Marginalised Australians:

Characteristics and Predictors of Exit Over Ten Years 2001-10

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This research report builds on earlier work by Berry et al. (2008), which identified five 'archetypes' of people in Australia - one of which were marginalised Australians.
This report uses unit record data from the Household, Income and Labour Dynamics in Australia (HILDA) Survey. The HILDA project was initiated and is funded by the Australian Government Department of Families, Housing, Community Services and Indigenous Affairs (FaHCSIA) and is managed by the Melbourne Institute of Applied Economic and Social Research (Melbourne Institute). The findings and views reported in this paper, however, are those of the authors and should not be attributed to either FaHCSIA or the Melbourne Institute.

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Executive Summary

A decade ago, 13 per cent of Australian adults were living in extreme, multifaceted disadvantage, or 'marginalised' circumstances, defined as a complex mix of economic, social, early-life and health disadvantage.

Following up 866 of these Australians ten years on, over a period of primarily strong economic growth, we find that almost 60 per cent had managed to exit marginalisation. Others remained marginalised and still others were new entrants to marginalisation.

The focus of this research report is to compare those who remained marginalised between 2001 and 2010 with those who managed to exit marginalisation. This comparison provides powerful information for policy decision-making and service design through identifying protective factors that predict exit from the profoundly disadvantaged state of marginalisation. It also indicates potential pathways towards leading a happy and productive life when facing such a situation, as well as some of the barriers to doing so.

The concept of marginalisation applied in this study stems from an innovative approach to conceptualising multi-faceted disadvantage. This novel approach allows a more complete picture of what distinguishes the lives of multiply disadvantaged people from the lives of other people in the community.

Persisters and exiters

Important differences between individuals who were persistently marginalised versus those who exited marginalisation are revealed.

'Persisters' are much more likely than 'exiters' to have experienced early-life disadvantage – particularly moving out of home at a very young age, leaving school early and experiencing parental unemployment or divorce. 'Persisters' were three times more likely to leave school before the age of 16, compared with the overall population, whereas exiters were twice as likely to have left home before the age of 18.

Persisters were more likely to be members of stigmatised groups – Indigenous Australians, unemployed people and welfare-reliant single mothers – and were also more likely to experience chronic health problems, particularly disability and mental illness, and to suffer from financial deprivation: more than one-half of this group were living below the poverty line.

By contrast, those individuals who were temporarily marginalised (noting that 'temporarily' could be a long time) but who managed to exit ten years later experienced a dramatic improvement in their financial circumstances. Transitioning from government income support to full-time work, these individuals experienced a substantial increase in their disposable income and many were able to move from renting to buying their home.

Women more marginalised than men

A key finding in this report is the much higher proportion of women than men living in marginalised circumstances – two-thirds of those marginalised in 2001. Women were also more likely to remain marginalised, with the proportion of women increasing from 67 to 75 per cent over the decade.

What is marginalisation?

Marginalisation describes a state in which individuals are living on the fringes of society because of their compromised or severely limited access to the resources and opportunities needed to fully participate in society and to live a decent life. Marginalised people experience a complex, mutually reinforcing mix of economic, social, health and early-life disadvantage, as well as stigma.

Indigenous disadvantage evident

Indigenous Australians were more likely to be both marginalised in 2001 and persistently marginalised across the ten-year period.

The risk of being persistently marginalised was 12 times greater for Indigenous Australians than it was for the rest of the population.

Exiting marginalisation

The 60 per cent of marginalised Australians who managed to exit this state did not attain the level of advantage, on exit, as that enjoyed by the rest of the population who had never been marginalised. Nevertheless, there were significant positive developments in almost every aspect of their lives.

This is an optimistic finding for researchers, service providers and policy-makers alike, as it suggests two important conclusions:

1. Marginalisation need not be intractable and can resolve over time.

2. There are trajectories out of marginalisation that might be promoted or reinforced through interventions.

A number of factors were highlighted as potential facilitators of exiting marginalisation. The largest effects were as follows:

- Gaining full-time paid employment;
- Moving from government income support to self-support;
- Being able to remain at home until at least 18 years of age; and
- Not having further children (for women only)

Education and part-time work not necessarily predictors of exiting marginalisation

A number of factors that may have ostensibly been thought to increase an individual's opportunities, such as gaining a certificate or diploma or gaining part-time work, did not reduce the risk of these marginalised people exiting disadvantage over the decade of the study. This is in contrast to gaining a tertiary degree or full-time paid work, both of which strongly reduced the risk of remaining marginalised. Thus, in terms of educational attainment, it does not appear true to say that any qualification is better than none. Nor was any job better than none.

These are unexpected findings and we note that these relationships are often complex and require further investigation. They nevertheless highlight an important issue that has links with Federal Welfare to Work and other policy.

Policy implications: Canberra and nationally

A number of trajectories out of marginalisation – most, in fact – were precipitated by changes in *modifiable* characteristics of a person's life, such as gaining degree-level qualifications, entering a relationship, recovering from a chronic medical condition and obtaining paid employment. These are factors that may be amenable to 'packaged' ('whole person') intervention and they form a powerful evidence base for policy and program targeting.

Those factors that were expected to aid exit from marginalisation, especially those related to human capital accumulation, and why these were not as effective as expected, highlight the complexity of disadvantage and the need for further investigation. This research helps ensure that scarce public resources are distributed as efficiently and effectively as possible.

In this regard, The Canberra Social Plan (2011) offers an outstanding policy platform which could serve as a model beyond the Australian Capital Territory.

Note that the present report is not able to account for the effects of policy changes that post-date 2010.

Chapter One: Introducing Marginalisation and the Aims of this Study

Contemporary Australian Archetypes: Different People, Different Needs

In 2005, Berry et al. (2008) conducted a study that statistically identified five 'archetypes' of people in Australia using nationally-representative data from the Household Income and Labour Dynamics in Australia (HILDA) Survey. The HILDA Survey is a world-recognised data collection that has tracked a representative sample of about 7,000 Australian households annually since 2001. Every year, all members aged 15 and over of every household participating in the survey are invited to provide detailed information on a wide range of economic, social, demographic and wellbeing factors. Because it is nationally representative, the HILDA Survey allows inferences made from the sample to be generalised to the Australian population as a whole.

Berry et al. used data from the first and, therefore, most complete (2001) wave of the HILDA survey to conduct a *cluster analysis*, a statistical strategy that divides participants into natural groups, in this case, based on similarities in a wide range of demographic, social, health-related and economic variables (Adlaf & Zdanowicz, 1999; Beitchman et al., 2001). Five distinct archetypes emerged from this analysis: Well-connected Retirees, Financially-Secure Couples, Dissatisfied Working-Age Singles, Time-Pressured Couples with Kids, and Marginalised Australians.

These contemporary archetypes differed significantly from each other on almost all of the demographic, social, health and economic variables used in the analysis (see Table 1 for further detail). One of these archetypes, "Marginalised Australians", is the focus of this report. Marginalised Australians represented 13% of the Australian population in 2001 and stood out among the other archetypes for the severity, range and complexity of the mix of disadvantage characterising its members.

Marginalisation denotes a state in which individuals are living on the fringes of society, having limited or compromised access to the resources and opportunities needed to fully participate in society and to live a decent life. Relative to other Australians, these individuals had poorer outcomes on almost every measure examined (see Table 1 below and Table A in Appendix 1). This report locates the Australians in the HILDA Survey who were marginalised in 2001, following them up in 2010, a decade later, to discover whether any have exited marginalisation and which factors predicted that exit. The analyses included examining factors that initially differed between the groups in 2001 as well as differences that emerged in the interim period, both of which may have precipitated or stalled exit from marginalisation.

