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CONTENTS

EXECUTIVE SUMMARY	IV
1 INTRODUCTION	1
1.1 Background	1
1.1.1 Introduction to the LDS.....	1
1.1.2 Research themes and questions.....	2
1.2 Significance of this research	3
1.3 Staging the research	4
1.4 Structure of the Paper	5
2 THE CONCEPT OF HOUSING PATHWAYS	7
2.1.1 Analysis of housing consumption over time	7
2.1.2 Housing pathways	9
3 THE HOUSING POLICY CONTEXT	11
3.1 Introduction.....	11
3.2 Overview of the Policy context	11
3.2.1 Income Support Provision	11
3.2.2 The provision of housing assistance	13
3.2.3 Housing and Economic Participation.....	16
3.2.4 Spatial aspects of housing, tenure and economic participation	19
3.3 Implications of policy contexts for this study	20
4 THE DATA ANALYSIS CONTEXT	22
4.1 Introducing the data analysis context	22
4.2 Overview of longitudinal research and data approaches	22
4.2.1 What is longitudinal data research?	22
4.2.2 Types of time-based repeated observation research	22
4.2.3 The role and benefit of longitudinal data research	23
4.3 Summary of previous longitudinal data research	23
4.3.1 Longitudinal research into social behaviour and social welfare policy	23
4.3.2 Summary of previous large scale administrative data research.....	25
4.3.3 Summary of previous research using the LDS or related data.....	26
4.4 Summary of the theoretical and methodological issues and approaches potentially available	27
4.4.1 Analytical issues.....	27
4.4.2 Major techniques needed to perform longitudinal analysis	29
4.5 Postcode data matching.....	30
4.6 Data analysis implications for this study.....	31

5	MAPPING OUT THE REMAINDER OF THE STUDY	32
5.1	Early challenges arising from the data	32
5.2	Operational processes for analysing the LDS	33
5.2.1	Defining the base population of income support recipients.....	33
5.2.2	Tenure classification.....	33
5.2.3	Income support classification	34
5.2.4	Defining spells on and off income support	35
5.3	Feasibility of the study.....	35
5.4	The next stages.....	37
	BIBLIOGRAPHY	41
	APPENDIX 1: PRELIMINARY EXPLORATION OF THE DATA	49
A 1.1	Background to the initial analysis	49
A 1.1.1	Key terms and operational definitions for preliminary analysis	49
A 1.2	Summary of the preliminary analysis	50
A 1.2.1	Income Support Receipt.....	50
A 1.2.2	Demographics/Family Structure	51
A 1.2.3	Tenure and tenure transitions	52
A 1.2.4	Earned Income	58
A 1.2.5	Spells on and off IS	60
A 1.2.6	Rent and Rent Assistance.....	61
A 1.3	Implications arising from the preliminary data analysis	63

TABLES

Table 4.1	Previous studies on administrative longitudinal data	25
Table 4.2	Previous studies using FaCS LDS data.....	27
Table 5.1:	Operational Tenure Classification.....	34
Table 5.2:	Operational Income Support Classifications.....	35
Table 5.3:	Summary of key variables of interest.....	36
Table 5.4:	Research questions and proposed longitudinal methods.....	39
Table A.1:	Categories of working age recipients at first observation and all fortnights	50
Table A.2:	Family type of working age recipients by age group at first observation	52
Table A.3:	Tenure of working age recipients at first observation and all observations	53
Table A.4:	Percentage of working age recipients by tenure and age group at first observation	54
Table A.5:	Origin and destination of tenure changes of working age recipients	55
Table A.6:	Common housing pathways of working age recipients.....	56
Table A.7:	Most common housing pathways associated with public housing of working age recipients	57
Table A.8:	Earnings of working age recipients by IS type - 6 th September 2002 – 5 th September 2003	59
Table A.9:	IS type by tenure of working age recipients at first observation	60
Table A.10:	Summary spell statistics for working age recipients by IS type at last observation	61
Table A.11:	Rent and rent assistance for working age recipients by tenure, IS type and family structure: 6 th September 2002 – 5 th September 2003.....	62

FIGURES

Figure: 2.1:	The movement of households within the Australian housing system	10
Figure A.1	Age of working age recipients	51
Figure A.2:	Summary of preliminary analysis of transitions into and out of public housing among working age recipients	58

EXECUTIVE SUMMARY

This study being conducted by the AHURI Queensland Research Centre is concerned with the 'housing pathways', earnings patterns, and 'life circumstances' of income support recipients. The research is based on analysis of longitudinal income support data from the Australian Government. The four main themes for the research concern:

- The housing arrangements and circumstances of income support recipients over time;
- The relationships between changes in tenure and changes in incomes for these households or individuals;
- The relationship between changes in tenure and other changes in the characteristics or circumstances of income support recipients; and
- How the relationships and arrangements between housing and other factors vary by discrete groups of income support recipients.

The relevance of this research lies in its capacity to contribute materially to contemporary debates about housing policy and broader social policy. The research is important in the context of debates about housing assistance - principally public housing and Commonwealth Rent Assistance, and how public housing management challenges, and broader social, demographic and spatial phenomena, relate to income support provision and economic participation, and welfare reform debates.

While the study is largely an empirical exercise, the concept of 'housing pathways' is applied as a conceptual tool and framework for the analysis of housing arrangements and transitions over time and place. This approach takes into account critiques of earlier approaches developed around the notion of 'housing careers', which, it is argued, is particularly problematic as a way of conceptualising the housing experiences and housing histories of low-income households.

Using the 'pathways' approach, housing consumption patterns, housing transitions, residential mobility, economic participation, and other household transitions will be conceptualised broadly, and analysed over time, across tenures, and in terms of location. Given the policy context of this research, particular attention will be given to transitions into and out of public housing and private rental housing, and the association of these effects with earnings and other changes in circumstances.

The study is also located within the tradition of longitudinal data analysis methods, and offers an opportunity to acquire in-depth knowledge of how data from the Department of Family and Community Services' Longitudinal Data Set can be analysed. It will allow for the advancement of research methodologies and approaches for analyzing large scale longitudinal administrative data in a housing policy research and social science context. Different methods of longitudinal data analysis have been reviewed from previous studies, and assessed in the first stages of this project

The results of preliminary analyses of a sub-sample of the LDS 1% Sample are reported in Appendix 1. The preliminary analysis has yielded three main outcomes. In the first instance, it has generated some early but nevertheless interesting results

about tenure transitions. Secondly, it has provided a useful framework for problem-solving some of the many potential challenges and difficulties that inevitably will be encountered in using a large administrative data set of this kind. Thirdly, and most crucially, it has confirmed that the LDS 1% sample is useable for the sorts of analysis which the study seeks to undertake, and it has presented a flavour of how it will be possible to use the data. While no true longitudinal analysis has been attempted as yet, the next phases of research will progress the study through more sophisticated trials of statistical methods, operational procedures, and analysis of the whole data set longitudinally.

1 INTRODUCTION

1.1 Background

This Positioning Paper is the first output of a research project being conducted by the AHURI Queensland Research Centre, in collaboration with the University of Queensland Social Research Centre. The study is concerned with the 'housing pathways' and associated 'life circumstances' of income support (IS) recipients, to be pursued by studying data pertaining to their housing, earnings, IS arrangements and other characteristics.. The precise focuses for the study are framed around specific research questions, which are themselves situated within important housing policy contexts and challenges.

This study is designed around the quantitative, longitudinal analysis of administrative data, drawn from the Department of Family and Community Services (FaCS) Longitudinal Data Set (LDS)¹, which has been made available in the form of a one percent sample extraction from the full LDS. In this Paper, this sample is referred to simply as the 'LDS'.

This Positioning Paper serves five specific purposes. Firstly, the Paper provides the background to the study, and outlines the research themes and questions to be pursued, based on the original research proposal. Secondly, the Paper seeks to locate the study within specific research and policy contexts, aligning it with contemporary debates about the relationships between forms of housing assistance provision - principally public housing and Commonwealth Rent Assistance, IS provision, and workforce participation. Thirdly, the Paper also locates the study within the tradition of longitudinal data analysis methods, but highlights how the proposed research is distinct from earlier studies and approaches. Fourthly, the Paper confirms the usability of the data for this study, and sets out the foundations for the main components of the research, which will be undertaken from this point forward. Finally, the Paper provides an opportunity to report on the outcomes of some preliminary exploration of the LDS, providing a summary of conceptualisation and data analysis progress to date for the study.

1.1.1 Introduction to the LDS

The full LDS is a longitudinal database, compiled through fortnightly data transfers from the live data management systems used by Centrelink (the IS provider agency) for all IS program clients. From this massive database, customized samples of all client records from the main LDS are made available for research purposes. While larger extractions can be ordered, a standardized one percent sample is readily available, and has been previously used by AHURI and other researchers. This is the sample that has been made available by FaCS, and is being used for the present study.

The LDS (one percent sample) covers data from 6 January, 1993 to 5 September 2003. Selected confidentialised records are extracted on the basis of each one-hundredth client from the overall database. As new customers come into contact with Centrelink, every one-hundredth new person is added to the LDS, maintaining its representative distribution. Data for each client in the sample is compiled and provided

¹ In fact, the LDS is now formally administered by the Department of Employment and Workplace Relations (DEWR), following a change of portfolio management arrangements within the Commonwealth Government at the end of 2004.

for every fortnight they have been in receipt of an IS payment even if these are spread over different blocks of time.

The LDS (one percent sample) as a whole comprises approximately 103,000 individual clients, connected to a total of almost 11,000,000 observations over 226 fortnights. For certain aspects of this study the LDS data used will be filtered to include only those in receipt of specific groupings of IS payment types, but these still result in large numbers of cases and total observations. The parameters of the data set overall are set by the administrative information required by Centrelink to assess eligibility for IS assistance, and while a wide range of variables pertaining to IS payments are captured in the LDS, only a select number of these variables for each customer will be used in this study. These include basic demographic information, including their age, sex, country of birth, household structure, age and number of dependent children, plus home-ownership and rent status, earned and unearned income, benefit type, postcode, and the amount of private rent paid. No identifying data are included in the LDS.

1.1.2 Research themes and questions

A number of specific themes and issues pertaining to the housing and life circumstances of IS recipients will be pursued, data permitting, through this project. These themes include identifying the housing arrangements and other circumstances of IS recipients, assessing the relationships between changes in tenure, other changes in circumstances, and changes in incomes. The dis-aggregation of these arrangements and relationships by discrete groups of IS recipients will be a key feature of the analysis.

To make the overall research task manageable, the study was originally conceived around four broad topics, as follows:

Under the first of these topics, '**housing arrangements and circumstances**', the project seeks to answer the following research questions:

- What housing arrangements and circumstances, particularly tenure arrangements, do IS recipients adopt over time, and how changeable are they?
- How long do people remain in public housing?
- What tenures do people move from when they enter public housing?
- What tenure do people move to when they leave public housing?
- How much spatial mobility is involved in such tenure changes?
- Are IS recipients' housing tenure patterns organised in terms of typical sequences that constitute 'housing trajectories'?
- If so, how do such housing trajectories vary among socio-demographic groups?

Under the second topic of '**relationship between changes in tenure and changes in incomes**', core questions guiding the research include the following:

- Is there a relationship between changes in tenure and changes in earnings?
- Is entry to or exit from public housing associated with identifiable improvements or declines in earnings, and can these changes be explained with reference to housing factors e.g. access to housing markets and/or regulation of public housing access?
- If so, which appears to be the driving factor, and which the resultant factor – housing access/ mobility or earnings?
- How do public tenants on IS behave when they increase their earnings?
- Do they remain in public housing or do they exit to other tenures?

The third topic concerns '**relationship between changes in tenure and other changes**', and here the project attempts to answer the following questions:

- Is there a relationship between changes in tenure and changes in other life circumstances?
- If so, which appear to be the driving factors, and which the resultant factors?
- Is entry to or exit from public housing associated with identifiable changes in life circumstances, and can these changes be explained with reference to housing factors?
- What is the pattern, over time, of the incidence of certain events (e.g. changes over the life course, changing household composition, illness etc) and entry to/exit from public housing?

Lastly, the project will seek to address research questions related to a fourth topic of **how the relationships and arrangements between housing and other factors vary by discrete groups of IS recipients**. This includes consideration of:

- How do the housing trajectories of different socio-demographic groups, including those defined by family or household type, length of time on IS, Indigenous status, ethnicity and cultural background, differ?
- Are the connections between housing trajectories and movements on and off IS similar for different socio-demographic groups?

1.2 Significance of this research

The relevance of this research lies in its capacity to contribute materially to contemporary debates about housing policy and broader social policy. The LDS represents a powerful tool with which to analyse housing consumption patterns, and other characteristics and activities, among IS recipients over time. The LDS does have some limitations, such as a lack of variables covering certain issues, chiefly 'employment-type' variables, which might otherwise be of significant interest. Another limitation is 'data drop out', so that once a person leaves the IS system, they also exit from the data set. However, the LDS does provide great potential in other ways due to

the breadth of variables collected in the administration of IS payments, and also through the frequency of data reporting, and the overall size and length of the dataset. Its use in the housing research field is also extremely underdeveloped.

Longitudinal analysis of the LDS data will help establish the foundations for gaining considerable insights into, and a better understanding of, issues such as pathways into and out of public housing and other tenures, relationships between housing consumption and earnings patterns among IS recipients, as well as associations of tenure changes, IS usage, household structures and geographic location, over time.

This research is therefore important in the context of housing assistance debates, welfare reform debates, public housing management challenges, and broader social, demographic and spatial phenomena. The present study complements aspects of the first AHURI Collaborative Research Venture currently underway, which is examining relationships between housing assistance and economic participation.

In placing the results of the analyses back into their relevant policy contexts, the implications of this study for housing and other policy will be highlighted. It is anticipated that the data analysis conducted through this research will offer important contributions to developing new approaches to conceptualizing, analysing and addressing some significant public housing and other housing assistance policy challenges, discussed in Chapter 3.

In addition, the study provides an opportunity to acquire in-depth knowledge of how LDS data can be analysed longitudinally, and will also allow for the advancement of research methodologies and approaches for analyzing large scale longitudinal administrative data sets in a housing policy research and broader social science context.

1.3 Staging the research

The project plan for the research allows for eighteen months of work to adequately allow for proper data orientation and preparation, full data interrogation, and detailed analysis and interpretation of results, findings and policy implications. Given the intended wide scope of this project, and the level of complexity which will be incurred in interrogating the LDS data, it was decided at the outset that the research would be broken up into six key stages:

1. Examination of past research and data analysis relevant to the study, including policy and research materials relating to housing, IS, workforce participation, household and tenure mobility, and also quantitative research methods and longitudinal data analysis approaches.
2. Initial orientation to the LDS, construction of environment for analysis and finalisation of research focus.
3. Primary level data interrogation and analysis (based around further descriptive analysis)².

² Chapter 4 indicates the precise methods of analysis for each of these main data analysis stages, and how they will be applied to specific research questions.

4. Secondary level data interrogation and analysis (involving regression and other techniques).
5. Final level data interrogation and analysis (more advanced longitudinal techniques).
6. Interpretation and policy analysis of results and consideration of findings and implications.

Originally, the project was expected to commence in May 2004. However, data contract negotiations and data procurement processes took considerably longer than anticipated. Two separate requirements from the Commonwealth Government resulted in delays in project commencement. A security inspection of the building and specific room in which the data were to be housed had to be organized, which also involved checks on computer configuration, data storage and document disposal arrangements. Secondly, each member of the research team was required to sign an individual Deed of Confidentiality with the Commonwealth Government, in addition to the University-level contract which was issued for data release. This process involved considerable consultation and the receipt of legal and contractual advice, before the team was able to execute the agreements. These various processes meant that formal project commencement, including appointment of suitable data researchers, did not occur until early December 2004, and the data were not received until January 2005. On this basis, it is expected that the project will be completed in May 2006.

