-based data visualisation tool can be accessed at https:// bdbprofiles.melbourneinstitute.unimelb.edu.au/.

Datasets:

The Breaking Down Barries Community Profiles are derived from data held within the Breaking Down Barriers Shared Data Environment. Data are available at Statistical Area Level 3 (SA3) and Statistical Area Level 2 (SA2) geographical levels as defined in the Australian Statistical Geography Standard (ASGS 2021). Where data is available at a unit level deeper than SA2/SA3, these data are analysed within the secure data environment and aggregated up to a level appropriate for inclusion in a community profile. Each community profile is defined by the broader SA3 region definition and contains information on the SA2 areas within it. Of 358 unique SA3 regions defined by the Australian Bureau of Statistics across Australia (in 2021), we provide profiles for 338 SA3 regions after excluding special purpose codes (where address data are coded to non-spatial values due to incomplete location information on Census night), and regions with low population counts (under 100 families in a SA2 area). Community-level poverty data and region-specific demographic information, measures on education status, employment, and primary residence characteristics are derived from information in the Breaking Down Barriers Community-level Poverty Dataset. This dataset uses measures captured in Australian Censuses from 2006 to the latest Census in 2021 and derives community-level poverty ratios using income data for Australian households. For more information on the design and construction of these data, please see Payne and Samarage (2020). The Breaking Down Barriers Community Profiles initiative will see continuous improvements with the inclusion of new data, new visualisations, and new insights to support changing needs from its user base.

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Research Insights produced by the Melbourne
Institute provide a clear and practical
understanding of contemporary economic and
social issues in Australia.

Supported by high-quality academic analysis, each
Research Insight aims to make sense of complex
issues to enable evidence-based decision making
for policy and practice.

The *Breaking Down Barriers* project provides in-
depth analyses of questions that will help us to better
understand the challenges faced by individuals,
families, communities and governments that
affect the existence and persistence of deep and
entrenched poverty and disadvantage in Australia.
The analyses have been undertaken by Melbourne
Institute researchers and utilise economic and
statistical techniques, which involves developing
shared data environments to study disadvantage and
developing data visualisations.

This *Research Insight/Rapid Analysis* has been
produced as part of an ongoing partnership between
the Paul Ramsay Foundation and the Melbourne
Institute with the goal of informing and shaping policy
and practice to break cycles of disadvantage. This
includes improving our understanding of the extent,
nature and causes of socio-economic disadvantage
in Australia and encouraging solutions that enable
program development and policy innovation
that foster opportunity and reduce poverty and
disadvantage.

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