

**Examining the
relationship between
structural factors,
individual
characteristics, and
homelessness**

authored by

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ACRONYMS

ABS	Australian Bureau of Statistics
ASGS	Australian Statistical Geography Standard
HUD	Department of Housing and Urban Development
IIA	Independent irrelevant alternatives assumption
JH	Journeys Home
IS	Income support
AHURI	Australian Housing and Urban Research Institute Limited
REIA	Real Estate Institute of Australia
DSS	Australian Government Department of Social Security

EXECUTIVE SUMMARY

This Positioning Paper is the first part of a project that seeks to examine interactions between macro structures such as changes to housing and labour markets, and the micro processes that render individuals vulnerable to homelessness. The empirical findings will be presented in a Final Report, due in early 2015.

There are five key messages in the paper.

First, despite a long standing recognition among policy-makers and researchers that homelessness results from the interaction of structural factors and individual characteristics, the literature tends to be divided into those opting for structural explanations and those opting for individual explanations. No study, either locally or internationally, has examined their interaction. The primary reason for this is that in order to examine the contribution of both structural factors and individual characteristics researchers need macro-level area data and micro-level longitudinal data, drawn from a range of geographic areas. The Journeys Home (JH) dataset provides the first opportunity to link micro-level longitudinal data (JH) collected in a number of areas across the country, with area-level measures of housing and labour market variables, service use, and social deprivation. By combining micro and macro-level data we can develop a model that can accurately explain the magnitude of effects of housing markets on homelessness relative to other structural and individual characteristics.

Second, although no studies have explicitly considered how structural conditions and personal characteristics interact, many studies have examined the effects of structural factors or individual characteristics on homelessness. However, we show that the findings produced in these studies are shaped by the unit of analysis they select. More specifically, studies that use area-level observations, typically cities, indicate that structural factors are the main contributors to homelessness and find little evidence that individual risk factors do. In the US, housing markets seem to matter the most, with little evidence that local labour markets or concentrations of poverty matter. In Australia, however, the situation seems reversed. Local labour markets matter a lot, and housing markets don't appear to matter much. However, both US and Australian area-level studies agree—individual characteristics do not matter a great deal.

In contrast, studies that have used micro-level (or individual) data find that structural conditions rarely matter but individual characteristics do. Although there is some minor variation in the results, variables such as race, gender, age, mental illness and poverty are almost always important predictors of homelessness in individual level studies.

So which of these sets of findings do we believe? As O'Flaherty (2004) shows, it's potentially both as it's the conjunction of being the wrong person in the wrong place that matters. In order to provide a more accurate understanding we therefore need to model individual homelessness as a function of housing markets and other structural factors, and their interaction with individual characteristics, using a combination of individual-level data, ideally longitudinal, and macro area-level data.

The third message is that theoretical accounts seeking to explain the interaction of structural factors and individual characteristics have met with limited success. More sociologically-orientated approaches have long held an interest in the interaction of structural factors and individual characteristics, but have struggled to develop a TESTABLE theoretical account. Consequently, we distance ourselves from the sociological literature by deriving hypotheses from the 'choice' theoretical framework, favoured by economists. We present a preliminary empirical model that in its basic form analyses two housing states—housed and homeless. We specify the model to explicitly allow for the interaction between structural factors and individual characteristics. We explain how the model can be expanded to incorporate a more dynamic perspective (exits and re-entries), as well as different housed states, such as different types of homelessness. Our approach assumes that virtually all individual characteristics have both a

structural and agency dimension, but we cannot determine how much each contributes. Thus, while our approach seeks to understand the interaction of structural factors and individual characteristics, it is not able to say anything about agency, choice or control.

The fourth message is that relatively sophisticated statistical techniques are required to examine the interaction of structural factors and personal characteristics. In the sixth chapter we describe our empirical approach. We intend to use a discrete choice model to examine the determinants of each individual's housing state at a particular point-in-time. In the basic model, the likelihood of being in one of two housing states, homeless or housed, will be analysed using a random effects logistic model. The model's specification will explicitly allow for the interaction between structural factors and individual characteristics to see whether structural factors affect individuals with certain risk factors more than others. As noted, both macro and micro-level data is required. JH provides the micro-level longitudinal data. The key structural factors we will examine are housing market characteristics and poverty. In terms of housing market characteristics, data sources to be considered include time-series data produced by the Real Estate Institute of Australia (REIA) and Australian Bureau of Statistics (ABS) area-level data based on the 2011 Census. In terms of poverty, the main data source is income information collected in the 2011 Census. Area-level unemployment rates can also be used as a proxy. All the structural factors will be measured at Statistical Area Level 4 (SA4), which is based on the Australian Statistical Geography Standard (ASGS).

Finally, some descriptive statistics are presented in Chapter 6. The message from this chapter is clear—even at this early stage JH indicates that there is considerable movement in and out of homelessness over time. Further, the findings indicate that the amount of churning in and out of homelessness varies by different individual characteristics, and also by regional housing conditions.

In summary, both individual and structural factors affect the rate, distribution and dynamics of homelessness. To date, however, there has been little empirical research into the ways in which these factors interact over time and across areas. This project will contribute to addressing this rather conspicuous gap in the literature.

1 INTRODUCTION

Causality is a slippery concept. (O'Flaherty 1996, p.4)

Current international conceptualisations support the notion of an interaction between structural or macro-level, and individual or micro-level factors as underpinning all forms of homelessness. (Adkins et al. 2003, p.5)

1.1 Aims

This is the first of two reports funded by AHURI that set out to examine the relationship between structural factors, individual characteristics, and homelessness using Journeys Home (JH), a unique Australian longitudinal dataset on persons vulnerable to homelessness.

In our study we define structural factors to be area-level characteristics that could directly affect individuals' risks of homelessness, over and above those that are reflected in the individuals' own circumstances. Two structural factors are of particular interest to us—first, the state of housing and second, labour markets of areas. Individual characteristics include demographic, biographic, and behavioural characteristics. These individual characteristics range from those over which the person has no control, such as age, through to those that are the product of unconstrained behaviour where individuals act independently, and make their own decisions (agency). Most individual characteristics lie between these two extremes. Our approach seeks to understand the interaction of area-level characteristics (i.e. structural conditions) and the characteristics of individuals. However, it is important to note that our analysis will be unable to say anything about the society-wide forces that determine how much choice or control (agency) individuals' exercise with respect to characteristics thought to be risk factors.

Our interest in the interaction of structural conditions and individual characteristics gives rise to three secondary research questions, which we also intend to pursue. First, do structural factors such as housing and labour market conditions and the extent of location disadvantage matter for those with particular risk factors more than others? Second, do structural factors affect the probability of entering into homelessness among people with certain characteristics such as mental illness, physical illness, substance misuse, and/or exposure to adverse childhood events? And finally, do structural factors affect the probability of exiting homelessness for those with particular risk factors more than others?

The aims of this paper are threefold. First, we review the existing empirical literature examining the effects of structural conditions and individual characteristics on homelessness, noting that the findings are very mixed. One aim of this paper is to explain why. Second, as many people, particularly international readers, will be unfamiliar with the JH study, we describe JH in some detail. Third, the framework and empirical strategies we intend to use in the formal empirical analysis, which will be presented in a Final Report due in early 2015, are outlined.

1.2 Background

Since the late 1960s and early 1970s when the composition of the homeless population started to change, social researchers have been trying to explain the reasons for the change, and why homelessness persists. Researchers have used a wide range of theoretical approaches to address these questions. These include critical realism, feminism, post-modernism, post-structuralism, Giddens' theory of structuration, Habermas' critical theory, Foucault's theory of Governance, as well as various 'cultural' approaches. While there is little agreement on the best way to theorise homelessness, or indeed if a theory of homelessness is possible, a common and enduring approach that features strongly in the literature is to think about homelessness in terms of the interaction of structural and individual factors (Elliott & Krivo 1991; Jones 1997; Main 1998; Johnson & Jacobs 2014).

The basic premise of this approach is that at any given time, structural factors create different risk levels among certain populations. Within these external constraints, certain individual characteristics increase an individual's vulnerability to homelessness. This approach does not reject the possibility that structural or individual characteristics on their own may cause homelessness, but rather it emphasises how the process of becoming homeless (or avoiding homelessness) is mediated through the interaction of individual characteristics and social and economic structures.

While the ideas of structural and individual factors have been influential, researchers from different disciplinary backgrounds use them in very different ways. This is important. Our study is an economic analysis with a specific interest in whether certain structural factors such as housing and labour market conditions impact on individuals with particular characteristics more than others. How we understand the interaction between social structures such as housing and labour markets, and individual characteristics is not necessarily the same as the way that other social researchers, sociologists for instance, understand and apply them. Thus, to avoid confusion, we start this chapter by examining how sociologists understand these ideas, and then describe how we intend to deal with them. We start with a sociological perspective because a significant amount of homelessness research has been undertaken within what we can broadly define as a sociological framework. It thus provides an important point of departure for an economic analysis of homelessness of the sort we intend to undertake.

The sociological literature is rich with both heavy critique and subtle distinctions as to what a social structure is. Bearing this in mind, when sociologists refer to structural factors they are, broadly speaking, drawing attention to organised patterns of social relationships and social institutions that are both pervasive and enduring. In the context of homelessness the two most commonly cited social structures are housing and labour markets.

Sociologists have also long held an interest in individual risk factors. Risk factors are personal attributes that increase the likelihood that an individual will experience a negative outcome. However, the role of individual risk factors has a long and contested history. On the one hand, critics argue that individual behaviours associated with homelessness are linked to various forms of social control and regulation. On the other, supporters argue that individual risk factors have been fruitfully applied in areas such as health and illness.

In the context of homelessness, individual risk factors are those personal characteristics that leave some people more or less vulnerable to homelessness. Some personal attributes are clearly not an individual risk factor—an example would be a person's height. Others, such as problematic drug use, incarceration, or time in the Child Protection system are commonly cited as risk factors because they adversely impact on the capacity to live independently, and are disproportionately represented among the homeless.

This is, however, a relatively simple definition and sociological theories involving individual risk factors are often far more complex. This complexity plays out in two important ways. First, there is the issue of agency, which refers to the capacity of individuals to act independently and make their own decisions. Second, there are many different personal attributes and they often have very diverse qualities (and by implication risk characteristics). There are, for instance, intrinsic individual characteristics over which the individual has no control such as age, ethnicity, sex; there are also individual disabilities such as physical and mental health problems over which individuals may or may not have some control. A third set of individual characteristics are behavioural and these include smoking, alcohol use, and substance use. A fourth set of individual characteristics are often grouped under the rubric of human capital which refers to an individual's level of education and their work experience. Finally, some researchers talk about social margin characteristics, referring to an individual's family, family history and social networks.

When sociologists first became interested in homelessness there was a tendency to study structural factors and individual characteristics separately. Thus, it is easy to find accounts that focus solely on housing or labour markets, or alternatively, accounts that focus entirely on the individual characteristics of homeless people. Over time, social researchers became aware that the separation of structural conditions and individual characteristics was a misleading division (Neale 1997) and that what matters is the way that structural factors and individual characteristics interact (O'Flaherty 2004).

Despite a broad acceptance that examining the interaction of structural factors and individual characteristics is important, attempts to develop an integrated theoretical framework have met with limited success. Indeed attempts to understand how social structures affect homelessness through individual characteristics such as human capital, individual behaviour and social margin have been 'pragmatic rather than theoretically robust' (Fitzpatrick 2005, p.3). Consequently critics have suggested that integrating structural and individual characteristics into a single explanatory model has become the 'new orthodoxy' (Pleace 2000), with researchers often conflating individual characteristics and agency. Further, much of the empirical work has been descriptive and failed to support a cogent explanation of the mechanisms through which structure and individual characteristics interact (Clapham 2002, 2003). In short, sociologists have struggled to develop a coherent and testable theoretical account.

