Who is At -risk of Homelessness? Enumerating and Profiling the Population to Inform Prevention[1]

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Abstract_ *While much international research has focused on enumerating and profiling populations experiencing homelessness, the same cannot be said for those at-risk of homelessness. Yet in order to successfully prevent homelessness we must first know who is at-risk and why. This paper uses two panel surveys to operationalise and test a definition of homelessness risk and subsequently enumerate and profile the population at-risk of homelessness in Australia. Findings revealed that 7.9% of people aged 15 years and over, just under 1.5 million people, were at-risk of homelessness in Australia in 2015. Compared with the national population, those at-risk are more likely to be women, to be Indigenous and to report fair or poor health. They also have lower levels of educational attainment and are more likely to be on low incomes and in receipt of income-support payments, linking risk of homelessness with multiple indicators of poverty and disadvantage. The paper concludes by discussing opportunities for future international scholarship on homelessness risk using household panel surveys and draws on the findings to suggest directions for primary prevention efforts in Australia.*

Keywords_ *Homelessness, risk, prevention, panel surveys, enumeration, population estimates*

1 This paper uses unit record data from the Household, Income and Labour Dynamics in Australia (HILDA) survey and Journeys Home. Both surveys are funded by the Australian Government Department of Social Services (DSS) and managed by the Melbourne Institute of Applied Economic and Social Research. The findings and views reported in this paper, however, are those of the author and should not be attributed to either DSS or the Melbourne Institute.

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Introduction

Enumerating and profiling the population experiencing homelessness has been critical in elevating homelessness as a policy issue and galvanising action internationally (Busch-Geertsema *et al.*, 2014; Chamberlain and MacKenzie, 2014; Pleace, 2017; Horsell and Zufferey, 2018). Understanding how many people experience homelessness at a point-in-time or over a year, and who they are, is a key focus of homelessness research across Europe (Edgar, 2009; Baptista *et al.*, 2012; Busch-Geertsema *et al.*, 2014) and Australia (ABS, 2018) with numerous papers devoted to methods in this area (e.g. Sales, 2015; Lelubre and Dewaele, 2016). Counting and profiling the homeless population has been critical for securing funding to address homelessness (Horsell and Zufferey, 2018). Changes to numbers and trends in homelessness have also motivated important changes in policy direction in countries such as Finland (Pleace, 2017) and have been used to argue for the success of particular policy regimes and interventions (Busch-Geertsema and Fitzpatrick, 2008).

If homelessness is to be substantially reduced or ended, a focus on prevention is critical (Culhane *et al.*, 2011; Parsell and Marston, 2012; Gaetz and Dej, 2017). As Edgar *et al.,* (2007, p.12) argue: '[p]revention requires knowledge of the characteristics and needs of the at-risk population'. Enumerating and profiling the population at-risk of homelessness can elevate the status of prevention efforts and focus their direction. It can also provide a way to monitor the effectiveness of primary prevention initiatives and tailor their focus and implementation over time.

Significant work has been undertaken which quantifies risk of homelessness in various ways. This literature can be grouped into three broad camps: the risk-factor approach, pathways and trigger events, and an index approach.

The risk-factor approach looks for those characteristics, behaviours or experiences which are over-represented in the homelessness population, and argues that these constitute risk factors for homelessness (e.g. Fertig and Reingold, 2008). This could include being from a particular ethnic group (Scutella and Johnson, 2012), being young (Department for Communities and Local Government, 2012) or experiencing childhood poverty (Bramley and Fitzpatrick, 2017). This approach usually quantifies risk by determining the probability of experiencing homelessness given a particular characteristic, behaviour or experience. Some studies have also attempted to quantify the impact of area-level variables on homelessness such as housing and labour markets (e.g. Elliott and Krivo, 1991; Quigley *et al*,. 2001, Parkinson *et al*., 2019), or the combination of individual-level and area-level factors (Bramley and Fitzpatrick, 2017; Johnson *et al*., 2019). This data-driven approach is useful for generating lists of risk factors that increase the probability of homelessness.

However, additional work is needed to examine the number and combination of risk factors a person would need to qualify as at-risk[2] and to formulate a strategy to enumerate the population at-risk of homelessness.

Risk is also explored using the pathways approach to homelessness (e.g. Johnson *et al.*, 2008; Fitzpatrick *et al.*, 2013). This approach derives common pathways into homelessness for specific groups and often specifies key trigger events. This information is then used to identify particular cohorts that may be considered at-risk. However, this approach does not always yield a richer causal story about why certain groups experience homelessness (Clapham, 2003). In some instances, trigger events alone are used to define a population at-risk of homelessness, such as those exiting an institution[3] (Department for Communities and Local Government, 2012), or women experiencing domestic violence (Commonwealth of Australia, 2008). While the pathways approach may give a more detailed causal picture of the factors that lead to homelessness for particular groups (Fitzpatrick *et al.*, 2013), like the risk-factor paradigm, further conceptual work is needed to move from lists or groups of risk factors to a strategy to enumerate a population.