Project Aim

There have been a number of studies that have sought to identify and explore disadvantage in Australia. However, these are generally limited analyses of broader concepts of disadvantage, such as income poverty and financial deprivation, or those that seek to explore locational disadvantage for particular groups at a single point in time (Abello et al, 2013, Tanton et al, 2009 and Daly, 2006)

Australian studies that provide a more detailed understanding of pathways to and from disadvantage are scarce, as disadvantaged individuals are particularly difficult to follow up over long periods (Berthoud and Bryan, 2011). These individuals are often difficult to capture in surveys and far more likely to be lost to follow-up for a variety of reasons, including higher levels of social isolation (Gallie, Paugam & Jacobs, 2008) and the fact that disadvantaged people move house more often (Coulton et al, 2012).

Table 1. Contemporary Australian Archetypes.

Connected Retirees	Financially Secure Working Age Couples	Time-Pressured Couples with Children	Dissatisfied Working Age Singles	Marginalised Australians
All over 55 years, average age 70 years, 60% women	Most aged 25-55, average age 45 years, evenly men & women	All aged 26-55, average age 39 years, evenly men & women	Aged 15-55, average age 33 years, slightly more men	Most aged 26-55, average age 38 years, 70% women
More than 80% retired	More than 70% in full-time paid work	Full-time paid work, or many part-time and/or home duties	Majority full-time paid work	Home duties, students, not in paid employment, disabilities
Low equivalised income and high reliance on income support, but high home ownership, credit card usually repaid, low financial hardship, high financial satisfaction	Very high equivalised income, no income support, own or buying home, credit card usually repaid, no financial hardship, high financial & highest job satisfaction	Equivalised income slightly below average, minimal use of income support, buying home, credit card sometimes paid, little financial hardship, fair to good job and financial satisfaction	Equivalised income above average, little use of income support, renting home, credit card rarely paid, some financial hardship; levels of satisfaction - job fair, financial low	Extremely low equivalised income, job & financial satisfaction, majority income support (80% for >⅓ income), renting, credit card rarely paid, extreme financial hardship,
Very low educational attainment, left school at 15	Very highly educated – more than ¼ tertiary or higher degree	Highly educated – ⅔ diploma or tertiary degree	Either highly educated or secondary education only	Extremely low education; ½ incomplete secondary
Early socio-economic hardship (Great Depression, WWII), but few other childhood adversities; no elevated pseudomaturity	No early socio-economic hardship, other childhood adversity rates not elevated; no elevated pseudomaturity	Low levels of early socio-economic hardship, and of other childhood adversity; low rates of pseudomaturity	Low levels of early socio-economic hardship, very low rates of pseudomaturity	Highest levels of early socio-economic hardship, extreme rates of pseudomaturity
Married 40+ years, often not for first time; extremely happily partnered; relationship with former partner very good; substantial minority are widows	All married (20+ years), often not for first time, or defacto (4+ years); very happily partnered; relationship with former partner fair	All married (13+ years), few ever divorced, or defacto (6+ years); happily partnered; relationship with former partner fair	¾ never married, so almost none ever divorced. Lowest current partner satisfaction, and low former partner satisfaction	½ single parent families, nearly ⅓ couples with children; ⅓ separated or divorced. Very low current and lowest former partner satisfaction
No children under 15 (still at home)	No children under 15 (still at home)	All have children (approx 2) under 15 at home; 40% have non-resident children	Mostly no children under 15 at home; but 10% have children or non-resident children under 15	1-3 children under 15 at home and ⅓ have non-resident children under 15
Poor physical health and average satisfaction with health	Excellent physical health and satisfaction with health	Excellent (the best) physical health & wellbeing; highest satisfaction with health	Excellent physical health and satisfaction with health	Extremely poor physical health for their age and lowest satisfaction with health
Average mental health and good wellbeing, high levels of life satisfaction	Excellent mental health, excellent wellbeing & life satisfaction	Fair mental health & life satisfaction, very time-pressured	Fair mental health but low life satisfaction	Extremely poor mental health, too much spare time, lowest life satisfaction
Very low risk health behaviours (smoking, alcohol), good community participation	Very low risk health behaviours, good community participation, best social support	Very low risk health behaviours, average community participation	Likely to smoke, though also likely to have given up; low-risk alcohol consumption; highest contact with friends & family	Highly likely to smoke. Both highly likely to abstain from alcohol and at elevated risk of problem drinking. Lowest levels of social participation – all types
22% (N=1,292)	**20%** (N=1,228)	**26%** (N=1,150)	**19%** (N=1,153)	**13%** (N=788)

Source: Berry et al. 2008

Therefore, representative longitudinal studies on disadvantaged populations are rare (although see Muffels, Fouarge and Dekker, 2000 for some work in Europe). The research presented here seeks to fill this gap by analysing patterns and trajectories of disadvantage, particularly those that lead out of the extreme and complex forms of disadvantage (marginalisation). As discussed at the end of the report, these findings create important policy opportunities to support the exit from severe, complex disadvantage and are relevant to Canberra priority policies (e.g., the People, Place, Prosperity policy, 2009) and The Canberra Plan (2011).

The current project thus has one central aim: to identify significant predictors of exit from (or persistence in) marginalisation, with a focus on modifiable characteristics.

Introducing Marginalisation: Five Domains of Disadvantage

Past research has suggested that disadvantage tends to be experienced in multiple domains simultaneously, rather than as an isolated feature amongst an otherwise average life (Gordon et al. 2000; Levitas 2004; Singh-Manoux, Ferrie, Chandola & Marmot, 2004). In recent years, there has been an increasing focus on this multidimensional nature of disadvantage, with several authors arguing that it is important to move away from "poverty line"-type indicators that measure only one aspect of financial disadvantage (Marks, 2005; Headey, Marks and Wooden, 2004 and Kostenko, Scutella & Wilkins, 2009). This has led to the emergence of a variety of more complex indicators of disadvantage, including the Child Social Exclusion Index (Daly et al., 2008) and the WHO Quality of Life framework (see Saxena et al., 2001, for a discussion).

These multidimensional measures of disadvantage have facilitated important developments in Australian research addressing issues of disadvantage in order to understand risk and resilience factors. For instance, Bradbury (2006; 2007) has outlined the long-term challenges faced by young single mothers, and Headey and colleagues (Headey, Marks & Wooden, 2004; 2005; Headey, 2006) have focused on Australians who are poor three ways: low in income, consumption and wealth. Buddelmeyer and Verick (2008) identified the importance of education and employment in keeping households out of poverty, which is also reflected in the emergence of policies to address human capital development (noted by Sen, 2000).

A significant strength and innovation of the current analysis is its use of a novel approach (cluster analysis) to statistically classify disadvantage in a way that allows simultaneous consideration of a very wide range of factors. Cluster analysis is ideally suited to the study of multidimensional patterns within and among individuals as it captures similarities between and patterning across peoples' lived experiences, rather than relationships between concepts. For example, rather than telling us that poverty is associated with poor mental health (which it is), this approach gives us a more complete picture of what these factors look like in real people's lives. It thus distinguishes the lives of disadvantaged people from the lives of other people in the community – including with respect to their poverty and mental health, and a very wide range of other factors.

A statistical approach that is able to assemble all of these factors into a coherent portrait gives the marginalisation construct the capacity to characterise the co-occurrence of multiple domains of disadvantage within the lives of real people in a meaningful and useful way. A second advantage of cluster analysis is its iterative nature. This means that the importance of various constructs in defining multifaceted disadvantage is determined from the database itself, rather than applied by the researchers on the basis of *a priori* judgements. Which variables are important, how they fit together and how they should be weighted are outcomes of the analysis, rather than pre-determined. Put another way, cluster analysis allows study participants to 'speak for themselves'.

Using this cluster analytic approach, Berry et al. (2008) demonstrated the existence of a significant minority of people in Australia experiencing profound and multi-faceted disadvantage, called Marginalised Australians. As outlined above in Table 1, Marginalised Australians do not merely experience disadvantage in one domain (e.g., poor mental health), but are typically simultaneously experiencing many kinds of disadvantage (e.g., unemployment; low education) as well as carrying a number of known risk factors for long-term disadvantage, for example, being of Aboriginal or Torres Strait Islander Australian origin (henceforth referred to as Indigenous Australian). We summarise these various ways in which marginalised individuals are disadvantaged into five broad domains, each of which has been validated in previous research as important in characterising multidimensional disadvantage: social stigmatisation; early-life disadvantage; financial hardship; poor health; and social isolation. These domains are summarised in Table 2 below (see also Berry et al., 2008).