Economic analysis of homelessness is less prominent in the homelessness literature. It has moved in a slightly different direction with emphasis on an empirical approach to analysing the drivers of homelessness. Two exceptions to this are the contributions of economists O'Flaherty (1996) and Glomm and John (2001). In *Making room: the economics of homelessness*, O'Flaherty (1996) concludes that rising homelessness in the 1960s and 1970s was the product of housing market processes interacting with changes in the income distribution. His model assumes a 'hollowing out' of the middle of the US income distribution—a consequence is that the distribution of income is polarised. The production of middle-quality housing supplied to this middle-income segment of the market contracts. Over time, this stock commonly filters down into the pool of low cost housing that low-income households find affordable. The reduction in middle quality stock therefore creates a supply shock in the low cost segment of the housing market, as the number of dwellings that filter down slumps. Competition for low cost dwellings increases as poor people offer higher prices (rents) to encourage houses to move down the quality range, thereby inflating housing rents and prices and displacing those with the lowest incomes. Rising rent and prices in the low cost segment would encourage expansion in the supply of even lower quality housing,¹ but building regulations prevent the expansion of low cost rental to accommodate those displaced, and homelessness results.

O'Flaherty's (1996) theoretical model focuses on the role of structural factors. The economic theory proposed by Glomm and John (2002) offers a contrast by concentrating on individual decision-making. They assume peoples' choices are determined by rational decision-making that aims to maximise individual satisfaction. Individuals (or households) make decisions about the quantities and types of goods (and services) to consume in order to maximise satisfaction, subject to their budget position which is typically defined as a constraint preventing spending from exceeding income. The supply side of the housing market is assumed to be subject to regulatory restrictions (e.g. minimum housing standards) such that housing is not produced at standards that do not comply with those restrictions. If income plunges to very low levels the household is unable to afford the lowest quality of housing services. Homelessness results with typically adverse effects on health that causes withdrawal or episodic supply of labour such that skills deteriorate. This results in wage income falls in the future. The homeless are then caught in a homelessness trap. A static variant of this model is used in Chapter 4 to derive hypotheses

¹ The recent expansion in the stock of new forms of boarding/rooming houses might be interpreted as a response to similar market pressures in Australian metropolitan housing markets (Chamberlain 2012).

concerning the role of house prices, rents, income and regulatory constraints in precipitating homelessness.

Aside from these two contributions, the attention of most economic studies has been firmly focused on the empirical study of homelessness. Economic studies typically seek to better understand whether area-level measures of structural factors help determine an individual's risk of homelessness, and whether the effects vary across different groups of people. We share this goal. Our aim in this study is to use these ideas to gain a better empirical understanding of the relationships that underpin movement into and out of homelessness, rather than build or test a new theory. The empirical findings from this project will, we hope, help to develop better theoretical accounts of homelessness in the future.

In the empirical literature, structural factors usually examined are housing and labour market conditions, economic cycles (booms and busts), demographic profiles and policy interventions. Individual risk factors that have been examined by economists include demographic and biographic characteristics, as well as various measures of behavioural attributes, although the latter are often proxies rather than direct measures. While economists, like sociologists, recognise that the interaction of structural factors and individual risk factors matters, the empirical literature tends to focus more on area-level (structural) factors rather than their interaction with individual risk factors, because area-level data is often all that is available.

Not only does this approach ignore the interaction of structural and individual factors, it creates a further problem. Empirical studies of homelessness that use area-level observations (e.g. that focus on social and economic structures) get systematically different results from studies that use individual-level data: 'linear regressions with cities as their units of observation will place too much emphasis on markets and too little on personal characteristics, while linear regressions with individuals as their units of observation will do the reverse' (O'Flaherty 2004, p.2). O'Flaherty then goes on to show that '(i)f homelessness arises from a conjunction of bad circumstances—having the wrong kind of personal characteristics in the wrong kind of housing market—then linear regressions will misrepresent what is going on' (p.2). To understand the way structural factors impact on homelessness it is therefore crucial to explicitly account for their possible interaction with individual-level factors.

Lack of robust data, in particular micro-level longitudinal data, is one reason why researchers have not achieved a satisfactory synthesis 'in which the contributions of both structural and individual factors are estimated' (Lee et al. 2003, p.351). As Lee and his colleagues observe, such a data set would have to 'include pools of vulnerable people in multiple locations for whom homeless or non-homeless outcomes are recorded after contextual and individual characteristics have been measured' (2003, p.351). In the past this sort of data was unavailable, but the situation has changed.

In Australia, researchers now have access to the Journeys Home (JH) dataset. JH is an interviewer-administered survey following a sample of Centrelink income support customers, identified as being either homeless, at-risk of homelessness, or vulnerable to homelessness. Journeys Home began in late 2011 with 1682 respondents. Six waves of the survey have now been conducted, although only four waves are currently available to researchers. Attrition has been low, with approximately 90 per cent of initial respondents continuing to participate. Journeys Home is ideal for examining the interactions between structural conditions and individual characteristics as it includes high levels of detail about individuals' characteristics, both current and historical. It also covers a representative and sizeable number of geographic areas, with the initial sample clustered across 36 areas drawn from all states and territories, and follow-up interviews attempted even when initial sample members move to areas outside of these initial clusters. Because JH is longitudinal, we can also go some of the way to addressing unobserved heterogeneity. By combining the JH dataset with various area-level measures of housing and labour market variables this project will address the question of what

combination(s) of structural and individual factors expose individuals to increased risks of homelessness.

1.3 Our contribution

Our study is the first, local or international, to link micro-level longitudinal data (JH) collected in a number of areas across the country, with area-level measures of housing and labour market variables, service use, and social deprivation. Using this linked data, we will estimate a model that will more accurately explain the magnitude of housing market effects on homelessness relative to other structural and individual characteristics. As such, the findings from this project will make a significant contribution to the Australian and indeed the international housing, homelessness and social policy literature. If structural factors lead to increased risks of homelessness and recidivism for those with particular individual characteristics relative to others, then the policy responses required will be quite different from those required if homelessness is driven purely by individual factors. For example, if homelessness proves more intractable when it originates in housing markets that lack affordable housing, then housing policy strategies designed to improve the supply of affordable housing in such 'hot spots' could prove effective. On the other hand, if personal characteristics such as drug misuse or relationship breakdown are overriding determinants of homelessness regardless of the state of housing and labour markets, support services targeting these behaviours are more likely to be successful.

1.4 Structure of the paper

There are six chapters in this paper, which is structured as follows. Chapter 2 summarises the key findings from the empirical literature interested in the relationship between structural factors, individual characteristics and homelessness. We start by examining accounts that draw on area-level (macro) data, before turning our attention to studies that use individual-level (micro) data to examine the effects of structural and individual factors on rates of homelessness. The final part of the chapter reviews findings from studies that have investigated factors associated with entry into and exits from homelessness. Chapter 3 describes the JH study.

In Chapter 4 we outline the approach that we will be taking in our investigation. We rely on established economic choice theory to set out a key set of testable hypotheses that are amenable to scrutiny using JH longitudinal data. These include hypotheses on the impact of low income (poverty), and housing prices/rents, and the availability of low cost housing. We then provide details of the empirical model that we will estimate to examine these hypotheses. First, we describe the static discrete choice model of housing status that will be used to model the probability of being homeless. This model aims to estimate the relative importance of the determinants of each individual's housing state at a particular point-in-time. We then briefly describe how we will introduce dynamics into our analysis by looking at entries to, and exits from, homelessness. Chapter 5 provides descriptive statistics drawn from the Journeys Home dataset. We examine whether homeless rates, and entry and exit rates vary by certain personal characteristics, as well as by different measures of area rental costs. A final chapter outlines the steps we intend to follow in the next stage of the project.

2 STRUCTURAL FACTORS VERSUS INDIVIDUAL FACTORS: WHAT DOES THE EMPIRICAL RESEARCH TELL US?

Structural factors determine why pervasive homelessness exists now while individual factors explain who is least able to compete for scarce affordable housing. (Koegel et al. 1995, p.1642)

Empirical studies that *directly* examine how structural and individual factors affect the level and distribution of homelessness are rare—we found only 18 such studies, with two from Australia, one from Scotland, and 15 from the US. Ideally, to examine the influence of structural and individual characteristics both macro-level data and micro-level data are required. Also the micro-level data needs to be based on a sample design representative of either the entire population or of a population vulnerable to homelessness. But past researchers have had to rely either on area-level data OR on limited forms of individual-level data (data that is cross-sectional and concentrating on selected subgroups of the homeless population). We know, however, from O’Flaherty (2004), that analysis using ‘area-level’ observations and ‘individual-level’ observations produce very different results. However, before we discuss this further, we now describe the findings of these alternate sets of studies in greater detail.

2.1 Area-level studies

These studies use area-based measures of housing and labour market conditions to identify relationships with point prevalence measures of homelessness. Individual characteristics thought to precipitate homelessness cannot be directly measured. Thus, researchers resort to indirect measures based on the prominence or otherwise of various subgroups in an area’s population thought to be at higher risk of homelessness. The young, for example, are thought to be more prone to drug abuse and sole parents more vulnerable to domestic violence. Their shares of area populations are then commonly included in empirical analyses.

Of the 18 studies examining how structural and individual factors affect homelessness, 13 use areas (primarily cities) as the principle unit of analysis. In most of the studies described in this section, cross-sectional area-level data is used to explain the cross-city variations in homelessness. In a small number of studies, characteristics of areas at multiple time points (panel studies) allow the dynamics of geographical variation in homelessness to be examined. We start by considering studies from the US.

2.1.1 Housing markets

By far the most consistent finding in US area-level studies is that housing markets matter. Four studies used data on homelessness rates collected by the Department of Housing and Urban Development (HUD) in 1984,² and they all found a strong relationship between local housing market variables and homelessness rates. Bohanon (1991) and Honig and Filer (1993) present findings which suggest that cities with higher rates of homelessness typically have higher rents. Appelbaum et al. (1991) discovered that homelessness in cities was positively associated with lower vacancy rates and a higher percentage of renters, while Elliott and Krivo (1991) report that ‘the homelessness rate is negatively correlated with the amount of low-rent housing’ (p.122).

There are studies based on different homelessness measures, but the results were similar. Martha Burt (1997) used the ratio of shelter beds to population in 147 cities with populations of 100 000 or more as an index of homelessness. Burt found that ‘tighter rental markets’ were associated with more homelessness. Early and Olsen (2002) and Lee, Price-Spratlen and

² In 1984 the Department of Housing and Urban Development (HUD) drew a random sample of 20 cities in three different strata sizes (50 000–250 000; 250 000–1000 000; 1 million plus) to estimate the number of homeless persons on a single night.

Kanan (2003) both used the 'S' night count of homelessness conducted by HUD in 1990. This has a wider geographic coverage³ than the 1984 count and is generally considered a more reliable measure (Early 1998, p.798). Once again, the findings suggest that housing markets matter. Early and Olsen (2002) state that almost no variables were 'statistically significant at the usual levels' (p.16). The exception to this is the 'price of housing' which in many regressions helped explain the overall incidence of homelessness and rates of sheltered and street homelessness' (p.26). Lee et al's (2003) analysis indicates that 'independent of other structural characteristics, expensive housing markets in which many people live alone are what distinguishes metro areas with a serious homeless problem from areas where the rate is lower' (p.349). Finally, Florida, Mellander and White (2012) used administrative data reported by the Continuum of Care homelessness assistance systems to HUD for the year 2011. They examined variations in homelessness across 97 metropolitan areas in the US and their findings suggest that the cost of housing was one of the strongest explanatory variables.