Index-based approaches can be seen in two Australian-based studies which have developed indices of relative risk for homelessness (D'Souza *et al.,* 2013; Beer *et al.,* 2019). These studies produce a score for areas or persons to indicate higher or lower risk relative to each other. While providing some important insights, these studies do not clearly define homelessness risk or provide a cut-off on their risk indices to enable the population at-risk of homelessness to be enumerated and profiled.

While immensely valuable, these approaches to risk have not led to a detailed enumeration and profiling of the population at-risk of homelessness. This paper adopts a different approach. It extends previous work by the author (Batterham, 2019a) applying a clear definition of homelessness risk to enable the enumeration and profiling of the population.

This paper has two aims: first, to operationalise and test Batterham's (2019a) definition of homelessness risk; and second, to use the definition to enumerate and profile the population at-risk of homelessness using Australia. While focused on Australia, this paper outlines an approach to enumeration using a national household panel survey that is relevant to other jurisdictions. The next section of the paper presents definitions of risk and homelessness and describes the two Australian microdata panel surveys used for the empirical analysis: Journeys Home and the Household Income and Labour Dynamics in Australia (HILDA) survey. The

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2 Bramley and Fitzpatrick (2017) make inroads into these issues with the presentation of vignettes.

3 Although the ETHOS typology would define those in institutions with no home to go to as homeless (Busch-Geertsema *et al*., 2014).

approach to operationalising risk of homelessness is then detailed, followed by setting the threshold for risk of homelessness, and testing whether risk predicts homelessness. Population estimates are then presented along with a profile of those deemed-at-risk. The paper concludes with suggestions for further research on homelessness risk and by drawing on the findings presented to suggest a focus for primary prevention in Australia.

Methodology

Definitions of risk and homelessness

The Batterham (2019a) definition of homelessness risk explicitly connects risk to the causes of homelessness and the mechanisms through which they act. I argued that homelessness is commonly the result of multiple factors which act together in sets. Each set is jointly sufficient to bring about homelessness, though each member of the set may or may not itself be statistically associated with homelessness. I reasoned that those mechanisms which are common to multiple types of causes of homelessness —housing markets; labour markets and economic capital; institutional (organisations); health and wellbeing; relationships; past experiences of homelessness; and social stratification and inequalities — should be taken to indicate risk of homelessness. This includes five key mechanisms[4]:

- Low income or low unstable income;
- Vulnerability to discrimination;
- The need for support to access or maintain a living situation;
- Limited social resources and supports;
- A tight housing market.

While risk no doubt occurs on a continuum with people experiencing accumulating and dissipating risk over time, as with homelessness, a cut-off must be set in order for a population to be enumerated. Within the constraints of available research and data both in Australia and internationally, I argued that having more

[4] Batterham (2019a) cautioned against viewing these mechanisms as mere characteristics of a population but instead as indicators of broader causal processes. She notes that there is a tendency to conflate the level of measurement of a cause or risk factor with the level of the cause *per se*. For example, while ethnicity is measured at the individual level, the reason that certain ethnic groups have poorer health and incomes is not anything inherent in their ethnicity, but the broader social context in which these groups are more socially and economically disadvantaged. The level of measurement of the variables does not automatically correspond to the level of cause.

than one of these risk mechanisms (Batterham, 2019a, p.16) should be taken to indicate risk of homelessness but cautioned that further empirical work was needed to test this threshold.

Because this definition of risk is not derived from the characteristics of those experiencing homelessness, the relationship between risk and homelessness can be examined. Numerous definitions of homelessness exist in the literature. Some definitions were developed to be used in multiple countries (Edgar, 2009; Busch-Geertsema et al., 2016) while others are specific to particular jurisdictions, including those based on legislation. In Australia the cultural definition (Chamberlain and MacKenzie, 1992) has been extremely influential and widely used. However, this definition focuses on the type and tenure of housing a person has (or does not have). Some scholars have argued that homelessness is about more than housing (Watson, 2000; Mallett *et al*., 2010; Somerville, 2013), and in response Batterham (2019b) proposed a definition of homelessness as capability deprivation.

In order to test and set a threshold for someone to be considered at-risk, this paper employs two definitions of homelessness: the cultural definition and a capability-deprivation definition. Both definitions are broad by international standards, extending beyond those sleeping rough and those accessing homelessness services. Two definitions are used to ensure that the relationship between homelessness and risk is robust and because the capability-deprivation definition is relatively new and worth testing.