Notwithstanding these delays, the project has now reached its first significant milestone. The first two stages of the study - a review of past research and data analysis relevant to the study, and the initial orientation to the dataset stage - have now been completed, and progress has been achieved in conducting the primary data analysis in Stage 3. These are each reported on in this Paper. On the basis of the preliminary examination of the dataset, it is possible to confirm that the project remains feasible from policy and analytical perspectives.

1.4 Structure of the Paper

The Positioning Paper is organised as follows: Chapter 2 introduces the concept of 'housing pathways', which provides a conceptual framework for the analysis of housing consumption patterns over time and other aspects of this research. The importance of spatial and mobility considerations for housing consumption is also highlighted

In Chapter 3, the housing policy context for the study is elaborated, covering the key issues of public housing and private rental policy and practice, and housing and its relationship with the income support system and 'economic participation'. This material cements the rationale for the study.

The analytical context for this study is laid out in Chapter 4 of the Paper, which considers previous longitudinal data research, including large scale administrative data research and previous analysis of the LDS or related data. This section also highlights the 'data modeling and analysis' context through a review of the theoretical and methodological issues and approaches potentially available for the present study.

Chapter 5 concludes the study's positioning process with comments regarding the general feasibility of the remainder of the research at this stage. The remaining stages of the project are outlined in a greater detail, and an assessment is provided of the type of analysis that will be required and how this will be undertaken.

In Appendix 1, the Paper reports on preliminary analyses using a sub-sample of the LDS, including a summary of the main variables of interest and how it is proposed to use them. A range of results from basic analysis of benefit types, periods of IS, earnings and housing tenures, and initial classification of common housing transitions are provided.

2 THE CONCEPT OF HOUSING PATHWAYS

As Chapter 1 has indicated, this study of the LDS is principally concerned with housing consumption patterns over time among IS recipients, and how these relate to earnings and a range of other factors recorded within the data. While largely an empirical exercise, it is also necessary to position this study in terms of the theoretical significance that may be attached to those housing consumption patterns and other phenomena, so that they may be usefully conceptualized, interpreted and understood. The reason for this lies in part in the fact that patterns of housing consumption are not static, pre-determined, nor uni-directional (Seelig 2001b).

This second chapter introduces and lays out the concept of 'housing pathways' as a tool for analysis. The chapter seeks to indicate the strengths of a 'pathways' approach to analysing housing transitions, residential mobility and economic participation, and indicates how it will be applied in the analyses of housing consumption patterns in tracking changes in housing over time, across tenures, and in terms of location.

2.1.1 *Analysis of housing consumption over time*

Most research into housing transitions in the Australian context has historically focused upon the movement of households into (and, less frequently, out of) home ownership, or upon differences in the timing of transition to home ownership. A core, more or less linear pattern, described metaphorically as a 'housing ladder', is usually posited as a reference point for the investigation of housing mobility (Badcock, 1994; Flatau *et al.*, 2004). This process sees households move progressively through initial new household formation, which may or may not involve an initial period in private rental accommodation, to first home ownership, and then gradual movement upwards through the housing market (or 'up the ladder') leading to outright ownership by the point of retirement (Kendig, 1984; Flatau *et al.*, 2004; Short, 2005; Yates, 2002). Such transitions between stages have traditionally been linked to specific life-course events, such as entry to the workforce, marriage and having children, and incremental rises in income.

Recently, this account has been questioned by several analysts, who have argued that housing tenure patterns in Australia are less closely tied to key life-course events than they have been in the past (Maher, 1997; Winter and Stone, 1999). In particular, attention is focused on the fact that many households are finding it increasingly difficult to attain home ownership, at least until later in life than was previously the case (Flatau *et al.*, 2004; Winter and Stone, 1999; Wood 1990; Yates, 1999, 2002), and that movement "down the ladder" also occurs with some frequency (Flatau *et al.* 2004).

At the same time, research in both the fields of housing and poverty studies has documented the impacts of housing costs on low-income households, and has provided clear evidence that a linear model of (upward) housing mobility and security in home ownership does not adequately describe the experience of low-income households, especially those disengaged from economic activity through unemployment or family household disruption. This body of literature provides ample evidence of patterns of vulnerability in which limited income opportunities arising from exclusion or withdrawal from the labour market, constrained opportunities for social mobility and limited access to housing are central aspects of disadvantage (Short, 2005; Travers and Richardson, 1993)). In this pattern, housing mobility is more likely to be linked to limited income or income insecurity, and specifically to insecurity of tenure (Minnery *et al.*, 2003; Short *et al.*, 2003).

Extreme vulnerability might even entail exclusion from mainstream housing markets, resulting in informal (and often short-lived) housing arrangements with family or friends, or homelessness (May, 2000; Bradbury and Chalmers, 2003; May, 2000; Robinson, 2003; Short *et al.*, 2003). Beyond these more extreme housing pathways, a range of patterns of housing mobility, shaped by different household strategies of income and allocation, have been documented (Burke *et al.* 2004; Burke *et al.*, 2004b; Short, 2005; HILDA Survey *Annual Report*, 2003). In specific household and community contexts, under widely disparate economic and social conditions, it is evident that people make different decisions (involving more or less constrained choices) about economic participation (or income provision), housing, and residential location (HILDA Survey *Annual Report*, 2003; Bradbury and Chalmers, 2003; Hulse and Randolph, 2004).

The forces underlying and shaping variable practices of housing mobility are not entirely clear. In part, this is because most research on housing mobility has relied upon 'snapshots' of transitions, or upon cross-sectional data which, though useful in planning policy responses to immediate concerns, is less helpful in revealing the housing, income and other personal and social factors that become cumulative, over time, in their influence upon future housing and economic outcomes (*cf* Yates, 2002). Such studies in Australia and elsewhere have, however, served to draw attention to the complexities of household relations, to differences in individual and household capacities for housing and/or occupational mobility, and, more broadly, to the links between spatial and social mobility (Bradbury and Chalmers, 2003; Clapham, 2002; Kaufmann *et al.*, 2004; Memmot *et al.*, 2004; Flatau *et al.*, 2004).

With regard to the investigation of housing mobility and economic participation among IS recipients, past research highlights the need to attend more closely to the complex set of relations involving IS, housing provision and housing assistance over time (Bradbury and Chalmers, 2003; Mullins and Western, 2001b; South and Crowder, 1997), including:

- Differences in household composition, income structure, financial arrangements, and needs (Bradbury and Chalmers, 2003; Clark and Huang, 2003; Forrest and Murie, 1991; Glezer and Mills, 1991; Merlo and McDonald 2002; Baxter and McDonald, 2004; Yates, 2002; Mullins and Western, 2001a; 2001b);
- The complexity of individual and household strategies for housing provision and labour market participation (Gotham and Brumley, 2002; Short, 2005; Ringen, 1991; Jenkins, 1990);
- The dynamic nature of housing arrangements, household structures, household formation/dissolution and the shifting of household boundaries (ABS, 2004; Feijten and Mulder, 2002; Flatau *et al.*, 2004; Olsberg *et al.*, 2004; Wallerstein and Smith, 1992);
- The significance of age cohort effects on housing choices and capacities for mobility (Abramsson *et al.*, 2004; Baxter and McDonald, 2004; Olsberg *et al.*, 2004; Weston *et al.*, 2001; Yates, 2002);
- The continuing relevance of traditional structures of economic and social division, such as income, education, gender, age, race, marital status and disability (Kaufmann *et al.*, 2004; May, 2000; Memmot *et al.*, 2004; Mullins and Western, 2001a, 2001b; Robinson, 2003);

- The concentration effects of poverty and unemployment that limit household capacities for mobility (ABS, 2004; Burke, 1998; Kearns and Parkes, 2003; Mullins and Western, 2001a; Reingold, 1997; Reingold *et al.*, 2001);
- Distributions of social capital, and cohesive neighbourhood effects (ABS, 2004; Clark and Huang, 2003; Kearns and Parkes, 2003; Musterd *et al.*, 2003; Reingold *et al.*, 2001; Taylor, 1998; Mullins and Western 2001b); and
- Opportunities and capacities for access to resources (including housing) in the informal economy (ABS, 2004; Reingold, 1997; Ong, 1998).

Increasing evidence of such complexities in the housing system presents a clear challenge to the usefulness of a notion of housing 'careers' as more or less linear progressions towards or movements away from the dominant norm of home ownership. It also highlights the need for a conceptual approach that facilitates enquiry into the complexity of influences, and the variety of ways in which householders make their housing choices and adjustments in response to different needs, desires, opportunities and constraints. One such approach, using 'housing pathways' as a central concept, is proposed below as a guiding framework for analysis in this research.

2.1.2 *Housing pathways*

In an important contribution to the theory and practice of analysing movements around the housing system, Clapham (2002) has recently posited the concept of 'housing pathways'. These are essentially "patterns of interaction (practices) concerning house and home, over time and space" (Clapham 2002: 63). In stressing the dynamic nature of these interactions, Clapham states that "[t]he housing pathway of a household is the continually changing set of relationships and interactions, which it experiences over time in its consumption of housing" (2002: 64).

The value of the housing pathways idea is that it provides both a useful means of thinking about the significance of housing consumption and transitions in the housing system, and practical guidance for analysis of housing consumption over time. "The concept of a pathway ... foregrounds ... the interactions which shape housing practices as well as emphasising the dynamic nature of housing experience and its inter-relatedness with other aspects of household life" (Clapham 2002:64). Seen in this way, the 'housing pathways' conceptualization is preferential to the more conventional concept of 'housing careers', because it signifies the *variety* of actual housing adjustments that people *actively make*, over time, through interactions with others, in different, more or less constrained, social and economic conditions. Moreover, it gives recognition to the fact that not all categories of people experience or expect to move along a dominant normative pathway that positions home ownership as the ideal or final tenure.

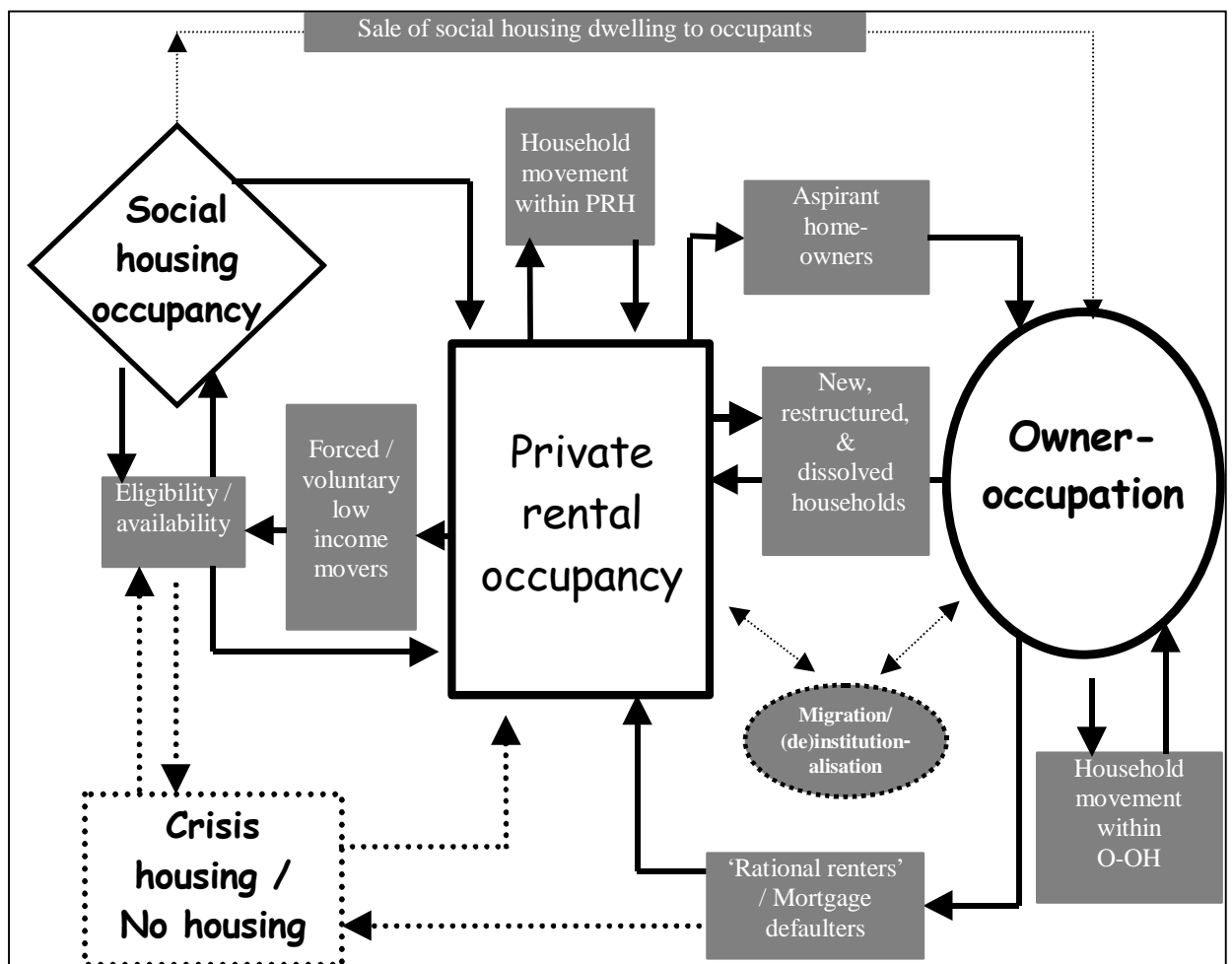
In the Australian context, Seelig's (2001b) research led him to posit a model of household movements across the housing system that, consistent with Clapham's discussion, illustrates the potential complexity of patterns of movement, under different conditions of constraint and opportunity (Figure 2.1). Seelig's work lends weight to the value of seeing changes in housing arrangements as movements along variable

"housing pathways". At the same time, his observations, like others noted above, suggest the value of seeking evidence of more or less well-trodden pathways that can be expected to develop, over time and place, for different categories of households, and in different market/state contexts.

Whilst the LDS does not provide direct indicators of all of the factors noted earlier as influencing housing choices and adjustments, nor provide direct indicators of conditions in housing markets or changing policy environments, it does provide a rich source of data that, when treated longitudinally, and within an analytically sophisticated framework of open enquiry, have the potential to reveal the principal dynamics of the housing pathways of low-income householders in the Australian housing system.

The specific strategies, informed by a 'housing pathways' approach, that will be employed at the level of empirical analysis are outlined in Chapters 4 and 5 below, and illustrated, at their most basic level of application, in Appendix 1. The following chapter examines, in more detail, issues arising in the policy context of housing and income-support, which also inform the research strategy under development.

Figure: 2.1: The movement of households within the Australian housing system



(Seelig 2001b)

3 THE HOUSING POLICY CONTEXT

3.1 Introduction

Chapter 3 focuses on the housing policy context for this research, and seeks to position the study within the parameters of contemporary housing policy debates regarding housing assistance. The main rationale for this analysis of the LDS is its relevance to the delivery of housing assistance, and to the interaction of housing assistance policy, with the IS system, including impacts on the circumstances and actions of IS recipients. In providing brief discussion of these issues, this chapter aims to clearly establish the housing and income-support policy foundations for this research.

3.2 Overview of the Policy context

Though the research is focused clearly upon housing pathways (consumption patterns) in relation to other factors, it can be positioned at the intersection of three fields of broad social welfare policy, namely, housing assistance provision, income-support provision, and labour force or 'economic' participation. Accordingly, it is helpful to consider not only the policy context of housing assistance in general terms, but also to position the research around those policy issues which link housing assistance with IS provision and economic participation.