The studies reviewed so far all use cross-sectional data. US studies using area-level panel data have been conducted by Quigley and Raphael (2000) and Quigley, Raphael and Smolensky (2001). They used two national data sources (the 'S Night' count and Burt's shelter bed count) and two Californian data sources (records of transfer payments and administrative agency estimates). They model area-based homelessness rates using four different model specifications⁴ for each dataset. With respect to the 'S Night' count three of the four specifications found that housing market variables (rent vacancy rates and median rent) had significant (at the 1% level) and expected effects on the homelessness rate. These patterns are confirmed when using Burt's shelter count although the effects were generally weaker and often insignificant. In a separate analysis of Aid to Families with Dependent Children—Housing Assistance Program (AFDC-HAP) panel data covering the years 1989–96 they separated homeless households receiving permanent assistance from those receiving temporary assistance. They report strong 'evidence that housing market tightness is an important determinant of homelessness' (2001, p.49).

In Australia we uncovered only two empirical studies that examine the effects of structural factors on rates of homelessness across different areas. Batterham (2012) used cross-sectional data from a range of sources including the Australian Bureau of Statistics, information from homelessness services collected as part of the Supported Accommodation and Assistance Program, and rental report data collected by the Victorian Department of Human Services. She examines the relationship between Victorian rates of homelessness and housing and labour market conditions across 46 statistical subdivisions. Batterham found higher rates of homelessness in areas where there were larger amounts of cheaper private rental stock and a higher percentage of people in public housing (p.12). While most US studies report a link between tight housing markets and higher rates of homelessness, Batterham found the opposite.

The second Australian study is Wood et al. (2014). They gathered measures of homelessness from census counts undertaken across Australia in 2001, 2006 and 2011. Their unit of observation was 328 statistical areas, or what the ABS calls SA3 regional localities, which is a spatial unit with populations ranging from 30 000 to 130 000 (ABS 2010). Descriptive analysis revealed that regions with both lower rents and lower rent to income ratios, but more public housing, higher unemployment, and a larger share of Indigenous persons have higher rates of homelessness. These are characteristics more commonly associated with remote and rural regions of Australia, particularly those unaffected by the recent commodity price boom. But,

³ Approximately 335 metropolitan areas across the US.

⁴ The first controlled for rental vacancy rates and median rents; the second incorporates household income and labour market conditions, the third specification adds housing market, incomes and labour market variables simultaneously and the fourth includes the ratio of median rents to household income (p.47).

once again, there is no evidence backing the proposition that tight housing market conditions are linked to high rates of homelessness.

There is one UK panel study conducted by Kemp, Lynch and Mackay (2001). They used administrative data collected by Scottish authorities between 1980 and 1998 to examine if structural factors could explain variation in rates of homelessness in different local government areas. The administrative data set recorded the number of people applying to local authorities on the grounds of homelessness and assessed as homeless, and they used this as their measure of homelessness. Although there was some variation over time, a key finding was the 'long-run statistical relationship between homelessness and the housing market (right to buy sales, the number of public sector lettings' (p.2) as well as affordability (the number of tenants in arrears).⁵

In general, the results from overseas area-level studies, both panel and cross-sectional, suggest that housing markets matter—where more affordable housing is available rates of homelessness are lower. However, both Australian studies find higher rates of homelessness in areas with cheaper housing and larger stocks of social housing. This is puzzling and we return to this in subsequent pages.

2.1.2 Unemployment

While overseas research suggests that housing market conditions matter for homelessness, the effect of unemployment is less clear. The nexus between employment and homelessness has been identified in numerous studies that report high rates of joblessness among homeless individuals (Anderson 1997; Burt 1992; Chamberlain & Mackenzie 2008; Flatau et al. 2009; Grace et al. 2006; Rossi 1989; Steen et al. 2012). However, it is not clear whether unemployment is a cause or a consequence of homelessness. Indeed these studies treat unemployment as a proxy for poverty rather than as a variable exposing people to greater risk of homelessness. While the low resources associated with joblessness may well be a risk factor for some individuals, most studies do not question the mechanism through which labour markets contribute to homelessness.

Empirically, the findings suggest that the relationship between unemployment rates and rates of homelessness are weak. Although Appelbaum and colleagues (1991) found that rates of homelessness were statistically significantly associated with higher rates of unemployment, the effect of unemployment was relatively weak. Elliott and Krivo (1991) report a 'negative correlation of ... unemployment rates with homelessness' (p.122), while Honig and Filer (1993) conclude that overall unemployment rates, as well as the long-term unemployment rate 'did not have observable impacts on homelessness' (p.252). Similarly, Quigley, Raphael and Smolensky (2001) and Lee, Price-Spratlen and Kanan (2003) uncover little evidence to support the hypothesis that higher rates of unemployment increase rates of homelessness. The only US study using area-level data that reports a positive and significant relationship between rates of unemployment and homelessness was Burt (1997).

In contrast, for Scotland, Kemp, Lynch and Mackay (2001) discovered a 'long run statistical relationship between homelessness and the unemployment rate and the level of employment in manufacturing' (p.2). The report found that local government areas (or what they call local authorities) with 'relatively high levels of unemployment also tended to have high levels of homelessness and vice versa' (p.60).

The two Australian studies produce contrasting results. Batterham's (2012) study corroborates results from the US. She found no relationship between rates of homelessness and unemployment rates. She did, however, find that rates of homelessness are higher in areas of

⁵ Some findings with respect to housing market variables were counter to expectations. For example, in cross-section models homelessness was found to be positively related to vacancies in social housing and inversely related to rents in social housing (see Kemp, Lynch & Mackay 2001, p.4.). This study differs from most other quantitative research approaches in using count rather than point prevalence measures of homelessness.

lower median household incomes, which suggests that 'labour market conditions may be at work' (Wood et al. 2014, p.16). In contrast, Wood et al. (2014) report a strong statistically significant *positive bivariate* correlation between area-based measures of rates of homelessness and rates of unemployment, as measured over the years 2001, 2006 and 2011, a decade when national unemployment rates were falling.

Although it is difficult to draw any conclusions from the two Australian studies, the general picture emerging from overseas area-level empirical studies is that relationships between rates of unemployment and homelessness are relatively weak. This may not be as surprising as it first seems. The unemployment rate includes many people who are unemployed for a short period of time and unlikely to ever experience homelessness. This has led some to assert that the *long-term unemployment rate* is a more important variable than the overall unemployment rate when seeking to understand the causes of homelessness (Pinkney & Ewing 2006). The long-term unemployed and those groups traditionally outside the labour market, such as single-parent families and people with chronic physical and mental health conditions, are particularly vulnerable to housing-related poverty given their dependence on government benefits. The vulnerability of these groups has become even more acute over the last 15 years as the level of income support for those on unemployment benefits has declined in real terms, and income support availability has become more limited through stringent and selective targeting.

Further, it may be that at the structural level the interrelationship between labour and housing markets can mask the effect of labour market variables. In theoretical models of housing and labour market interactions it is common to assume that prices in one of the two markets are exogenous, with adjustments to shocks taking place in the other market. While a useful analytical device, the empirical reality is simultaneous adjustment in both markets and this can confound empirical attempts to identify their independent effects. Suppose, for example, that (low cost) housing supply is price inelastic. Buoyant regional labour markets attract migrants but given price inelastic house supply, house rents and prices rise, vacancies fall and the lower unemployment and higher incomes accompanying expanding regional labour markets does not necessarily translate into lower homelessness.

2.1.3 Poverty

In numerous policy and research papers poverty is cast as the 'common denominator' (Avramov 1999, p.4). Poverty makes it difficult for a household (or an individual) to afford basic necessities such as food, education, health care and housing. With only a very limited income, 'the poorest of the poor are often just an illness, accident, divorce, or other personal disaster away from homelessness' (Timmer et al. 1994, p.11).

With the exception of Burt (1997), who found that higher poverty rates were associated with more homelessness, two things stand out from the area-level studies we reviewed. First, poverty is treated as a *personal characteristic*. Second, 'poverty has no discernible effect on rates of homelessness, all things being equal' (O'Flaherty 1996, p.164; see also Quigley 1990; Elliott & Krivo 1991; Appelbaum et al.1991; Honig & Filer 1993; Early & Olsen 2002). Although this might seem counter intuitive, Elliott and Krivo (1991) suggest a possible explanation may be that:

... variations in the size of the population of persons living below the poverty line may not be related to the proportion of the poor population that is especially susceptible to becoming homeless, such as people in poverty with poor physical or mental health or weak social support. If there is little relationship between total poverty and the proportion of poor people who are vulnerable to homelessness, this would explain why higher total poverty levels are not related to cross-sectional variation across places in homelessness rates. (p.126)

Another equally plausible (and slightly more straight forward explanation) is that area-level studies are not particularly good at picking up the effects of individual risk factors.

2.1.4 *Other factors*

A number of area-level studies report significant positive correlations between higher mean temperatures and higher rates of homelessness (Appelbaum et al. 1991; Florida et al. 2012; Quigley 1990). The effect of climate on rates of homelessness may well reflect the more extreme climatic conditions in parts of the US and hence the relevance to Australia is not yet clear.

While mental illness has long featured in both public and policy discussions about homelessness, it was the process of de-institutionalisation, both here and in the US, that re-focused attention on the relationship between mental illness and homelessness. The process of de-institutionalisation began in the US in the mid-1950s, and over the next 30 years the number of patients in state mental hospitals declined by 80 per cent (Baum & Burns 1993). In the 1970s and 1980s the effects of de-institutionalisation were arguably even more pronounced—during this period the less able were released, often with no after care support resources available to them. This coincided with a sharp decline (59%) in psychiatric beds in veterans' hospitals at a time when large numbers of veterans were returning to the US, as well as a sharp decline in US economic activity, and an increase in the number of visibly homeless people.

Australia went through a similar process of de-institutionalisation, but at a later date (1980s). Like the US, resources to assist the mentally ill to integrate into the community were insufficient. Though de-institutionalisation is often cited as a cause of homelessness in Australia, there is little empirical evidence to support the claim.

In the US the picture is slightly different. Three studies have found evidence to support the claim that de-institutionalisation was associated with rises in homelessness. Elliott and Krivo (1991) report negative correlations between an area's expenditure on mental health care and rates of homelessness, while Bohanan (1991) and Honig and Filer (1993) both discover a statistically significant negative association between the percentage of the population in mental institutions and rates of homelessness.

Elliott and Krivo (1991) also report positive correlations between rates of homelessness, the amount/availability of unskilled jobs and female-headed households. Both Honig and Filer (1993) and Elliott and Krivo (1991) also present evidence suggesting that the larger the relative size of the black population the higher were rates of homelessness, although the effects were not strong.

2.1.5 *Limitations*

Despite using different datasets, different definitions of key explanatory variables and different statistical techniques, US empirical studies employing area-level data report statistically significant associations between homelessness rates and local housing market conditions. But the two Australian studies do not. There is another potentially important difference. One of the Australian studies (Wood et al. 2014) confirms the importance of local labour market conditions, as represented by unemployment rates, while the other (Batterham 2012) finds that a region's mean household income is negatively related to homelessness. Yet the US studies do not find unemployment and local labour market indicators to be important, nor do area income and poverty levels seem to have a discernible effect. These are puzzling differences and we have at this stage no compelling explanation. It would seem as if labour and housing market interactions differ in the two nations, perhaps because of a different price elasticity of housing supply. Local area house prices and rents could respond differently to the population changes accompanying cycles in regional economies' business activity, due to especially price inelastic housing supply in Australia where land use regulations have been criticised for being overly restrictive (Moran 2006). In Ball et al. (2010) evidence from an international comparison of house price elasticity estimates obtained from comparable country datasets suggests that Australian price elasticities are lower than in the USA.

The mobility of the homeless and other at-risk groups might also be relevant. Preliminary findings from JH suggest that while mobility rates across regional labour market boundaries are high among the homeless relative to that typical in the Australian labour force, there appears to be no tendency for the homeless to gravitate from high to low unemployment regions. The USA has traditionally been regarded as a country with high rates of mobility and patterns of mobility that aid labour market efficiency (Productivity Commission 2014). Moves by the homeless in the US could be more strongly biased toward regions with low unemployment. But these ideas are not evidence based and must therefore be treated with caution.

