CRE–DH

Centre of Research Excellence in Disability and Health

TECHNICAL REPORT

Spatial distribution of working age adults with disabilities across Australia: a small area analysis of the 2016 Census

in partnership with

THE UNIVERSITY OF MELBOURNE

THE UNIVERSITY OF SYDNEY

UNSW CANBERRA

RMIT UNIVERSITY

MONASH University

TECHNICAL REPORT

Spatial distribution of working age adults with disabilities across Australia: a small area analysis of the 2016 Census

Summary

This paper documents technical specifications for the production of a geographic analysis and graphical presentation of the proportion of working age adults with disabilities in Australia at Statistical Area Level 2 (SA2). This exercise is part of the *Mapping Inequities* Work Program within the Centre of Research Excellence in Disability and Health (CRE-DH).

Background

Mapping Inequities (Work Program 1: WP1) is one of four thematic streams within the Centre of Research Excellence in Disability and Health (CRE-DH). The CRE-DH will involve collaboration with the Australian Bureau of Statistics, capitalising on its newly integrated data platforms that combine data from the Census, administrative data collections and national surveys. WP1 will provide an Australia-wide baseline of disability-related social, economic and health inequities. The outcomes across the four Work Programs will inform the choice of indicators and the development and refinement of a monitoring framework.

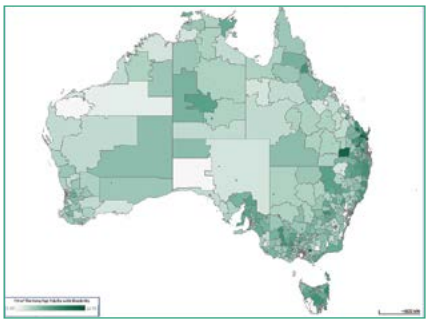
A core component of WP1 is to report on the spatial variation and change over time in the health of working age adults with disabilities in Australia. While working with the ABS on the integrated data platforms, the team has also made progress on frameworks, indicators and exploring ways to report and present indicators.

This Technical Report documents the approach used in producing the first map (Figure 1) that visually depicts the spatial distribution of the working age population who were in need of assistance in their core activities due to disability. The interactive map enables readers to navigate and explore geographic areas of interest. It is envisaged that this tool provides the foundation that future geographic analyses will employ. As such, this technical paper documents the work flows to ensure transparency and consistencies of approach in the future.

Interactive Map

The report refers to an online interactive map that can be accessed here:

http://go.unimelb.edu.au/bzv6



Authors

Dr Qingsheng Zhou, Professor Gwynnyth Llewellyn, Professor Eric Emerson, Professor Roger Stancliffe and Associate Professor Hannah Badland.

Acknowledgements

The source of the data referred to in this report is the Census of Population and Housing 2016 collected by the Australia Bureau of Statistics (ABS). The team would like to acknowledge the work of the ABS.

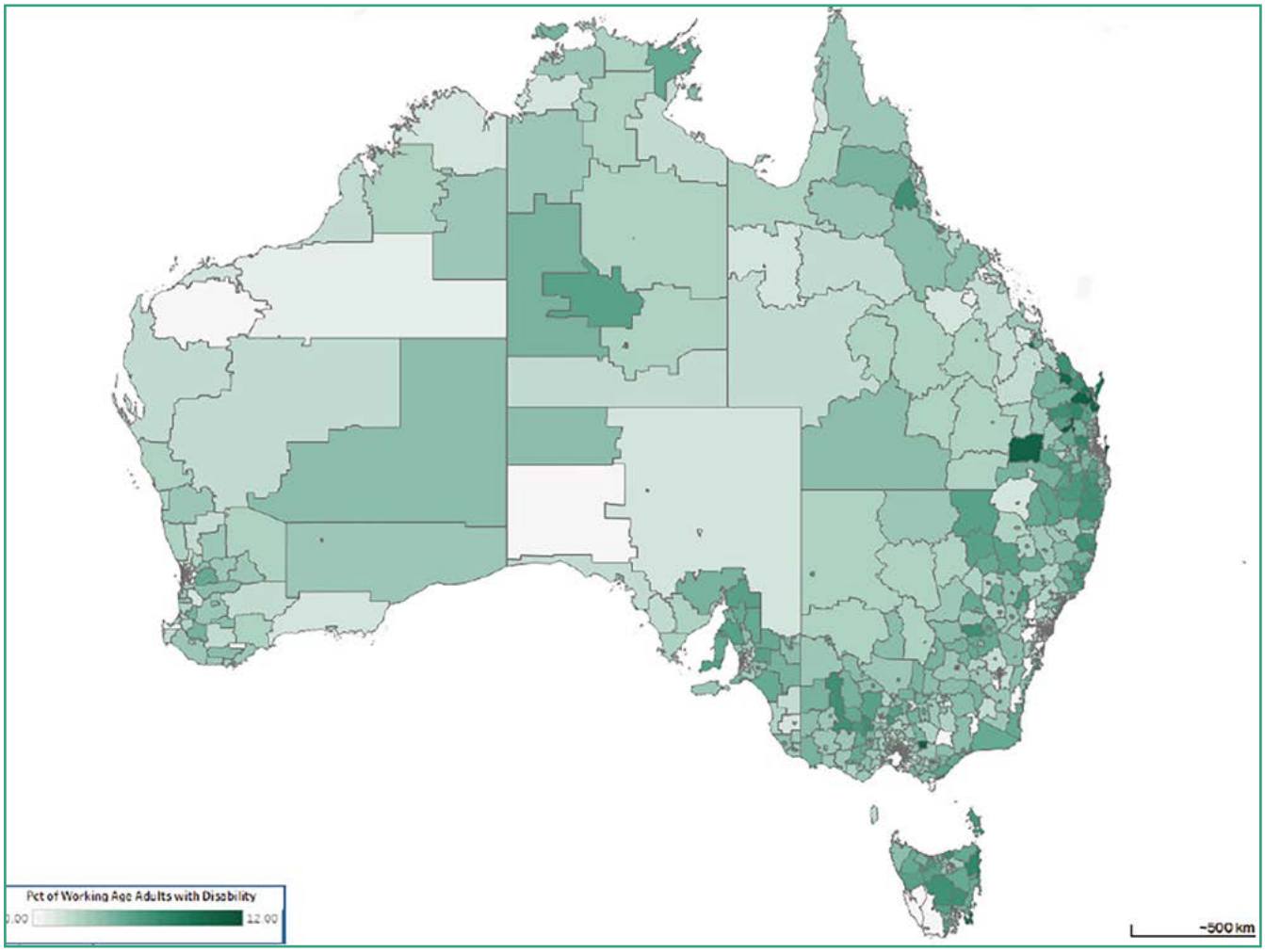
This publication has been produced by the **Centre of Research Excellence in Disability and Health** funded by the National Health and Medical Research Council, 2016-2021.

ISBN: 978 0 7340 5438 8
Technical Report, 2018

Contact us

T. +61 3 8344 0717
E. cre-dh@unimelb.edu.au
W. www.credh.org.au
T. @DisabilityHlth

Figure 1: Percentage of working age adults with disabilities – Statistical Area Level 2, Australia 2016



Data and definition

The map sources data from the Australian National Census of Population and Housing 2016 (Census 2016) that was conducted by the Australian Bureau of Statistics (ABS). The Census is the largest statistical collection undertaken in Australia. Repeated every five years, the 2016 Census was the 17th since the first, undertaken in 1911. It aims to connect with every person in Australia to collect data on their key characteristics and the place they are staying on Census night. Given the response rates for recent censuses have been greater than 96%,[1] the census statistics provide the most comprehensive information available for the entire country.