The discussion of policy contexts in this chapter will begin with an overview of the IS system in very general terms, but with a view to highlighting some of the links between IS policy with housing policy. Burke and Ralston point out that "[a] major rationale for housing assistance, whether in the form of demand-side (e.g. rent assistance) or supply-side (e.g. public housing) subsidies, is to achieve housing affordability for recipient households" (2004:i). However, affordability and other housing-related outcomes are not the sole considerations for housing policy makers or housing providers. An emergent expectation is that housing assistance should play a role in achieving broader social or economic (or 'non-shelter') outcomes for people, including greater participation in the labour-force. One set of considerations within such discourses concerns how policy reforms, connected to IS provision and housing assistance respectively, impact on the relationships between housing, earnings and other factors for IS recipients.

3.2.1 Income Support Provision

The following overview of the IS system will not attempt to provide a detailed or profound analysis of income-supplementing social welfare assistance in Australia. Several Australian studies, including those using LDS or other FaCS data, have examined trends in IS usage, and its relationship with earnings and employment (see for example Flatau and Dockery 2001; Stromback and Dockery 2001; Saunders et al 2003). Given that the present study is based on housing pathways, and how IS usage may relate to tenure transitions, previous research on IS and labour market participation will not be reviewed here. Rather, the purpose of this section is to provide a summary of the main features of IS as they relate specifically to the present study.

The Australian IS system is a relatively complex beast, which provides a targeted and usually means-tested range of assistance programs to households on low-to-moderate incomes, as well as to those with no independent income at all. Such programs broadly seek to cover discrete population groups, clustered around particular IS needs, such as unemployment, physical or circumstantial incapacity to work (through factors such as age, illness, disability, or the presence of young children in single parent families), and other situations such as study or training. Another area of IS, but one which is of a more universal application is that of child-related benefits ('Family Tax Benefits') for families both partially reliant on IS and many of those on fully independent incomes. In addition, there are a number of supplementary forms of assistance for those on substantive payments, which among other things, include payments for private rental costs.

A feature of the Australian IS system is that most IS types provide base payments, but then also incorporate a tapering of assistance when recipients start to earn non-IS income. This process usually allows a small amount of earnings with no deduction in IS, and then a static or graduated approach to applying effective marginal tax rates on the amount of IS provided, until the entitlement to IS effectively runs out³. This approach is important for the present study because it means that, as previous research (Flatau and Dockery 2001) has suggested, many people still receive some level of IS when (re)entering work, and thus remain in the LDS and are still identifiable while this labour force (re)engagement process takes place.

Another consequence of how the Australian IS system is structured is that it may be more useful to consider discrete categories of IS recipients, rather than to analyse them collectively. There is a myriad of specific IS programs and payment types, each of which has its own set of eligibility criteria, rules of administration, and rates of assistance. However, it is possible to aggregate these into summary IS types, such as those based around age- or disability-related pensions, unemployment-related payments (such as NewStart Allowance and Youth Allowance), assistance to single parents and students, and those payments for the partners of those receiving substantive assistance. This is the approach that will be used in the present study (the details of how the summary categorisation will be structured is contained in Chapter 5).

A further, related point to categories of IS is that the total population of people in receipt of IS is not representative of the population at large, and discrete sub-populations of IS recipients, clustered around IS payment types, would not be expected to be any more representative. In fact, it may be anticipated that they will be far less representative than the population at large! This means that trends and patterns identified in the LDS concerning things like tenure and transitions, age and household types will differ from analyses of the broader population using other data sources such as Census or other Australian Bureau of Statistics data.

The present structure of the IS system, and the underlying philosophy behind its purpose, have come under considerable scrutiny from governments and social policy commentators alike over recent years. In 2000, the Reference Group on Welfare

³ In the case of Newstart Allowance for example, a 50 cents in the dollar rule is applied for a certain level of earned income over the 'tax-free' allowance, increasing to 70 cents in the dollar, until the maximum income for part IS payment is exceeded. For Age, Disability or Parenting pensions, the rate is 40 cents/dollar for singles and 20 cents/dollar for couples. What this means is that for Newstart recipients, the maximum earned fortnightly income for partial IS payment is \$655.28 for singles without children, \$701.99 for singles with children, and \$599.56 each for couples. For Age, Disability or Parenting pensions, the fortnightly rates are higher: \$1329.24 for singles without children, \$1329.84 for singles with children, and \$2222.99 combined for couples. All rates current as at July 2005.

Reform headed by Patrick McLure, presented two reports on '*Participation Support for a More Equitable Society*', which recommended significant changes to how the array of existing IS payments are laid out. Signaling a potentially important juncture in 'welfare reform debates', the proposals presented by McLure both advocated simplification of the system, but also further cemented the focus on 'welfare-to-work' ideals. As Saunders et al (2003: vii) argue,

"Recent debate on welfare reform has acknowledged the important role of economic and social participation...Encouraging participation has thus become one of the explicit goals of the welfare system."

Indeed, the fundamental philosophical proposition behind this is the argument that, "If more people are able to move from welfare to work then this will help them with higher incomes and better participation in mainstream economic life" (Costello, 2005)

While not synonymous, the delivery of 'housing assistance', via its two main forms of public housing and Rent Assistance, and the provision of IS, are clearly very closely related. Public housing is now almost exclusively occupied by IS recipients, and Commonwealth Rent Assistance is actually embedded within the IS system as a payment delivered through Centrelink. In the context of the present study of housing pathways of households in receipt of IS, this means that changes to the IS system are likely to have a direct impact on the recipients of housing assistance, if not to the direct provision of such assistance..

3.2.2 *The provision of housing assistance*

The key funding instrument and policy framework for public housing and other jointly-funded housing assistance provision in Australia is the Commonwealth State Housing Agreement.⁴ The present (2003-2008) CHSA identifies as its main aim, "to provide appropriate, affordable and secure housing assistance for those who most need it, for the duration of their need" (Recital C, CSHA 2003). What this means in practice is that public housing, by far the largest single program within the CSHA, is tightly targeted as a means-tested form of social assistance. Indeed, the effect of all the overarching policy directions through the CSHA, and the management approaches adopted by providers, is that the function of public housing is essentially, as Burke suggests, "providing housing for welfare beneficiaries" (2001: 7).

However, there is also a series of guiding principles which serves as a framework for how the CSHA is operationalised. These principles broaden out the effective roles and scope of the Agreement, which by default impacts on the purposes and expectations for public housing provision and other CSHA-funded housing assistance. The guiding principles include providing people with choices and options tailored to their needs, improving housing outcomes for Indigenous people, and linking housing and support for people with complex needs. They also refer specifically to social welfare reform and labour force participation:

"The principles guiding the Commonwealth and the States in the development of this Agreement are ...

⁴ In addition to public housing, the CSHA funds several other 'tied' programs, which are the Aboriginal Rental Housing Program, the Community Housing Program, and the Crisis Accommodation Program. Commonwealth Rent Assistance is considered as an income support or transfer payment program, which is solely funded by the Commonwealth, so is not included within the parameters of the CSHA.

1. to ensure that housing assistance supports access to employment and promotes social and economic participation.
2. to establish greater consistency between housing assistance provision and outcomes, and other social and economic objectives of government, such as welfare reform ...”

(2003 CSHA (Housing Assistance (Form of Agreement) Determination 2003), Clause 1:4)

In addition, Schedule 1 (Performance Requirements In Relation to five percent of base funding) of the 2003 CSHA states, “The Commonwealth, States and Territories agree that reducing barriers to employment and increasing social and workforce participation for Social Housing tenants is an important priority for the term of this Agreement.” Under supplementary bilateral agreements, each jurisdiction has been required to determine strategies and performance measures to remove ‘workforce disincentives’, and the 2003 CSHA includes a clause that jurisdictions could lose five percent of their base CSHA funding if they are not compliant or “fail to perform” in this regard (Clause 8(11), CSHA 2003). While the focuses specified in the remainder of Schedule 1 of the Agreement concern reform to rent setting policies, the important point is that latest CSHA clearly establishes the expectation of links between housing assistance (specifically public housing provision), social welfare reform, and workforce participation, and places these unambiguously on the housing policy and practice agenda.

It is against this backdrop of social welfare reform and in the context of a continuing commitment, implicit elsewhere in CSHA Agreements, to provision of affordable housing, that state policies and practices in the field of housing are formulated, and personal housing arrangements achieved. Although the data being analysed spans a time period which actually precedes the 2003 CSHA, it is nevertheless important to consider how housing consumption patterns evident among IS recipients occur, and is likely to be especially relevant for understanding differences among income-support categories with different connections to the labour market. The analysis may also be used to inform future policy development in these areas.

Public housing: direct provision

As a housing tenure type, public housing is a relatively small component of the Australian housing system, dwarfed by both the owner occupied sector (home purchasers and outright owners) and by the private rental sector. At the 2001 Census, roughly five percent of all households lived in public housing, and the sector has hovered around this mark for the last thirty years. In 2002/03, the total size of the public housing sector was in the order of 348,000 dwellings, including some 5,400 untenable dwellings (FaCS 2004) and the total number of households renting public housing was approximately 338,000 (FaCS 2004), suggesting a relatively low rate of vacancies at any one point in time of around 3 percent.

Consistent with this, is the evidence that the demand for public housing is substantial and far exceeds housing supply capacity (Burke and Hulse 2003). Expressed demand for public housing, as measured by the total number of household applicants on State Housing Authority public housing waiting lists, has remained high for the last decade, and applicants wait considerable periods of time to access the sector. In June 2003 (the last period data are available for), some 208,000 households were waiting for

allocation to public housing across Australia (FaCS 2004)⁵. Of those who were assisted in 2002/2003, more than 30 percent had waited over one year, and more than twenty percent had waited in excess of two years to get into public housing (FaCS 2004). In some States, waiting times for specific dwelling types, sizes or locations can be much longer still.

Such levels of demand, and preparedness to wait considerable periods of time for access to the sector, are largely shaped by events in the broader housing system, by the nature and availability of a range of forms of assistance, and by personal circumstances. A recent AHURI study of entry to rental housing (Burke et al 2004) indicated that the main motivations for applying for public housing are related to affordability and high rental costs in the private sector, followed by the desire for greater security of tenure and stability.

Tenant satisfaction with public rental housing has been researched through a series of National Social Housing Surveys. In the last such survey of public tenants in 2003 (Colmar Brunton 2004), the vast majority expressed satisfaction with their public housing generally, and with their location and amenities (Colmar Brunton 2004). Most tenants' perceptions of the benefits of public housing were that public housing has helped them in terms of providing affordability and stability, which in turn has aided them to "manage their rent and money better ... (and) to continue living in the same area" (Colmar Brunton 2004: 18). What is less clear is the proportion of public tenants who experience a significant change in their circumstances, such as access to work or increased incomes post- allocation, but then elect to remain in the public sector, and what proportion leave in these circumstances for another tenure.

In this context, it is important to note that many households with particular dwelling needs, including people with a physical disability, older people, and larger families, and others such as people with a mental illness, young people, Aboriginal and Torres Strait Islander people, and those with (alleged) poor tenant histories (Seelig 2003; Short et al 2003), face difficulties in securing appropriate or available, as well as affordable, housing outside of the public sector. Many of these population groups seek assistance through public or other forms of social housing, as a supply response to their housing needs. Thus, public housing authorities have become entrenched as 'high needs housing providers' (SA Housing Plan, 2005) a situation maintained in part by the processes through which housing is now allocated in the sector. While policies and processes for assessing needs and allocating public housing vary across jurisdictions (Burke and Hulse 2003), most State Housing Authorities now operate 'categorised' or 'segmented' waiting lists that stream public housing allocations according to the nature and urgency of the applicants' needs, and their capacity to access alternative housing options (Productivity Commission 2005).

Housing assistance in the private rental sector

Notwithstanding the roles and functions of the public housing system, the private rental sector is now the *de facto* main provider of rental housing for lower income households: more IS recipients rent privately than through the public sector. The main housing assistance vehicle for IS recipients in private rental housing is the Commonwealth Rent Assistance program (CRA), which is now a larger program in terms of budget and numbers of people assisted than public housing⁶. While CSHA funding for public

⁵ In fact, this figure was a bit lower than previous years. Data problems excepting, the downward shift may be due to some combination of faster allocations, tighter eligibility, or simply reduced expressed demand

⁶ Rent Assistance supplements the overall level of financial assistance that income support recipients receive if they are renting privately, and paying more than a specified amount of rent. CRA entitlements vary by household type, and are

housing has been falling in nominal terms for several years⁷, funding for CRA increased dramatically through the 1990s, and in 2004 total annual expenditure on the program was just below \$2 billion. Some one million households, or well over half of all private renters, are now in receipt of CRA and approximately 60% of CRA recipients receive the maximum amount available (FaCS 2005).

The relative merits of demand-side housing assistance in general, and rent assistance (or similar) programs in particular have been addressed extensively in housing policy debates (see for example SCARC 1997). The perceived benefits of CRA are that it is transportable, administered as part of the IS system, the level of assistance takes household size and type into account, and the program suffers less from rent-related poverty trap concerns. At the same time, although data from FaCS suggest that it has quite an impact on rental costs as a percentage of income (FaCS 2005), CRA has been criticized because, in the context of requirements to limit program costs, the rent-assistance program has become less focused on housing affordability and other housing outcomes. CRA also suffers from a lack of regional adjustment to account for different geographic housing markets.

The CRA program (and policy direction) also relies heavily on an adequate supply of moderate cost and accessible private rental housing (Seelig 2001a,b). However, the loss of existing affordable private rental housing (Wulff et al 2001; Yates et al 2004), particularly in inner-urban areas, and large scale declines in boarding house and rental caravan park supply have meant alternative forms of lower cost housing have largely disappeared. These supply issues are compounded by concerns about dwelling conditions and appropriateness, management standards and discrimination in the private rental market (Burke et al 2004; Colmar Brunton 2004).

Furthermore, recent studies by AHURI researchers and others have looked at specific groups of renters, such as sole parents and young people, illustrating how those in the private rental sector compare with those in public housing. Burke and Hulse (2002), for example, identify distinct groups of sole parents across public and private rental, with those in receipt of CRA generally “better resourced to sustain private tenancies than those who were public tenants” (Burke and Hulse 2002: vi). On the whole, they had fewer children, were younger and better educated, and perhaps as a consequence, more likely to be in some form of work and in receipt of higher income. These and other data signal the need to investigate the specific needs, resources, and capacities of different categories of income-support recipients as they impact upon their housing decisions, and motivate their movements into and out of specific tenures, housing markets and localities.

3.2.3 *Housing and Economic Participation*

There is very little specific literature, research or other analysis about how housing consumption and tenure transitions *per se* (as opposed to housing assistance) and the labour force are related in general terms, and how changes in tenure directly relate to changes in income or labour force status. In most cases, the concern has been on the spatial aspects of housing and tenure change, and what drives or is associated with changes in location, especially in relation to access to employment opportunities. The

based on minimum rent thresholds, an assistance taper (of 75 cents in the dollar) on rental costs beyond that minimum threshold, plus a cap on the maximum amount of assistance allowed.

⁷ Some prices-related adjustment has been built into the 2003 CSHA, but this will only maintain the lower funding levels in real terms.

limited academic or policy attention to the broader base of housing-labour force links has focused mainly upon concerns about the relationship between owner-occupation and employment, the so-called 'Oswald Thesis' (Oswald 1996; 1999; how tenures, work rates and housing costs relate; and more specific concerns about public rental tenancy and labour force participation.

Flatau *et al* (2002a, 2002b, 2004) have tested the relevance to Australia of the Oswald Thesis that high rates of homeownership works against residential mobility and hence limits employment prospects. Using various sets of housing, income and labour force data from the Australian Bureau of Statistics their research led them to reject the relevance of the Oswald thesis (Flatau *et al* 2002a, 2002b). However, their work also indicated the complexity of the relationship between housing tenure and employment. Different patterns were observed for men and women, and so too for different ratios of loan to house value. Importantly, the 'window' of longitudinal observation in data used by Flatau *et al* was narrow (eight monthly snapshots for observations of labour-force outcomes linked to one phase of cross-sectional housing related data collection) (Flatau *et al*, 2004). The present study, using the LDS data, will allow observation in a truly longitudinal way (as discussed in Chapters 3 and 4 below), of changing patterns of housing consumption and economic participation, as indicated by changes in earnings, and/or exits from the data, and will allow differentiated analysis of the short-term and longer-term unemployed.