The cultural definition of homelessness was proposed by Chamberlain and MacKenzie (1992) and has been widely used in the Australian context. Using this definition, people are considered to be homeless if they have housing that falls below the minimum community standard: a one-bedroom flat with a separate bathroom and kitchen. Chamberlain and MacKenzie (1992) describe three categories of homelessness: primary, secondary, and tertiary homelessness. Primary homelessness includes those sleeping rough on the street, in a car, or in a squat. Secondary homelessness includes people staying temporarily with other households and people staying in homelessness services or refuges. Those experiencing tertiary homelessness are living below the community standard of housing and are living in these circumstances long-term (more than 13 weeks). Much of this group is made up of people staying in boarding houses. A choice exclusion is applied to these categories whereby the person must be either not working or, if working, earning less than $600 AUD or €366 per week. Some groups, such as students living in halls of residence and those in aged-care facilities, are excluded from being counted as homeless.

Recently Batterham (2019b) proposed that homelessness is a form of capability deprivation that occurs when a person's living situation endangers their basic physical health or survival.

Specifically, a person is homeless if:

1. they are in a living situation which either:
    - lacks a basic level of stability and control; and/or
    - involves interpersonal violence or abuse; and/or
    - the physical dwelling they live in is inadequate to the point of endangering health or survival

because:

2. they lack access to another more adequate living situation.

In practice, this definition includes those experiencing primary and secondary homelessness in the cultural definition. However, it also includes those living in situations that lack safety, such as those experiencing violence and abuse within their housing. It does not necessarily include those living in substandard accommodation such as boarding houses unless there is a safety issue. This definition resembles Busch-Gertsema *et al*.'s (2016) global framework for conceptualising homelessness but differs in its explicit reference to capabilities.

Data sources

This paper draws on the relative strengths of two Australian panel datasets: the Household Income and Labour Dynamics in Australia (HILDA) survey and Journeys Home. The HILDA survey is critical for estimating and profiling the population at-risk, yet it does not contain an indicator of homelessness. This is required to test whether risk predicts actual homelessness and to set the threshold for someone to be considered at-risk. The Journeys Home survey provides this nuanced understanding of the relationship between risk and homelessness. However, Journeys Home cannot be used to generalise to the national population or to those who are at-risk but not in receipt of income-support payments.

The HILDA dataset is a nationally representative longitudinal panel survey of Australian households modelled on existing surveys such as the British Household Panel Survey (BHPS). The HILDA sample was selected from the population of persons aged 15 years and over in private dwellings in Australia using multi-stage cluster-based sampling (see Watson and Wooden, 2002 for more information). Participating households are interviewed annually. The survey covers a broad range of topics including finances, household formation and change, socio-economic,

lifestyle and attitudinal items (Summerfield *et al.,* 2016, p.2). Special topic modules are also included in different waves. The HILDA survey includes a suite of weights to account for sample selection, attrition, and non-response and to enable generalisation to the national population. Weights are benchmarked against a number of surveys conducted by the Australian Bureau of Statistics (ABS). Wave 15 (2015) of the HILDA survey was used for these analyses, as it was the most recent version available at the time of analysis and it occurred close in time to the end of Journeys Home panel.

Journeys Home is an Australian longitudinal dataset that followed a sample of people experiencing homelessness as well as those vulnerable to homelessness over time (Bevitt *et al.,* 2013). This panel is ideal for examining transitions into and out of homelessness and the relationship between risk and homelessness. Journeys Home followed 1 682 people over time and captured information using six-monthly interviews (conducted either face to face or via telephone) along with administrative data from participants' social security records[5]. Six waves of interviews were conducted between September 2011 and May 2014. The limited release version of the Journeys Home dataset was used in the present study. For information about sample selection and response rates see Wooden *et al.* (2012).

Each risk mechanism for homelessness risk was operationalised in both the HILDA and Journeys home datasets as described below. For greater detail on the precise variables used see Appendix 1.

Operationalising and Testing Homelessness Risk

Using the Batterham (2019a) definition, a person is at-risk of homelessness if they are experiencing more than one of any of the following five risk mechanisms: low income; vulnerability to discrimination; limited social resources and supports; needing support to access or maintain a living situation; and a tight housing market, as outlined above.

Low income was operationalised using a modified version of the Australian Bureau of Statistics' (ABS) definition: incomes at or below the 20th percentile of equivalised disposable household income. Household income[6] was equivalised using the ABS or modified OECD approach. The 20th percentile cut-off was

5 Income-support payments and rent assistance are administered by a central agency that operates at the national level in Australia.

6 Disposable household income was used in HILDA but gross household income was used in Journeys Home because disposable household income was unavailable.

obtained from the relevant biennial Survey of Income and Housing data cube (ABS, 2018) for each wave of data (e.g. in 2015 the 20th percentile cut-off was $523 weekly or $27 196 annually).

A range of characteristics were selected that might indicate vulnerability to discrimination in the housing and labour market, including being young[7] (Wood *et al.,* 2015), being an Indigenous Australian (Wood *et al.,* 2015), being a single parent (Batterham, 2012), or being on income-support payments (Johnson *et al.,* 2019). Only those who are on income-support but who do not qualify as low income were included as vulnerable to discrimination. People who identified as gay, lesbian, or bisexual (McNair *et al.,* 2017) or were from a non-English speaking background (Blair *et al.,* 2017) were also included. A person who had one or more of these characteristics was deemed vulnerable to discrimination in the housing or labour market.