The comprehensive nature of the census gives it a clear advantage over other survey statistics in examining small geographic areas and small population groups, making it the best source available for this mapping study on distribution of disability.

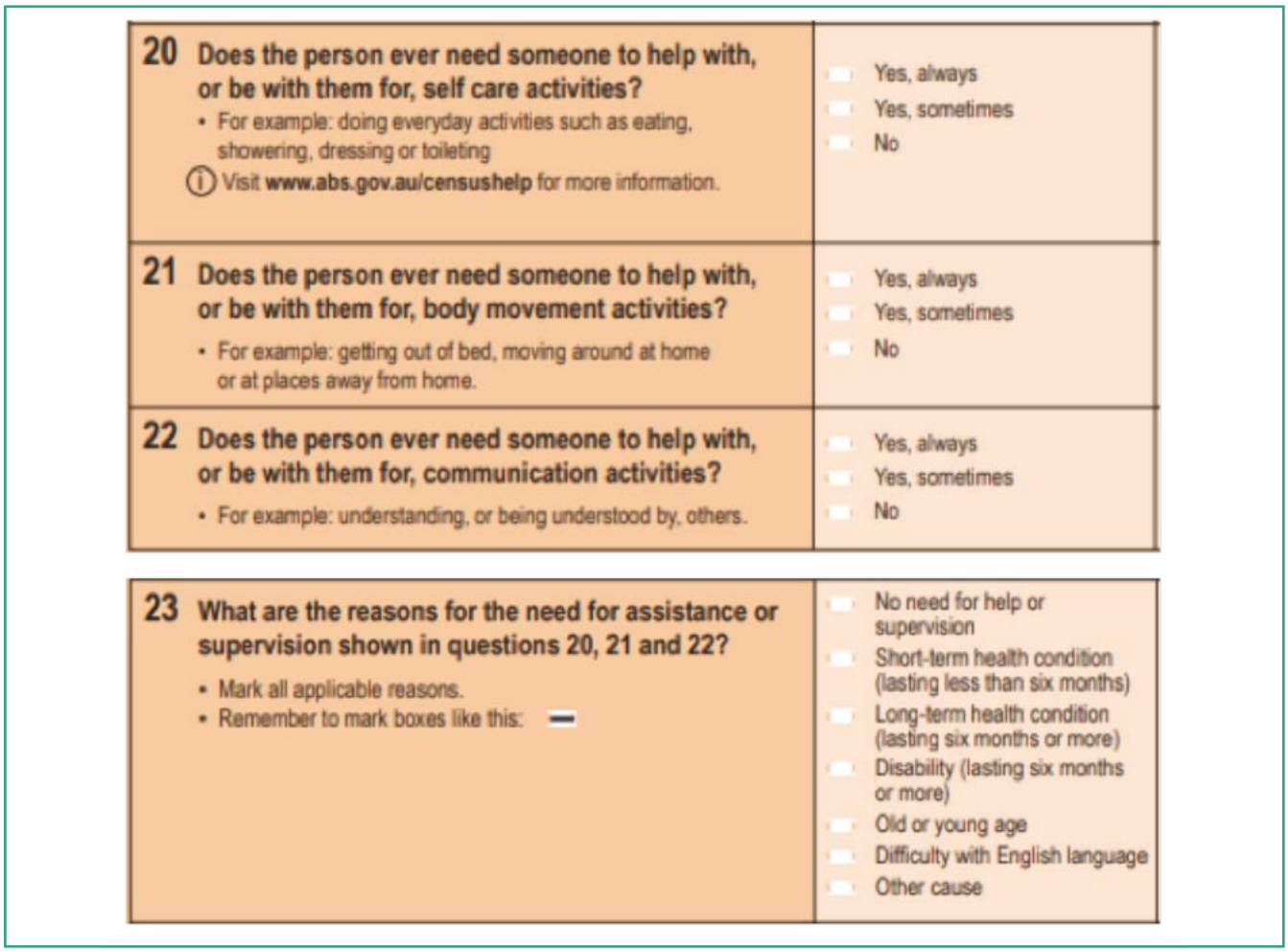
The computation of the indicator "proportion of working age people needing assistance in core activity" involves two variables, the age of a person (AGEP) and core activity need for assistance (ASSNP).

Working age people are defined as those who are aged between 15 and 64 years (inclusive). Figure 2 presents the disability related questions asked in Census 2016 (ABS 2016b).

ASSNP is the variable that the ABS uses to categorise people into three groups (Has need for assistance with core activities, Does not have need for assistance with core activities, Not stated) primarily based on answers to the four questions in Fig 2, and validated by other information such as age (ABS 2017a, p180).

ASSNP provides a measure of profound or severe disability that is largely conceptually consistent with that used in the national minimum data set (NMDS) of specialist disability services and in the ABS Survey of Disability, Ageing and Carers (SDAC). The SDAC adopts a two-dimensional measure to stratify disability status.

1 ABS (2017) online documents give the person non-response rates as 4.2% (2006), 3.7% (2011) and the preliminary response rate greater than 96% (2016).



20 Does the person ever need someone to help with, or be with them for, self care activities?

- For example: doing everyday activities such as eating, showering, dressing or toileting

ⓘ Visit **www.abs.gov.au/censushelp** for more information.

- Yes, always
- Yes, sometimes
- No

21 Does the person ever need someone to help with, or be with them for, body movement activities?

- For example: getting out of bed, moving around at home or at places away from home.

- Yes, always
- Yes, sometimes
- No

22 Does the person ever need someone to help with, or be with them for, communication activities?

- For example: understanding, or being understood by, others.

- Yes, always
- Yes, sometimes
- No

23 What are the reasons for the need for assistance or supervision shown in questions 20, 21 and 22?

- Mark all applicable reasons.
- Remember to mark boxes like this: ■

- No need for help or supervision
- Short-term health condition (lasting less than six months)
- Long-term health condition (lasting six months or more)
- Disability (lasting six months or more)
- Old or young age
- Difficulty with English language
- Other cause

Figure 2: Snip of Census 2016 form: Disability related questions

The first dimension, reflecting the International Classification of Functioning Disability and Health (ICF) activities and participation domains, defines that a person has disability if the person has a limitation, restriction or impairment, which has lasted, or is likely to last, for at least six months and restricts a range of daily activities. These daily activities are further divided into core activities, namely: self-care, mobility and communication, and non-core activities. The second dimension addresses how frequently – always or sometimes – a person needs assistance in these daily activities. People who have limitations in one or more of the three core activities and always or sometimes require assistance in these areas are classified as having profound or severe disability. It is this subgroup that has historically been taken as a proxy of the target population of Australia's specialist disability services and relevant government policy (Zhou, 2016).

While the concept of profound or severe disability population in the Census is the same as that used in the SDAC, the output items differ to reflect the diversity in the populations due to the different methodologies in the two collections (ABS 2017a, p. 180).

From this point onward we use the terms *people with disabilities* and *working age adults with disabilities* to represent this specific group of people identified in the Census.