Attending to the question of how tenures, employment rates and housing costs are inter-related, Hulse *et al* (2003) have presented evidence that labour force participation rates vary by tenure, in the following hierarchy: home purchasers (93%), private renters (81%), outright owners (46%) and public tenants (30%). On this basis, they suggest that tenure, along with housing assistance, does play a role in the interrelationship between housing and employment with work disincentives varying according to tenure (Hulse *et al* 2003: i). Their findings suggest that public renters may be reluctant to lose the benefits of public housing in favour of work opportunities, because they give higher priority to securing and maintaining low cost housing than to securing work. An important factor in this regard is that decisions to retain secure affordable housing are likely to be framed around employment that is part-time or casual, offering lower wages and short-term employment. Similar views have been echoed in other research in the area (Marshall *et al* 2003), and during consultations conducted by AHURI in preparation for CSHA renegotiations, participants claimed that "...economic and social participation is jeopardised by the inadequate supply of affordable housing and inadequate housing assistance in vibrant metropolitan and regional labour markets" (Donald 2003).

Expressions of concern, in all jurisdictions, that the form of direct public housing provision in Australia, with income-based rents and reasonable tenure security, creates 'workforce disincentives' hinge upon three specific issues: first, how rent is calculated in public housing, and what effect this may have on incentives to increase earnings through employment; second, whether public housing is locationally aligned with employment opportunities; and third, how tenure security and lack of dwelling transfer opportunities in public housing may discourage movement to other locations, or out of the tenure altogether. Precisely whether and how specific tenancy conditions, such as rent formulae and tenure security, work *vis-à-vis* incentives to increase income and then leave public housing is a complex issue in research as well as practice contexts.

The impacts of rent formulae and tenure security issues cannot be addressed directly through the analysis of the LDS data. However, comparative analysis of patterns of mobility for different tenure groups and for different public jurisdictions, and consideration of the relative impact of other factors influencing housing mobility and stability, over time, will enable some detailed consideration of these issues.

Analysis differences among benefit categories will also be useful for providing better understanding of who are the stayers in public tenancies, who move in and out, where they move from/to, and what are the precursors. An indicative snapshot of some patterns of mobility among tenures is presented in Appendix 1. Next steps in analysis should reveal what patterns emerge over the life-course and for people in different positions in relation to the labour market.

With regard to the second issue, the physical location of public housing, the problem centres on the fact that labour markets can shift geographically within and into and out of, specific cities and regions. However, dwellings are static and fixed locationally, and a considerable proportion of the public housing stock is now located in places where there is limited local employment. Much of this is connected to historical processes, where the housing was located in work-rich areas, but the areas themselves have changed economically. There have also been previous waves of mass-produced public housing, which was located at the then urban fringe where land was cheap, but where jobs were not necessarily situated. More recently, the move away from large-scale public housing construction programs has meant that the capacity to purposefully match public housing stock with current labour markets is now diminished.

On the third issue, the impacts of security of tenure in public housing, while many tenants appear satisfied and remain in the sector for extended periods once in public housing, there is also evidence of a reasonable amount of tenancy turnover – a “churning” of tenancies (Burke et al 2004) - in the order of ten percent per annum. The last available National Social Housing Survey (Colmar Brunton 2004) survey findings above suggest that the major motivators of housing transitions are *housing* rather than employment related. This might in part reflect the composition of the public tenant group – with high proportions of older aged/ sole parent/ high-needs disability, but it is a finding that is consistent with the general picture of tenure change being a motivator for re-location.

Most State Housing Authorities presently continue to operate a policy of secure tenure, such that, providing renters abide by their tenancy obligations, they will be able to remain in public housing indefinitely, should they wish to do so⁸. Given the high demand for public housing, there are very limited opportunities to transfer to other dwellings within public housing, either locally or regionally, and there are no reciprocal arrangements to allow for interstate transfers. As a result, the tenure security in public housing is essentially embedded in a specific dwelling, rather than within the tenure as a whole, despite past attempts to establish the latter (IC 1993). It can be argued that such processes create imperatives to remain within the tenure, and may discourage movement to other locations, or out of the tenure altogether. Whether this is so, in reality, is a question not easily answered by reference to the LDS. However, an indication of patterns of concentration and mobility, across localities as well as tenures, and over time, may be obtained through the techniques of spatial and longitudinal analysis foreshadowed in Chapters 4 and 5, below. These can provide some insight

⁸ In NSW, this has been significantly curtailed through the use of time limited leases for new tenancies, until the tenant has demonstrated their capacity to be a ‘good tenant’. Nevertheless, security of tenure is still ultimately possible in that State.

into the forces, in different public housing 'markets', that may constrain or facilitate mobility or enable stability, for different categories of income-support recipients.

Such insights will be important for understanding more fully the nature and complexities of the connections between housing tenure and economic participation. The opportunities provided through analysis of the LDS are such that more detailed understanding will be possible, also, of the interplay of other household capacities (related, for instance, to age, duration of periods of unemployment, and household arrangements or composition), and locational advantages or disadvantages, and their effects over time.

3.2.4 Spatial aspects of housing, tenure and economic participation

A report by Burgess and Skeltys (1992) on the housing and location choice survey (HALPS) showed, among other things, that residential mobility was driven by desires to move from renting to buying, a finding also evident in the research undertaken in Adelaide at the same time (Stevens, Baum and Hassan 1991, 1992). Both surveys also found that private renters were most mobile (around 80 per cent had moved in the five years prior to the survey), with home owners and public renters being much less mobile. Since these large scale surveys were completed, very little research has considered the residential mobility process in the Australian context, with exceptions being Burnley and Murphy (1995) and some of the analysis included in Bryson and Winter (1999).

Central to discussions relating to housing and economic participation are the different approaches to understanding of the links between where people live (residential space) and where people work (labour force space). In considering the interconnectedness of housing and labour markets, a range of existing research and policy literature suggests that this may work through two channels:

- the effect of location on the individual's orientation to work and his or her human capital ('neighbourhood effects') or;
- through access to employment opportunities ('spatial mismatch').

Neighbourhood Effects

This first channel identifies that very high levels of unemployment are found concentrated in quite small, homogenous geographical locations (Mitchell and Bill 2004). Following the work by Wilson (1987; 1996) in the US, this proposition is that localised concentrations of unemployment and disadvantage result in local conditions which have negative impacts on job search, job networks and participation in the labour market more generally. This process may then become self-perpetuating. There has been a small body of literature within Australia that has attempted to track the existence of concentration effects. Using data on unemployment rates among youth, Heath (1999) finds that younger unemployed people are much less likely to make direct contact with employers when searching for employment, but rather are more likely to use indirect methods such as newspapers or employment agencies.

The results of her analysis give strong support for the existence of neighbourhood effects in that higher unemployment rates in a neighbourhood decreases the probability of using direct search methods and increases the probability of using labour market

intermediaries. In cases where the quality of local job-information networks is low then the effectiveness of direct search methods may also be lessened. Similarly Hunter (1996) using census data at the collectors district level found that local neighbourhood environments are important in explaining socio-economic outcomes. He suggests that during the period 1976 to 1991 significant differences emerged between collectors districts that were deemed as low status and other localities and that the difference could not be totally explained by observable personal characteristics. In short there seemed to be some evidence of concentration effects having an impact.

Other Australian research including Jensen and Harris (2003), Jensen and Seltzer (2000) Kelly and Lewis (2002), Andrews, Green and Mangan (2002) and Overman (2000) also point to the impact of neighbourhood effects at varying levels.

Spatial Mismatch

While the neighbourhood or concentration effects argument has been a useful starting point in some studies, an alternative explanation is that formed around the idea of a spatial mismatch between place of residence and employment opportunity. In what is referred to as the spatial mismatch hypothesis, the focus is on the extent to which one's residential location, net of other factors, impacts on one's employment prospects, with research attempting to understand and document how the spatial allocation dynamics of real estate markets result in some groups being spatially concentrated and spatially removed from relevant labour markets. In broader terms it is an attempt to understand how the supply and demand for labour is mediated in space by often divergent outcomes in housing and labour markets.

The picture on this theory which emerges from the Australian literature is fairly unclear (see the most recent work of Hulse and Randolph, 2004, Hulse et al 2003 and Dodson 2003, 2004). Dodson's work for AHURI (Dodson 2004) suggests that to date there has been little real understanding of the extent of a spatial mismatch within Australian cities and regions, although the work by O'Connor and Healy (2002) does provide some insight.

The implications for the current study is that in cases where individuals are receiving IS, the concentration of these individuals in a given locality due to the availability of affordable housing in the private sector or housing in the public sector (all of which tend to be spatially clustered) may result in difficult and complex paths out of the IS system. The channels of disadvantage may be either related to the existence of neighbourhood effects or concentration effects or due to a mismatch between where individuals live and the location of suitable employment. Residential mobility, to a stronger labour market may help to alleviate disadvantage by lessening the impacts of concentration effects or the job mismatch (Hulse et al. 2004; Whelan, 2004).

Implications of policy contexts for this study

While it has not been possible to examine all of the factors and contexts - social, economic and demographic - which might impact on housing pathways, it is clear that a complex set of relationships between housing consumption patterns and tenure changes, demographic and spatial characteristics and changes, and IS usage and earnings activities exists. Each are likely to be affected by a range of behavioural and situational factors, social and economic conditions, and specific policy and program interventions.

The broad parameters of the public housing and private rental contexts in which householders devise strategies to obtain housing and income, will need to be taken into account in the analysis of patterns of housing consumption and earnings among IS recipients. Needs and opportunities will differ widely, depending upon personal circumstances and the localities in which people seek to live and work. Understanding not only the broad patterns of housing consumption (tenures, costs, types etc) but also what differences are apparent among groups differently connected to the labour market (in different IS categories), and over the life course, will be important.

The examination of the housing arrangements and circumstances of IS recipients over time, to be conducted through this study will assist in identifying empirically some of the dynamic 'housing pathways' of different sub-populations of IS recipients, and the social and material conditions of entry into and exit from public housing or the use of Rent Assistance. Similarly, the forthcoming analysis of the relationships between changes in tenure, changes in incomes and other changes identifiable in the LDS will assist in identifying the social and material factors associated with housing transitions, including access to public housing, transitions to or from employment, changes in earnings, and other changes in life circumstances.

In so doing, the results of the longitudinal and other data analysis will allow the project to produce outcomes which clearly link back to the various housing and related social policy challenges and dilemmas presently faced by the Commonwealth and the State Housing Authorities.

4 THE DATA ANALYSIS CONTEXT

4.1 Introducing the data analysis context

Having established the conceptual framework for this study, and then the housing policy environment in which it is located, it is necessary to highlight how the research is also situated within certain research and data analysis contexts. The purpose of this fourth chapter is to clearly position the analysis of the LDS in the literature on quantitative analysis of longitudinal data, including administrative data, and to examine the conceptual and methodological options and challenges which are presented with research of this kind.

In the following sections, a brief overview of longitudinal research – what it is and why it is useful - is provided, along with a short review of previous longitudinal data research, including large scale administrative data research, and then a summary of work using the LDS or related data. The chapter then turns to the sorts of theoretical and methodological issues and challenges associated with longitudinal-based research, and the options and approaches potentially available for the present study.

4.2 Overview of longitudinal research and data approaches

4.2.1 What is longitudinal data research?

As this paper has already indicated, the present study proposes to employ longitudinal analysis techniques to interrogate the LDS data. However, debates in the research community about what constitutes and what counts as longitudinal research need to be acknowledged, so that the nature of what is planned for this study is quite clear. What might be termed as ‘true’ longitudinal research typically involves analysis of data which consist of repeated observations across a number of variables of interest, for the same individuals or cases at different points in time. Such longitudinal designs for data collection are uniquely suited to the study of individual change over time and so are commonly used in medical, economic and social science research. Longitudinal research aims to exploit the unique possibilities of longitudinal data to investigate changes in relevant outcome variables, and to relate these changes to other variables of interest.

4.2.2 Types of time-based repeated observation research

A distinction can be made between research approaches which are truly longitudinal, and others which concern time-based repeated observations, potentially but not necessarily of the same cases or individuals. There are a number of different designs for the construction of repeated observation research which spans multiple time periods, but the three most commonly used data designs are ‘repeated cross-sectional studies’, ‘prospective longitudinal studies’, and ‘retrospective longitudinal studies’.

Repeated cross-sectional (trend) studies are usually carried out over several periods of time, each time using a largely or completely new sample. Seen in this way, these studies are not designed on longitudinal principles, even though they cover different time periods. Prospective longitudinal studies are truly longitudinal, and incorporate

two subtypes: administrative databases that record snapshots of customer information at regular intervals, and panel surveys that repeatedly interview the same subjects over a period of time. Retrospective longitudinal studies are also truly longitudinal, but are based around event history or duration data involving interviewees recalling or reconstructing events and aspects of their own life-courses.

The present study project is based on the prospective longitudinal design using data derived from regular snapshots of administrative records, compiled into the LDS and then extracted into the 1% sample. These data follow IS recipients over time by providing multiple observations at regular interviews on each individual in the sample. This research involves not only a random sample of IS recipients, but also their partners and dependents for whom data are repeatedly collated. Thus, the LDS accumulates administrative records of factors such as IS type, non-IS earnings, tenure, family status and other features over extended periods. This makes it possible to study changes in housing consumption earning, behaviour and other issues at the individual level.

The remaining discussion on methodology throughout this paper will refer mainly to prospective longitudinal or panel studies with some reference to methods for event history data which may also be in the scope of this project.

4.2.3 The role and benefit of longitudinal data research

The collection and analysis of longitudinal data as defined here is important because it allows researchers to address questions relating to changes over time at the individual case or person level. With true longitudinal data, it is possible to track an individual's pathway through a series of events over time, and then describe the relationships between possible pathways and other changes through the life course for the population as a whole. In the context of the LDS, this approach can be adopted with questions relating to phenomena such as housing consumption, IS usage patterns, earnings, and other characteristics or activities of IS recipients. These are questions that cannot be answered using cross-sectional data sets because it is not possible to track the same cases at that level over time, even if cross-sectional data are collected over several periods. Longitudinal analysis offers a mechanism for better understanding the subtleties and nuances of behaviour and activity which are generally masked by trend or grouped analyses.

4.3 Summary of previous longitudinal data research

4.3.1 Longitudinal research into social behaviour and social welfare policy

In the late 1930s, Lazarsfeld (1940) first used longitudinal data when analyzing the relationship between radio advertisement and product sales/changes in public opinion. He suggested that repeated interviews with the same respondents would clarify whether the radio advertisement was the cause or the effect of buying the product. From these humble beginnings, longitudinal-based research has flourished into a number of policy and research areas, including social and economic policy fields. In recent times, research themes have included:

- dynamic analyses of labour income (Joshi and Davies, 2002);
- analysis of career trajectories (Gallie and Paugam, 2000);
- poverty and income dynamics (Walker and Ashworth, 1994; Ashworth *et al.*, 2000; Jarvis and Jenkins, 2000; Muffels 2000)
- well-being of the elderly (Coe, 1988; Burkhauser and Duncan, 1988, 1991; Bound et al., 1991; Lillard and Waite, 1995);
- analysis of welfare use (Walker and Ashworth, 1994);
- analysis of the achievements and failures of welfare states (Goodin et al., 1999);
- household change: household formation and dissolution (Blossfeld, 1995; Jarvis and Jenkins, 1998; Ermisch, 2000);
- dynamic issues of disability (Adler, 1992; Eustis et al., 1995);
- transitions into and out of the labour force; from youth to adulthood.