One notable difference between the Australia and US studies is the ‘areas’ they cover—US studies focus on cities and/or metropolitan areas while Wood et al.’s study (2014), and to a lesser extent Batterham’s (2012), include regional, rural, and remote areas. The issues in regional and remote areas may well be different from metropolitan areas because the Indigenous are more populous in regional, rural and remote areas. Whatever the explanation, the policy implications are potentially significant—if housing markets have no effect on rates of homelessness in Australia housing policy instruments are unlikely to alleviate homelessness. On the other hand, the evidence hints at the importance of employment and a region’s prosperity as reflected in typical household incomes. If concentrations of low-income households are pulling down mean household incomes in regions with high rates of homelessness, and the large pool of low-income households is due to poor employment prospects, perhaps we need to look beyond housing policy instruments.

To summarise, the area-level studies discussed indicate that structural factors are the main contributors to homelessness given little evidence that individual risk factors matter. In the US, housing markets seem to count the most, with little evidence to suggest that local labour markets or concentrations of poverty are relevant. In Australia, however, the albeit limited empirical work offers contrasting results. Local labour markets matter a lot, and housing markets don’t appear to matter much. However, the analysis conducted in Australia remains very preliminary so it would be unwise to jump to conclusions at such an early stage of the research.

Caution is also warranted because area-level studies are limited in the types of individual risk factors they examine. Researchers have therefore turned to individual-level data to examine their role in a more robust fashion. Before summarising these studies, we should point out that area-level studies also suffer from a more fundamental problem in that they don’t easily allow for the interaction of individual risk factors with structural factors. If many of those at-risk are found in areas where they can access affordable housing, then the area-level studies will show that individual risk factors don’t matter. But in those areas where there is a shortage of housing, individual risk factors could nevertheless contribute to homelessness.

2.2 Individual-level studies

Individual-level studies examine the factors associated with individual risks of homelessness. As we noted earlier, numerous studies report that the characteristics of the homeless are very different from the general population. Commonly cited differences or risk factors include substance misuse (Teesson et al. 2003), mental illness (Herrman et al. 1989; Robinson 2003), physical illness (Bines 1994) as well as demographic characteristics such as age, gender, household structure, and ethnicity (Burt & Cohen 1989; Chamberlain & Mackenzie 1998; Koegel et al. 1995; Watson 1988; Watson & Austerberry 1986). Studies that examine levels of human capital such as education, work histories and lack of family support are also quite common (Calsyn & Morse 1991; Calsyn & Roades 1994; Wright et al. 1998), as are studies that consider trauma, violence and adverse childhood experiences (Buhrich et al. 2000; Robinson 2010, 2011; Taylor & Sharpe 2008).

Despite a relatively well developed body of work on various individual risk factors, very few studies are able to examine variations in individual risks of homelessness in different areas—we found only five studies that fit into this category. Here researchers draw on surveys undertaken

with homeless or at-risk individuals. Survey material provides much richer personal information than the population composition data used in area-level studies. With more information on personal characteristics researchers can calculate how a wider range of risk factors correlate with homelessness. In the following subsection we show that studies employing individual-level observations almost always report that personal characteristics are significantly related to an increased risk of homelessness, but structural factors are not.

The most significant contribution has been made by Dirk Early (1998, 1999, 2004, 2005) and Early and Olsen (1998). Early used cross-sectional survey material on homeless and poor households in unsubsidised housing to estimate the probability of being homeless in 15 cities (1998, 1999) and 22 metropolitan areas (2004, 2005) across the US. Although the number of homeless and housed observations varies and each study applies different statistical techniques, the results are consistent. First, Early argues that 'housing conditions are not the primary cause of homelessness' (1998, p.694). Second, although there is some minor variation in the results, variables such as race, gender, age, mental illness and poverty are almost always important predictors of homelessness.

There are two problems here. First, although individual-level studies provide a great deal of variation in personal characteristics, 'they do not allow a great deal of variation in housing market conditions (Early & Olsen 2002). Thus, the coefficients of structural variables cannot be estimated as precisely as individual variables. A second much more fundamental issue is that these studies do not account for the interaction of individual risk factors with area-level structural factors. As O'Flaherty (2004) shows, the effect of the housing market in these studies is attenuated as '... the housing market has no effect on people who are not at risk; they are never homeless. Thus pooling the at-risk population with the population not at risk reduces the average effect of the housing market' (p.11).

In summary, individual-level studies produce very different findings from area-level studies—namely, that individual characteristics matter but structural conditions do not. Importantly, the different findings suggest different policy responses. As O'Flaherty (2004, p.1) observes; 'city level studies say reduce rents and increase vacancies, individual-level studies say work on pathology and poverty'.

So which of these sets of findings do we believe? As O'Flaherty (2004) shows, it's potentially both, as it's the conjunction of being the wrong person in the wrong place that matters. Therefore, in order to develop a model that can accurately explain the magnitude of housing market effects on homelessness relative to other structural and individual characteristics, it is crucial to allow for the interaction of structural and individual-level characteristics.

In addition, the factors that determine entry into homelessness can be quite different from the factors that affect exit from homelessness. Therefore, an equally salient issue is how structural conditions and individual characteristics interact to shape entry into and exits from homelessness. We now examine studies that have attempted to explain entry and exit patterns explicitly.

2.2.1 Entries into and exits from homelessness

None of the studies discussed above explicitly examined how structural factors contribute to entries to, or exits from, homelessness. It could be, for example, that housing markets do not necessarily elevate the chances of vulnerable people entering homelessness, but once they become homeless those living in an area with a tight housing market may find it more difficult to exit homelessness. To examine these issues, individual-level longitudinal data is required.

Longitudinal studies of the homeless, using surveys or administrative data, are becoming more common in Australia (Johnson et al. 2008; Johnson et al. 2013; Mallett et al. 2010), as well as overseas (Piliavin et al. 1996; Shinn et al. 1998; Sosin et al. 1990; Wong & Piliavin 2001).

However, like their cross-sectional counterparts most prior longitudinal studies suffer from a number of notable limitations.

Typically longitudinal studies employ samples that are 'very small and restricted to certain subgroups of the homeless population, or both' (Scutella et al. 2012, p.7). Furthermore, the samples are recruited from users (or recent users) of some type of support service, generally in a single location. This type of 'convenience sampling' means that longitudinal studies rarely include individuals who are vulnerable to homelessness or people drawn from multiple locations. Without this information it is not possible to systematically assess the relative contribution of structural factors to the onset of homelessness, or whether conditions related to the onset of homelessness are also associated with its persistence.

No longitudinal studies, here or elsewhere, have explicitly examined the impact of structural factors on entry and exit patterns. Indeed as most studies focus on those who are already homeless, few studies are able to look at entry into homelessness at all (Shinn et al. 1991 are an exception, although the study was limited to a single subgroup of homeless individuals—mothers). The limited number of prior studies on homeless dynamics therefore have focused on how individual-risk factors impact on exits from homelessness or on returns to homelessness.

Nevertheless, the influence of structural factors on entry and exit patterns is an important consideration for many researchers—for instance, Wong and Piliavin (1997) suggest that the absence of consistent effects across a range of individual characteristics' variables and what they term institutional resource variables (a crude proxy for structural variables), 'points to possible interactions between the two ... in affecting ... homeless-domicile transitions' (Wong & Piliavin 1997, p.408). A number of studies also identify access to affordable housing as a factor linked to higher exit rates and lower rates of return (Shinn et al. 2001; Shinn et al. 1998). However, the capacity of existing longitudinal studies to assess the effects of structural factors is limited.

We now summarise the findings of the limited literature on exits from homelessness and returns to homelessness.

Exits

The limited literature examining factors contributing to exits from homelessness always focus on individual characteristics with mixed and sometimes ambiguous findings. Demographic characteristics seem to be important predictors of exits from homelessness (Wong 1997). Age has been found to be a significant predictor of exits from shelters or homelessness, with younger people leaving shelters and homelessness at a faster rate (Culhane & Kuhn 1998; Wong et al. 1997; Wong & Piliavin 1997).

Employment and education also seem to be associated with exits from homelessness. For instance, Piliavin et al. (1996) reported that recent employment was linked to high exit rates, as was vocational training. Culhane and Kuhns' (1998) study of exits from shelters in New York and Philadelphia found that substance abuse problems, mental health problems and physical health problems were all associated with a lower probability of exiting shelters. Similarly, Johnson and Chamberlain (2008b, 2011) found that both mental illness and substance use were both linked to lower exit rates and longer experiences of homelessness, a link supported by Caslyn and Morse (1991), and Leal et al. (1998) who discovered that the long-term homeless are more likely to be schizophrenic and engage in intravenous drug use. The age that people first become homeless has also been linked to longer experiences of homelessness (Chamberlain & Johnson 2013; Piliavin et al.1993). Others such as Piliavin et al. (1996) and Wong and Piliavin (1997) found the effects of mental illness and substance misuse on exit rates to be inconsistent.

Returns

While researchers have been limited in their ability to examine factors affecting entries into homelessness, there is a somewhat larger body of research examining re-entries, or returns, to

homelessness. This has coincided with a growing awareness of problems with episodic homelessness. From the late 1980s on, researchers have come across a significant minority of homeless people with more than one episode of homelessness (Culhane & Kuhn 1998; Johnson & Chamberlain 2008b, 2011; May 2000; Metraux & Culhane 1999). That is, they managed to get out of homelessness, but could not sustain their accommodation and 'tipped' back into the homeless population. Episodic homelessness is thus of particular concern to policy-makers and service providers whose aim is to resolve individual homelessness permanently.

With respect to the characteristics of those more likely to re-enter (or return to) homelessness, household composition seems to matter, with singles reporting higher rates of return to shelter than families (both single and dual parent), as well as longer experiences of homelessness (Wong 1997). The effects of gender are less clear with Piliavin et al. (1996) observing higher recidivism among women, while others report more recidivism among single men (Wong 1997, p.153). A number of studies indicate the length of time that people have been homeless is also relevant to the probability of a return to homelessness (Warnes et al. 2013; Wong et al. 1997). Some studies report that adverse childhood conditions, such as physical and sexual abuse and time in the Child Protection system, are not only risk factors for homelessness, but also associated with long-term homelessness (Courtney et al. 2001; Johnson & Chamberlain 2008a; Piliavin et al. 1993).

3 ABOUT JOURNEYS HOME

The principal data source to be used in this project is JH: a longitudinal study of factors contributing to housing stability. As we will show in this chapter, JH does not suffer from many of the problems that have impaired prior research on this topic. JH therefore allows a much more rigorous analysis of how structural and individual risk factors contribute to homelessness.

Journeys Home is an interviewer-administered survey that is following a sample of Australian income support recipients facing homelessness or housing insecurity over time. Crucially, unlike prior longitudinal studies of the homeless such as Allgood, Moore, and Warren (1997), Shinn et al. (1998) and Culhane and Kuhn (1998), the JH sample is representative of a broader population of people experiencing housing insecurity, and not restricted to a population of those who are currently homeless. It is therefore able to explore the factors precipitating entry into homelessness as well as those helping to lift people out of homelessness.

The JH sample is drawn from the Research Evaluation Database extracted from Centrelink administrative records.⁶ Since 2010, Centrelink staff have been using a set of protocols to identify—and flag—customers that they assess to be either ‘homeless’ or ‘at risk of homelessness’. When combined, the Centrelink staff’s definitions of ‘homeless’ and ‘at risk’ roughly accord with the cultural definition of homelessness put forward by Chamberlain and MacKenzie (1992) (see Section 3.1 below).

It is important to note that these protocols were designed to target service delivery rather than identify the homeless population. As such, a third group was identified using the propensity of being flagged as homeless or ‘at risk’ of homelessness (see Wooden et al. 2012 for further details on the population and sampling methodology). Although not flagged by Centrelink staff as currently ‘homeless’ or ‘at risk’ of homelessness, this group nevertheless have characteristics similar to those flagged by Centrelink as ‘homeless’ or ‘at risk’ thus constituting a group that is, at least in a statistical sense, vulnerable to homelessness.