Table 1: Number of geographic units in Australian Statistical Geography Standard (ASGS)(2016)

Region Type	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	OT	AUST.
State/Territory	1	1	1	1	1	1		1	1	9
Great Capital City Statistical Area	4	4	4	4	4	4	4	3	3	34
Statistical Area Level 4	30	19	21	9	12	6	4	3	3	107
Statistical Area Level 3	94	68	84	30	36	17	11	12	6	358
Statistical Area Level 2	578	464	530	174	254	101	70	133	6	2,310
Statistical Area Level 1	18,399	14,073	11,563	4,245	5,984	1,464	626	1,147	22	57,523
Mesh Block	109,880	85,014	69,764	28,205	42,449	12,981	3,299	6,393	137	358,122

Level of geography

Table 1 summarises the number of different levels of geographic units with the current Australian Statistical Geography Standard (ASGS) (ABS 2006a). After initial assessments of distribution of working age adults with disabilities, we identified Statistical Area Level 2 (SA2) as the adequate base unit for geographic presentation. SA2s are designed to reflect functional administrative geographic areas that represent a community that interacts together socially and economically. The SA2 is the smallest area used in the majority of ABS statistical releases, including the Estimated Resident Population (ERP), Health & Vitals and Building Approvals data. SA2s generally have a population range of 3,000 to 25,000 persons, and have an average population of about 10,000 persons (ABS 2016).

Statistical Area Level 1 (SA1) was assessed as being too small for this project. On average, SA1s have a population size of approximately 400 persons. Of the total 57,500 SA1s in 2016, more than 39,000 had less than 10 people with disabilities in usual residence. As explained later, these small counts suffer greatly from the measure ABS applied to Census products for confidentiality purposes.

The Census could count people in a number of different ways, where they live (usual residence), where they work (place of work), and where the person was on Census night (the place of enumeration). These places may or may not be the same. Usual residence is used to place people in this geographic analysis.

Small counts

When computing the indicator of working age people with disabilities, we removed all SA2 counts that were less than 10[2] to ensure they were less impacted by small counts and describe them as "too small to report (TSTR)". These comprise 6% of the total SA2s (Table 2, 0 and 1-10 rows). They are shown as white in the map; many are in very sparsely populated areas such as national parks, or cemeteries.

Table 2: Number and percentage of SA2s by the number of reported adults with disabilities

Number of working age adults with disabilities	Number of SA2	% of SA2
0	129	5.6%
1-10	10	0.4%
10-20	22	1.0%
20-30	39	1.7%
30-40	44	1.9%
40-50	67	2.9%
50-60	78	3.4%
60-70	86	3.7%
70-80	80	3.5%
80-90	71	3.1%
90-100	89	3.9%
>100	1595	69.0%
Grand Total	**2310**	**100.0%**

2 Including SA2 of non-residential, or no working age adults with disabilities.

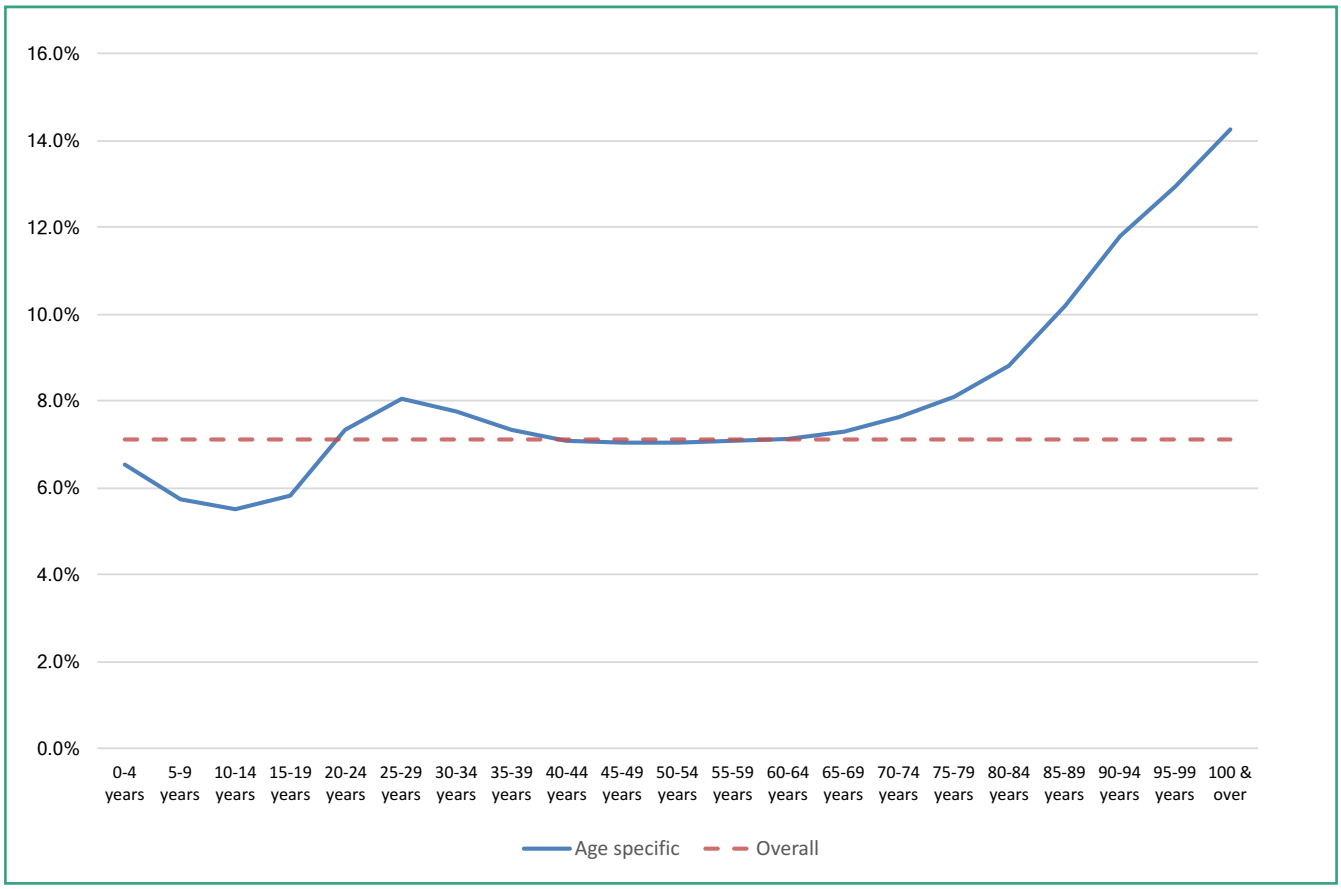
The removal of 'small-count' SA2s reduces the noise caused by small counts and by the statistical randomisation made by the ABS to protect the confidentiality of the census products. Generally, a small sub-population or a small geographic area tends to be affected proportionally more than a larger population group or a larger geographic unit by the noise embedded in data. Meanwhile, the application of the perturbation by the ABS to protect people's confidentiality adds another risk factor influencing the reliability of census statistics. This perturbation technique is applied to all counts, including totals, to prevent any identifiable data about individuals being released.[3] While perturbation is applied to all Census table cells (the exception to this is cells with a value of 0), it does add relatively more noise to smaller cell values. This is a deliberate measure to protect confidentiality, especially where small cell values may lead to identification of individuals (ABS 2017b).

Census TableBuilder data sets computed from the unit level census data are not weighted, so relative standard errors (RSE) do not apply. This makes TableBuilder products different from some other Census products such as Census Confidentialised Unit Record File (CURF) that contains a small random sample (1%) of unidentified private households, associated persons, and a small random sample of persons in non-private dwellings. The lowest geographic units in the CURF are not suitable for this project as the focus is on distribution at small area level.[4]

Missing values

We also excluded all missing values when deriving the indicator. As for all variables in the Census, a proportion of people did not respond to questions relating to disability. Figure 3 gives the rate of "not stated" by the age cohorts. It shows that at the national level and for all ages as a whole, about 7% of people did not respond to the disability questions. These rates increased substantially at the oldest age groups. In the working age population, they are reasonably flat. For the small number of people who did not report their age or date of birth in the Census, the age imputed by ABS has been used.