Social stigmatisation

Membership of a highly stigmatised group greatly increases the risk of marginalisation. Examples of stigmatised groups – groups which are sometimes spoken about in derogatory terms by others – are Indigenous ethnicity (five times more likely to be marginalised), welfare-reliant single mothers (five times more likely) and not being in paid work (five times more likely to be marginalised). Individuals can also be subject to stigma due to following an unusual developmental pathway, such as having children when very young or very old, retiring very early or studying later in life. This 'doing the right thing at the wrong time' was a significant marker of marginalisation in our study.

Thus a major component of being marginalised is being discriminated against and excluded from society due to being labelled the "wrong type" of person, or doing things at the "wrong time" in life. Previous research has indicated that stigma has a direct impact on wellbeing (Pachankis, 2007; Quinn and Earnshaw, 2013) as well as limiting access to the kind of resources that are needed to improve one's life circumstances.

Early-life disadvantage and its intergenerational transfer

Marginalised individuals are significantly more likely than other Australians to have experienced parental divorce and parental unemployment, as well as having left school early and moved out of one's childhood home early – all of which can be markers of less-than-ideal circumstances at home during childhood and can predict long-term disadvantage (Amato & Keith, 1991; Levendosky & Graham-Bermann, 2001). These markers of likely early-life disadvantage suggest that marginalisation is often entrenched, a lifelong phenomenon, arising at least in part due to growing up in families that were similarly marginalised (see Berry et al., 2007a). As an added concern, marginalised adults are significantly more likely than others to have responsibility for the care of children *and* to have a larger number of children living in their home. This means that a more than a fair share of Australian children are growing up in marginalised households and are exposed to these severe intergenerational risk factors (Cassells et al., 2011).

Financial hardship

The vast majority of marginalised people receive income support (particularly the Disability Support Pension, Newstart unemployment benefits or Parenting Payment Single) *and* are reliant on this support for the majority of their income. As a result, their equivalised disposable income is substantially below that of the rest of the population (55 per cent of the population median). Of significance, this nevertheless places them, on average, at an income that is slightly *higher* than the most widely used poverty line of 50 per cent of median income, indicating that income support is reasonably successful at targeting Australians living with the most extreme disadvantage.

Marginalised Australians are more likely than their less disadvantaged peers to be renting rather than to own their own home and to be experiencing a great deal of financial stress related to credit card debt and difficulties covering basic living expenses.

Poor health

Marginalised people have much poorer physical and mental health than their non-disadvantaged peers. They are more likely to have chronic health problems and to report poor physical functioning. This finding is greatly pronounced when considering the relatively young age at which these conditions are experienced (the mean age of marginalised individuals in 2001 was just 38 years yet their physical health profiles were more like those of people decades older). An even more dramatic pattern is evident in the very poor mental health that marginalised people report. This group has much higher levels of psychological distress and general mental health symptomatology than is found among other Australians. They are also more likely to have elevated levels of risky drinking as well as more likely to be abstinent from alcohol, both of which, relative to moderate drinkers, are associated with poor physical and mental health outcomes (Hines & Rimm, 2001). Marginalised Australians are also more than twice as likely as other Australians to be currently smoking.

Social isolation

The importance of social isolation in characterising disadvantage has been increasingly recognised, particularly in research on social exclusion (Gallie et al, 2008; Link et al, 1997; Berry, 2008a). Marginalised individuals report fewer social contacts and a lower number of people upon whom they can rely. Consistent with this, they are less likely to be married or living in a defacto relationship, and those who are tend to report lower satisfaction with their partner (see Edin and Reed, 2005 for an in-depth discussion of this effect). Further, marginalised individuals report seeing friends and family less often than is typical among non-marginalised Australians and also report less social participation and lower levels of trust in other people.

Table 2. Marginalisation – Five Domains of Disadvantage.

Domain	Indicators
A. **Social Stigmatisation**	Membership of multiple highly stigmatised groups (e.g., being of Indigenous origin, being a welfare-reliant single parent, having a disability, not having paid employment)
B. **Early-life disadvantage**	Parental divorce, parental unemployment, incomplete schooling, early departure from childhood home
C. **Financial Hardship**	Reliance on government income support, little or no wealth, unfavourable forms of debt, low income, high financial stress
D. **Poor Heath**	Chronic health problems, poor physical functioning, poor mental health, adverse health behaviours
E. **Social Isolation**	Few social contacts, little social support, poor quality relationships

Chapter Two: Predicting Exit from Marginalisation

A Representative Sample of Australians

Our analysis made use of the Household Income and Labour Dynamics in Australia (HILDA) Survey. The HILDA Survey has tracked a representative sample of Australian households every year since 2001. Each year, all members aged 15 and over of every household participating in the survey are invited to provide detailed information on a wide range of economic, social, demographic and wellbeing factors. Because it is nationally representative, the HILDA Survey allows inferences made from the sample to be generalised to the Australian population as a whole.[1]

The sample we used included all independent adults from the HILDA Survey who fully participated in both 2001 and 2010. We excluded from analysis all dependent students, defined as persons aged under 25 years old who were either still in school or who were studying full-time and living with parents. Our full sample was therefore 7,483 people, of which 866 were marginalised in 2001. We used a strategy called population weighting to make sure that our sample remained representative of the Australian population despite some people dropping out over the ten year period (see Appendix 2).

Identifying Marginalised Individuals

Individual respondents were classified in 2001 and again in 2010 based on their *probability of marginalisation*. The statistical techniques used (details in Appendix 3) accurately replicated the marginalisation concept from Berry et al. (2008), such that 99 per cent of individuals were correctly classified as marginalised or not marginalised.

Participants in the survey could thus be categorised as persistently marginalised, that is, they were in the marginalised group in 2001 *and* 2010, or as having exited, that is, they were in the marginalised group in 2001 but *not* in 2010. These were the groups of interest for the current project, named 'persistently marginalised' (or 'persisters') and 'exited marginalisation' (or 'exiters') respectively, for their marginalised status over time.[2] Additional comparisons between these groups and the group of individuals who had not experienced marginalisation over the ten year period ("never marginalised") are also presented in Figures where relevant.

Table 3. Marginalisation in Australia.

Marginalised in 2001	*Marginalised in 2010*	*Status*
Yes	**Yes**	'Persisters'
Yes	No	'Exiters'
No	No	'Never Marginalised'

Exit from Marginalisation: Isolating Fixed and Modifiable Predictors of Exit

In the second stage of analysis, we examined both pre-existing differences between exiters and persisters (that is, differences already present at Wave 1 in 2001) and differences that emerged across the ten years of our study (further differences found at Wave 10 in 2010) in the characteristics of each group.

[1] The HILDA Survey is nationally representative due to the sampling frame applied to the survey design (stratification by state and considered selection of CCDs) and because of the weighting methodology applied. The sample design and survey budget determined the number of households. RSE's are given to estimates, and both the weights and sampling technique will only take estimates so far in terms of national representation. See Watson and Wooden (2002), as well as HILDA survey design and HILDA survey weights technical papers for further information. Wave 1 had 13,969 individuals respond, out of an original sampling frame of almost 20,000. Weights were then applied to the respondent individuals to increase the representativeness of the data (see Appendix 3 and Summerfield et al., 2011).

[2] After identifying both exiters and persistently marginalised individuals at each wave, it was found that the sample of marginalised Canberrans was too small to use in separate statistical analyses.