4.3.2 Summary of previous large scale administrative data research

A number of previous studies have made use of large scale administrative data, which have been collected as part of public administration processes (census or administrative data) and which are then continuously updated monthly, quarterly or annually. Table 4.1 provides a summary of such studies.

Table 4.1 Previous studies on administrative longitudinal data

Author/Year	Data	Methods	Research Context
Dahl, S., Nilsen, O. A and Vaage, K. (2003)	KIRUT database random 10% sample of Norwegian population (total sample over 300,000)	Track persons aged 55-61 in 1989 for 6 yrs, Multinomial Logit Models using dummies for each year (competing hazards models)	Factors influencing exit from work into retirement, unemployment or disability for persons aged 55-67
Lee, B. J and Goerge, R. (1999)	Illinois Integrated Database on children and Family services and Illinois birth records - individual level longitudinal and relational database	Multinomial Logistic regression	Determinants of child abuse
Metraux, S. and Culhane, D. (1999)	Administrative data from the NY shelter system - Two databases HOMES (families) and SCIMS (individuals)	Cox Proportional Hazards models	Relationship between family dynamics and shelter stays
Ong, P. and Blumenberg, E. (1998)	Combined administrative data for AFDC recipients and census data	Regression models conducted with the unit of analysis as the census tract, no longitudinal focus	Relationship between availability of nearby jobs and welfare usage
Platt, L. (2003)	Birmingham city council data used to Administer HB, Quarterly extracts between January 1998 and June 1999	One logistic regression to model likelihood of being in a particular state at all time periods, otherwise descriptive	Differences in poverty between welfare recipients by ethnic group - tenure type
Wells, K. and Guo, S. (2004)	Two cohorts of children, one entering foster care before welfare reform (6 months in 1995) and one after (6 months in 1998)	Staggered Prospective Multiple Cohort Design, Cox Proportional Hazards model, basic descriptives	Effect of welfare reform on probability of reunion with family for foster children
Stewart, J. and Dooley, M. (1999)	Records of most individuals who received welfare for one month or more during the period January 1983 to December 1994	Prentice-Gloeckler Meyer piecewise constant proportional hazard procedure	Duration of on welfare and off welfare spells for single mothers in Ontario: Related to age, education, family status, benefit size, previous time on welfare, unemployment rate

Dahl *et al* (2003) used prospective longitudinal data which traced individuals and households through the period of 1989 to 1994. The data included relevant retrospective information, creating continuous records in retirement and unemployment from the beginning of the respondents' lives. Lee (1999) also examined determinants of child abuse using Illinois birth records. These administrative data contain information

on all children and families that come to the attention of the Illinois child protective services at individual level. However, those studies on single administrative data have a limited scope with a specific subject like retirement or child abuse. For this reason, some longitudinal researchers use linked or 'matched' administrative data. The information comes from joining disparate data sources such as registration data attached to the census information (Ong and Blumenberg, 1998) and two different levels of administrative record (Metraux and Culhane, 1999), or three administrative data sets linked by mother's social security number (Wells and Guo, 2004).

Researchers have often used such large scale longitudinal data sets because they offer the least intrusive method of collecting data, and because the sampling errors are relatively small. However there also are some clear disadvantages. Firstly, these datasets commonly only offer a very small variety of information, due to their administrative focus or because of practical data collection constraints. Most studies in Table 4.1 used data which have been collected with a limited scope and long intervals of time (yearly). Second, they are likely to pose a comparability problem because of changes in codes and definitions for administrative and political reasons. Third, the analytical possibilities such administrative data offer are limited to those issues which correspond to the bureaucratic concerns of the administrators who collect the data (Gershuny and Buck, 2000). Lastly, these studies are frequently impeded by laws concerning data protection, which make it difficult to obtain access to such data (Buck et al., 1994).

In comparison with the administrative data sets listed in Table 4.1, one of the major differences in the LDS is that it has been collected over short intervals of time (fortnightly). This provides opportunities in 'intensive' longitudinal analysis for some components of the study which compensate for some of the limitations, such as the range of available variables, which might exist with the data.

4.3.3 Summary of previous research using the LDS or related data

A small number of researchers have previously used the LDS to study particular research or policy issues, which have largely concerned IS usage and its association with earnings or employment. Table 4.2 provides a summary of some of these LDS-based studies. Dockery (2000) first used the LDS to investigate geographical mobility among unemployment benefit recipients in Australia. The study focused on the role of regional differences in employment opportunity and housing costs and found that the type of benefits impacts on their location choice behavior. For example, people receiving unemployment-related benefits are more likely than other IS recipients to change location. In regard to Dockery's findings, Bradbury (2003) further investigated the spatial impact on residential movement: whether it is unemployment that leads to exit from the city, or movement out of the city that leads to unemployment. While these studies focus on the relationship between spatial mobility and IS benefits, other studies on the LDS are interested in the exit of benefit programs.

Tseng and Wilkins (2002) attempted to measure the level of IS usage in Australia. They emphasised that "the implications of widespread receipt of welfare payments over short intervals of time are quite different to the implications of long-term receipt by a smaller number of individuals" (Tseng and Wilkins 2002: 3). This work complemented earlier research by Flatau and Dockery (2001), which considered IS recipients' interactions with the labour market, broken down by categories of IS and employment spells, and another study by Stromback and Dockery (2001), which analysed comparatively the duration of unemployment-related IS spells for Indigenous and non-Indigenous persons. Subsequently, Barret (2002) focused on a single IS type,

analysing the length of time families spent on the Sole Parent Pension using a proportional hazard model. This study found that the majority of SPP recipients remained on the program for the entire sample period. These sole parents are more likely to be women, Australian born, have reasonably large families, and live in rental accommodation (especially public housing). In contrast lone parents with some job attachment show much shorter stays on SPP, and the greater their earnings the higher their exit rate from SPP.

Overall, however, the LDS has not been used extensively in social research, and in particular housing-focused research. What distinguishes the present research from these other LDS-based studies is firstly the specific focus on housing, and secondly the intention to undertake truly longitudinal analysis which tests and applies a number of different approaches to address policy-relevant research questions.

Table 4.2 Previous studies using FaCS LDS data

Author/Year	Methods	Research Context
Dockery (2000)	Logistic regression	Regional unemployment rate differentials
Flatau and Dockery (2001)	Time series, Empirical hazard, Proportional hazard models	How IS recipients interact with the labour market while on IS
Stromback and Dockery (2001)	Proportional hazard model	Duration of spells of unemployment-related IS for ATSI and non-ATSI populations
Tseng and Wilkins (2002)	Descriptive analysis	Reliance on IS
Barrett (2002)	Proportional hazard model	Duration on the Sole Parent Pension (SPP)
Bradbury and Chalmers (2003)	Logistic regression & Proportional hazard model	Determinants of residential location choice for workforce-age IS recipients

4.4 Summary of the theoretical and methodological issues and approaches potentially available

4.4.1 Analytical issues

As the previous sections of this chapter have suggested, longitudinal data research can potentially provide significant insights into changes in individual behaviour over time. However, the use of such data raises both methodological and practical issues.

Many of the issues associated with panel surveys, such as panel construction, attrition over time and survey waves, and ‘response conditioning’ are not relevant to longitudinal administrative data like the LDS. Instead, operational issues and problems will arise with individuals moving in and out of the database as their circumstances change (in the case of the LDS, this is connected to exits from the IS system). Such issues need to be considered, and if possible addressed, in the analysis of administrative data.

From a methodological perspective, regardless of whether the data are collected in the form of a panel survey or administrative records, longitudinal data sets consist of repeated observations on the same individual and hence the observations for an

individual will tend to be correlated to some extent (perhaps even more so in the case of administrative data). Accurate analysis of these data therefore requires the correct specification of the correlation structure. The nature of the outcome variable (continuous, binary, categorical) will also influence the type and complexity of the analysis method used. In addition to these considerations, several different approaches have been developed for the statistical analysis of longitudinal or clustered data. Three types of statistical models for this purpose are Marginal (or population-averaged) models, Fixed and Random effects (or Conditional) models, and Transition (or Dynamic) models. It is important to distinguish between these three models because they can lead to different interpretations of the regression coefficients when the data is non-Gaussian, that is, when the data does not follow a normal probability distribution.

Marginal models

The marginal model is a regression method which quantifies the relationship between the marginal expectation (or population-average) of the response variable and other relevant explanatory variables, while also accounting for the correlation among repeated observations. This method is most appropriate when the focus of the analysis is on inference relating to the overall population-average. The procedure used to estimate this model is the generalized estimating equation (GEE) approach introduced by Liang and Zeger (1986), which assumes that the marginal distribution of the response variable follows a generalized linear model.

Fixed and Random effects models

Fixed and Random effects measure the direct influence of explanatory variables on the responses for different individuals (Diggle, 2002). The difference between these two specifications depends on whether or not some model parameters are treated as fixed constants, applying to all categories or random variables from a larger population, and how inferences are made on the basis of this assumption. The choice between fixed and random effects is consequential, because the results obtained from the two types of analyses often vary substantially (Hsiao 1986). Fixed effects models (at least in simple situations) are essentially derived by modelling over time differences in the response variable as a function of over time differences in explanatory variables. The random effects or conditional model falls under the umbrella of the generalized linear mixed model (GLMM). It is assumed that unobserved differences between individuals are random variables and that the individual represents a cluster of repeated observations over time so that the variation in the data can be separated into within and between cluster components. For non-Gaussian response data, this approach requires computationally intensive numerical procedures to estimate the model.

Transition models

A transition model is an extension of the generalized linear model in which the conditional distribution of the response is defined in terms of past responses, as well as relevant explanatory variables. This model is appropriate when it is believed that the response given by an individual is influenced by the individual's response in a previous time period.

The selection of one of marginal or conditional approaches for analysing longitudinal data will largely depend on whether inference is to be made at the population-average or individual level. Computer processing time may also be an issue for choosing between marginal and conditional models, and between random and fixed effects

models. The computational complexity of the estimation procedure is much greater for random effects models than for marginal and fixed effects models, when the response data is non-continuous. This is particularly consequential for the LDS where repeated observations are recorded for a very large number of individuals.

It should be noted that because the LDS contains data collected fortnightly, there are typically many more repeated measures for each customer than are found in other administrative datasets, and considerably more than are found in longitudinal panel surveys. This offers rich possibilities for data modelling, but also substantially increases the complexities involved with selecting and developing appropriate models, and greatly increases computational burdens associated with estimation. On choosing one of these modeling approaches it is then also necessary to choose the form of the likelihood (joint probability density) that is most appropriate for the type of response variable (continuous and Gaussian, binary, categorical, count, measure of duration).

4.4.2 Major techniques needed to perform longitudinal analysis

A range of techniques will be needed to perform longitudinal analysis of the LDS. For a continuous longitudinal response with a Gaussian (normal) distribution, a linear regression model with fixed or random effects or GEE approach to estimation is appropriate. If the response is binary then a logistic regression model is appropriate. A multinomial logit model is appropriate for categorical data and a cumulative logit model is appropriate for ordered response data. Count data may be analysed using a log-linear model. All of these response types are special cases of a generalised linear model (GLM). To account for the longitudinal nature of the data, these models are either extended to include random effects (generalized linear mixed model or GLMM) or estimated using a GEE approach. For some, fixed effects specifications are also available.

The estimation of a random effects model is computationally intensive because a random effect is estimated for each individual. The most difficult model to estimate is the multinomial logit model with random effects. To select a modeling approach in the analysis of the LDS, a decision will be made about whether inference is to be made about the population at an average or at an individual level. For example, to analyse the population probability for residing in a particular housing type, a multinomial logit model using GEE estimation would be appropriate.

Another example of a response type in longitudinal data is a variable that measures the time until an event occurs or the length of time in a particular state, for example, the length of time on a benefit. The relationship between this type of data and explanatory variables of interest can be analysed using various methods developed for the analysis of time to event data. These methods include parametric and semi-parametric survival analysis techniques, which are sometimes also known as methods for the analysis of event times and event histories.

One of the most common techniques used in longitudinal studies based on administrative data is logistic regression analysis (Fitzgerald, 1998; Dockery, 2000; Parkes and Kearns, 2003; Bradbury and Chalmers, 2003). This technique is used for predicting whether an event will occur or not. In consideration of LDS studies, Dockery (2000) used logistic regression analysis to find the determinants of mobility by defining a dependent variable to describe whether a household moves or not. The study found that housing tenure is a significant determinant of mobility. However, the analysis was limited as it did not account for uncompleted spells or explanatory variables whose

values change over time. For this reason Barrett (2002) used a proportional hazard model to investigate the duration of the Sole Parent Pension (SPP).

The proportional hazard model assumes constant proportional effects (independent from duration) of the explanatory variables on the conditional probability of completing a spell (Clark *et al*, 1997). The modeling results from this study indicated that lone mothers, relatively younger and older lone parent, and those with younger children had lower exit rates from SPP. Most recently Bradbury and Chalmers (2003) used both methods to analyse the relationship between housing and labour market characteristics and choice of location. Logistic regression analysis was used to investigate the determinant of mobility and then proportional hazard model estimates the impact of mobility on duration of benefit.

4.5 Postcode data matching

One final issue which requires brief attention is the question of how the longitudinal analysis of the LDS will factor in spatial change, brought about by the physical movement of IS recipients. While in no way unique to longitudinal analysis *per se*, an interesting aspect of the analysis proposed in the study will be the combining of individual level administrative data and aggregate level census data. This would facilitate the capacity to break the LDS analysis up by States and regions, and also to map LDS-based trends against spatially-based data, such as data relating to labour markets or areas of social disadvantage.

One problem that exists in undertaking such an analysis lies in the incompatibility of census based data and administrative data sets such as the LDS. In order to match individual data with appropriate aggregate (spatial) level data concordance between the spatial identifiers needs to be maintained. In the case of the LDS, each individual record is identified by Australia Post postcodes. Australian Bureau of Statistics census data is available at several spatial levels ranging from Collection Districts up to sections of state and state level and includes a derived postal area. Postal Areas are ABS approximations of Australia Post postcodes, created by allocating whole Collection Districts (CDs) on a 'best fit' basis to postcodes. Census Postal Areas exclude non-mappable Australia Post postcodes such as post office box postcodes, some delivery route postcodes, which are also covered by other postcodes, and some postcodes which, because of the application of the 'best fit' principle, do not get a CD allocated to them. This means that there are more Australia Post postcodes than census Postal Areas.

The process for resolving this problem is for every CD to be allocated one valid Australia Post postcode as the Postal Area for that CD. When a person is enumerated in that CD, the Postal Area is allocated to the person as their Postal Area of enumeration. A shapefile of Australia post postcode regions is then used to either match Australia post postcodes with ABS postal areas or to Australia post postcodes with some other spatial unit such as Statistical Local areas.

4.6 Data analysis implications for this study

As this chapter has discussed, the present study is located within a tradition of research and analysis which has made use of either longitudinal data in general terms, or large scale administrative data sets such as the LDS. Longitudinal data research approaches have their limitations, normally based around the set of variables available, but these approaches also provide opportunities for detailed studies of changes over time relating to specific units of analysis (such as individuals or households), across the variables that are present. The review of the main techniques needed to perform longitudinal analysis, and how these have been applied in previous studies, has provided the means of identifying the methodological options and techniques which are at the present research team's disposal in analyzing the LDS longitudinally.

5 MAPPING OUT THE REMAINDER OF THE STUDY

This final chapter aims to outline how the remainder of the study will proceed. It seeks, in the first instance, to highlight and address a small number of potential issues which some preliminary analysis of the LDS (reported in Appendix 1) has identified. The chapter then affirms the general feasibility of the overall study, and outlines the key variables to be used further on in the research. Finally, the remaining parts of the study are mapped out in terms of the research questions and methods.