Figure 3: Percentage of people who did not reply to disability related questions (ASSNP="NS")



3 http://www.abs.gov.au/ausstats/abs@.nsf/Latestproducts/2916.0Main%20Features252016
Note importantly ABS has removed from 2016 Census process an "additivity step" that is additional to perturbation in the previous censuses (2006 and 2011).

4 For example, Census 2011 CURF divides Australia into 56 regions (about a half of the number of SA4).

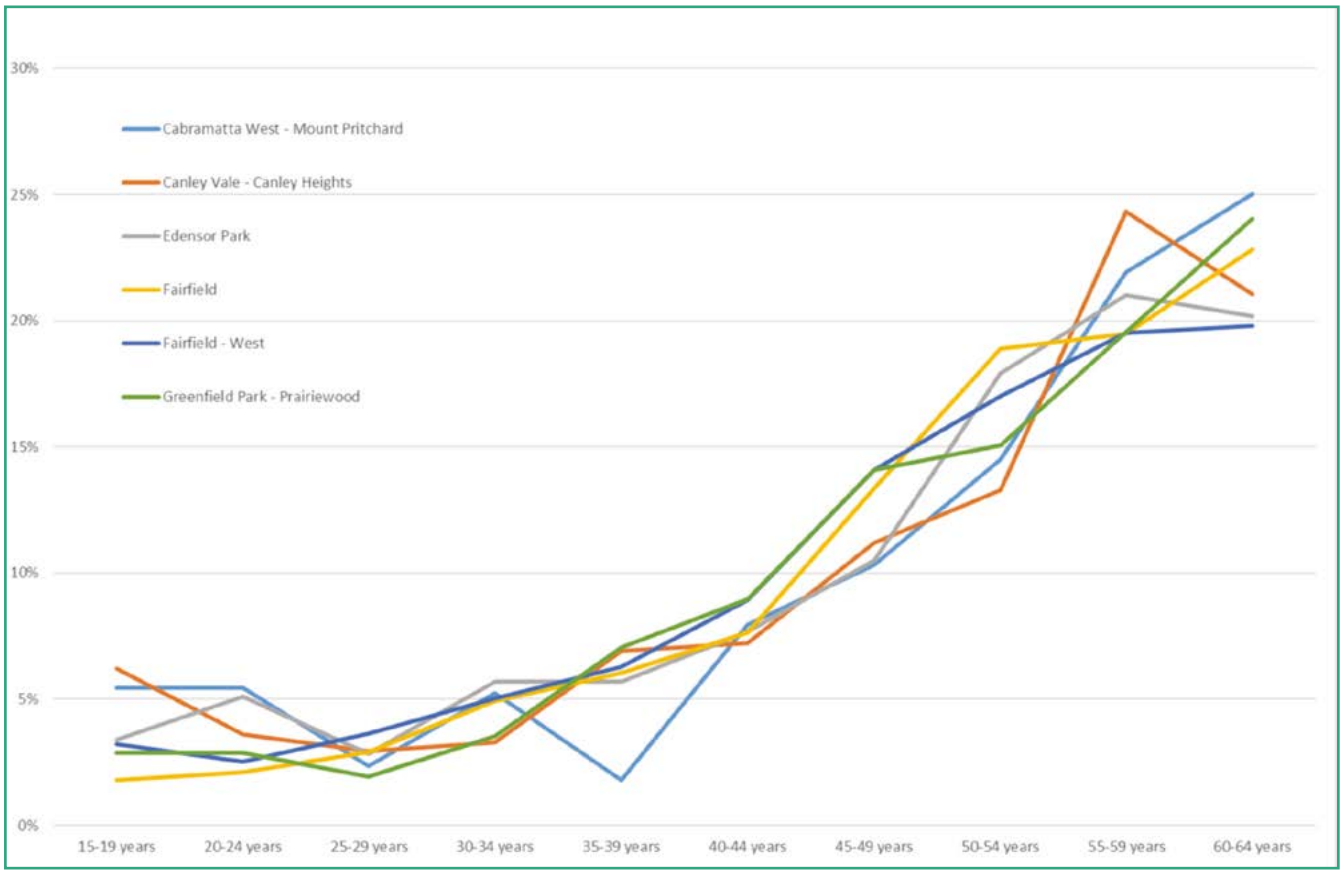
Age standardisation

The map (Figure 1 Percentage of working age adults with disabilities in Australia 2016) presents the crude rates of working age people who reported a need for assistance in their core activities. These rates were not age standardised. Age standardisation is a frequently used technique in epidemiology and demography to adjust data to enable populations to be compared when the age profiles of the populations are quite different. While on the surface it might be desirable to perform age standardisation in a project such as this that primarily focuses on area comparison, it is impractical to perform age standardisation because of the lack of sufficient sample size at SA2 level.

Age standardisation requires the study population to be broken down into refined age cohorts, usually 5-year age cohorts. Table 2 shows that about 40% of SA2s have less than 100 working age adults with disabilities, with more than 20% having less than 70 people. Breaking the counts of these 40% of SA2s into smaller age cohorts, even into 10-year age cohorts, would make the counts of the majority of these age cohorts too small to be reliable. Detailed analysis reveals that more than 36% of all counts for the combination of SA2 and 5-year cohorts between 15 and 64 years would have a value less than 10 working age adults with disabilities. In other words, should an age standardisation be performed, 36% of all input data would be severely impacted by the randomisation (perturbation) method explained previously.

Furthermore, given this project focuses on a narrow band of age cohorts (15-64 years), it is debatable how much it would benefit from age standardisation. Figure 4 presents the age distribution of working age adults with disabilities in six SA2s. We selected these Sydney Southwest SA2s to eliminate the impact of randomisation; the number of working age adults with disabilities is greater than or equal to 10 in each of the age cohort and SA2 combinations (10 by 6) except three. The similar age distributions of these working age populations provide evidence to counter the need for age standardisation.

Figure 4: Prevalence of working age adults with disabilities by age in selected SA2 in Southwest Sydney



Stability over time

ASGS is designed to ensure stability over time. 95.5% of Census 2016 SA2s used the same geographic boundaries at Census 2011 (when the ASGS units were first implemented), with an increase of 96 SA2s in 2016 (ABS 2017c).

An analysis (Figure 5) comparing the population growth between 2011 and 2016 at SA2s indicates a stable trend over the period.

To assess the validity of these data, we investigated the extent to which local area variation in the prevalence of working age adults with disabilities was associated with key social and demographic factors that previous research has shown strong associations with disability prevalence; specifically age and social deprivation. For each SA2 we derived and evaluated the following Census variables: median age of the working age population; the proportion of the working age population over 50 years of age. In addition, we linked the Census SA2 data to 2016 Socio-Economic Indexes for Areas (SEIFA 2016)(ABS 2016c). Complete data on all variables were available for 1,888 SA2 areas. All variables were significantly related to the prevalence of working age disability ($p<0.01$).

Collinearity analysis that revealed a high degree of multi-collinearity among these variables led us to decide to use only two independent variables though a sequential linear regression to model the association between these factors and the prevalence of working age disability. In Model 1 we selected and entered score of Index of Relative Socio-economic Advantage and Disadvantage (IRSEAD) as an independent variable. The selection of IRSEAD was based on: (1) it having the strongest association with the prevalence of working age disability; and (2) the high risk of collinearity across all four SEIFA indices. In Model 2 we added the proportion of working age adults who are over 50 as an independent variable. While age-related variables generally were significantly related to the prevalence of working age disability, entering any additional variables rapidly reduced the association between median age and the prevalence of working age disability to non-significant levels. The results of these analyses are presented in Table 3.