Limited social resources and supports were indicated by three main factors: recent separation from a long-term partner or death of a spouse (Fertig and Reingold, 2008); a social network that lacks the capacity to provide material support — including financial support, accommodation or child care (Toohey *et al.,* 2004; Fertig and Reingold, 2008); or a very small or non-existent social network that does not provide sufficient emotional support and connection (Johnson and Tseng, 2014). People who had experienced a recent separation or the death of a spouse qualified as having limited social resources. This was due to the potential loss of a large form of support. However, those who had not experienced one of these issues had to have experienced both of the remaining criteria to qualify as having low social resources.

Batterham (2019a) suggested four key factors that may lead someone to require support to access or maintain a living situation. These included: having a disability, having a long-term health condition, having a mental health issue, or having problematic drug and alcohol use. While the first three of these factors were operationalised in both datasets, information was available only in relation to alcohol use in wave 15 of HILDA with no self-reported information on whether this use was problematic. As such, this last item was not operationalised in the HILDA dataset[8].

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7 Young was defined as 15-24 years, consistent with the definition of youth used by the United Nations.

8 Batterham (2019a) also proposed a fifth key mechanism in her definition of homelessness risk, a tight housing market; however, this is not operationalised in the present paper. Operationalising this mechanism requires area-based data on housing markets as well as an understanding of how various risk mechanisms intersect with housing market conditions. Such work is being undertaken at present and due to its complexity will be presented in a separate paper.

In some cases, one characteristic could be used to indicate the presence of multiple risk mechanisms. For example, those on income-support payments may be vulnerable to discrimination in private rental markets and are also highly likely to be low income. In order to prevent double counting and the unnecessary inflation of risk, each characteristic was only used for one risk mechanism.

Further, homeowners were excluded from the at-risk group even if they otherwise qualified. There is evidence to suggest that for some Australians, owner occupation is precarious and some who exit this form of tenure do not return (Ong *et al.,* 2015). However, overall, home ownership (the dominant form of tenure in Australia) provides a level of insurance (Stone *et al.,* 2015) that may slow or prevent a transition into homelessness. This is an issue that requires further research, and the exclusion of this group may not translate to other jurisdictions.

Finally, existing research (Bramley and Fitzpatrick, 2017; Johnson *et al.,* 2019) suggests that living in a multi-adult household acts as an important buffer against homelessness (notwithstanding the complexities of the nature and stability of relationships within and beyond the household). Building on these findings, all responding persons were grouped into simplified household types: couple households, single parent households, lone person households (including group households) and extended family households. If either lone persons or single parents qualified as at-risk by having more than one of the four risk components they retained their risk status. If responding persons in a couple household or extended family grouping were deemed at-risk of homelessness, they only retained their at-risk status if another member of their household was also deemed at-risk of homelessness. Interestingly, based on the Australian data, individuals deemed at-risk of homelessness tend to cluster in households. In HILDA, a total of 2 082 observations (11.8% of responding persons in 2015) across 1 417 households were deemed at-risk of homelessness, but after accounting for household type this number dropped a little to 1 773 observations (10.1% of responding persons) across 1 244 households.

Setting the threshold for risk

Batterham (2019a) suggested that having more than one risk mechanism was needed to be considered at-risk of homelessness. This threshold is initially explored below using simple frequency tables. Table 1 pools all observations across the entire Journeys Home panel and presents the percentage of observations considered homeless using both definitions of homelessness in Journeys Home by the number of risk mechanisms present. It suggests that most cases of homelessness involve either two or more (around 93% of all observations of homelessness across both definitions of homelessness) or three or more mechanisms (between 48% and 55% of all observations of homelessness).

Table 1 Percentage of homeless observations by the number of risk mechanisms present in Journeys Home (2011-2014) Australia

Number of risk mechanisms present	Homelessness CD	Cultural
0	0.6	0.4
1	6.5	7.2
2	40.9	48.1
3	40.9	35.7
4	11.1	8.6
Total number of obsv	1720	1229

Source: Author's calculations using Journeys Home Limited Release +RED dataset

However, these percentages reflect the probability of experiencing risk mechanisms within a homeless population, rather than the risk of *becoming* homeless given the presence of these mechanisms. This is explored below in Table 2 using logistic regressions.

The models use Journeys Home data and take advantage of the panel nature of the dataset to examine whether those at-risk are likely to transition into homelessness in the following time period for both definitions of homelessness with separate models reported for the number of risk mechanisms present (one or more, two or more, three or more or all four). The table reports coefficients from each model with the column header indicating the definition of homelessness used and all dependent variables are dichotomous. All models use random effects with robust standard errors reported in parentheses.