Accurately identifying marginalised people in the datasets for 2001 and 2010

We developed an equation that optimised *sensitivity* (capacity to identify marginalised people) and *specificity* (capacity to exclude those unlikely to be marginalised) in predicting marginalisation in Waves 1 and 10 of the HILDA Survey. The final equation was able to re-identify the originally marginalised subsample (from Berry et al, 2008) with 99 per cent accuracy (see Appendixes 2 and 3, and Tables B and C). This meant that we could be confident applying the equation to identify marginalised participants in Wave 10 of the survey.

A great number of variables were found to differ significantly between the persisters and exiters in 2001 and again in 2010; a summary is presented in Table 4. Some of these described initial differences between the two groups while some both described these initial differences *and* predicted different outcomes. We present only the latter in the following pages.

Separately, in 2001, some people were more severely marginalised than were their peers. It made sense to expect (and our findings confirmed) that more severely marginalised people would be less likely to exit than their less marginalised peers. To distinguish the factors that predicted leaving marginalisation over and above the severity of marginalisation at 2001, we conducted analyses that *controlled for* the severity of marginalisation in 2001.

That is, our results go further than simply showing that individuals with less severe marginalisation in 2001 are, of course, more likely to exit by 2010.

The results described below take this into account and are thus *independent of the initial severity of marginalisation*, for the analyses of both pre-existing significant differences between exiters and persisters in 2001 and the differences that emerged over the following decade. This analytical strategy, along with the longitudinal design, reduces the risk that identified effects could be accounted for by other factors, such as demographic characteristics. While this strategy is not sufficient to enable causal inference, it nevertheless presents a strong narrative of changing circumstances over time (see Box A for other limitations of our study).

Presented below are the characteristics that proved important in predicting exit from marginalisation across the ten-year period. We first outline those predictors that are fixed, then focus on highlighting those modifiable factors that are amenable to change and thus have particular relevance for policy.

Box A: Caveats and Limitations

Like all research, the current project has a number of limitations that should be noted when interpreting the analyses and drawing conclusions.

1) **This research cannot tell us what causes people to move into or out of marginalisation.**

   Only research that involves a randomised, controlled experiment can describe the *cause* of something. Of course, it is not possible to run experiments to see who moves into or out of marginalisation. Instead, there are steps we can take to find out which factors are most *likely* to be causally important. In this study, we used a *longitudinal design*, so that we could work out which effects happened first. We also used *control variables,* such as the initial severity of marginalisation, so that we could be confident that factors such as these did not explain our findings. Finally, we used a statistical technique called binary logistic regression analysis in which different factors are tested competitively, so only those that were *most* important, when pitted against all the others, are discussed in the report.

2) **This research is limited by the representativeness of the data we used.**

   The Household, Income and Labour Dynamics in Australia (HILDA) Survey is one of the highest quality nationally-representative surveys in the world. The Melbourne Institute, which manages the survey on behalf of Department of Families, Housing, Community Services and Indigenous Affairs, uses a variety of techniques to ensure that the people they sample are as similar as possible to the Australian population as a whole (see Watson & Wooden, 2002; Watson, 2012). In addition, we used a sophisticated population-weighting strategy (see Appendix 2) to account for people who discontinued participating in the HILDA Survey.

   Despite these strengths, certain groups were inevitably underrepresented in the dataset. People without a private household, including people who were homeless, people in prison, people in residential care settings and people living in very remote parts of Australia are not included in the HILDA Survey. This is a problem for our study because some of these very people are among the most likely to be marginalised – and severely so. These sample limitations mean that we have almost certainly underestimated the number of marginalised individuals in Australia *and* the severity of their disadvantage.

3) **This research is specific to the political and societal climate experienced by the respondents.**

   Certain characteristics of marginalisation, such as the income support system, are highly specific to Australia and undergo change regularly. Therefore, not all aspects of our analysis can be generalised beyond Australia. Also, as the most recent data we were able to analyse was collected in 2010, we cannot speak to the impact or effectiveness of very recent policy initiatives.

Table 4. Characteristics of Persistently Marginalised Persons and Exiters of Marginalisation.

	Persistently marginalised	Exited marginalisation
Demographics		
Age *	Working age, 80% aged between 20 and 45.	7 years older; 80% aged between 25 and 55.
Sex	Three-quarters female	Two-thirds female
Family type *	75% are families, including 1/3 single parents. Stable over 10 years.	Initially 75% are families (incl. 30% single parents). Over 10 years, more likely to become a couple (1/4) or a single (1/4).
Ethnicity *	12x more likely to be Indigenous than population, less likely to be born overseas.	3x more likely to be Indigenous than population
Total children ever had ^	Slightly above population average at Wave 1 (M=2.20). More likely to have further children (especially women).	Slightly above population average at Wave 1 (M=2.24). Less likely to have more children (especially women).
Early-Life Disadvantage		
Age left home *	3x more likely than population to have left home before age 18	2x more likely than population to have left home before age 18
Age left school *	2x more likely than population to have left school before 16	1.5x more likely than population to have left school before 16
Highest Education Level *	2x more likely to have less than school completion. Across 10 years, more likely to obtain certificate/diploma.	1.5x more likely to have less than school completion. Across 10 years, more likely to obtain tertiary education.
Parents separated or divorced *	Slightly higher rates than population	Slightly higher rates than population
Father unemployed when 14yrs	1.5x more likely than population	1.5x more likely than population
Financial Hardship		
Median equivalised disposable income *	Half below poverty line at both waves	¼ below poverty line initially; income increases faster than population.
Income support status *	Initially 90% reliant on income support; most likely to be Disability Pension or Parenting (single). Remain reliant on income support across 10 years, with an increasing proportion on Disability Pension or unemployment benefit.	Initially 90% reliant on income support; most likely to be Unemployment benefit or Disability Pension. Mostly discontinue reliance on income support, especially students and those on unemployment benefit.
Income support >30% of income ^	90% at both waves.	90% at Wave 1, dropping to 1/3 at Wave 10.
Employment status *	Initially 90% outside of workforce (including 50% home duties). More likely to return to work part-time.	Initially 85% outside workforce, 1/3 home duties. More likely to return to work full-time, or to retire.
Housing *	3x as likely to be renting than population; more likely to lose home ownership in the 10-year period.	2x as likely to be renting than population; more likely to buy home in following 10 years.
Poor Health		
Long-term health condition ^	More likely than population initially (30%), much more likely to develop a condition across 10 years (50% at Wave 10)	Slightly more likely than population initially (25%), few develop a condition across 10 years and many recover (32% at Wave 10).
Physical functioning ^	Much worse than population for age; deteriorates over 10 years	Slightly worse than population for age, stable over 10 years
Mental Health *	Much worse than population for age; improves slightly over 10 years	Somewhat worse than population for age; improves over 10 years
Smoking *	3x more likely than population initially, 12% quit over 10 years.	2x more likely than population initially; 11% quit over 10 years.
Risky drinking *	More common than population initially, increases slightly over 10 years	Less common than population initially, increases slightly over 10 years
Social Isolation		
Social support *	Much worse than population; stable over 10 years	Slightly worse than population; stable over 10 years
Social functioning^	Much worse than population; stable over 10 years	Much worse than population; improves markedly over 10 years
Relationship status *	Much less likely than population to be married/defacto; many become separated/divorced over 10 years.	Somewhat less likely than population to be married/defacto; rates of partnering increase slightly over 10 years.
See friends/family *	1/5 socially isolated, increases slightly over 10 years.	1/7 socially isolated, increases slightly over 10 years.
Too much spare time *	¼ too much spare time, decreases slightly	10% too much spare time; stable

* These variables differ significantly between persisters and exiters at both 2001 and 2010 in a Chi square test (categorical variables) or t-test (continuous variables), p<.05.
^ These variables differ significantly between persisters and exiters in 2010 in a Chi square test (categorical variables) or t-test (continuous variables), p<.05.

Fixed Demographic Predictors

Age

Age moderated the risk of remaining marginalised, with older individuals more likely to exit. This reflects the finding that marginalised individuals are predominantly working-age adults. The reduction in the probability of remaining marginalised by every ten-year age increment can be seen in Figure 1. The risk of remaining marginalised was reduced by 2 per cent for each additional year of age.