5.1 Early challenges arising from the data

As the preliminary exploration of the LDS commenced, a small number of theoretical and practical challenges connected to the nature or the structure of the data presented themselves. These issues and problems need to be resolved, or at least acknowledged, to make effective use the LDS.

The first issue concerns the sheer size of the data. There are a large number of fortnightly observations for each individual, and when considering housing tenure and IS type spans, it may prove necessary at a practical level to aggregate fortnights into longer time periods (such as 2 or 3 fortnights), to define specific 'blocks' of IS receipt with which to analyse other phenomena such as tenure transitions. Similarly, with several million observations, the scale of the LDS presents statistical analysis and computational challenges. The methods described in Chapter 4 will take a considerable period of time to implement, particularly in the context of restrictions on how the data can be used and stored (i.e. on stand-alone PCs with portable hard drives, rather than on a network with high-end computer processing facilities). The research team is now investigating suitable options for mechanisms to reduce computation to manageable time frames to maintain protection of the data.

A second challenge arises from variations to IS policy administration, which leads to changes in IS categories or programs. Examples of this include Job Seeker Allowance (JSA), Sole Parent Pension (SPP) and Youth Training Allowance (YTA) which, during the period captured by the LDS, have been replaced by Newstart Allowance, Parenting Payment Single and Youth Allowance respectively. A significant level of data recoding is required to ensure ongoing compatibility between particular IS types for individual cases as IS programs themselves change over time, which then leads to changes in the LDS codes.

A third issue relates to how cases in the start of the data set should be treated. The LDS contains records that are both 'left'- and 'right-censored'. Left-censoring occurs when an event of interest, such as movement into public housing, occurs before an individual enters the dataset - no information about the timing of the event is available before the observation window. Right censoring occurs because some individuals who have not experienced an event when data collection ceases (such as movement out of public housing), go on to experience it later, after the observation window has closed. In both cases information on the precise timing of events of interest is missing. Event history or proportional hazards methods control statistically for right censoring, providing estimates that are appropriately adjusted for this phenomenon. Event history methods can also be modified to adjust statistically for left-censoring, but in many cases the modifications required are complex. In the present study, the analysis will initially take account of left-censoring by simply excluding customers who are left censored (i.e. are in the very first fortnight of the data). However, more complex

statistical adjustments which allow left-censored data to be incorporated in the analytic models will also be considered, and pursued if appropriate.

The final issue in this regard relates to the intermittent movement of cases (individual recipients) into and out of the LDS. Once a form of IS payment is formally canceled and the person leaves the IS system, it is not possible to trace successive information about that person, unless and until they reappear in the data again through a subsequent period of IS receipt. This limitation was recognized prior to commencing the study, and while this process places some potential limits on what can be achieved in terms of tracking people into full employment for example, the study over time will seek to adapt existing longitudinal methods to deal with spells on and off IS.

5.2 Operational processes for analysing the LDS

5.2.1 Defining the base population of income support recipients

In preparation for this paper, several frequency tables based on the outcomes of the preliminary analysis for this study were produced for a selection of variables. These are presented in Appendix 1 to this paper. For orientation purposes, the base population for these analyses comprised IS recipients traditionally viewed as being of working age (15-64 years olds in the LDS data).

While maintaining a consistency with other research, including other work on the LDS, the approach of excluding those deemed 'not of working age' (65+ year olds) also creates problems and anomalies. These appear in both conceptualising who is in the labour force and whether this is merely determined by age alone or by other factors such as IS type as well, and also in deciding how to treat those under 65 year of age who are in receipt of age-related pensions. In addition, the analysis of housing pathways for this study is not exclusively focused on economic (labour force) participation, and at their broadest level, pathways into and out of specific tenures are of interest regardless of the age or labor force status of IS recipients.

These issues have now been reflected on, and for the remainder of this study, the research team has resolved that the base population for future analyses will not involve any age-related exclusions. Instead, the summary categories of IS types will be used to conduct filtered and comparative analysis of particular population subgroups within the data. It is anticipated that this will provide a more helpful and nuanced level of analysis across the range of research questions, some of which concern economic participation considerations, while others do not.

5.2.2 Tenure classification

Classifying tenure in the LDS presented some initial difficulties because tenure related data are recorded in two separate, but not necessarily compatible variables based on the IS recipient's owner and/or renter status. Preliminary inspection of the data indicated that certain home ownership types (variable: `home_own_cd`⁹) routinely report rent types (variable: `rent_typ_cd`) as well, particularly in the case of persons living in nursing homes or aged care, as well as the 'LHO' (home owner living elsewhere) category. For LHO cases, it seems reasonable to use their rent type as this is likely to

⁹ Variable labels used here are those assigned to data items in the LDS 1% SAS data file. Detailed user documentation is provided in FaCS (2004) *LDS 1% Sample User Documentation for SAS Format, Version 4.1*

be their actual place of current residence. For nursing home residents (who are largely coded as boarders, lodgers, or paying maintenance) however, it seemed problematic to group them with their rent type.

To address this problem, a classification process was undertaken to develop a set of new summary tenure categories (see Table 5.1). Essentially, aged care takes first precedence in the categorization, then a rent type, and then a home ownership type. As noted in the table, people who are in one of the non-home owner categories in 'home_own_cd', but do not report a rent type, will fall into a 'Non-homeowner (not further defined)' category under this classification.

Table 5.1: Operational Tenure Classification

New Code	Description	LDS Categories	Classification process
H	Home owners not renting and not in aged care	HOM, JNT, PAR, LIF, SRH, OTH	(home_own_cd) Where rent type is '_'
P	Purchasers not renting and not in aged care	POH, DEE	Where rent type is '_'
A	Aged care or nursing home	GFH, GFN, NHH, NHN	Overrides rent type
R	Private renters not in aged care	PRI	Where not in (A)
G	Government renters not in aged care	GOV	Where not in (A)
B	Boarders and lodgers not in aged care	BOA, LOD	Where not in (A)
F	Rent free not in aged care	NRP, FBD, FBL, FLD	Where not in (A)
O	Other rent not in aged care	OTH (rent_typ_cd) MOO, SIT, MNT	Where not in (A)
N	Non homeowner	NHO, SRN, PLT	SRN or PLT or NHO in home_own_cd and '_' in rent_typ_cd
	Missing	-	'_' in both

5.2.3 Income support classification

Within the LDS, there are forty-eight different IS types that fall under the heading of 'benefits' and 'pensions'. For operational and analytical reasons, these have been classified into seven summary categories, which are based around the nature of the IS type: Unemployment, Aged, Disability, Single Parent, Student, Partner and Other (see Table 5.2).

Detailed recoding of existing variables in the LDS was required so that for example, Newstart and Youth Allowance are merged into 'Unemployment', and summary categories such as 'Age Pension', 'Disability Support Pension' and 'Single Parent' created. Each of these categories incorporate more minor but related variants to these main classifications. A new category of 'Student Assistance' also has been created, which includes Austudy and Youth Allowance (where the recipient is a student only,

identified through the 'Activity Type' code in the data). If cases are not identified as a student, they are placed into the Unemployment Allowance category.) Table 5.2 provides a summary of how each LDS code has been allocated into these new categories. This classification is broadly based around definitions and categories previously used by some LDS-based research (Whiteford and Angenent 2001; Stromback and Dockery 2001) but with some refinements, such as the treatment of students.

Table 5.2: Operational Income Support Classifications

New IS category	New codes	LDS codes	Notes
Aged	A	AGE, MAA	
Disability	D	DSP, REH, RHB, DWS, SWS	
Unemployment	U	NSA, YAL, YTA	YAL and YTA apply where activity type code is not 'FTS' or 'ED'
Single parent	P	SPP, PPS, WID, PGA	
Student	S	AUS, YAL, YTA	YAL and YTA coded S where activity type code is 'FTS' or 'ED'
Partner allowance	W	WFA, WFD, MPA, PGN, PGY, PTA, PA, PGL	
Other	O	All other IS types	

5.2.4 Defining spells on and off income support

A further issue of importance relates to the periods of time or 'spells' on (and off) IS receipt, both in terms of the number of separate spells and the duration of those spells. There are a number of technical issues to consider regarding the definition of these variables. The most salient of these relates to the question of how long a person must be off IS before one spell is considered to have finished. It is clearly inappropriate to consider a single fortnight not in receipt of IS as a true 'exit' without additional information about reasons for the absence of data for that period. About 60% of absences are only one fortnight in length, suggesting missing data is not explained by employment alone. Stromback and Dockery (2001), for example, have regarded the break of up to two fortnights as 'short interruptions' and have treated them as part of a current spell. This implies that more than two fortnights where there are no records for the individual or where the relevant benefit variables are 'zero' (presumably due either to temporary employment or administrative issues) should more realistically be viewed as the ending of a spell. It is proposed that the present study also adopt this approach.

5.3 Feasibility of the study

The initial orientation to the dataset stage has now been completed, and the outcomes from some of this work is presented in Appendix 1. This exercise has allowed for an assessment of the extent to which reliable and valid inferences can be made from the data in addressing the specific research themes and questions which this study is concerned. Table 5.3 lists the key variables required for the main analyses intended

for this study, and considers their general utility in the research. These variables include age, sex, earned/unearned income, household type, tenure, IS type, number of spells, duration on IS and postcode. Some of these variables, such as IS types, tenure types and other categorical variables such as age, spells, and so on have been recoded into summary forms as required.

Overall, the initial orientation work, subsequent modeling trials conducted to date, and analysis and reflection of the tasks at hand have all enabled the research team to reaffirm its confidence in the feasibility of remainder of the project's stages. While unforeseen challenges may still be encountered during these further stages which impinge on some aspects of what the research produces by way of analytical output, this research has the capacity to provide materials relating to each of the research themes and questions.

Table 5.3: Summary of key variables of interest

<u>Variables of interest</u>	<u>Categories/ Recoding</u>	<u>Why is it of interest?</u>
Income Support type	<ul style="list-style-type: none"> • Aged • Disability • Unemployment • Single parent • Student • Partner allowance • Other 	IS type is a key defining variable, as different groups of IS recipients are likely to experience different interactions with the labour market, have levels of earnings while in IS, and exhibit different housing pathways.
Tenure	<ul style="list-style-type: none"> • Home owners • Purchasers • Aged care • Private renters • Government renters • Boarders and lodgers • Rent free • Other rent • Non homeowner 	Tenure arrangements and transitions are the key focus of the study, as they identify the housing pathways of IS recipients
Earned/ unearned Income	<ul style="list-style-type: none"> • A\$ per week 	Income from non-IS sources an important variable in its own right, and as a proxy for employment. The relationships between earnings and housing pathways is a key component of the study.
Age	<ul style="list-style-type: none"> • 15-24 years • 25-34 years • 35-44 years • 45-54 years • 55-64 years • 65 years + 	A useful variable in tracking the 'life course'.
Sex	<ul style="list-style-type: none"> • Females • Males 	A useful variable in tracking the 'life course'.
Household type	<ul style="list-style-type: none"> • Single • Couple • Couple with children • Single parent 	A useful variable in tracking both the 'life course' and also 'life circumstance' characteristics and changes.

Dependent children	<ul style="list-style-type: none"> • Aged 0-6 • Aged 7-12 • Aged 13-15 • Aged over 15 • Number of dependent children 	Useful variables in tracking both the 'life course' and also 'life circumstance' characteristics and changes.
ATSI	<ul style="list-style-type: none"> • Indigenous origin 	A useful variable in 'life circumstance' characteristics.
Country of birth	<ul style="list-style-type: none"> • Australian born • Oversea born 	A useful variable in 'life circumstance' characteristics.
Rents	<ul style="list-style-type: none"> • A\$ per week 	A useful variable in tracking housing costs.
Rent assistance	<ul style="list-style-type: none"> • A\$ per week 	A useful variable in tracking housing costs.
Number of spells	<ul style="list-style-type: none"> • Count of number of separate periods on IS, separated by minimum 2 fortnight absence 	In conjunction with spell duration, the number of spells is important in describing the labour market situation of respondents.
Spell duration	<ul style="list-style-type: none"> • Days from first date of spell to last date of spell 	Similar to above. Long spells may indicate weak labour market attachment or work capacity.
Postcode		Required to analyse spatial mobility and its relationships with housing pathways and changes in life characteristics and circumstances. This will allow for analysis to be disaggregated to State and regional level. Data conversion to ABS-compatible postcode data would also allow for the potential to match LDS analysis with spatially-based data relating to labour markets or areas of social dis/advantage.

5.4 The next stages

Three stages of data interrogation and analysis were originally proposed for this study, and these will now proceed as follows. For each of these stages, data will normally be disaggregated in the first instance by summary IS type. This is because these would appear to make sense from a policy-research perspective (i.e. it seems appropriate to consider the housing pathways of different groups of IS recipients as distinct groupings in the first instance, rather than looking at the data only in aggregate form). Using this approach may also assist in computational terms, so that for some of the more intensive forms of analysis, a potentially large volume of data can be split up and analysed in component parts rather than (only) together.

Stage One

The first level of data interrogation will involve initial descriptive analysis of the data to measure and report on the frequency of specific events, such as length of occupancy in a given tenure and postcode, frequency of changes in tenure (in particular entry into or

exit from public housing, from or to another tenure), frequency of changes in IS type, frequency of changes in incomes (focusing on 'earned income' from sources other than IS payments), and changes in demographic features (such as household structure and number of children).

While some of this analysis was attempted during the orientation phase (and included in Appendix 1 here), much of this will be refined and reworked following the decision to include all ages in the analysis, but to then disaggregate the data by IS type. Thus, in further Stage One analyses, frequencies of the events of interest will also be cross-tabulated with demographic variables to determine whether there is an association between the occurrence of events and other household characteristics.

Stage Two

The second stage of data analysis will involve the use of appropriate regression techniques to explore the relationships between changes in tenure and changes ('improvements or declines') in life circumstances (e.g. income, work, family). For example, the question of whether entry to or exit from public housing is associated with identifiable improvements or declines in life circumstances, and whether these changes are explained with reference to housing factors, will be examined. Some testing of the 'best predictors' of certain housing or income-related behaviour patterns will be undertaken.

Table 5.4 lists the research questions to be addressed and the various statistical methods that may be appropriate for analyzing the longitudinal data. Logistic regression and multi-nominal logit regression are appropriate statistical techniques to examine whether entry to or exit from various types of tenure such as public housing is associated with both fixed and time-varying explanatory variables.

Stage Three

Stage three of the analyses refers to the use of statistical techniques to account for the correlation in repeated observations over time for an individual. These special techniques (as described in section 4 of Chapter 4) must be used to estimate the regression models listed in Table 5.3. Therefore in practice, stages two and three will be addressed together.

The variables that are available in the data to be included as independent variables¹⁰ in the analyses are:

- IS type variables: 'IS type', 'earned income', 'unearned income' and 'duration on IS'.
- Demographic variables: 'age', 'household type', 'sex', 'age/number of children' and 'country of birth',
- Spatial variable: 'postcode'.

¹⁰ This is not intended to suggest that these variables are in fact independent in the sense of being 'causal' or 'explanatory' outside of the parameters of the data analysis. Rather, these variables will be used to test trends and relationships against other variables.

Any combination or all of these variables could be considered as important controls in the analyses of pathways in housing tenure. They will be included in all analyses as either controls or variables of interest, as appropriate.

Furthermore a proportional hazard model can be used to investigate the length of time until a transition occurs e.g. is the timing of the transition dependent on a change in employment status or a change in family structure?

This stage of research may require extensions to existing methods or the development of new ones to answer these specific research questions. The research will involve a more detailed longitudinal analysis of movements between different kinds of housing tenure and of relationships between housing tenure, income/earnings and movements into and out of the IS system. Before proceeding with these analyses, however, it will be necessary to consider ways of treating the movement of individuals on and off IS.