These protocols resulted in a total population of 139 801 individuals being identified as (1) homeless, (2) at-risk of homelessness, or (3) vulnerable to homelessness. From this population, a stratified random sample of 2992 individuals across 36 distinct locations covering all states and territories was selected for interview.⁷ Of this group, 273 were subsequently determined to be out of scope—mostly because they had moved out of the designated survey interview area prior to fieldwork commencing—leaving an effective sample of 2719. Almost 62 per cent of this group (n=1682) agreed to participate in a Wave 1 interview, which was conducted between September and November 2011. This response rate is much higher than in other Australian studies that sample from seriously disadvantaged populations (Johnson et al. 2008; RPR Consulting 2003; Thomson Goodall and Associates 2001), and is in line with the Household Income and Labour Dynamics in Australia survey of the general population, which had a Wave 1 response rate of 66 per cent (Watson & Wooden 2010).

Five additional follow up interviews at six-monthly intervals have been undertaken. However, only the first four waves of data are currently available for analysis. Respondents are interviewed in person whenever possible, with telephone interviews conducted in situations where face-to-face interviews were not feasible. Fully, 91 per cent (Wave 2), 88 per cent (Wave 3), 86 per cent (Wave 4), 85 per cent (Wave 5) and 83 per cent (Wave 6) of Wave 1 respondents were re-interviewed. These re-interview rates are extremely high, especially when account is taken of the relatively high rates of mobility, mortality and imprisonment in this population. Attrition is not random (Melbourne Institute 2014). While it is relatively straightforward to account for

⁶ Centrelink is an agency of the Australian Government that administers income support payments to eligible members of the Australian population.

⁷ The key requirement was that clusters should not be larger than 10 kilometres in radius in the major cities and 20 kilometres in regional and rural centres.

differences in the observable characteristics of those responding compared to those not responding, it is much more difficult to address characteristics that are unobservable. To tackle the former, we can apply the non-response weights as discussed in the Melbourne Institute (2014). However, we may expect that those entering homelessness after their initial interview (which we don't observe) are more likely to attrite in follow up interviews than others. This is much more difficult to deal with. Nonetheless, in addition to attempting to minimise the impact of non-response, for example, by using the unbalanced panel rather than the balanced panel, we will explore other options to address endogenous attrition.

Journeys Home collects a wide range of information, both current and historical. Although there have been some minor changes to the survey instrument over the course of the study, the surveys have captured information on participants' social and demographic characteristics, employment and voluntary work, service use and social networks, health and well-being, contact with the justice system, exposure to violence as well as measures of income and financial stress.

As expected with such a vulnerable population group, the profile of JH respondents is very different to that of the general population (Scutella et al. 2013). Respondents are on average younger, more likely to be single, have no dependent children, Australian born and much more likely to be Indigenous Australian than in the general population. JH respondents also have much lower levels of education on average and the vast majority are not in the labour force. The incidence of mental illness is also higher than that of the general population and smoking, drinking at 'risky' levels and drug use more widespread.

Journeys Home is thus ideal for the kind of analysis proposed here as it includes detailed information about individuals' characteristics, both current and historical. Also its wide geographic coverage will allow us to examine variation in housing outcomes across a range of geographical level factors, hitherto not appropriately examined.

3.1 Defining homelessness

Where to draw the line between the housed and the homeless is controversial and so the idea of homelessness remains a contested concept in many parts of the world. In Australia, the situation is slightly different. The cultural definition put forward by Chamberlain and MacKenzie (1992) is widely accepted by policy-makers and researchers. The core idea underpinning the cultural definition is that there are shared community standards about the minimum accommodation that people can expect to achieve in contemporary society. The minimum for a single person (or couple) is a small rental flat with a bedroom, living room, kitchen and bathroom and an element of security of tenure provided by a lease.

The cultural definition is an 'objective' accommodation-based approach, and is therefore relatively straightforward to operationalise. However, due to the different data items that are available to us, the approach we use to operationalise the cultural definition is slightly different from the method used by Chamberlain and Mackenzie in their *Counting the homeless* program of research (Chamberlain 1999; Chamberlain & MacKenzie 2003, 2008).

Our preferred approach is to determine each respondent's housing situation at each interview based on the quite detailed information they provide about their current accommodation. If a person has no accommodation, is residing in emergency or crisis accommodation or accommodation that does not meet the minimum community standard, such as caravans, boarding houses, hotels or motels, they are classified as homeless.⁸ Respondents who are

⁸ Obviously the quality of caravans and hotels or motels can vary considerably and when examining residents across the general population, as the Census does, many caravans and hotels or motels will meet the minimum community standard of a small self-contained flat. However, as the Journeys Home sample is such a disadvantaged population group, we consider residents of caravan parks and hotels/motels as similar to residents of boarding houses. Therefore, anyone living or staying in these types of accommodation are considered homeless to some degree.

residing with family or friends in a house or unit are classified as homeless if the arrangement is a short-term, temporary one. A short-term or temporary arrangement is operationally defined as being in the current accommodation for three months or less and not being able to, or not knowing whether they can stay there for the next three months. If, however, the arrangement appears to be long-term and the respondent was sleeping in a bedroom, they are classified as housed. We then classify the homeless into three categories—primary homeless (those without accommodation), secondary homeless (arrangements are short-term), and tertiary homeless (the arrangements are long-term, e.g. boarding houses or caravan parks). (See Scutella et al. 2012 for a detailed discussion on this approach.)

An alternative way of operationalising the cultural definition is to determine each respondent's housing situation at each interview from their calendar data. From Wave 2 onward, information on each respondent's housing circumstances since their previous interview, including every move, the time of the move, and the type of accommodation moved to, has been collected in what we call a 'housing calendar'.

The advantage of using information from the housing calendar is that it captures the complete picture of housing and homeless transitions between each interview. It therefore enables us to retrospectively update people's housing status at their previous interview based on how long they end up staying in that particular type of accommodation (which is an especially important issue for those staying with family or friends on a temporary basis). There is, however, one major drawback to using the calendar data. An important aspect of homelessness is security of tenure, therefore it's important to capture people's expectations of their tenure at each interview. The calendar does not provide this information. Therefore, while the calendar data enables us to differentiate those staying in particular forms of accommodation temporarily from those that stay there on a more ongoing basis, it does not enable us to determine whether respondents *expected* that their accommodation would be temporary at the time they were interviewed. As using the calendar to retrospectively categorise people based on actual movements removes this aspect of security of tenure, we only use this approach as a test for sensitivity. And, to avoid treating those in more secure arrangements as homeless, when we operationalise the cultural definition using calendar information only, the following are considered homeless: individuals who are sleeping rough, squatting, staying in emergency or crisis accommodation, home of friends (but not the home of parents or relatives), caravan, mobile homes, hotel, motel or boarding houses.

While our preferred approach uses all of the details of people's accommodation at each interview, we will undertake sensitivity analysis using other approaches in the next stage of research. As a first step, in Table 1 we compare homeless rates at each wave using our preferred approach and the alternative 'calendar' approach just described. We also provide estimates for homelessness when adopting a 'literal' approach to homelessness as is common in the US literature, which includes individuals sleeping rough or in emergency or crisis accommodation.

Two things stand out. First, the homeless rates using our preferred approach and the alternative 'calendar' approach are similar, although the rate reported using the calendar approach is slightly higher in later waves. Second, the rate of primary and literal homelessness is declining over time, although the sample size for both is small. This might make it difficult to undertake a separate analysis of these groups.

Table 1: Homeless rates by wave^a

	Wave 1	Wave 2	Wave 3	Wave 4	Wave 5
Cultural homeless—preferred approach					
Primary homeless	2.4	2.5	2.7	2.5	2.1
Secondary homeless	10.7	7.8	6.7	7.1	5.9
Tertiary homeless	12.5	10.1	10.6	9.6	10.5
Total	25.6	20.4	20.0	19.2	18.5
Cultural homeless—calendar approach	25.9	21.7	21.5	19.5	20.6
Literal homeless	5.1	4.6	4.3	4.1	3.7
Numbers of observations	1,659	1,498	1,455	1,432	1,397

^a Fieldwork conducted over the following periods: Wave 1: September to November 2011; Wave 2: March to May 2012; Wave 3: September to November 2012; Wave 4: March to May 2013; Wave 5: September to November 2013; Wave 6: March to May 2014.

4 OUR EMPIRICAL APPROACH

We rely on established economic choice theory on the demand and supply of housing to set up our empirical approach. In doing so we distance our analysis somewhat from the sociological literature that outlines how social structures might impact on homelessness. Sociological theories have much to offer in enhancing our understanding of how changes in social structures (e.g. weakening family ties; changing gender roles) and cultural traditions (e.g. the emergence of a more permissive set of values in the 1960s and 1970s) shape the options available to (and choices made by) those vulnerable to homelessness, as well as the changing identity of those 'at risk' of becoming homeless. However, these theories do not supply the researcher with hypotheses that are easily testable empirically, particularly with a dataset such as JH.

Changes in social structures and cultural traditions tend to emerge slowly and become visible after decades rather than a few years. Longitudinal data is very costly to collect, and so JH is no different from most in tracking respondents for only a few years. Thus, JH cannot be used to explore slowly emerging secular trends in a society, and their relevance to an understanding of homelessness. Also, as secular changes in social structure and cultural values tend to evolve uniformly within one country's boundaries,⁹ we cannot exploit regional variation within the same country in order to detect their influence. Finally, it is empirically very demanding to assess the myriad of potential mechanisms through which structural factors affect homelessness, and almost impossible to disentangle the effects of structures and agency. We therefore must limit our analysis to an examination of how area-level characteristics directly affect individual risks of homelessness given individuals other socio-economic characteristics.

The macro structural factors that we focus on are changing housing and labour market conditions. Housing and labour market conditions can change over the short to medium term, and at turning points such as the peak of booms and the depth of busts, change can occur 'overnight'. Furthermore, substantial regional variation in housing and labour conditions allow the researcher points of comparison that can be exploited in order to detect impacts on those 'at risk' of homelessness. We begin our search for testable hypotheses by deriving hypotheses from the choice theoretical framework favoured by many economists.

4.1 A choice theoretical framework

The choice theoretical framework has been deployed by Glomm and John (2001) to describe homelessness as one consequence of decision-making under extreme income constraints. An elementary static version of this framework is developed in Appendix 1. We assume that individuals choose between housing and non-housing consumption under income constraints, and at a single point in time and place.¹⁰ Crucially, we assume that individuals are price-takers and therefore cannot influence the price of housing (as well as the price of non-housing consumption). Income is determined 'outside the model' (exogenous) and treated as fixed. Individuals have preferences defined over housing and non-housing consumption. In principle, individuals can trade-off consumption of one good for the other in order to reach preferred bundles, while continuing to satisfy income constraints that in the absence of borrowing and lending prevent a 'spend' exceeding income. When income is very low these preferences can be driven by urgent needs. The 'choice' therefore is between consumption of very low quality housing that absorbs a large portion of income, or increased consumption of other necessities with zero housing expenditure (that is homelessness).

⁹ There is at least one caveat here. In 'immigrant societies' where different cultural traditions and social structures can coexist, researchers may exploit these differences to gain insights into how they shape economic and social phenomena.

¹⁰ There are therefore no moves and location is not an attribute over which preferences are defined. This assumption is relaxed below.

Using this framework, a few important hypotheses between individual characteristics and homelessness can be made. First, the less income an individual has, the fewer resources they have for housing consumption. Therefore, the risk of homelessness is higher. Second, at a given income level, individuals with a higher need for other goods will have less income left over for housing consumption. For example, people with health problems and higher associated health expenditures will have less money to pay for housing. Therefore, they are at greater risk of homelessness. Third, people who experience some shock (e.g. family breakdown, job loss or natural disaster) that results in unexpected loss of income, savings, the equity accumulated in their homes, or in the rental property they leased, are more likely to become homeless, as it is costly and time consuming to resolve major disruptions in housing circumstances. Finally, certain groups of people can also become homeless for reasons that the standard economic theory of housing consumption choice cannot readily explain. For instance, some individuals might have difficulties accessing housing because of discrimination. There is evidence to suggest that Indigenous people, families on income support, people with mental health problems, as well as young people, are routinely discriminated against by landlords (Walsh 2011). Our a priori expectation is that these groups of people will have higher risks of homelessness.