Ethnicity

As shown in Figure 2, ethnicity plays a large role in the probability of being initially marginalised and of remaining so a decade later. Fifty-nine per cent of Indigenous Australians sampled in 2001 (N = 217) were marginalised. Indigenous Australians[3] were then less likely than were other Australians to exit marginalisation over the following ten years.

Figure 1. Decline in the Probability of Remaining Marginalised as Age Increases
Source: Authors' calculations from HILDA Waves 1 and 10.

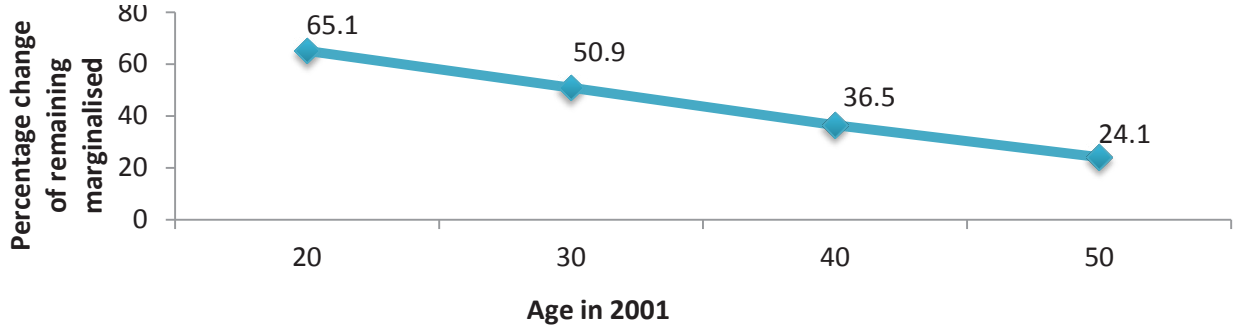
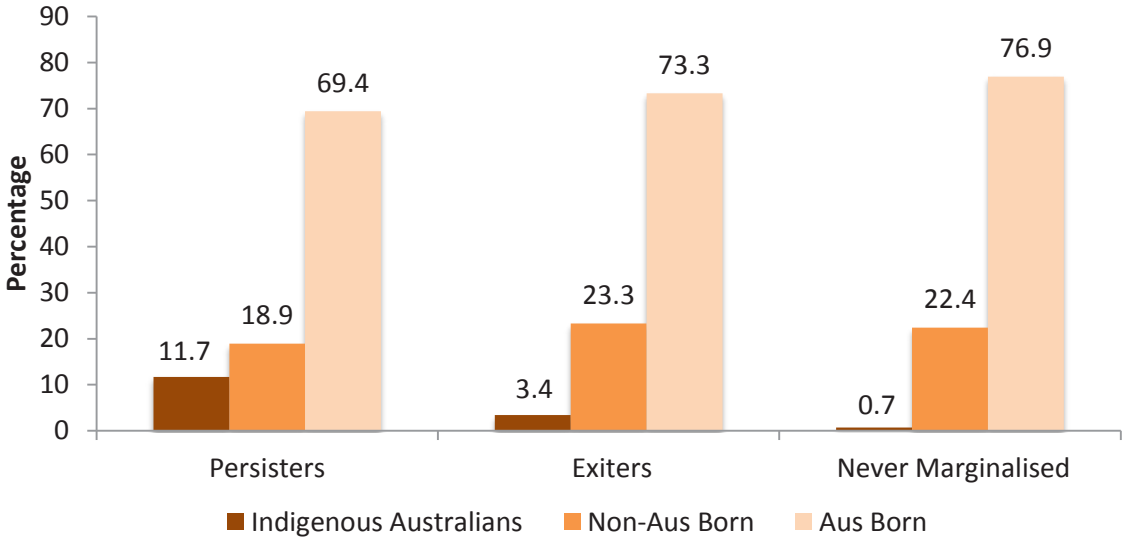


Figure 2. Ethnicity of 'Persisters' and 'Exiters' compared to those 'Never Marginalised'
Source: Authors' calculations from HILDA Waves 1 and 10.



[3] It is important to note that a very small proportion of Indigenous people were in the 'never marginalised' group. Further research examining their characteristics would be of considerable usefulness in understanding how, despite extreme endemic disadvantage, some Indigenous Australians avoid marginalisation.

Seventy per cent remained persistently marginalised, compared to 40 per cent of non-Aboriginal Australians. Put another way, the risk of being persistently marginalised was 12 times greater for Indigenous Australians than it was for the rest of the population. Conversely, non-Australian born individuals were somewhat less likely to be persistently marginalised than other members of the sample. That is, being born overseas, particularly in an English-speaking country, was associated with a *lesser* risk of marginalisation than being born in Australia. This finding is supported by previous studies showing that overseas migrants are typically a more highly-educated population and generally have better labour market outcomes (see Miranti, Nepal & McNamara, 2010).

Modifiable Early-Life Predictors

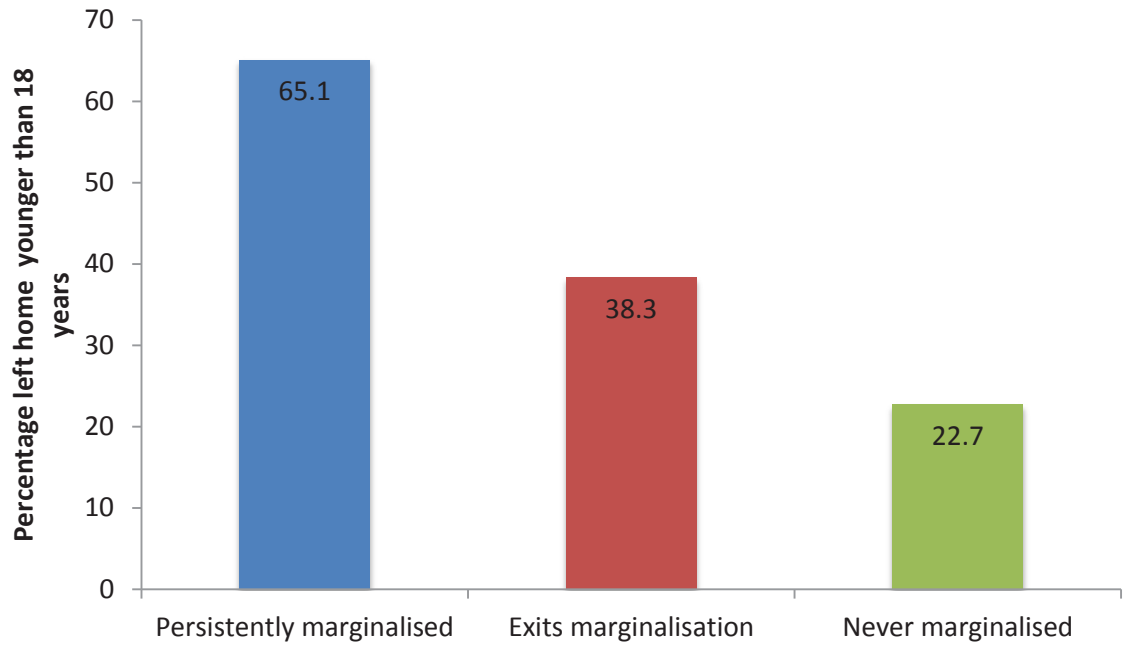
Leaving Home Early

Leaving one's childhood home early, before the age of 18 years, increased the risk of remaining marginalised over the decade to 2010 to 65 per cent, compared with a much lower risk of 38 per cent if the individual left home aged 18 years or over. Figure 3 depicts this relationship.

Leaving School Early

The proportion of those leaving school before the age of 16 was almost two times higher in the marginalised groups than in the never marginalised group. Those who had left school early were significantly more likely to remain marginalised. Leaving school early was common among older Australians when they were young (and thus not of great significance). But it is uncommon now. The high proportion of marginalised Australians who left school early is therefore notable, given the younger age of this cohort.