In addition to interrogation of the LDS, it is also hoped that some examination of FaCS General Customer Survey data can be undertaken, to assist in contextualising some aspects of the LDS, and also in helping to interpret the usability and reliability of aspects of the LDS data. Similarly, it is anticipated that some attempt will be made to try to map some LDS analysis outcomes against other, spatially-based labour market or social dis/advantage data, in an effort at interpreting certain trends and phenomena in broader socio-economic and geographic terms.

Table 5.4: Research questions and proposed longitudinal methods

Related Research Questions	Proposed method of analysis accounting for correlation in repeated observations
<p>Group 1: Housing pathways and influential factors</p> <p>1.1 What housing arrangements and circumstances, particularly tenure arrangements, do IS recipients adopt over time, and how changeable are they?</p> <p>1.2 Are IS recipients' housing tenure patterns organised in terms of typical sequences that constitute 'housing trajectories'?</p> <p>1.3 If so, how do such housing trajectories vary among socio-demographic groups?</p> <p>1.4 Is there a relationship between changes in tenure and changes in earnings?</p> <p>1.5 Is there a relationship between changes in tenure and changes in other life circumstances? If so, which appear to be the driving factors, and which the resultant factors?</p> <p>1.6 Are the connections between housing trajectories and movements on and off IS similar for different socio-demographic groups?</p> <p>1.7 How do the housing trajectories of different socio-demographic groups, including those defined by family or household type, length of time on IS, Indigenous status, ethnicity and cultural background, differ?</p>	<p>Multinomial logit regression (as housing tenure type has more than two categories, will be used to assess relationships between moving in and out of tenure types and all other relevant factors)</p>

<p>Group 2: Duration in public housing</p> <p>2.1 How long do people remain in public housing? Is this duration in public housing influenced by socio-demographic factors and other changes in income and life circumstances.</p>	<p>Cox's proportional hazards models</p>
<p>Group 3: Pathways in and out of public housing</p> <p>3.1 What tenures do people move from when they enter public housing?</p> <p>3.2 What tenure do people move to when they leave public housing?</p> <p>3.3 How much spatial mobility is involved in such tenure changes?</p> <p>3.4 Is entry to or exit from public housing associated with identifiable improvements or declines in earnings, and can these changes be explained with reference to housing factors e.g. access to housing markets and/or regulation of public housing access?</p> <p>3.5 If so, which appears to be the driving factor, and which the resultant factor – housing access/ mobility or earnings?</p> <p>3.6 How do public tenants on IS behave when they increase their earnings? Do they remain in public housing or do they exit to other tenures?</p> <p>3.7 Is entry to or exit from public housing associated with identifiable changes in life circumstances, and can these changes be explained with reference to housing factors?</p> <p>3.8 What is the pattern, over time, of the incidence of certain events (e.g. changes over the life course, changing household composition, illness etc) and entry to/exit from public housing?</p>	<p>Log-linear analysis</p> <p>Logistic regression with two outcomes of “in public housing” or “not in public housing” (will be used to assess relationships between moving in and out of public housing and all other relevant factors)</p>

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APPENDIX 1: PRELIMINARY EXPLORATION OF THE DATA

A 1.1 Background to the initial analysis

This Appendix gives an account of some of the preliminary exploration and analysis of the LDS 1% sample, conducted by the research team to test out the usability of key variables of interest, and to help conceptualise and plan the more complex levels of analysis that will be undertaken further into the study.

The LDS 1% sample includes variables pertaining to issues such as receipt of Income Support (IS), earned and unearned income, housing tenure, demographics, broad geographic location (postcode level), rent assistance, assets and previous occupation. Given the availability of these variables, and the longitudinal nature of the data, the LDS 1% sample forms a potentially invaluable resource for Australian researchers interested in housing, employment and the life cycle among lower income segments of the population. However, assessing the precise utility of some of the variables, and working through issues connected to how the data have been constructed and updated, requires empirical testing and subsequent review and reflection.

The sections below report on some initial analyses relevant to the project examining, in particular, factors such as demographics, tenure, tenure transitions, IS receipt, earned income, and spells on and off IS. The first phase of analyses has generally been limited to individual income support (IS) recipients within the LDS 1% Sample deemed to be of 'working age' (those aged 15-64). This results in a final relevant sub-sample (referred to in this discussion as the 'Working-age Sub-sample') of 71,841 distinct individuals, contributing to 6,000,196 observations. Restricting the analysis to those aged 15-64 has been done to test out options for filtering or censoring the data according to certain parameters, such as potential labour force participation based on age alone, but in subsequent stages of the research, different approaches to limiting and expanding the data population will be employed.

Some initial work in collapsing or redefining key variables relating to tenure and IS types has been undertaken, to either simplify the analysis or to make it more compatible with other research or policy frameworks. Where appropriate, information is presented on the basis of the first or last fortnight of observation for an individual, to avoid double counting of IS recipients in the sample and to avoid biases resulting from differences in duration on IS.

A 1.1.1 *Key terms and operational definitions for preliminary analysis*

Individuals: refers to individual persons appearing in the LDS 1% Sample. We used 'Individual' as a main unit of analysing the housing choice behavior of income support recipients.

Transitions: defined as the event of change from one condition to another. This implies that some individuals may have multiple transitions, while some may have none. In particular it is used to trace the changes in tenure and life events over time.

First observations: means the earliest observations for each individual in the LDS 1% Sample.

Last observations: means the most recent observations for each individual in the LDS 1% Sample.

All fortnights: refers to all observations recorded in the LDS 1% Sample. There may be an unequal number of fortnights for individuals.

Spells: have been classified as per the discussion in Chapter 5. Figures denote a period of time in receipt of (or away from) IS. Measured in number of days.

Tenures: have been classified as per the discussion in Chapter 5

Income Support Types: have been classified as per the discussion in Chapter 5

A 1.2 Summary of the preliminary analysis

A 1.2.1 Income Support Receipt

The outcomes of frequency analyses of various IS categories in the LDS 1% Sample are presented in Table A.1. Unemployment is clearly the largest category, representing fully 40% of new entrants to IS, and 29% of all observations (in the 15 to 64 year age group). Disability (22%), single parent (15%) and partner (14%). We can hypothesise that the discrepancies between proportions in each IS category at first observations and for all fortnights might arise from people in particular IS categories staying on payments for longer periods, or by moves into these IS categories. In this case, however, it seems more likely that some IS types will be associated with longer stays, and that movement between IS categories will be less important, due to activity requirements and the characteristics required to qualify for particular IS types. Again, these issues will ultimately need to be addressed through the use of longitudinal and multivariate methods.

Table A.1: Categories of working age recipients at first observation and all fortnights

IS type	First observation		All fortnights	
	<i>Frequency</i>	<i>Percent</i>	<i>Frequency</i>	<i>Percent</i>
Aged ^a	7,101	9.88	456,193	7.60
Disability	9,714	13.52	1292,710	21.54
Unemployment	28,738	40.00	1736,305	28.94
Single parent	6,941	9.66	882,079	14.70
Student	6,934	9.65	448,454	7.47
Partner allowance	7,942	11.05	866,690	14.44
Other	4,471	6.22	317,765	5.30
Total	71,841	100.00	6,000,196	100.00

^a Although the data have been filtered to exclude those over 65, there is still a considerable population within the data of people receiving an Age-related pension. IS recipients under the age of 65 are not now (in 2005) eligible to receive an Age Pension, but this has not always been the case, and thus the data capture recipients who have entered into or been transferred within the income support system under different (historical) administrative and policy rules.

A 1.2.2 Demographics/Family Structure

Average age (at first observation) in the analysed sub-sample (of 'working-age' recipients) was 35.5 years, with a standard deviation of 15.4. The median was 32.6 years. Figure A.1 shows the age distribution in the sample, which appears to have two distinct modes, with IS recipients clustered towards either end of the distribution, indicating that there is a concentration of younger and older persons, respectively. The spike at the lower end clearly represents school leavers, while at the upper end, the less pronounced clustering is connected to older people who are no longer in employment (through retirement or retrenchment for example), and who have come into the Income Support system. Slightly more men (52.6%) than women (47.4%) are present in the sub-sample.

Figure A.1 – Age of working age recipients

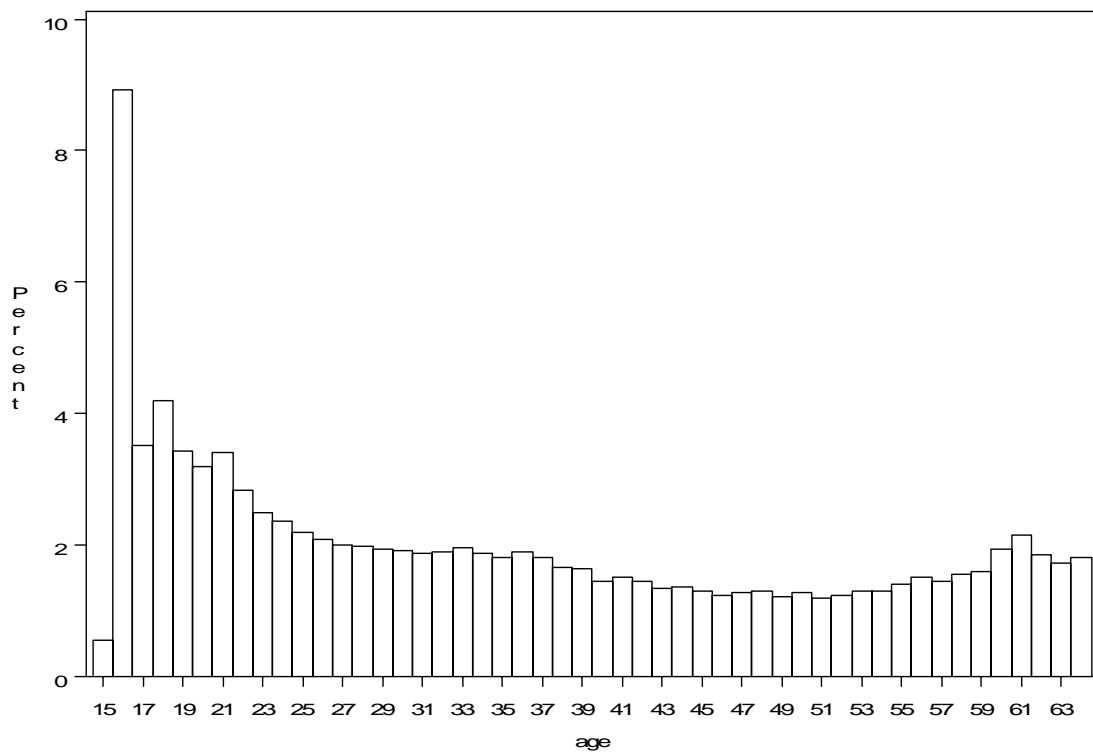


Table A.2 presents data on the family types of IS recipients in the working-age sub-sample, split by age groups. Classification is based on the presence of children which qualifies recipients for Family Tax Benefit or Family Payment, and the presence or absence of a partner. Quite clearly there are dramatic differences in the proportion of each family type over the life course. The overall proportion with children rises from 6.5% in the youngest age group to about 57% for persons aged between 35 and 44, before falling to just under 3% of the oldest age group. The proportion of couples rises monotonically with age, to about 71% of those aged 55 or over.

Table A.2: Family type of working age recipients by age group at first observation

Age	Family type			
	<i>Couple – No children (%)</i>	<i>Couple – With children (%)</i>	<i>Single (%)</i>	<i>Single Parent Family (%)</i>
15-24	3.69	3.06	89.84	3.42
25-34	9.90	29.89	44.56	15.65
35-44	12.81	38.19	29.62	19.39
45-54	42.41	16.07	35.79	5.73
55+	68.77	2.25	28.42	0.56
Total	22.29	15.42	54.12	8.17

Turning to ethnicity and country of birth, just under 3% of the working-age sub sample report being Aboriginal or Torres Straight Islanders, although this is possibly an under-representation as respondents were not required to identify. Of all recipients in the sub-sample, 72% were born in Australia, 5% in Great Britain, 2% in New Zealand, and about 1% in each of Vietnam, Italy and Greece. No other national group contributes more than 1% of the total number in the sub-sample.

A 1.2.3 Tenure and tenure transitions

Table A.3 presents data on the housing tenure of IS recipients in the working-age sub-sample, at first observation and aggregating over all fortnights. Home owners and private renters are clearly the two largest groups, making up slightly fewer than 60% of first observations and total fortnights respectively. In general, the distribution is quite consistent between first and overall fortnights, with the notable exceptions of public renters and home owners, who make up a substantially larger proportion of the overall fortnights than first observations, and those living in rent-free accommodation who make up a smaller proportion of the overall fortnights than in first observations. The first of these observations suggests that public renting and home ownership are both linked to greater periods on income support, but could also be connected, for example, to a pattern of movement into public housing while on IS. The second observation may be indicative of typical patterns of housing transition among youth.

Table A.3: Tenure of working age recipients at first observation and all observations

Tenure type (code)	First observation		All fortnights	
	<i>Frequency</i>	<i>Percent</i>	<i>Frequency</i>	<i>Percent</i>
Home owners (H)	19,304	26.91	1,782,577	29.74
Purchasers (P)	4,126	5.75	201,120	3.36
Private renters (R)	21,225	29.59	1,805,301	30.12
Public renters (G)	4,284	5.97	588,338	9.82
Aged care (A)	170	0.24	13,882	0.23
Boarders/lodgers (B)	6,610	9.22	527,208	8.80
Rent free (F)	9,818	13.69	548,816	9.16
Other rent (O)	674	0.94	64,852	1.08
Non-home owner (N)	5,518	7.69	461,872	7.71
Total	71,729	100.00	5,993,966	100.00

Table A.4 shows the proportions of age group (from 15 to 64 years only) by different housing tenures at first observation. Age is clearly another important factor influencing housing circumstances. Older people are more likely to be homeowners. Around 43% of persons aged over 55 years are outright homeowners, which contrasts with less than 14% of persons aged less than 35 years. It seems likely that this relates either to age cohort differences in housing access or to the life cycle transitions from single to family noted above, and frequently associated with the purchase of a house. About 67% of purchasers are those aged between 25-44 years. Younger people are more likely to be private renters and the majority of persons living rent free are aged between 15 and 24 years. To more fully understand transitions over the life cycle, it will be necessary to observe the tenure pathways for individuals over time. During this preliminary stage of analysis, only tenure at entry into the LDS 1% Sample has been considered.

Table A.4: Percentage of working age recipients by tenure and age group at first observation

Tenure	Age					Total
	15-24	25-34	35-44	45-54	55+	
Home owners (H)	1.28	12.12	19.99	23.33	43.27	100
Purchaser (P)	3.68	31.52	35.01	19.46	10.33	100
Private renters (R)	31.23	31.68	19.92	10.18	6.99	100
Public renters (G)	8.73	25.34	25.72	20.09	20.12	100
Aged care (A)	2.28	2.28	16.67	25.00	52.78	100
Boarders (B)	55.49	24.46	9.8	5.82	4.43	100
Rent free (F)	65.72	14.95	8.11	5.39	5.83	100
Other rent (O)	12.46	15.3	16.01	22.24	33.99	100
Non-home owner (N)	81.36	9.85	4.29	2.41	2.09	100

Table A.5 shows the origin and destination of tenure changes in the LDS 1% working age sub-sample. It is apparent from these data that there are a relatively larger number of entries to public housing than exits, by about 31%. This lends some tentative support to the proposition that there is a disproportionate movement to public housing while on ISs. However, a definitive answer will require the tracking of individual tenure transitions and multivariate analysis in order to take into account additional covariates such as age and IS type, as well as the likely effect of case censoring (people who are still in a particular tenure at the end of observation).