In addition to the influence of individual characteristics on risks of homelessness, the choice theoretical framework provides the rationale for how we might expect housing market characteristics to affect individual risks of homelessness, holding all else constant.

Rents (prices) that must be paid for housing help determine the severity of income constraints experienced by 'at risk' groups. Real rent levels (prices) are believed to have exhibited a long run upward trend in Australia since the late 1980s, tightening income constraints, especially those confronting the poor. Rents and prices also vary across regions, with differentials reflecting regional demand pressures and housing supply constraints. Supply constraints can arise due to topographical features (e.g. areas with steep inclines or flood plains are more costly to develop), regulation of land and buildings and bottlenecks within the building construction industry (e.g. skill shortages) and planning system. These supply constraints can be binding in some regions but not in others. For example, some coastal cities are hemmed in by mountain ranges that curb radial urban expansion, while others are favoured by a flat topography that aid low cost housing development on greenfield sites. A shortage of affordable housing for low-income households is more likely where supply constraints bind. Shortages are also more likely when large numbers of households with low incomes are competing for housing in markets with high rental prices and low vacancy rates. That is, there is excess demand for low cost accommodation.¹¹ The model therefore predicts that risks of experiencing homelessness will be higher in areas with exclusionary land use zoning (Fischel 2004), high costs of housing and high concentrations of poverty—high rents and prices alone do not cause homelessness if people in the area have sufficient income for housing.

We also expect that certain groups will be more vulnerable to homelessness in tighter housing markets than others. For instance, discrimination is more likely to occur in tight regional housing markets, as landlords have more choices over potential tenants. This means that certain groups (e.g. ex-offenders) in these areas will be more likely to enter homelessness and less likely to exit homelessness than those in the same groups who live in areas where the housing market is slack. Similarly, in a tight housing market, people who experience some form of family breakdown are likely to be at greater risk of homelessness. Again, this is less likely when there is lots of affordable housing. Likewise we might expect that certain groups will be more vulnerable to weaker labour markets than others. It is therefore important to account for these potential interactions of individual and area level characteristics in our estimation model.

¹¹ The upper end of the housing market is not as relevant as people can always obtain cheaper accommodation rather than become homeless.

4.1.1 *A dynamic perspective*

The above analysis is based on a static model of homelessness. There are, however, reasons to expect that area-level characteristics will have different effects for entries to homelessness than they do on exits from homelessness. For instance, tight housing markets may have more of an effect on exits from homelessness than on entries. Also, this may be more of an issue for some groups than others. For example, victims of domestic violence will be reluctant to leave the family home in tight housing markets, while those homeless victims that left in earlier times now find it more difficult to escape homelessness.

An additional issue that arises when taking a dynamic approach to homelessness, and one that we will also consider in our final analysis, is that people can respond to housing and labour markets by moving. Some people may choose lower quality accommodation as a trade-off for their preferred location, where there may be better job prospects, or closer links to family and friends. Alternatively, some people might choose an area with lower housing costs but consume higher quality accommodation. That is, individuals can respond to tight housing markets by moving to cheaper areas in order to reduce their risk of homelessness or, if they are already homeless, to improve the chances of exiting homelessness.

4.2 **Empirical model**

To undertake our empirical analysis we will estimate a discrete choice model of each individual's housing state at a particular point-in-time. This involves modelling the probability that an individual chooses each one of a number of different specific housing states. In the basic model, two housing states, homeless and housed, will be analysed using a random effects logistic model. Both area-level structural factors, including housing affordability and labour market conditions, as well as individuals' characteristics will be included as independent variables to estimate the probability of being homeless. We will specify the model to explicitly allow for the interaction between structural factors and individual characteristics to see whether structural factors affect individuals with certain risk factors more than others.

The model can then be expanded to include three or more housing states, such as different types of homelessness (e.g. primary homelessness), or different types of housing (marginal versus stable housing). In this case, a random effects multinomial logit model will be specified and estimated. However, the independent irrelevant alternatives assumption (IIA), which underpins unbiased and efficient estimation of multinomial logit models, is likely to be violated in this research. IIA implies that the relative odds of two particular alternatives are not affected by a third option. In our case, the three options are between homelessness, being marginally housed or being in stable housing. When examining the likelihood of choosing between homelessness and stable housing for example, the odds are likely to change had there been no marginally housed option. Therefore formal statistical tests for the IIA will be performed to determine the possibility of extending the model.

Random effects models allow us to take into account not only the effects of observed characteristics of individuals, but also any unobserved-individual characteristics that are fixed over time. A potential problem with the standard random effects model is that it assumes that any unobserved time-invariant heterogeneity is uncorrelated with other explanatory variables in the model. If, as is likely, this unobserved heterogeneity is correlated with any of the explanatory variables included in the model, the results of the estimation will be biased. Ideally, we would adopt a fixed-effects model, which does not require making such a restrictive assumption. A fixed-effects model, however, requires that our explanatory variables are time-varying. Unfortunately however, some of the area-level data that we will be using is taken from one point-in-time (Census night in 2011), and other area-level characteristics are unlikely to vary much over the short timeframe that Journeys Home data was collected. Therefore, we will follow the approach of Mundlak (1978). For the time-varying explanatory variables that are likely to be correlated with unobserved heterogeneity, the means of these variables will be added to a

standard random-effects model. We will also make an assessment of whether there is enough time-varying information for us to undertake analysis using a fixed-effects model, even if only to test for the robustness of our findings.

The analysis of homeless status provides an indication of the overall effects of structural and individual risk factors on homelessness, but the picture provided by this analysis is far from complete. Factors that may affect an individual's likelihood of entry into and exit from homelessness may be different and thus may require different forms of policy intervention. For example, current policy settings prioritise families and homeless people with serious mental health conditions (among others). It may be that the higher level of resources directed towards assisting these groups increases the likelihood of exiting homelessness, holding other things constant, but not the chances of entering homelessness. Although the probability of entry and exit jointly determines the probability of being homeless, understanding the dynamic process (that is entry and exit) will provide important insights for policy-makers concerned with both preventing homelessness, as well as getting people out of their homeless predicament. Thus, we will estimate the probability of entry (for the housed) and probability of exit (for the homeless) separately.

To estimate the probability of entry into homelessness, we will take all observations that are classified as housed and estimate their probability of entering into homelessness in the next six months (i.e. being classified as homeless at the next interview). To analyse the probability of exiting homelessness, we focus on those observations that are classified as homeless and estimate their probability of becoming housed at the next wave. Again, the random effect logit model will be employed to perform the estimations.

4.3 Explanatory variables

As discussed earlier, the key structural factor that we are interested in is the extent to which there is a housing imbalance at the area level. To capture this we include area-level housing market characteristics and poverty. In terms of housing market characteristics, our major data source is the ABS area-level data derived from the 2011 Census (ABS 2011). Census data contains information on the rental prices of occupied dwellings, but not vacant properties. Further, not all the unoccupied dwellings are available to rent. Some are holiday homes. Therefore, we can only use occupied rental properties as a proxy to measure the price of rental properties in the market. Despite these problems, ABS census data has its advantages as compared to alternative sources such as that available from the Real Estate Institute of Australia (REIA). Unlike the REIA data described below, where only the median price is available, Census data allows us to focus on the low-cost end of the rental market, which is more relevant to the homeless. To better capture the availability of low-cost housing (vacancies), we intend to test various proxies to determine what the best measure is.

We will also use time-series data produced by the REIA. This data has two advantages. First, it contains both price and vacancy rates that reflect the actual availability of housing at the time. Second, time series variations allow us to study changes and differences in housing market characteristics within areas. However, the REIA data has a major drawback—it only includes areas in major capital cities and regional centres. More than 20 per cent of our sample do not have corresponding area data, either because they are not in areas covered by the REIA dataset, or they have missing information in the area covered. Thus, we only intend to use REIA data for our sensitivity analysis.

Of course, public and social housing are also important components of the total housing supply. We will therefore examine what measures best approximate the total availability of these types of housing. The stock of public housing can be measured using census data. However, the stock measure does not provide information on the availability of public housing because it ignores the number of people on waiting lists. An area can have a substantial stock of public housing, but large numbers of income eligible households living in the area can result in lengthy waiting lists.

Perhaps a better proxy might be the proportion of an area's income support recipients living in public housing, but this assumes that public housing is more desirable given its low costs. Measures of the availability of social housing do not have a straightforward interpretation, and we will investigate alternative measures of the availability of social housing.

To capture area-level poverty, the main data source we will use is income information collected in the 2011 Census.

In addition, we also expect the local labour market to affect individual risks of homelessness. We will therefore estimate models that include indicators of the strength of local labour markets such as the unemployment rate and the employment to population ratio available from the monthly Regional Labour Force Statistics (ABS 2014). As the local area unemployment rate can also act as a proxy for poverty, some sensitivity testing of alternative measures of poverty and the local labour market will be undertaken.

All the above described structural factors will be measured at Statistical Area Level 4 (SA4), which is based on the Australian Statistical Geography Standard (ASGS). SA4s were developed by the ABS to represent intra-state and territory labour markets, subject to population limits imposed by the Labour Force Survey sample. SA4s provide the best sub-state socio-economic breakdown in the ASGS (ABS 2010). There are 87 SA4 regions across mainland Australia and Tasmania, with an average population size of 246 617 at the 2011 Census. The least populated SA4 had a population of 35 797 and the most populated a population of 658 016. All 87 of these regions are represented in JH. However, in those areas that do not include any of the 36 original sampling clusters (see Chapter 3 for the description of the clusters), the numbers of observations are small as they only include sample members who moved across regions over the course of the JH study.

Our primary data source for individual characteristics is the JH dataset. Individual characteristics examined will include a standard set of demographic controls such as age, gender, country of birth and whether people identify as Aboriginal or Torres Strait Islander. Crucially individual and/or household incomes of respondents will be included to capture the resources of each individual. Previous literature outlining the individual causes of homelessness will then determine what additional individual risk factors to include in the model, examples of which may be adverse childhood experiences (including being placed into state care and child protection systems, experiences of violence or abuse as a child, and general levels of family support during childhood), mental illness, substance use, time spent incarcerated, work histories and current labour force status.

5 DESCRIPTIVE STATISTICS

The purpose of this section is to present some preliminary statistical material to guide the next stage of the analysis—econometric modelling. Before presenting the descriptive statistics, we first describe the sample selection process and summary statistics for the observations used in the subsequent analysis. Then we examine homeless rates, and entry and exit rates among individuals with different characteristics. We then turn our attention to exits and entry patterns by different area rental costs.

5.1 Sample selection

As discussed in Chapter 3, there are currently four waves of JH data available to researchers. We therefore use data from Waves 1 to 4 of JH as our primary data source in the analysis that follows. We exclude from the analysis observations with incomplete interviews. We also exclude observations with insufficient information to classify an individual's housing status and or their SA4 region. This leaves us with 7441 observations overall (109 observations are excluded). Also those observations with missing information on individual characteristics are subsequently excluded when the specific characteristics are analysed. Details of the characteristics of our resulting sample are presented in Appendix 2.

5.2 Changes in homeless status

The key advantage of using panel data is that we can use variations in each individual's circumstances over time to control for the effects of observed and unobserved characteristics on housing status. In a random effects model, the results are driven by weighted averages of variations between individuals and variation within individuals over time. In this section we investigate the prevalence of housing status transitions in order to assess the possible implications for our empirical models.