Figure 5: Number of SA2s by the range of population growth (%) from 2011 to 2016

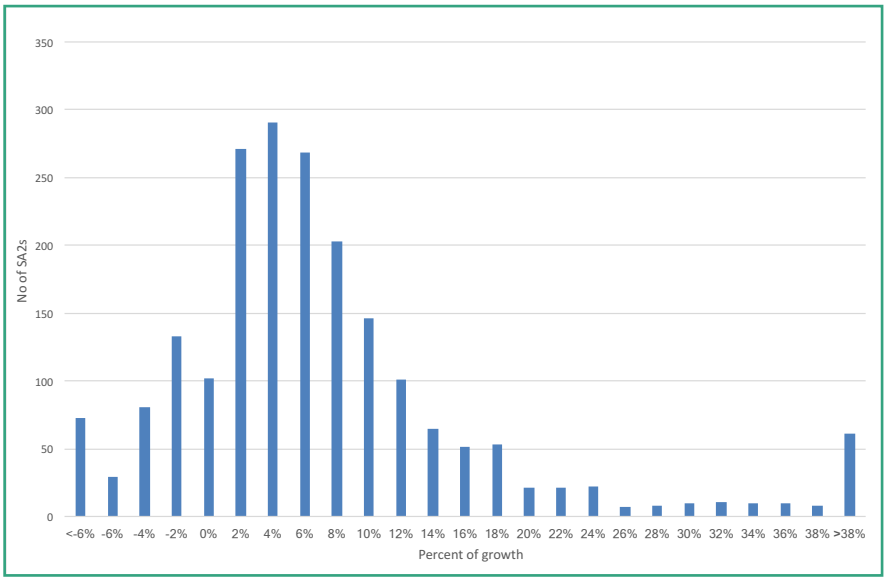


Table 3: Variables associated with the local area prevalence of working age disability

Model and Independent variables [a]		Standardized Coefficients (Beta)	Level t	Sig.
Model 1 (Adjusted R^2=0.552, p<0.001)				
1	(Constant)		59.556	0.000
	IRSEAD	-0.743	-48.188	0.000
Model 2 (Adjusted R^2=0.619, p<0.001)				
2	(Constant)		46.502	0.000
	IRSEAD	-0.681	-46.613	0.000
	% of working age adults over 50	0.267	18.297	0.000

a. Dependent Variable: % of working age adults with disabilities

As can be seen, area level social deprivation (ISREAD) itself accounted for 55% of the variation in the local area prevalence of working age disability. The addition of local population age accounted for 62% of the variation explained in the local area prevalence of working age disability.

Note that while the disability related questions have been included in the Census since 2006, the new ASGS that first introduced the constructs presented in Table 1 was first applied in Census 2011, making the spatial comparison between Census 2006 and Census 2011, and Census 2016 difficult.

Software

We extracted all base data for this project via ABS TableBuilder; an online tool for creating tables and graphs.[5] Additional data manipulation and analysis were undertaken in MS EXCEL and the mapping analysis was done using ArcMap. As ArcMap is licensed GIS software. We have shared the final map with the public through Tableau Public which is free data visualisation software. The regression was performed using SPSS v24?.

5 While the TableBuilder has mapping capacity, it is limited to mapping a small number of cells.

Base maps

The base maps used in this study were downloaded from the ABS website.

Findings and future analyses

Figure 6 presents the number of SA2s by the range of the percentage of working age adults with disabilities. According to Census 2016:

- 5.5% of all Australians are reported to have disabilities.
- Of working age Australians, 3.3% are reported to be adults with disabilities.
- 2,171 SA2s (of the total 2,310 SA2s) had more than 10 working age adults with disabilities.
- About 50% of SA2s have 2-4% of working age adults with disabilities, excluding those "too small to report".
- 144 SA2s have more than 6% of working age adults with disabilities, of which 63 SA2s are higher than 7%.

Figures 7-12 provide a series of maps of selected locations with varying degrees of concentration of working age adults with disabilities across the country. Table 4 lists SA2s where the proportion of working age adults with disabilities is greater than >7.5%.[6] Table 5 lists of SA2s with the lowest concentration of working age adults with disabilities (<1% but not TSTR).

Figure 6: Number of SA2s by the percentage of working age adults with disabilities

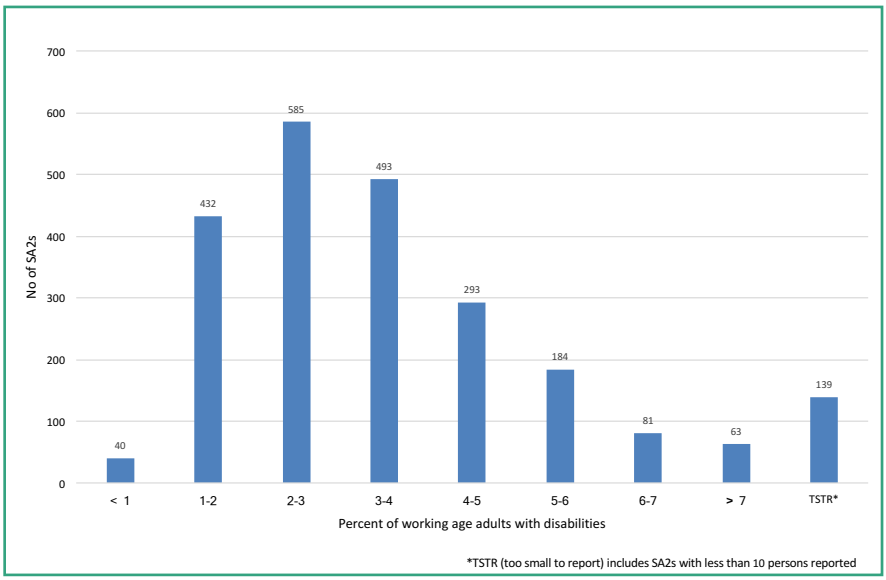
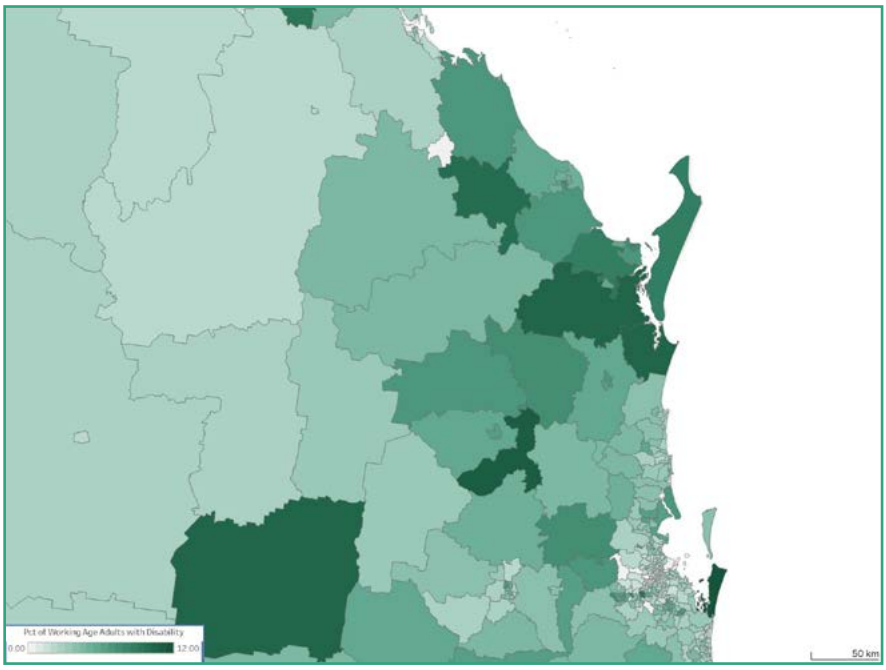