Figure 3. Moving Out of the Childhood Home at a Young Age Increases the Risk of Persistent Marginalisation.
Source: Authors' calculations from HILDA Waves 1 and 10.



Parents Separated or Divorced

Proportions of those whose parents had separated or divorced were elevated in both exiter and persister groups when compared with general population levels. In addition, those whose parents had been divorced were more likely to remain marginalised, speaking to the long-term impact of this aspect of early-life disadvantage.

Highest Education Level

In 2001, marginalised individuals had lower levels of education than did non-marginalised Australians, with two-thirds (67 per cent) having only completed high school or less. Change in educational attainment over the ten-year period had a complex effect on risk of persistent marginalisation. Of the 825 marginalised individuals who did not have a university education at Wave 1, only 35 of these had attained a university education by Wave 10. The impact of this action was profound: 95 per cent of those who did (33 of the 35 people) had exited marginalisation (Figure 4). Obtaining a tertiary education was thus a strong predictor of exit from marginalisation.

Unexpectedly, no positive effect was seen with respect to other levels of education: obtaining a diploma or certificate was associated with a *reduced* likelihood of exiting marginalisation (Figure 5). Indeed, persistently marginalised people were more likely than other Australians to have certificate/diploma qualifications, suggesting that educational requirements for exiting marginalisation are specific and demanding – it does not appear true to say that any qualification is better than none. This perhaps surprising finding warrants further investigation, given the attention that policy-makers and the community give to education as a pathway out of disadvantage. Box B explores this in more detail.

Box B: Education and Exiting Marginalisation

An unexpected finding of this research was that marginalised individuals who gained a certificate or diploma between 2001 and 2010 were at an *increased risk* of remaining marginalised – and also more likely to attrit from the HILDA Survey (see Appendix 2, Table B). Further investigation suggested this group of people was predominantly young single women, with young children, living in disadvantaged areas in cities. These factors, which are part of marginalisation in their own right, may have explained why these Australians (only) gained a certificate or diploma (***vs*** a degree). Further research is needed to understand this unexpected finding and the circumstances under which gaining a certificate or diploma might be helpful. For example, does it sometimes lie on an educational pathway towards obtaining a higher-level qualification, as follows?

It was also the case that those who gained a tertiary degree (which almost always led to a move out of marginalisation) were more likely to already have a certificate or diploma. It may therefore be the case that people with a certificate or diploma, though still trapped in marginalisation, were part-way along a very long-term trajectory out of marginalisation via education. The practical challenges involved in obtaining qualifications might be such as to temporarily increase hardship. If so, this is a trajectory that requires a very substantial investment of time, money and resilience from a group with limited resources. Ten years is a very long time to remain marginalised: education cannot be considered a "quick fix" for marginalisation.

Figure 4. Obtaining a Tertiary Education is a Strong Predictor of Exit from Marginalisation.
Source: Authors' calculations from HILDA Waves 1 and 10.

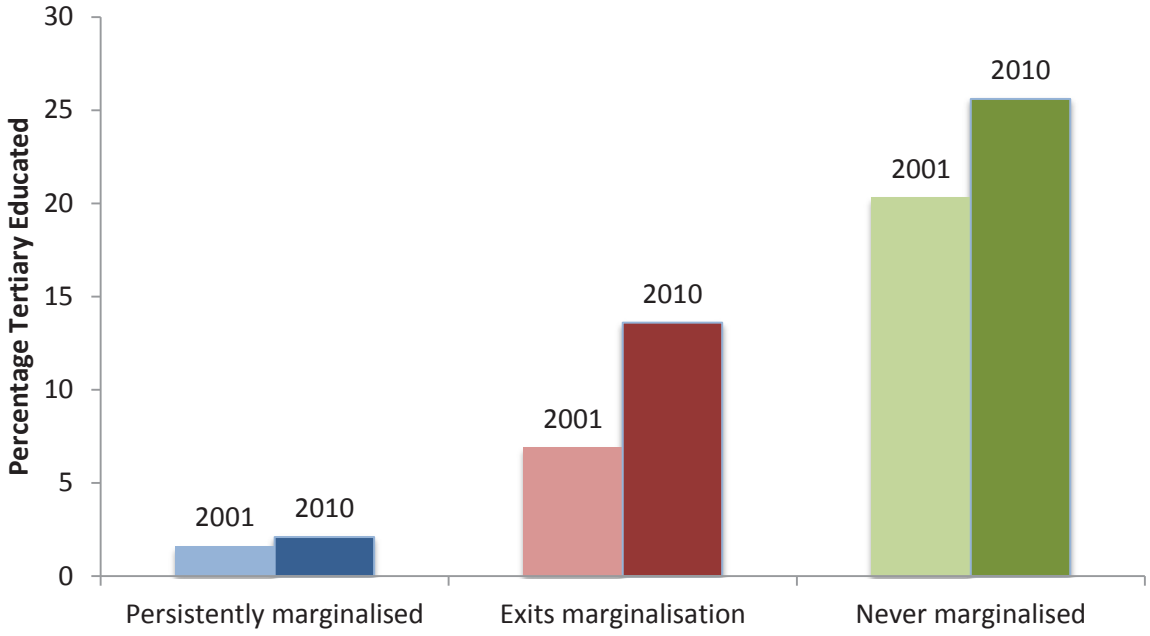
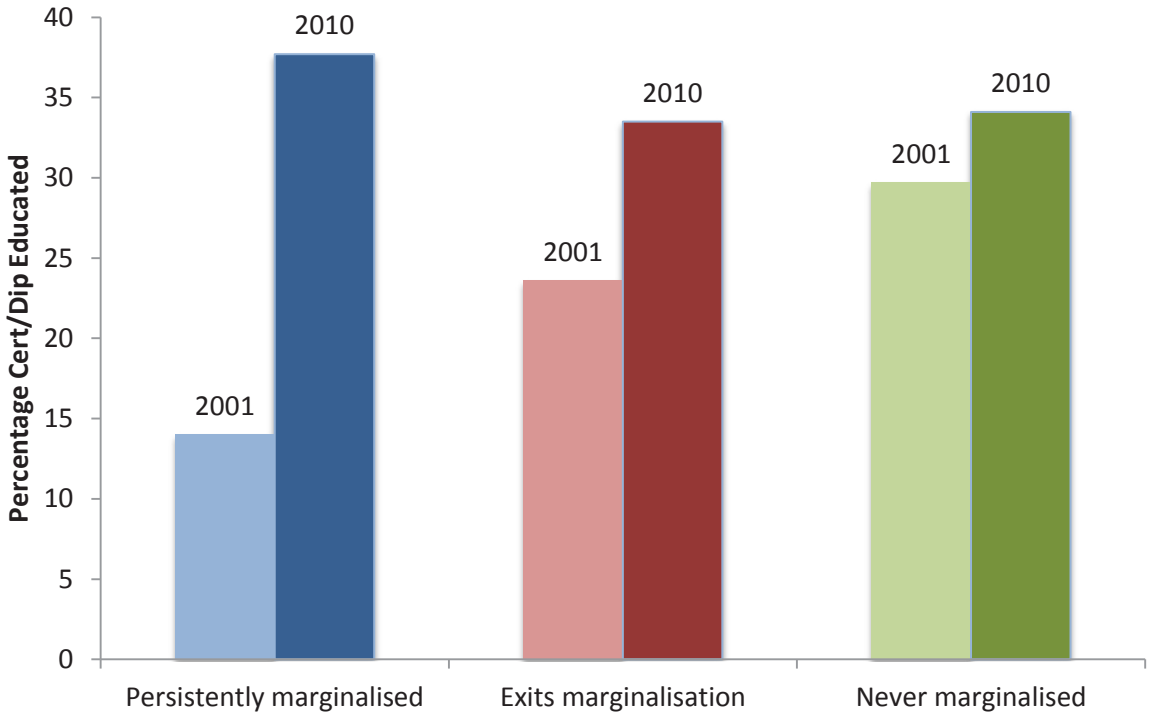


Figure 5. Obtaining a Certificate or Diploma Reduced the Likelihood of Exiting Marginalisation.