We first investigate transitions into and out of homelessness over each two consecutive waves, which occur at six-monthly intervals on average. In Table 2 below we show the proportion of individuals making each of the possible homeless to housed transitions between each consecutive wave (i.e. between Waves 1 and 2, Waves 2 and 3, and Waves 3 and 4). In the table individuals are categorised into groups reflecting the four possible transitions that can be made between each pair of waves. These include: those 'remaining housed'; those 'remaining homeless'; those who have 'exited homelessness', and those who have 'entered homelessness'.

Homeless entry rates and exit rates are then presented. The entry rate is defined as the total number of people who were housed in one wave but become homeless in the next wave divided by the total number who were initially housed (i.e. entered homelessness/remained housed + entered homelessness). The exit rate is defined as the number of people who were homeless in one wave but were housed in the next wave divided by the total number of people who were initially homeless (i.e. exited homelessness/remained homeless + exited homelessness). The same method is applied to each wave to wave transition.

As shown in Table 2, on average, over 80 per cent of the sample remains in the same housing state in consecutive waves. On average, 72 per cent of the sample remained housed inbetween each paired consecutive wave, although the proportion is slightly higher in the later waves. The proportion of the sample that remained homeless decreased slightly over time, from 13.4 per cent between Waves 1 and 2 to 11 per cent between Waves 3 and 4. The proportion of people exiting homelessness is slightly higher than those entering homelessness in the early waves, but in the last two wave-to-wave transitions the proportion entering is slightly higher than the proportion exiting.

On average, the entry rate is 10.3 per cent, with only minor fluctuations over the four waves. On the other hand, the exit rate declined slightly between the early waves and the later waves: from 44.6 per cent between Waves 1 and 2 to 39.4 per cent between Waves 3 and 4.

Key to our analysis is a substantial amount of cycling in and out of homelessness over the course of JH. Next we analyse whether the transitions observed over the entire course of JH are concentrated in small numbers of individuals, or are more widespread across JH participants'.

Table 2: Homeless/housing status transitions between waves^a

	W1–W2	W2–W3	W3–W4	Total
Remained housed	68.8	72.0	73.7	71.5
Entered homelessness	7.0	9.4	8.2	8.2
Exited homelessness	10.8	8.0	7.1	8.7
Remained homeless	13.4	10.7	11.0	11.7
Homeless entry rate	9.3	11.5	10.1	10.3
Homeless exit rate	44.6	42.8	39.4	42.6

^a Fieldwork conducted over the following periods: Wave 1: September to November 2011; Wave 2: March to May 2012; Wave 3: September to November 2012; Wave 4: March to May 2013; Wave 5: September to November 2013; Wave 6: March to May 2014.

Table 3 below investigates individuals' homeless transitions over the four waves of JH. The statistics are reported separately by the number of waves that each respondent completed. For the 1264 individuals that completed all four interviews, 7.5 per cent are homeless in all waves and 32.8 per cent experienced homelessness in some waves but not all. The remaining 59.7 per cent were housed in all waves.

On average, people were homeless for 1.9 waves (slightly less than half of the time) if they were ever observed to be homeless. The average number of transitions is 1.4 for those who experienced housing status transitions. Fewer than 1 in 5 respondents (17.3%) experienced multiple transitions (i.e. cycled in and out of homelessness). The small proportion of people experiencing multiple transitions suggests that we will be unable to investigate recidivism among those exiting homelessness during the JH survey period. However, as noted in Scutella et al., (2012), prior to Wave 1 over 90 per cent of Journeys Home respondents had a history of homelessness. Therefore, our analysis of entry patterns can in principle be viewed as an analysis of re-entry patterns—we just don't know the exact length of time they had been housed prior to the onset of a homelessness episode during the survey period.

Table 3: Individual's transitions of homeless status by waves completed

	One wave	Two waves	Three waves	Four waves
Numbers of individuals	77	109	231	1,264
Homeless in all waves	33.8	15.6	9.5	7.5
Homeless in some waves	0.0	32.1	35.9	32.8
Housed in all waves	66.2	52.3	54.5	59.7
Total	100.0	100.0	100.0	100.0
Average number of waves homeless for those observed homeless in JH	1.0	1.3	1.9	1.9
Average number of status changes per individual for those experiencing transitions	-	1.0	1.3	1.4
Proportion of respondents experiencing multiple transitions	-	-	10.4	12.0

Nonetheless, the tabulations presented so far indicate that there are substantial changes in JH participants' housing status. This suggests that the probability of homelessness will be jointly determined by within individual and between individual variations. It also shows that we will have sufficient numbers of observations to analyse homeless entries and exits separately. In the next two sections, we investigate how the probability of entry and exit differ by individual characteristics and risk factors.

5.3 Individual characteristics

Average homeless rates and entry and exit rates, as defined in Section 5.2, are presented in Table 4 below by individual level characteristics. The characteristics of individuals are taken from the first wave of each wave pairs. Thus, taking the Wave 1 to Wave 2 transition as an example, the characteristics represent an individual's Wave 1 characteristics.

Table 4 shows that men are more than twice as likely to be homeless than women (25.3% versus 12.9%). This is a result of a higher homeless entry rate and a lower exit rate for men compared with women. That is, men are more likely to enter homelessness than women, and they tend to remain homeless for longer.

Although young people were more likely to be flagged by Centrelink as homeless, or at risk of homelessness, and therefore to be selected into the JH survey, young JH respondents were less likely to be homeless at each interview than their older counterparts. As shown in Table 4, those over 45 years of age were more than twice as likely to be homeless than those aged between 15–24 (30.3% versus 13.5%). Entry rates do not differ a great deal, but exit rates do—young people are far more likely to exit homelessness than older people (59.6% versus 29.8%). Young people are therefore more likely to churn in and out of homelessness. This explains why young people were less likely to be observed as homeless during the JH survey.

There are only slight differences between Indigenous and non-Indigenous participants across all three measures, with people identifying as Aboriginal or Torres Strait Islander reporting slightly higher homeless rates and entry rates. Exit rates for Indigenous respondents were, however, not significantly different to those of non-Indigenous respondents. Among those who reported that they have experienced sexual or physical abuse, the differences across the three measures are relatively modest and not statistically significant at the 5 per cent level.

The level of education attainment matters, but only slightly—individuals whose highest educational attainment is less than Year 10 are about 4–5 percentage points more likely to be homeless than those with higher levels of education, and they also have the highest homeless entry rate. The exit rate is lowest for those who completed Year 10 or 11, but the differences in exit rates are not statistically significant. Income, however, appears to matter a lot more. Those who were housed and have an income greater than \$600 were much less likely to become homeless in the next period than those with income less than \$400 (5.7% versus 11.3%). For those who were homeless, a higher income does not increase their probability of exiting homelessness. This pattern suggests that homeless people in the relatively high income categories may also have a higher consumption of other goods which leaves them with insufficient income to climb back into the formal housing market. Overall, those who earn less than \$400 were much more likely to be homeless in the next period.

Table 4: Homeless, entry and exit rates by individual characteristics

	Homeless rate	Entry rate	Exit rate	Number of obs
<i>Gender</i>				
Male	25.3*	11.2*	36.8*	2,210
Female	12.9*	7.1*	54.2*	1,981
<i>Age</i>				
15–24	13.5*	8.8	59.6*	1,624
25–44	19.5*	9.0	41.6*	1,690
45+	30.3*	10.1	29.8*	877
<i>Indigenous status</i>				
Non-Indigenous	18.7*	8.5*	42.3	3,418
Indigenous	22.6*	11.9*	43.8	767
<i>Experienced childhood sexual/physical abuse</i>				
No	18.6	7.8	38.1	1,164
Yes	19.8	9.9	45.4	2,692
<i>Highest education</i>				
Post school qualification	18.1	6.9*	37.4	1,264
Year 12	16.3	7.4*	44.0	497
Year 10 and 11	19.1	10.3*	47.3	1,627
Less than year 10	23.5	10.9*	39.9	769
<i>Weekly income (\$)</i>				
Less than 400	21.9*	11.3*	44.1	2,246
400–599	19.6*	7.2*	35.9	1,012
600+	12.8*	5.7*	43.0	673
<i>Employed</i>				
No	21.0*	9.8*	41.9	3,195
Yes	14.4*	7.3*	45.6	995
<i>Health status</i>				
Excellent/Very Good	18.5*	9.0	40.1	1,181
Good	17.4*	8.8	46.1	1,462
Fair/Poor	22.0*	9.6	41.2	1,536
<i>Psychological distress (K6)</i>				
Low (0–12)	18.1*	8.5	41.7	3,112
Medium (13–18)	23.4*	11.6	43.6	764
High (19–24)	22.8*	10.2	45.7	246
<i>Used illegal drugs</i>				
No	16.6*	7.5*	42.8	2,605
Yes	24.0*	12.0*	42.3	1,577

* Denotes statistically significant differences at the 5 per cent level; based on a t-test when two groups are compared and an F-test for joint significance when three or more groups are compared.

There are also clear associations between non-employment and homelessness. Individuals who were employed are less likely to be homeless than those who were not (14.4% versus 21%). The entry rate among those with jobs is lower than for those who are not employed (7.3% versus 9.8%). They are not statistically more likely to exit homelessness. These differences, however, are not as large as might be expected.

Individual health status appears to matter but once again, only slightly. The homeless rate among individuals who report that they are in good or excellent health is slightly lower than those whose health is fair or poor, but the differences between the entry and exits rates are quite small, and not statistically significant.

On the other hand, psychological distress does appear to be related to homelessness, as those with medium to high levels of distress are more likely to be homeless, largely driven by an increased propensity to enter homelessness.

Finally, Table 4 indicates that the homeless rate among people who used illegal drugs is higher than among those who do not. While exit rates are fairly similar across the two groups, entry rates are considerably higher for those using illegal drugs.

5.4 Housing markets and homelessness

The descriptive material so far confirms that there is substantial cycling in and out of homelessness, and that people with certain characteristics are more prone to homelessness than others. Now we want to turn our attention to patterns of entry and exit, but this time within the context of different area housing markets.

To capture the conditions of housing markets we include median household rents for each SA4 from the 2011 Census of Population and Housing. We then categorise areas according to whether they have high, medium or low median rents. The top 25 ranked areas are considered to be 'high' median rent, the middle 26–50 ranked areas 'medium', and bottom 51–87 ranked areas 'low'. We acknowledge that this is quite an arbitrary categorisation but they were selected to ensure that the national median rent belongs to the 'medium' group.¹²

We first examine how homeless rates vary according to areas that have a high, medium and low median rent. It is important to keep in mind that the JH sample is a select sample of a particularly 'at-risk' population. Homeless rates are therefore different from homeless rates derived from the total population (e.g. those using the census). When considering the total population you don't expect to see high rates of those at-risk in high rent areas, as they cannot afford to live there. Nonetheless, even though the total number of people at-risk in high rent areas is small (i.e. the denominator), those that are 'at risk' are more likely to be homeless than those located in cheaper areas.

As expected, Table 5 below shows that homeless rates are highest in areas with high median rents. It is somewhat surprising that the homeless rates in low rent areas are, on average, higher than the homeless rate in medium rent areas, although the difference is not large. This suggests that there may be other area characteristics driving the homeless rate.

¹² The national median rent was \$285 a week.

Table 5: Homeless rates by rank of SA4 median rent

	Homeless rate
High rent area (min=\$325 pw) ¹	26.8*
Medium rent area (min=\$270 pw)	18.1*
Low rent rate area (\$269 pw or less)	20.8*

* Denotes statistical significance at the 5 per cent level based on an F-test for joint significance.

¹ Areas (SA4s) ranked by median rent from highest to lowest. Top 25 = High; Middle 26–50 = Medium; Bottom 51–87 = Low.

However, this is a static view, and ‘at risk’ people may move areas in response to local housing market conditions. For example, those living in an area where the housing market is tight and who have limited resources, might move to an area where housing is cheaper. Alternatively, some people may prefer to live in an area with better labour market opportunities but areas with more labour market opportunities are typically more expensive. These ideas motivate an investigation into whether people move across SA4 areas inbetween waves. We start by examining whether the homeless are more likely to move than the housed and then whether those in high rent areas are more likely to move than those in low rent areas.