Figure 7: Concentration of working age adults with disabilities in Widebay area, Queensland



6 7.5% is a natural gap showing in the distribution of the percentages

Figure 8: Concentration of working age adults with disabilities in Newcastle region, NSW

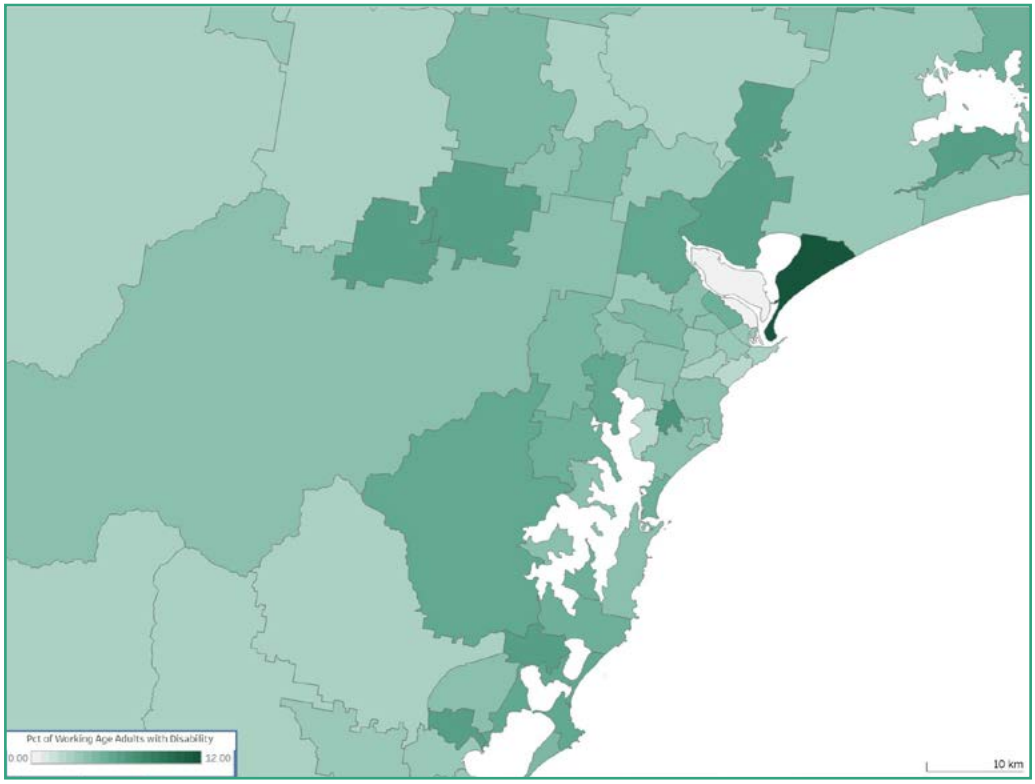


Figure 9: Concentration of working age adults with disabilities in South West Sydney, NSW