Table 2 The lagged relationship between homelessness risk and homelessness, Journeys Home (2011-2014 Australia, RE logit estimation).

Explanatory variables	Homelessness CD				Cultural			
L. At-risk of homelessness 1 or more [0,1]	0.433** (0.616)				0 (omitted)			
L. At-risk of homelessness 2 or more [0,1]		0.407*** (0.151)				0.373** (0.190)		
L.At-risk of homelessness 3 or more [0,1]			0.254*** (0.934)				-0.184 (0.128)	
L. At-risk of homelessness 4 [0,1]				0.021 (0.143)				0.047 (0.202_
Constant	-2.623*** (0.615)	-2.546*** (0.152)	-2.301*** (0.085)	-2.196*** (0.075)	-3.637*** (0.143)	-3.980*** (0.220)	-3.580*** (0.152)	-3.663*** (0.145)
Observations	6949	6949	6949	6949	6949	6949	6949	6949
Number of xwaveid	1608	1608	1608	1608	1608	1608	1608	1608

*Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1*
Source: Author's calculations using Journeys Home Limited Release +RED dataset

The coefficients reported in Table 2 above indicate that homelessness risk significantly predicts homelessness using one or more, two or more, and three or more risk mechanisms for the capability deprivation definition, while only two or more mechanisms are significant for the cultural definition. Given that both definitions of homelessness have significant coefficients at two or more mechanisms the threshold of two or more is used for the remainder of the paper.

While the concept of risk will not account for the full causal picture, specifically the effectiveness of existing homelessness interventions, a statistical relationship between risk and homelessness was expected — and found. However, the coefficients are small. This is likely to be an artefact of the Journeys Home sample where the majority of the sample qualifies as being at-risk (88.9%) and between 14 and 19% of observations involve an experience of homelessness (depending on the definition used). A better test of the predictive power of the risk definition would use a dataset that also includes those not at-risk of homelessness. The HILDA dataset includes a sample of those at-risk and those not but does not include an indicator of homelessness. However, it offers the opportunity to examine the national population at-risk of homelessness.

Who and How Many are At-risk in Australia?

Using the population weights available in HILDA[9], 7.9% of the population aged 15 years and over qualified as at-risk of homelessness in 2015. This equates to 1 437 614 people spread across 915 982 households (10.3% of households)[10].

While large, these numbers make sense in the context of homelessness in Australia. Over the 2018–19 financial year 290 300 Australians sought assistance from a Specialist Homeless Service (SHS)[11] (AIHW, 2019). In the seven years between July 2011 and July 2019, it was estimated that some 1.2 million people received assistance from SHSs (AIHW, 2019b).

9 Responding person population weights were used.

10 Household figures are not reported in the table.

11 In Australia, SHS are jointly funded by states and territories to provide services to people experiencing or at-risk of homelessness. The data collected is from providers of accommodation and non-accommodation services.

Table 3 Estimated population at-risk of homelessness aged 15 years and over in 2015 for Australia and most states and territories (HILDA)

			95% Confidence interval			
	Estimated population	Std. Err.	Min	Max	% of population at-risk of homelessness in area	Population aged 15 years and over in 2015
All of Australia	1475614	73955.7	1326566	1624662	7.9	18786947.0
New South Wales	495513.3	39720.7	415461.5	575565.2	8.2	6075386
Victoria	351056.3	41489.8	267439.1	434673.5	7.3	4785346
Queensland	304674.7	32390.9	239395.2	369954.3	8.2	3717916
South Australia	133053.4	21175.8	90376.4	175730.3	9.8	1357884
Western Australia	116263.8	18939.1	78094.5	154433.1	5.9	1986085
Australian Capital Territory	9594.1	3250.9	3042.4	16145.8	3.1	307679.9
Greater capital cities (urban)	927856.6	68825.1	789148.7	1066565	7.5	12395963
Balance of state areas (regional)	547757	41478.7	464162.3	631351.8	8.6	6390985

Source: Author's calculations using HILDA 15 limited release dataset

Table 3 also reports estimates for most states and territories[12] and for urban and regional areas. South Australia has the highest percentage of people at-risk of homelessness while the Australian Capital Territory has the lowest. In line with the concentration of the Australian population in the eastern states, New South Wales, Victoria and Queensland collectively account for the majority of people at-risk of homelessness across the nation (78.7%, not shown in table).

Curiously, while most of those at-risk live in urban areas (see bottom two rows of Table 3), Table 3 suggests that those in regional areas are more likely to be at-risk. The spatial distribution of homelessness risk, like homelessness, is uneven, which has implications for preventive policy.

A demographic profile of those at-risk of homelessness extends our understanding of homelessness risk and can also act as a validity check through comparison with other data on homelessness. Table 4 below presents a profile of the population at-risk of homelessness in Australia and compares it to estimates for the total national population derived from HILDA and the national population accessing SHS.