As shown in Table 6 below, overall those in high-rent areas are more likely to move in the next wave than those in low-rent areas (16.7% and 10.4% respectively). Also, the homeless are much more likely to move than the housed, particularly if they are moving from high or medium rent areas. This makes intuitive sense as there is an incentive for people in the high and medium rent areas to move to areas where housing is cheaper, whereas there is no such incentive for people in low-rent areas to move.

Table 6: Percentage that move to a new area by original homeless status and housing market characteristics (%)

Current SA4	Housed	Homeless	Total
High rent area	13.7*	24.7*	16.7
Medium rent area	12.3*	23.4*	14.4
Low rent area	10.2*	11.3	10.4

* Denotes statistical significance at the 5 per cent level; based on a t-test for differences in homeless rates between the housed and the homeless.

Risks of homelessness may vary for those who stay in the same SA4 areas (‘stayers’) compared to those who move across SA4 areas (‘movers’). In Table 7 below we therefore examine whether the relationship between risks of homelessness and housing market characteristics differ for ‘stayers’ versus ‘movers’. An important difference in this table relative to Table 6 above is that we examine people’s destination state rather than their original state. That is, in Table 7 we first determine whether people have moved from another area since the previous interview (typically a six-month period). Then we examine their housing market characteristics and homeless status after they have moved.

Indeed, what Table 7 shows is that ‘movers’ report substantially higher rates of homelessness than ‘stayers’, irrespective of whether they moved to or remained in areas with high, medium or low median rental costs. Overall, movers are three times more likely to enter homelessness than non-movers. They are also more likely to exit, but the relative difference in exit rates is not as large as with entries.

Homeless rates for stayers are highest in high rent areas. Interestingly differences in entry rates are negligible across the different types of areas. There does, however, seem to be a clear

pattern with regard to homeless exits, with exit rates substantially lower in areas of high median rents.

Homeless rates are also highest for ‘movers’ who end up in a high rent area. This seems driven by a substantially higher homelessness entry rate and lower exit rate than for ‘movers’ finding themselves in lower cost areas. Indeed, movers ending up in high-rent areas are 15 percentage points more likely to enter homelessness than those in low-rent areas.

Interestingly, although exit rates are always higher for ‘movers’ relative to ‘stayers’ a similar pattern between housing market characteristics and homelessness exit rates can be observed between ‘movers’ and ‘stayers’. Those in low and medium rent areas are much more likely to exit homelessness than those in high rent areas.

Table 7: Homeless rates, entries and exits from homelessness by housing characteristics of areas: ‘stayers’ vs ‘movers’ (%)

	Homeless rate	Entry rate	Exit rate	Numbers of obs.
Stayers (stayed in the same SA4)				
High rent area	21.4*	6.6*	32.8	976
Medium rent area	14.8*	6.2*	41.6	1,369
Low rent area	18.5*	8.9*	42.0	1,273
<i>All stayers</i>	17.9	7.3	38.8	3,618
Movers (moved from other SA4)				
High rent area	44.1*	35.4*	43.7*	170
Medium rent area	20.6*	17.1*	69.5*	223
Low rent area	25.0*	20.6*	63.3*	180
<i>All movers</i>	29.0	22.8	57.5	573

* Denotes statistical significance at the 5 per cent level, based on an F-test for differences in rates among rent areas.

Now we delve a little deeper into the experiences of ‘movers’. In Table 8 below, we compare the housing market characteristics of the areas that people are currently in, with the characteristics of the areas that they have moved from. We do this by comparing the rank of each area according to their median rent.

In Table 8, we see that homeless rates are slightly higher for those who moved from a cheaper area to a more expensive area than for other movers—31.9 per cent versus 27.8 per cent for those who moved between areas with similar housing costs and 27.2 per cent for those who moved from a more expensive area to a cheaper area. This, however, seems to be driven by a difference in the likelihood of exiting; movers that end up in a cheaper area are clearly more likely to exit than movers ending up in similarly ranked or more expensive areas. Homeless entry rates do not, however, seem to systematically vary according to the type of area people had moved from.

Comparing the figures in Table 7 with those for the ‘stayers’ in Table 8, we also see that those moving from a higher ranked median rent area to a lower ranked median rent area are more likely to exit homelessness than those who didn’t move, regardless of the characteristics of the ‘stayers’ area. Note, however, that this difference, although quite large in magnitude, is only statistically significant at the 10 per cent level. This, in addition to all of the other described results, suggests that the state of the housing market appears to have an association with homelessness.

Table 8: Homeless rates, entries and exits from homelessness by housing market characteristics of areas: 'movers'^a

	Homeless rate	Entry rate	Exit rate	Numbers of obs
Moved from higher to lower ranked rent area	27.2	24.0	66.7 [#]	224
Moved between similar ranked rent area	27.8	19.0	47.6 [#]	158
Moved from lower to higher ranked rent area	31.9	25.0	52.5 [#]	191

[#] Denotes statistical significance at the 10 per cent level, based on an F-test for differences in rates among rent areas. Differences are not statistically significant at the 5 per cent level, however, due to the small sample size of 'movers', we also undertake a test for significance at the 10 per cent level.

^a 'Movers' refers to those observations where the person is in a different SA4 to that they were in in the previous wave.

5.5 Summary

To summarise, the findings in this section indicate a substantial amount of movement in and out of homelessness and that entry and exit patterns vary by both individual characteristics and by housing market conditions. The results suggest that the state of the housing market has quite a strong association with homelessness. However, these descriptive statistics do not take into account the interaction between personal characteristics and housing market conditions. This is the core issue we intend to investigate. In the following chapter we outline the next steps in the project.

6 WHAT NEXT?

In the coming months we will assemble all of the requisite data, both micro and macro level, and then commence the process of formally modelling the determinants of individual level homelessness, entries into homelessness and exits from homelessness. Not only will we include controls to capture area-level structural factors and individual risk factors, but we will also explicitly allow for the interaction between structural factors and individual characteristics.

We expect to encounter some significant challenges along the way. As such, we have allowed sufficient time for data analysis (including both descriptive analysis and model estimation), as well as time for interpreting the findings, which will involve various sensitivity analyses. The Final Report will be submitted early in 2015, and publicly available not long after that.

The Final Report will contribute to the needs of policy-makers in two ways. First, it will assist policy-makers in identifying areas where housing strategies should be pursued, areas where support service availability requires strengthening, and areas where a mix of strategies should be pursued. This information is crucial with respect to the important policy goal of preventing homelessness. Second, it will provide policy-makers with robust information on what combination of factors enable vulnerable households to exit homelessness and retain their housing.

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APPENDIXES

Appendix 1: A choice theoretical framework

Consider the following 'well behaved' utility function:

$$U = U(C, H) \tag{1}$$

Where H is housing services supplied by landlords (assuming no owner occupied housing) and C is a composite good. The utility function in (1) is maximised subject to:

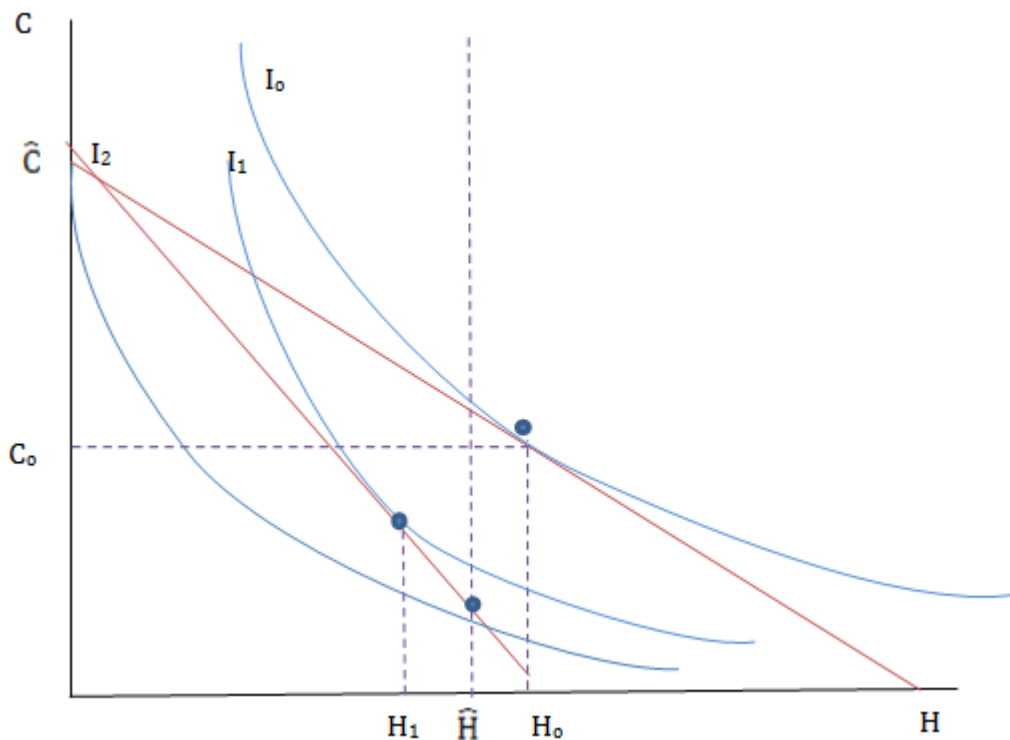
$$Y \geq p_c C + p_h H \tag{2}$$

$$H \geq \hat{H} \tag{3}$$

Where Y is income, P_c is the price per unit of the composite good and P_h is the rent per unit of housing, all exogenously determined. The novel aspect of the model is \hat{H} ; it is a minimum standard of housing that building standards and land use regulation define.

Optimisation with respect to the budget constraint results in utility maximising choice H_0, C_0 with \hat{H} non-binding in Figure A1. Now consider a housing market shock that increases housing rents and shifts the budget constraint to $\hat{C} - H_0$. At the new optimum level of housing consumption H_1 the housing standards constraint is binding, and H_1 is unattainable. The rise in housing rents in this case leaves the individual indifferent between homelessness ($0, \hat{C}$) and consumption of housing at \hat{H} as both combinations lie on the same I_2 indifference curve. Any further increase in P_h will precipitate homelessness.

Figure A1: Homelessness in a choice theoretic framework with supply constraints



Appendix 2: Variable description and summary statistics

Variable name	Categories	Proportions	Variable description
Gender	Male	53.47	A dummy variable of whether individual is male or female
	Female	46.53	
Age category	15–24	37.82	Categorical variable of age at interview date.
	25–44	41.05	
	45+	21.13	
Indigenous status	Non-Indigenous	81.04	Aboriginal status. Indigenous includes Aboriginal and Torres Strait Islanders.
	Indigenous	18.96	
Experienced Sexual/Physical abuse as child	No	30.61	Ever experienced sexual or physical abuse while under the age of 18 years.
	Yes	69.39	
Highest education qualification completed	Post school qualification	31.27	Certificate level III and IV are considered as post school qualification. Year 10 and 11 category include certificate level I and II.
	Year 12	11.73	
	Year 10 and 11	38.85	
	Less than year 10	18.15	
Weekly Income (\$)	Less than 400	56.13	The total income from employment, welfare payments, and from other sources.
	400–599	26.24	
	600+	17.63	
Employed	No	76.19	Employed within the last week of the interview.
	Yes	23.81	
Health status	Excellent/Very Good	27.81	Self-reported measure of general health based on the five point Likert scale.
	Good	35.71	
	Fair/Poor	36.48	
Mental health	Low (0–12)	76.28	This is measured based on the Kessler 6 questions on psychological distress. The questions are asked at each point in time and the scale is derived by summing the answers for all 6 questions.
	Medium (13–18)	18.10	
	High (19–24)	5.62	
Use of illegal drugs	No	62.69	Used Cannabis and/or Illegal street drugs (i.e. heroine, ice, methamphetamines) within the last six months
	Yes	37.31	

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