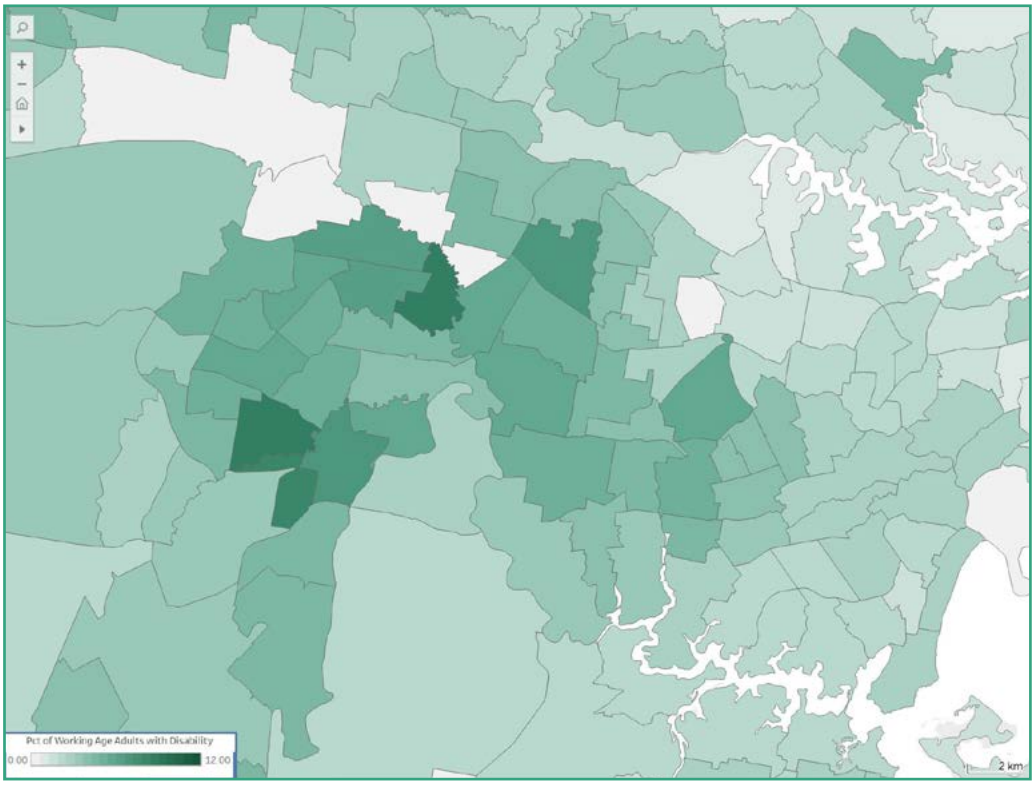


Figure 10: Concentration of working age adults with disabilities in Tasmania

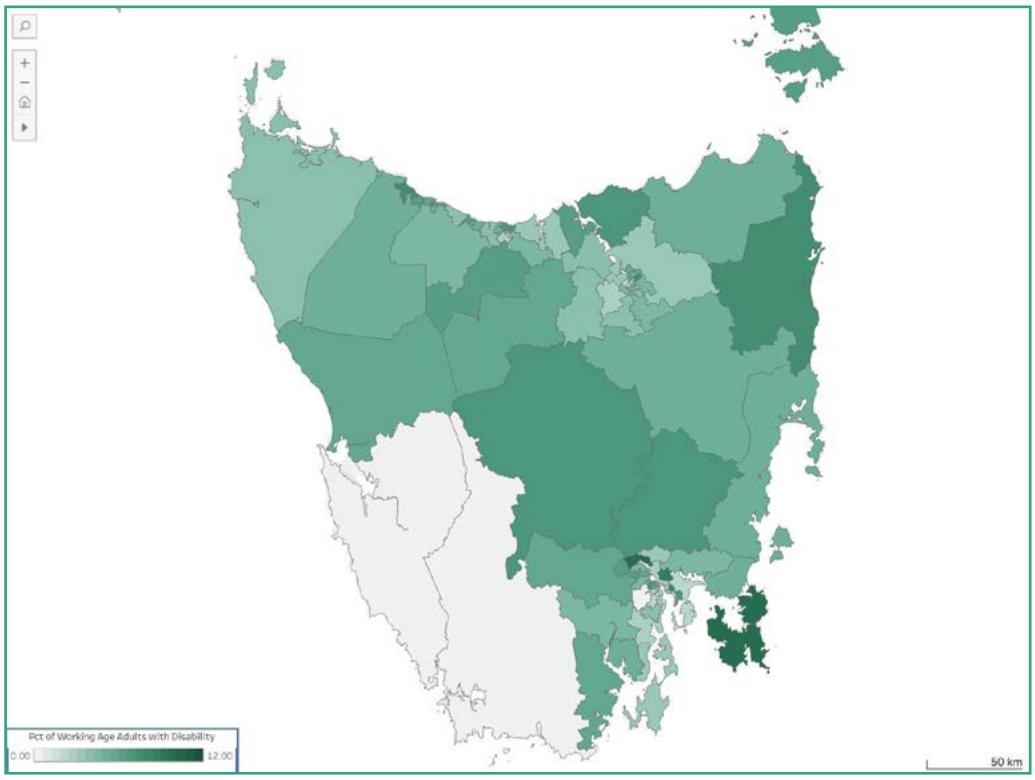


Figure 11: Concentration of working age adults with disabilities in Western Victoria

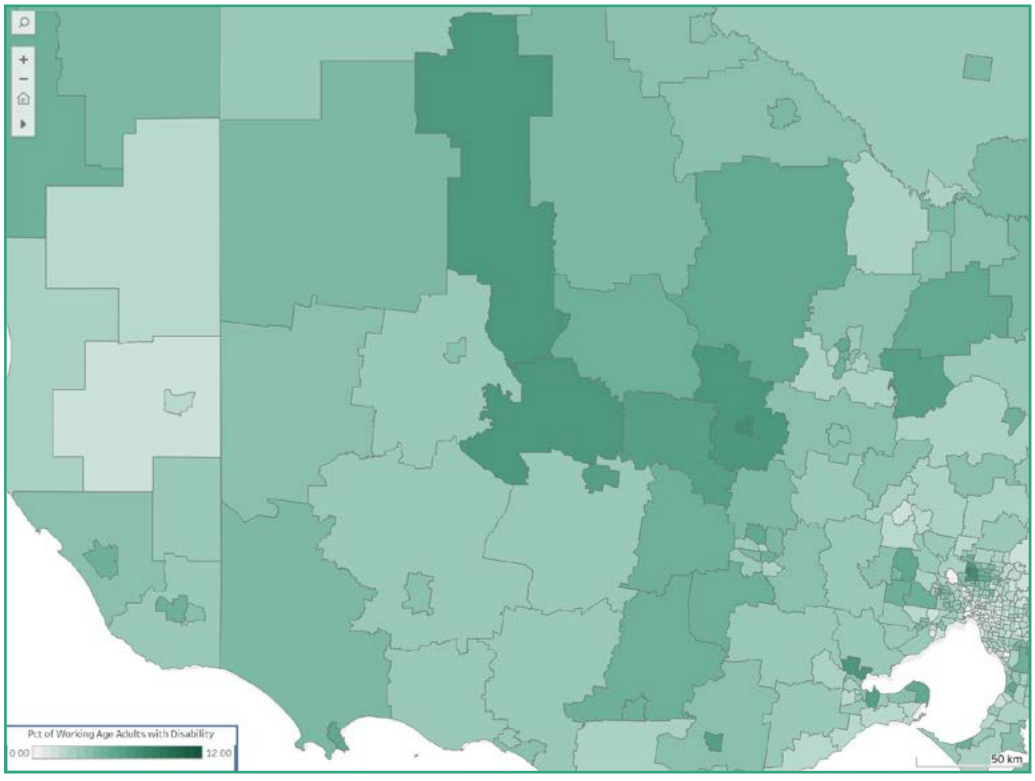


Figure 12: Concentration of working age adults with disabilities in Melbourne and Upper Yarra, Victoria