In a broader sense, it is clear that there are a large number of moves between private renting and boarding, rent free, and government tenures. Boarding, rent free, and some types of 'non home owner' arrangements also appear to be particularly unstable, with a much higher number of moves relative to the overall frequency of these tenures. Public housing and ownership are (unsurprisingly) quite stable tenures. It is also of note that purchasers in receipt of IS are almost three times more likely to move into a rental tenure as they are to complete their house purchase and become full home owners. Similarly, there are more moves out of home ownership than into it, by approximately 22%.

Table A.5: Origin and destination of tenure changes of working age recipients

Origin	Destination									
	H	P	R	G	A	B	F	O	N	Total
Home-owners (H)		725	2,115	64	46	334	526	203	300	4,313
Purchasers (P)	359		656	19	1	96	157	21	64	1,373
Private Renters (R)	1,612	1,327		2,635	23	7,261	5,839	882	4,345	23,924
Public Renters (G)	121	100	1,789		18	556	424	83	611	3,702
Aged Care (A)	16	0	16	4		18	4	3	4	65
Boarders (B)	288	204	8,100	833	74		2,182	322	2,200	14,203
Rent free (F)	604	273	6,691	472	13	2,783		312	4,653	15,801
Other Rent (O)	105	26	1,019	94	14	257	281		193	1,989
Non Home Owner (N)	436	148	6,826	723	10	2,709	5,277	262		16,391
Total	3,541	2,803	27,212	4,844	199	1,4014	14,690	2,088	12,370	81,761

In an effort to test out the capacity to exploit the longitudinal nature of the LDS 1% Sample, some early data on the 'housing pathways' of working-age, IS recipients, covering the period they are present in the LDS 1% Sample, are presented in Table A.6. These tenure arrangements represent the sequence of different tenures occupied, ignoring consecutive observations in the same tenure type. In total there were over 6,000 distinct housing pathways using the tenure categories as defined here. However, only information on those pathways that make up more than 1% of the total has been included here. These thirteen distinct tenure patterns cumulatively account for just under two thirds of all individual housing pathways in the LDS 1% working-age sub-sample.

The overall pattern here is clearly one of stability. More than 50% of the housing pathways observed in the LDS 1% Working Age Sub-sample involve *no change* of tenure (although this does not preclude moves within that tenure). Accordingly, the seven most common housing arrangements were ‘single state’ situations. Consistent home ownership was the most common pattern, accounting for nearly 23%, followed by continuous private renting at 12%. People always in public rent account for about 2.5%. Of those common housing arrangements that do involve a transition, most include a period in private rental. Notwithstanding these summary impressions, it is important to note that in fact more than 35% of IS recipients’ housing arrangement do not fit these descriptions, and instead follow more diverse or complex pathways. Also, it is likely that certain pathways and transitions will be associated with shorter observation periods, meaning that the impression of stability may be overstated. Of course, all these observations are limited to the maximum length of the LDS 1% sample (i.e. 9 years).

Table A.6: Common housing pathways of working age recipients

Tenure transitions	Rank	Frequency		Percent	
		<i>Category</i>	<i>Cumulative</i>	<i>Category</i>	<i>Cumulative</i>
Home Owner (H)	1	16,463	16,463	22.95	22.95
Private renter (R)	2	8,966	25,429	12.50	35.45
Rent-free (F)	3	4,390	29,819	6.12	41.57
Non Home Owner (N)	4	3,988	33,807	5.56	47.13
Boarder (B)	5	2,513	36,320	3.50	50.63
Purchaser (P)	6	1,969	38,289	2.74	53.38
Public Renter (G)	7	1,841	40,130	2.57	55.95
N - F	8	1,057	41,187	1.47	57.42
F - R	9	1,050	42,237	1.46	58.88
N - R	10	986	43,223	1.37	60.26
B - R	11	957	44,180	1.33	61.59
H - R	12	780	44,960	1.09	62.68
F – N - F	13	761	45,721	1.06	63.74

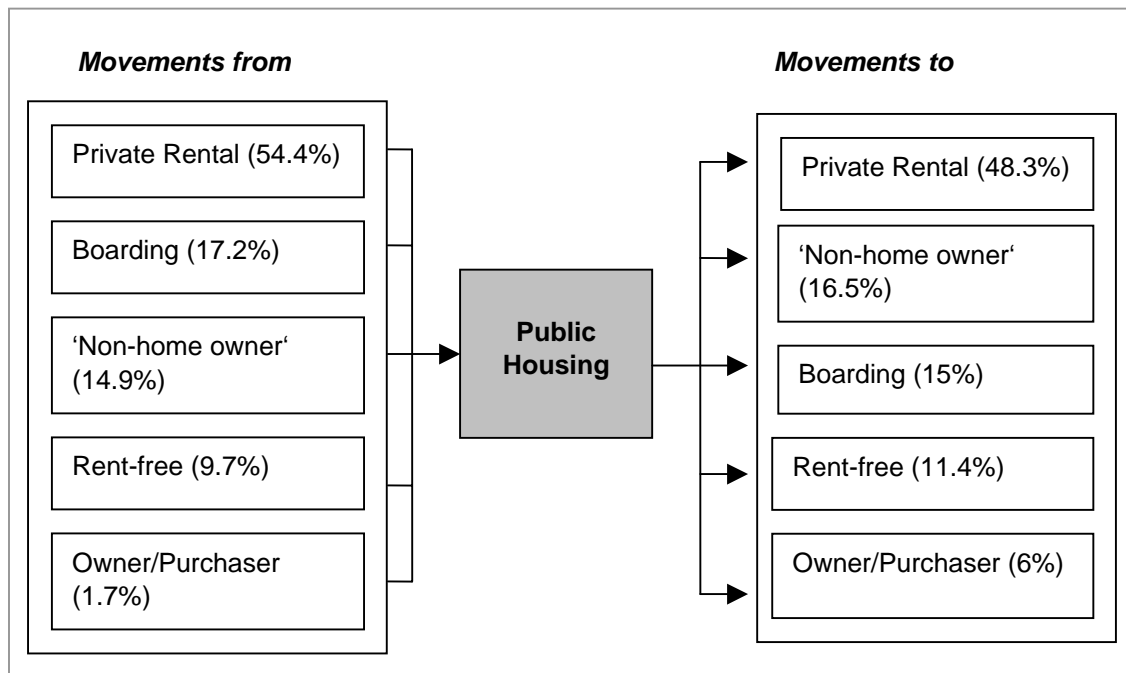
Meanwhile, Table A7 drills down further into tenure transitions, and shows the top ten most common housing pathways for those who have lived in public housing at some stage during the data period. As with other tenure categories, the most significant pathway was of consistent public housing (G) occupancy (i.e. no entry from or exit to any other tenure) which accounted for 27.3% of cases. Of housing pathways that involve movement into or out of public housing, the most common ones involved moves either from private rent or to private rent (R). It is worthwhile noting that five out of the top ten public housing transitions involve private rental. A transition from boarding (B) to public housing ranked fifth, accounting for about 1.3%, followed by non-homeowner to public housing at 1.1%.

Table A7. Most common housing pathways associated with public housing of working age recipients

Tenure transitions	Rank	Frequency		Percent	
		<i>Category</i>	<i>Cumulative</i>	<i>Category</i>	<i>Cumulative</i>
G	1	1,841	1,841	27.3	27.3
R - G	2	560	2,401	8.3	35.6
G - R	3	254	2,655	3.8	39.4
R - G - R	4	120	2,775	1.8	41.2
B - G	5	89	2,864	1.3	42.5
N - G	6	75	2,939	1.1	43.6
G - R - G	7	62	3,001	0.9	44.6
G - N - G	8	59	3,060	0.9	45.4
G - H	9	56	3,116	0.8	46.3
B - R - G	10	49	3,165	0.7	47.0

Another way of illustrating these how these summary transitions operate in the context of specific tenures is provided in Figure A.2. This indicates gross movement into and out of public housing (G), based on the total number transitions connected to those activities. This is only a starting point for analysing housing transitions longitudinally, based around individuals rather than an aggregation of all transitions as reported here, but it begins to show how the data can be used to examine tenure change over time, and across factors such as geography and length of time in tenures. Future analyses will consider these more complex issues.

Figure A.2: Summary of preliminary analysis of transitions into and out of public housing among working age recipients



A 1.2.4 Earned Income

Table A.8 shows summary statistics regarding the earnings of working-age IS recipients by IS type, including all fortnights for the last year of data. If particular IS types encourage or facilitate employment among those in the working-age sub-sample, then we would expect to see differences in earned income between these groups, and potentially shorter stays on IS.

The analysis indicates some quite clear differences between IS types both in terms of the probability of having any earned income, and in the size of that income. Persons in Single parent and Student categories stand out as having the highest probability of an earned (ie non-IS payment) income in any fortnight (admittedly still under 30%), and in the case of the Single parent category, relatively high median and mean income when employed. At the other end of the scale are those in the Disability category, with a median income (when employed) of just \$150 fortnightly, and only a 9% chance of reporting any earned income. The other major group in the LDS 1% Working-age Sub-sample, those in the Unemployment category, have relatively high incomes when employed (mean=\$431, median=317), and have an income in approximately 19% of fortnights. Overall, about 17% of observations in the working-age sub-sample include an earned income, worth an average of \$412.

Table A.8: Earnings of working age recipients by IS type - 6th September 2002 – 5th September 2003

IS type	Overall		Non-zero earned income	
	<i>Percent no income</i>	<i>Mean (\$)</i>	<i>Median (\$)</i>	<i>Mean (\$)</i>
Aged	92.40	29.25	253	384.74
Disability	90.75	24.12	150	260.85
Unemployment	80.94	82.20	317	431.31
Single parent	72.31	161.34	581	582.73
Student	71.36	85.61	240	298.92
Partner allowance	88.54	44.37	283	387.15
Other	90.08	33.82	253	340.81
Total	83.08	69.69	302	411.95

Table A.9 shows the breakdown of housing tenure by IS type for the working-age sub-sample. The proportion of unemployment IS recipients who are homeowners is about 18%, which is much smaller than in aged (78%) and single parent (54%) IS groups. More than thirty percent of the persons receiving unemployment ISs are in private rental. Those persons most likely to live in public housing are those on partner allowance (14%) and disability pensions (11%). The overall proportion of purchasers in all IS types is less than 5%, peaking at just under 8% for single parents.

Table A.9: IS type by tenure of working age recipients at first observation

	Aged	Disability	Unempl- oyment	Single parent	Student	Partner allowance	Other
Home owners	77.99	44.09	18.14	54.36	0.84	25.37	35.5
Purchaser	1.11	1.33	3.8	7.74	0.26	6.33	4.31
Private renters	6.82	16.41	31.27	23.25	9.75	35.67	28.33
Public renters	4.85	10.56	2.37	5.36	0.11	14.14	3.98
Aged care	0.22	0.39	0	0.01	0	0.02	0.03
Boarders	2.06	11.6	14.05	1.33	4.64	7.4	10.67
Rent free	4.36	10.51	20.47	4.92	23.35	7	11.45
Other rent	1.41	1.47	0.88	0.83	0.04	0.48	0.73
Non-home owner	1.19	3.64	9.02	2.21	61.01	3.59	5.02
Total	100	100	100	100	100	100	100

A 1.2.5 Spells on and off IS

In Table A.10, summary statistics are presented on the number and duration of spells on and off IS. Number of spells off IS is simply one less than spells on, so separate information on this is not presented. A preliminary inspection of the figures reveals a number of interesting points. Persons on Unemployment IS average more spells than others at 2.85, although Single parent and Partner IS are also associated with a relatively higher number of spells. However, the observation that these groups have 'high' numbers of spells should be tempered by the fact that most people in all IS categories have only one spell.

In terms of spell duration, unemployment allowance recipients once more stand out as having generally shorter spells on IS (just over a year on average). Disability, Aged and Single parent IS are associated with relatively long spells of three to five years approximately. Persons on partner allowance, single parent and 'other' IS generally have the longest intervals between spells, followed by unemployment recipients. It is worthwhile noting however, that the numbers in the second and third columns of Table A.11 represent average *spell* durations, and not overall time on IS.

Table A.10: Summary spell statistics for working age recipients by IS type at last observation

IS type	Mean number of spells	Mean duration (days)	
		<i>On IS</i>	<i>Off IS</i>
Aged	1.20	1,330	155
Disability	1.57	1,741	231
Unemployment	2.85	261	261
Single parent	2.29	906	279
Student	1.72	396	184
Partner allowance	2.17	530	279
Other	2.08	661	307
Total	2.17	530	261

A 1.2.6 Rent and Rent Assistance

As discussed in Chapter 3 of this paper, Commonwealth Rent Assistance is available to IS recipients who are renting privately (broadly defined), but not to public renters. Data on the receipt of Rent Assistance fortnightly and rent paid as indicated in the LDS 1% Sample are presented in Table A.11. The data are broken down by tenure (where applicable), IS type and family structure, and include all observations in the final year covered by the data. This period was selected for preliminary analysis because it avoided the complex issue of how to treat the value of money (Rent Assistance and rents) over time. Addressing these sorts of issues will form part of the subsequent analysis for the study.

Rent Assistance is generally received most frequently by people in private rent and other rent, both close to 70%. Persons in aged care however, tend to pay the highest rents, and consequently receive the highest mean value of Rent Assistance. Of the different IS types, single parent (41.70%) and unemployment (30.07%) recipients are most likely to be receiving Rent Assistance. Single parent ISs are also close to the top in terms of average rent assistance, along with persons receiving a partner allowance. Students and aged pension recipients generally receive the lowest amounts of rent assistance, averaging under \$60 fortnightly in both cases.

Of course, much of the variation in tenancy stems from family situation as well, and this is reflected in patterns of rent and Rent Assistance for different family structures. Couples and those with children generally tend to pay higher rents. Single parent families and couples with children also receive the highest amounts of rent assistance. Individuals in couple households without children receive less rent assistance than singles because Commonwealth Rent Assistance assumes cost-sharing in couple households.

Table A.11: Rent and rent assistance for working age recipients by tenure, IS type and family structure: 6th September 2002 – 5th September 2003

	Percent receive Rent Assistance 2002-3 (nominal \$s)	Mean rent assistance (fortnightly) if received (nominal \$s)	Mean rent paid fortnightly if paying rent (nominal \$s)
<u>Tenure¹</u>			
Aged care	9.82	82.62	337.29
Boarders/lodgers	46.48	58.51	222.29
Private rent	72.33	75.60	273.59
Other rent	69.87	51.02	183.88
Government rent	NA	NA	119.04
<u>Income Support type</u>			
Aged	10.86	59.55	235.60
Disability	25.24	69.30	226.37
Unemployment	30.07	63.33	234.85
Single parent	41.70	85.81	296.55
Student ²	19.47	58.08	208.65
Partner allowance	17.36	87.05	337.52
Other	20.73	68.77	251.89
<u>Family Structure</u>			
Couple – no children	9.57	46.46	294.32
Couple – with children	29.02	94.49	341.71
Single - no children	29.64	66.29	210.41
Single – with children	41.55	85.81	294.35

1: There were a small number of cases where persons in ineligible tenures received rent assistance. These have been disregarded as they most likely represent back payments from previous fortnights, and are present in less than 1% of cases.

2: Some students (those in receipt of Youth Allowance) are entitled to Rent Assistance, while others (those on Austudy) are not.

A 1.3 Implications arising from the preliminary data analysis

This preliminary analysis of a sub-sample of the LDS 1% Sample has yielded three main outcomes. In the first instance, it has generated some early but nevertheless interesting data analysis results. Secondly, it has provided a useful framework for problem-solving some of the many potential changes and difficulties that inevitably will be encountered in using a large administrative data set of this kind. Thirdly, and most crucially, it has confirmed that the LDS 1% sample is useable for the sorts of analysis which the study seeks to undertake, and it has presented a flavour of how it will be possible to use the data. Of course, no real longitudinal analysis has been attempted as yet. This will be done in the next phase of research following strategies identified in Chapter 5.

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