Source: Authors' calculations from HILDA Waves 1 and 10.



Modifiable Financial Predictors

Income Support Status

Income support status was among one of the five strongest predictors of exiting marginalisation. If receiving Newstart in 2001, the probability of remaining marginalised in 2010 was (a relatively low) 29 per cent. For those in receipt of a parenting payment, 34 per cent of people receiving support as single parents and 39 per cent of those receiving a partnered parenting payment remained marginalised. Receiving a student allowance was associated with only a 10 per cent chance of remaining marginalised, whilst receiving a disability pension was associated with a 45 per cent risk of remaining marginalised. Being on *no* income support at all, or receiving 'other' support types (most commonly Carer's payment), were associated with the highest risk of persistent marginalisation: 45 per cent and 55 per cent risk respectively. This suggests that targeted income support receipt, over time, is associated with exiting marginalisation, unless that income support requires the presence of a long-term health condition (see Figure 6 as well as Box C for further discussion).

Employment Status

More than 85 per cent of marginalised individuals were not in the paid workforce in 2001. Full-time re-entry into the workforce was among the most powerful predictors of exiting marginalisation (see Figure 7). Obtaining *full-time* paid employment diminished the risk of remaining marginalised to just 4 per cent. However, returning to part-time employment did not reduce the risk of remaining marginalised (see Figure 8 as well as Box D for further discussion).

Box C: Income Support Payments and Exiting Marginalisation

The single most important predictor of exiting marginalisation was the type of income support payment a person was receiving at baseline, in 2001. Those most likely to ***remain*** marginalised in 2010 were receiving a payment-type in 2001 that requires the presence of a long-term health condition (disability support payment) or being the carer of someone who does (carer's payment). This suggests that a person's underlying characteristics are important in predicting their marginalisation trajectory.

Being in receipt of ***no*** income support in 2001 was also strongly associated with an elevated risk of remaining marginalised. It appears that, within this population of people dealing with severe and complex disadvantage, income support that targets a relatively transitory need plays an important role in eventually exiting marginalisation.

Those marginalised people with the best outcomes in 2010 were those in receipt of government income support payments in 2001 that are designed to address a temporary need and have a mutual obligation component – Youth Allowance, Newstart and Parenting Payments. The effectiveness and fairness of the Howard government's welfare to work policy introduced in July 2006 has been the subject of much debate, particularly with recent changes requiring more single parents to move to the less generous and secure Newstart payment.

It is important to note that, while the requirement of these income support payments may have prompted behaviours that would see an individual's situation improve, the degree to which this improvement has taken place and at what cost to the individual have not been captured in this analysis. Further investigation is required to fully assess the benefits or consequences of policies such as Welfare to Work. This is discussed further in Chapter Three.

Figure 6. Type of Income Support Received Predicts Likelihood of Remaining in Marginalisation.
Source: Authors' calculations from HILDA Waves 1 and 10.

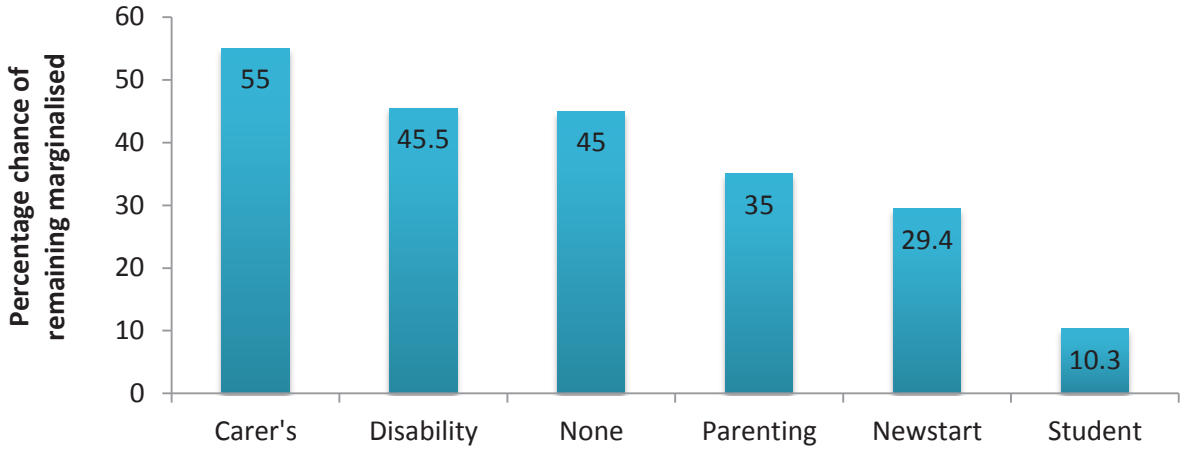


Figure 7. Commencing Full-Time Employment Predicts Exit from Marginalisation.
Source: Authors' calculations from HILDA Waves 1 and 10.

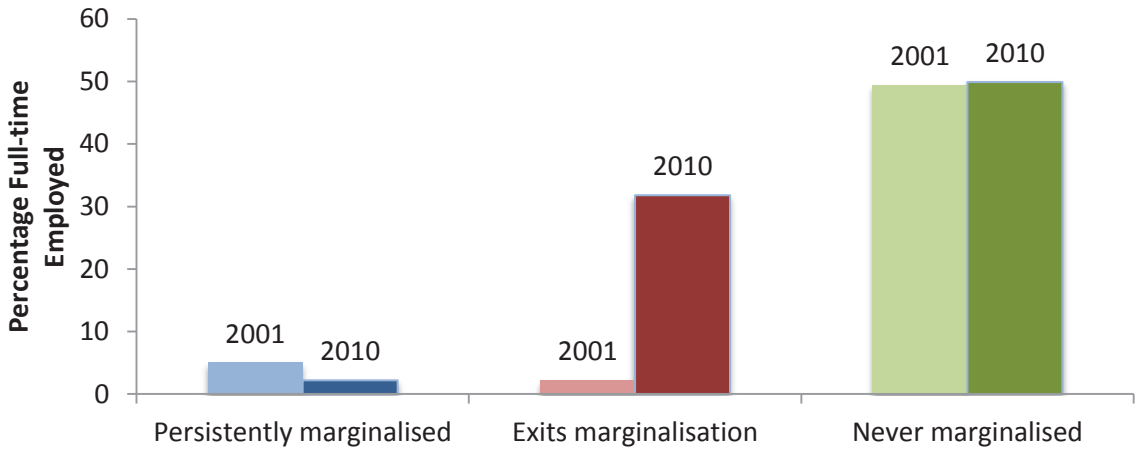
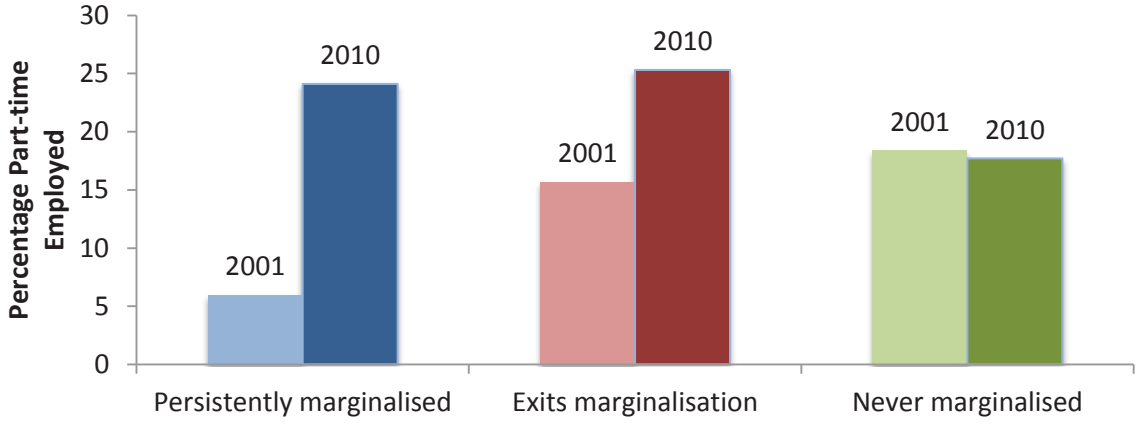


Figure 8. Commencing Part-Time Employment Does Not Predict Exit from Marginalisation.
Source: Authors' calculations from HILDA Waves 1 and 10.