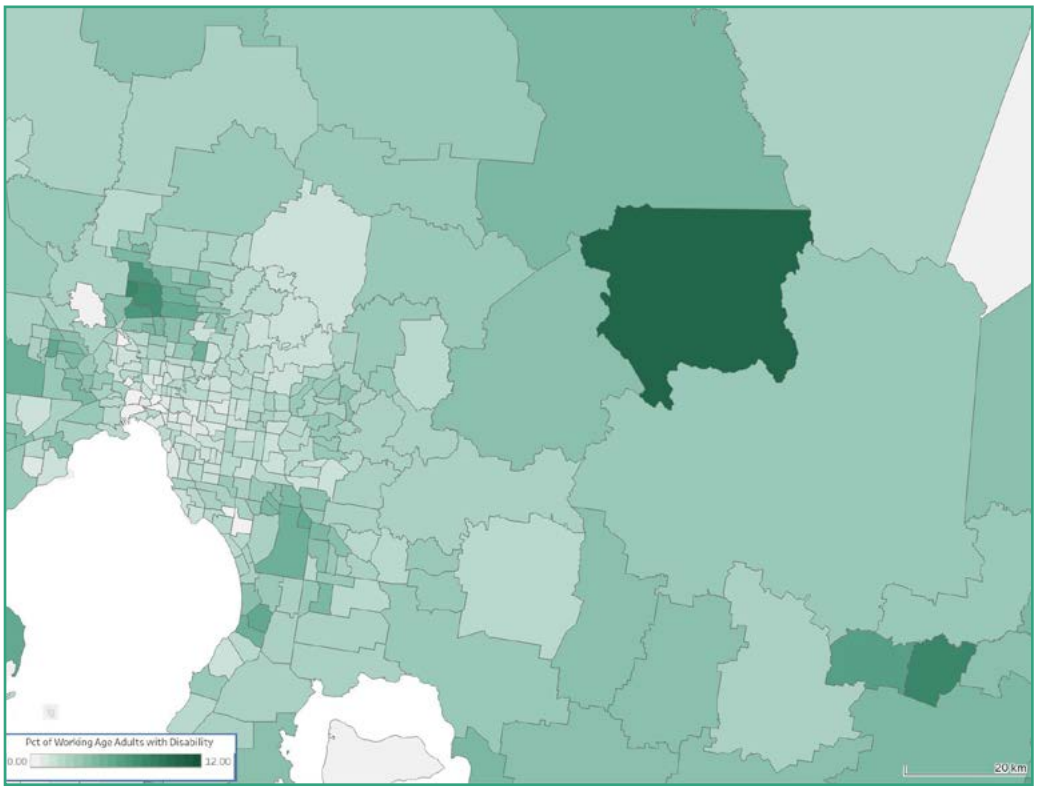


Table 4: SA2s where working age adults with disabilities is greater than 7.5%

State	SA4	SA3	SA2	Pct
NSW	Mid North Coast	Kempsey - Nambucca	Kempsey	7.6%
			Nambucca Heads	7.7%
		Taree - Gloucester	Taree	7.5%
	Newcastle and Lake Macquarie	Newcastle	Stockton - Fullerton Cove	11.9%
	Sydney - South West	Bringelly - Green Valley	Ashcroft - Busby - Miller	8.8%
		Fairfield	Fairfield	8.7%
		Liverpool	Lurnea - Cartwright	8.3%
Vic	Ballarat	Maryborough - Pyrenees	Maryborough (Vic.)	7.5%
	Hume	Upper Goulburn Valley	Upper Yarra Valley	10.5%
	Latrobe - Gippsland	Latrobe Valley	Morwell	7.8%
	Melbourne - North West	Tullamarine - Broadmeadows	Campbellfield - Coolaroo	7.7%
			Meadow Heights	8.2%
Qld	Brisbane - East	Cleveland - Stradbroke	Redland Islands	11.4%
	Central Queensland	Rockhampton	Mount Morgan	9.2%
			Rockhampton City	7.6%
	Darling Downs - Maranoa	Darling Downs (West)-Maranoa	Tara	10.2%
	Ipswich	Forest Lake - Oxley	Wacol	9.2%
		Ipswich Inner	Leichhardt - One Mile	7.8%
			Riverview	8.3%
	Wide Bay	Bundaberg	Bundaberg	7.9%
		Burnett	Gin Gin	9.8%
			Nanango	11.2%
		Gympie - Cooloola	Cooloola	10.3%
		Hervey Bay	Point Vernon	7.7%
			Torquay - Scarness - Kawungan	7.9%
		Maryborough	Burrum - Fraser	8.8%
			Granville	9.0%
			Maryborough (Qld)	8.6%
			Maryborough Region - South	10.4%
SA	Adelaide - North	Playford	Elizabeth	10.4%
			Smithfield - Elizabeth North	8.8%
	Adelaide - South	Onkaparinga	Hackham West - Huntfield Heights	9.0%
	Barossa - Yorke - Mid North	Yorke Peninsula	Wallaroo	8.1%
Tas	Hobart	Brighton	Bridgewater - Gagebrook	9.8%
		Hobart - North East	Mornington - Warrane	8.0%
			Risdon Vale	8.6%
	Launceston and North East	North East	St Helens - Scamander	7.8%
	South East	South East Coast	Forestier - Tasman	9.7%
	West and North West	Burnie - Ulverstone	Wynyard	7.7%

Table 5: SA2s where working age adults with disabilities is less than 1% (TSTR excluded)

State	SA4	SA3	SA2	Pct
NSW	Sydney - City and Inner South	Sydney Inner City	Pyrmont - Ultimo	1.0%
			Sydney - Haymarket - The Rocks	0.9%
	Sydney - Eastern Suburbs	Eastern Suburbs - North	Bondi Beach - North Bondi	0.9%
			Double Bay - Bellevue Hill	0.7%
			Paddington - Moore Park	0.9%
			Rose Bay - Vaucluse - Watsons Bay	1.0%
			Woollahra	0.9%
		Eastern Suburbs - South	Kensington (NSW)	1.0%
	Sydney - North Sydney and Hornsby	North Sydney - Mosman	Cremorne - Cammeray	1.0%
			Crows Nest - Waverton	1.0%
			Neutral Bay - Kirribilli	0.7%
			North Sydney - Lavender Bay	0.8%
Vic	Melbourne - Inner	Melbourne City	Docklands	0.7%
			Melbourne	0.5%
			South Yarra - West	0.7%
			Southbank	0.5%
Qld	Brisbane - West	Sherwood - Indooroopilly	St Lucia	0.7%
	Brisbane Inner City	Brisbane Inner	Brisbane City	0.9%
		Brisbane Inner - East	Hawthorne	1.0%
		Brisbane Inner - North	Hamilton (Qld)	1.0%
	Mackay - Isaac - Whitsunday	Bowen Basin - North	Moranbah	0.9%
WA	Perth - Inner	Cottesloe - Claremont	City Beach	0.8%
			Cottesloe	0.9%
			Nedlands - Dalkeith - Crawley	0.9%
	Perth - South East	Armadale	Forrestdale-Harrisdale-Piara Waters	0.8%
	Western Australia - Outback (North)	East Pilbara	East Pilbara	0.8%
			Newman	1.0%
		West Pilbara	Ashburton (WA)	0.6%
			Karratha	0.8%
SA	South Australia - Outback	Outback - North and East	Roxby Downs	0.8%
ACT	Australian Capital Territory	Gungahlin	Crace	0.9%
		Molonglo	Wright	0.9%
		North Canberra	Civic	0.8%
NT	Darwin	Darwin City	Darwin City	0.9%
			Fannie Bay - The Gardens	0.8%
			Larrakeyah	0.7%
			Woolner - Bayview - Winnellie	0.7%
		Palmerston	Bakewell	1.0%
			Palmerston - South	0.8%
	Northern Territory - Outback	East Arnhem	Nhulunbuy	0.9%

Closing remarks

This paper documents the technical specifications of a geographical analysis that is presented as an online interactive map. The interpretation of the map requires caution for a number of reasons. First, this analysis replies solely on ABS Census 2016. While the ABS Censuses are generally high quality, they also have limitations as do other population data collections (ABS, not dated).

Secondly, it is important for this project to provide a final mapping product that is online, can be easily maintained, accessed, and utilised, with little or no cost to the user. Tableau Public offers such a platform. However, this platform has limited presentation and analysis options, compared with some other specialist geographic information system software.

References

ABS (2016a) Australian Statistical Geography Standard (ASGS) http://www.abs.gov.au/websitedbs/D3310114.nsf/home/Australian+Statistical+Geography+Standard+(ASGS), last accessed on 20/2/2018

ABS (2016b) Census household form http://www.abs.gov.au/ausstats/abs@.nsf/Lookup/2901.0Main%20Features802016/$FILE/2016%20Census%20Sample%20Household%20Form.pdf, last accessed on 7/3/2018

ABS (2016c) Technical paper: Socio-Economic Indexes for Areas (SEIFA), ABS cat 2033.0.55.001, http://www.ausstats.abs.gov.au/ausstats/subscriber.nsf/0/756EE3DBEFA869EFCA258259000BA746/$File/SEIFA%202016%20Technical%20Paper.pdf, last accessed on 30/4/2018

ABS (2017) Census 2016 Media release – National, http://www.abs.gov.au/websitedbs/censushome.nsf/home/CO-108?opendocument&navpos=620, last accessed on 9/3/2018

ABS (2017a) Census of Population and Housing: Census Dictionary, ABS Cat 2901.0, http://www.ausstats.abs.gov.au/ausstats/subscriber.nsf/0/4D2CE49C30755BE7CA2581BE001540A7/$File/2016%20census%20dictionary.pdf, last accessed on 20/2/2018

ABS (2017b) Information Paper: Census of Population and Housing - Products and Services, 2016, ABS cat. 2011.0.55.001, http://www.abs.gov.au/ausstats/abs@.nsf/Lookup/by%20Subject/2011.0.55.001~2016~Main%20Features~Data%20Quality%20and%20Random%20Perturbation~18, last accessed on 23/2/2018

ABS (2017c) Australian Statistical Geography Standard (ASGS): Volume 1 - Main Structure and Greater Capital City Statistical Areas, STABILITY AND CHANGE IN THE ASGS, ABS cat: 1270.0.55.001, http://www.abs.gov.au/ausstats/abs@.nsf/Lookup/by%20Subject/1270.0.55.001~July%202016~Main%20Features~Stability%20and%20Change%20in%20the%20ASGS~10018, last accessed on 7/3/2018

ABS (not dated) Using ABS statistics: Telling the right story, http://www.abs.gov.au/websitedbs/d3310114.nsf/Home/Using+ABS+Statistics:+Telling+the+right+story, last accessed on 8/4/2018

Zhou, Q. (2016). Accessing disability services by people from culturally and linguistically diverse backgrounds in Australia. *Disability and Rehabilitatio*n, 38(9), 844-852.

Contact Us

Centre of Research Excellence in Disability and Health

T. +61 3 8344 0717
E. cre-dh@unimelb.edu.au
W. www.credh.org.au
T. @DisabilityHlth

CRE–DH
Centre of Research Excellence in Disability and Health