[12] Very remote areas were excluded from the sampling frame and from the benchmarking of weights in HILDA, making estimates for the Northern Territory and Tasmania potentially unreliable. As such they are not reported here.

When compared with the total Australian population, those at-risk are more likely to be women, have an older average age, and are less likely to be partnered. They are more than twice as likely to be Indigenous than the general population, are less likely to speak a language other than English, and are much more likely to report fair or poor health. Lower levels of educational attainment are also evident, with a preponderance of people who did not complete high school. Those at-risk are less likely to be employed and more likely to be outside of the labour force. They are much more likely to be in receipt of income-support, and consistent with this, are much more likely to be classified as having low income. Significantly, almost a third (31%) of those at-risk have one or more children living with them, highlighting the risk of intergenerational transmission of poverty (Cobb-Clark, 2019).

Table 4 also suggests a substantial level of material deprivation and financial stress. Those at-risk are much more likely to report not being able to pay bills on time, to be unable to heat their home, to have gone without meals, and to have asked for financial help from friends and family or from welfare or community organisations. This highlights both the disadvantage and poverty experienced by this group, as well as opportunities for prevention, with around 20% already having contact with welfare or community organisations. Greater housing instability is also evident with those at-risk more likely to report difficulty paying rent or mortgage on time and higher level of residential mobility.

Comparison with the profile of those accessing SHS shows strong similarities[13]. Both groups are highly likely to be in receipt of income-support payments, and are more likely to be women and to be Indigenous. They are also more likely to be either a single person or in a single parent household and less likely to be in a couple household (with or without children). As shown in Table 4, however, compared to those at-risk, those accessing SHS are more likely to be unemployed, to have children with them or to be single parents, and much more likely to be Indigenous.

13 Please note that statistics from the SHS include only those accessing services and not all people experiencing homelessness access services.

Table 4 Demographic profile of the population aged 15 years and over estimated to be at-risk of homelessness in 2015 (HILDA) Australia.

	Total	Std. Err	% of the 2015 at-risk population[14]	% of the Australian population 2016[15]	% of the 2017-18 SHS population[16]
Male	614 111.3	34 817.4	41.5	48.4	39
Female	861 502.3	46 800.7	58.4	51.6	61
Mean age	45.3	0.7	45.3 years	45.2 years	
Indigenous	191 669.4	29 191.4	13.0	2.4	25
Married/de facto	366 262.3	35 956.9	24.8	57.5	
Came to Australia as a refugee	35 264.2	8 378.1	2.4	1.8	
Speaks language other than English	162 175.5	40 174.3	11.0	7.0	
Self-assessed health rated as fair or poor*	502 666.4	26 378.0	34.1	15.4	
Lone person household	525 442.7	31 845.4	35.6	17.2	29.7
One parent with children	346 752.1	29 319.7	23.5	6.4	34.6
Couple with children	218 067.9	30 735.2	14.8	42.6	12.5
Couple without children	185 399.7	25 251.9	12.6	25.3	5.3
Other family household	162 513.5	29 105.8	11.0	7.6	11.9
Group household	37 437.6	9 007.9	2.5	1.2	6.0
Has children in their care	488 589.2	41 906.8	33.1	31.5	47.1
Bachelor degree or higher	133 095.1	15 030.5	9.0	26.3	
Advanced diploma/diploma	74 617.9	11 299.9	5.1	9.4	
Certificate 3 or 4	308 167.6	21 608.9	20.9	21.6	
Year 12 (completed high school)	218 815.5	20 351.6	14.8	15.5	
Year 11 and below	735 063.4	45 955.6	49.8	26.9	
Employed full-time	155 294.9	19 990.4	10.5	41.4	3.6
Employed part-time	230 847.8	27 845.8	15.6	21.2	7.3
Unemployed	140 429.7	16 990.6	9.5	3.8	48
Not in labour force	948 101.2	50 211.1	64.3	33.4	40.1
Receiving income-support payments	1 194 938.0	58 968.4	81.0	30.8	78
Mean equivalised weekly disposable household income	$526.0	11.03	$526.0	$1 076.2	
Low-income	910 162.8	57 092.6	61.7	16.4	
Moved house since last wave	356 526.2	28 959.1	**26.1**	**14.0**	
Could not pay bills on time	340 571.2	27 786.5	29.3	11.1	
Could not pay rent or mortgage on time	168 774.4	17 123.6	14.6	5.1	
Asked for financial help from friends and family	353 407.4	28 620.4	30.4	10.8	
Was unable to heat home	146 862.4	18 199.8	12.7	2.8	
Went without meals	181 285.9	17 131.2	15.6	3.2	
Asked for help from welfare/ community organisations	237 736.3	23 759.9	20.5	3.5	

Source: Author's calculations using HILDA 15 limited release dataset.

14 Number of observations: 1 773; population size: 1 475 614.

15 Estimates produced using population weights for all responding persons in HILDA.

16 AIHW (2019b).

Conclusion

In order to successfully prevent and reduce homelessness we must first know who is at-risk and why. Despite a large body of scholarship quantifying risk of homelessness in various ways, researchers are yet to take the additional step of enumerating and profiling a population at-risk of homelessness — until now. This paper has built on earlier work by the author (Batterham, 2019a) to operationalise and test a definition of homelessness risk, with the aim of enumerating and profiling the population at-risk of homelessness in Australia. In doing so, the paper points to new directions for homelessness research and scholarship.

A key finding from the paper is that almost 1.5 million Australians, or 7.9% of people aged 15 years and over, were estimated to be at-risk of homelessness in 2015. Other research examining the number of people who access SHS over time (AIHW, 2019b) suggest the estimated size of this population in Australia is reasonable. The profile of this population shows a highly disadvantaged and excluded group, and this itself highlights an important link between the literatures on homelessness and poverty and disadvantage. Preliminary testing of the definition using the Journeys Home panel survey revealed that 'at-risk status' significantly predicts homelessness. The threshold of two or more mechanisms to qualify as at-risk was selected for use in the present study.

An understanding of the number and profile of the at-risk population can inform and drive policy on homelessness prevention. Returning to the Australian case presented here provides an example of how this could occur in other jurisdictions. The framework for deriving the definition of homelessness risk implies that targeting prevention efforts to the key risk mechanisms should reduce risk. Taken together with the demographic characteristics of those at-risk, these findings can help to prioritise areas for action.

Perhaps most importantly, the majority of those at-risk are in receipt of income-support payments (81%). Increasing income-support payments and rent assistance[17] are direct policy levers that the Australian government can use to help prevent and reduce homelessness. The high rates of unemployment suggest that unemployment payments should be a particular focus.

[17] Income-support payments, including rental assistance, have not kept pace with increases in living costs, leaving many in poverty. The majority of people below the poverty line in Australia are reliant on income-support payments (Davidson *et al.,* 2018).

Industrial relations policy is also relevant. Fully 26% of those at-risk are employed either full-time or part-time. Increases to the minimum wage, enforcement of existing minimum wage rates (Senate Standing Committee on Education and Employment, 2017), and greater security in hours would also assist this group to find and maintain housing that is affordable to them.

The prevalence of fair and poor health amongst those at-risk suggests that health services for those on low incomes are critically important. This is consistent with the body of literature that demonstrates the negative health impacts of homelessness and the role of poor health and wellbeing in precipitating homelessness (e.g. Johnson and Chamberlain, 2011; Min Park *et al.,* 2011). The preponderance of people with low educational attainment suggests, consistent with existing research (Cobb-Clark and Zhu, 2015), that school engagement for children and young people is also of critical importance.

Because those at-risk cluster together in households, and because many of these households comprise women and children, strategies to prevent homelessness should focus on entire households. It is important to note that children and young people aged under 15 years were not enumerated in this study, making the population estimate an undercount in this regard. Given the highly disadvantaged profile of this group, interventions should focus not just on homelessness but also on alleviating poverty and addressing intergenerational transmission of disadvantage.

The overrepresentation of Indigenous Australians in the at-risk population is unsurprising given they are more likely to be low income or have a disability, and they report poor health at greater rates than the general population (AIHW, 2015; AIHW, 2019). That a higher proportion of Indigenous people experience actual homelessness (ABS, 2018; AIHW, 2019) suggests that focused assistance for this group is warranted.

Finally, the population estimates and profile provide a metric to assess the effectiveness of both primary prevention efforts and prevention efforts targeted at particular cohorts. This could be achieved through monitoring the overall size of the population at-risk or comparing the per cent of the at-risk population with a particular characteristic (such as those who are Indigenous) to the population actually experiencing homelessness to assess transition rates.

While this paper has focused on Australia, nationally representative household surveys are available in other countries with similar data items, providing an opportunity to enumerate and profile the at-risk population in other jurisdictions. This is an important avenue for future comparative research.

The dynamics of risk, such as how people transition in an out of risk over time and the persistence of risk, also warrants further research. These dynamics could be explored both quantitatively and qualitatively within different conceptual frame-

works. For example, a strength of the pathways approach is its focus on dynamics, enabling an exploration of how risk mechanisms accumulate, intersect and dissipate over time for different cohorts are also an important area for further research. It may be the case that some risk mechanisms are more important in transitions into homelessness, or that particular combinations of risk mechanisms are associated with greater difficulty exiting homelessness. More detailed population level data that includes those experiencing or at-risk of homelessness along with those not at-risk are important in undertaking this work.

The operationalisation of homelessness risk in HILDA highlighted that those at-risk cluster together in households. It would be useful to explore how people move in and out of homelessness *as* households and *within* households over time, and how homelessness risk is mediated at the household level by relationships within and outside the household. Relatedly, a more detailed examination of the literature is needed to explore the impact of family violence, child abuse and elder abuse on people's risk of homelessness. Further, results highlighted that the population at-risk of homelessness is distributed unevenly geographically. Work has commenced to operationalise the fifth risk mechanism of 'tight housing markets' and to examine the spatial distribution of homelessness risk and its implications for preventative policy.

Finally, the exclusion of owner-occupiers from the at-risk cohort is a possible point of contention — especially beyond Australia. More thinking is needed on how best to account for the complexity of tenure type and length in general. Further research should explore the impact of negative life events such as divorce and separation, significant health issues and disability (Ong *et al.,* 2015) on transitions into homelessness and the pathways between home ownership and homelessness.

In conclusion, this paper contributes to the voluminous scholarship on counting and profiling within homelessness research (for example: Edgar *et al.,* 2007; Busch-Geertsema *et al.,* 2014; ABS, 2018) by enumerating and profiling the population at-risk of homelessness in Australia. The paper opens up new opportunities for comparative homelessness research with the use of household panel surveys to enumerate a population at-risk in other jurisdictions. The findings also highlight the connection between risk, homelessness, poverty and disadvantage. The capacity to say how many people are at at-risk, who they are, and why they are at-risk is critical for addressing, reducing, and preventing homelessness. As demonstrated here, such information can be used to inform the content of preventive policy and provide new metrics for the evaluation of preventive policies and initiatives — the size and profile of the population at-risk of homelessness and changes thereof. While preliminary, it is hoped that this research will form part of a growing body of

scholarship on homelessness risk that will elevate the status of homelessness prevention, help secure greater commitment and funding for primary prevention initiatives, and reduce homelessness.

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Appendix 1: Variables used to create the at-risk of homelessness measure in HILDA and Journeys Home.

Indicator	Variables used in HILDA	Variables used in Journeys Home
Low-income or low-income with income instability		
Low-income	HH0_4, HH5_9, HH10_14, HHADULT, HIFDITP	ICYWKV, IYOTH, PCHU18R, PCOUPLE
Discrimination		
Age	HGAGE	PAGE
Indigenous	ANATSI	PATSI
Sexual preference		HWSEXPRF
Single parent status	HHTYPE	PCOUPLE, PCHU18R
Receiving income support but not low-income	BNCCRP, BNCDSP, BNCDVA, BNCNWS, BNCPNT, BNCPRT, BNCSCK, BNCSP, BNCSRV, BNCSTY, BNCWAR, BNCWDW, BNCWFP, BNCYTH, BNCSAS, BNCYJS, BNCYST, BNFHAVE, and low-income indicator	IINCSUP, low-income defined above
Non-English speaking background	ANLOTE, ANEAB	PCOBESS
The need for support to access or maintain a living situation		
Long term health condition or disability causing restriction	HEBFLC, HECRP, HECRPA, HEDGT, HEDISF, HELUAF, HELUFL, HEMED, HESBDB, HESPNC	HWLNGTRM
Diagnosed with cognitive disability	HEHIBD, HESLU	HWCOND13, HWCOND14
Diagnosed with mental health issue	HEMIRH, HENEC	HWCOND15, HWCOND16, HWCOND17, HWCOND18, HWCOND19
Receipt of DSP		ICPTYP
Diagnosed with ongoing serious health issue		HWCOND1, HWCOND2, HWCOND3, HWCOND4, HWCOND5, HWCOND6, HWCOND6, HWCOND8, HWCOND7, HWCOND10, HWCOND11, HWCOND12
Self-assessed problem with drugs or alcohol		HWDAPROB

Limited social resources and supports		
Recent separation, divorce, widowed, or death of a spouse or child	MSCHGDV, MSCHGSP, MSCHGWD, LEDSC	PCOUPLE, SXMEDT1
Does not feel connected and supported	LSSUPAC, LSSUPCD, LSSUPLF, LSSUPLT, LSSUPNH, LSSUPPI, LSSUPPV, LSSUPSH, LSSUPTP, LSSUPVL	SNEED, SLEAN, SCHEER, SLONELY, SPSFF, SFSFF,
Limited contact with family and friends		SFAMCON, SFAMFR, SFRIENDI
Lack of material support from support network	FIBFRI, FIBRELH, FIBRELO, CHU_GU, CHU_GE, CHU_GE, CHU_AE, CHU_FO, CHU_FT, CPU_GU, CPU_GE, CPU_AU, CPU_AE, CPU_FO, CPU_FT, CSU_GU, CSU_GE, CSU_AU, CSU_AE, CSU_FO, CSU_FT	
Not an outright home owner	HSMGPD, HSTENR, HSMGI	HTENURE1, HMTGWK, HMTGOUT

*Please note detailed information on each variable can be obtained by searching variable names in the Journeys Home user manual (avialable: https://melbourneinstitute.unimelb.edu.au/journeys-home/for-researchers) and HILDA data dictionary (available here: https://www.online.fbe.unimelb.edu.au/HILDAodd/Default.aspx)