Box D: Part-Time Work and Exiting Marginalisation

Although entering full-time work strongly predicts moving out of marginalisation, entering part-time work does not. A variety of factors likely accounts for this finding. People who were marginalised and who entered part-time work were more likely to be young women with young children, a group that is already at high risk of remaining marginalised. Previous research has highlighted that this population often experiences little financial benefit from returning to work part-time, as additional childcare costs and loss of income support often offset income from employment (Abhayaratna et al, 2008; Daley et al ,2012).

The findings for Income Support (Box B above) and recent changes to Welfare to Work policy are relevant to this finding, as it suggests those people required to enter the workforce were much better off *provided they obtained **full-time** employment*. However, those who took on part-time work may not have benefited. This is discussed below in Chapter 3.

Housing

In 2001, the majority of marginalised people were renting their home (48 per cent) or paying a mortgage (26 per cent). Those who already had a mortgage in 2001 were likely to exit marginalisation, with only 24 per cent remaining persistently marginalised by 2010. Individuals who had been renting in 2001 but who were buying their home by 2010 had an elevated risk (46 per cent) of remaining marginalised, but were better off than those who were still renting in 2010: three out of five (59 per cent) who were still renting remained marginalised in 2010.

Moving into home ownership thus appears to be one aspect of a pathway out of marginalisation, but only over the long term. This inference is perhaps corroborated by the circumstances of those experiencing the reverse situation. A small group of people (N = 38) went from owning their own home outright in 2001 to renting in 2010. This group had a particularly high risk of remaining marginalised (84 per cent), possibly related to a major negative life event associated with the loss of their home (divorce or job loss, for example).

Financial Hardship

A reduction in the experience of financial stress over the ten-year period predicted exiting marginalisation. Among persistently marginalised persons, the proportion of individuals with income[4] below the median income level remained stable: 96 per cent had an income below the median level in 2001, and 95 per cent did so in 2010. Comparatively, for exiters, the proportion of individuals whose income was below the median income level changed significantly: 89 per cent had an income below the median in 2001, and only 60 per cent had a below-median income in 2010. This increase in disposable income was predictive of exit from marginalisation.

Modifiable Health Predictors

Long-Term Health Condition

Of those marginalised individuals reporting a long-term health condition in 2001, a large reduction in the risk of remaining marginalised was seen if this condition had alleviated by 2010. For those who recovered from a health condition, the risk of remaining marginalised fell to 22 per cent, compared to

[4] Equivalised household disposable income (based on the OECD method) was utilised for these analyses.

a 51 per cent risk if the condition persisted (see Figure 9). Among the aspects of health and wellbeing that could be amenable to change, this was the strongest predictor of exit.

Mental Health

At Wave 1, both exiters and persistently marginalised individuals reported much worse than average mental health. In 2001, mental health among persistently marginalised individuals was almost 15 percentage points worse than those who were non-marginalised on average, and it was only slightly better for exiters (almost ten points below average). Over the ten years, mental health improved for both groups,[5] and every 5% improvement in mental health corresponded to a 3 per cent reduction in the risk of remaining marginalised (see Figure 10).

Figure 9. Failure to Recover from a Long-Term Health Condition Predicts Remaining Marginalised.
Source: Authors' calculations from HILDA Waves 1 and 10.

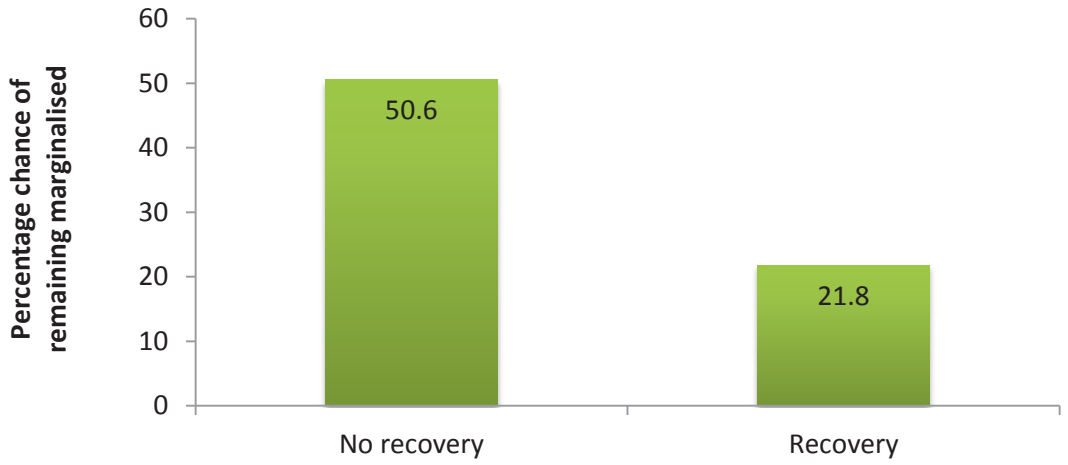
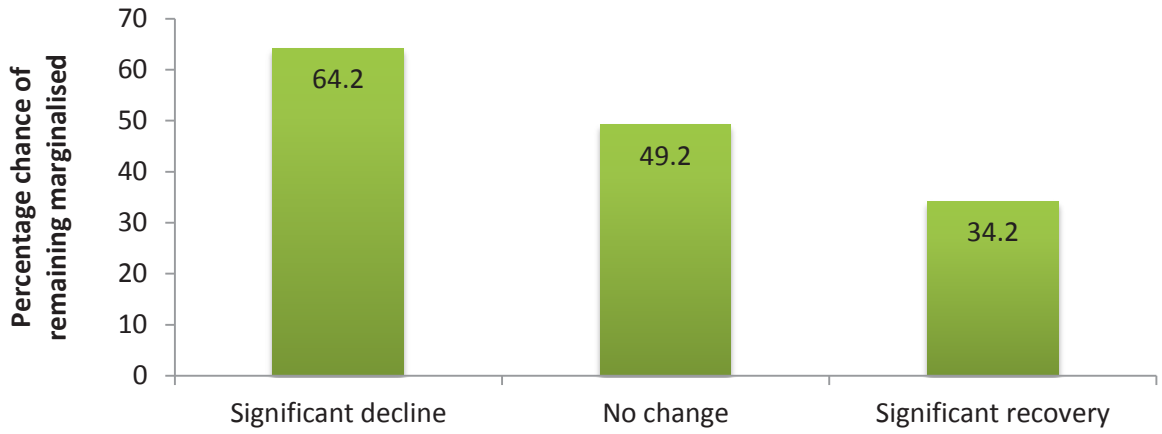


Figure 10. Continuing Poor and Worsening Mental Health Predicts Remaining Marginalised.
Source: Authors' calculations from HILDA Waves 1 and 10.



[5] Population norms show that mental health improves with increasing age (ABS, 2007).

Modifiable Social and Relational Predictors

Social Connectedness

There were substantial differences in social support and social contact in 2001 between those who would go on to exit versus remain marginalised. This effect was the same for two different measures of social connectedness: perceived social support (the amount of perceived emotional support and sense of belonging that respondents believed they received from others) and social contact (the frequency with which they saw friends and family). One-in-seven exiters compared with one-in-five persisters reported seeing friends and family less than 'monthly'. Social connectedness increased substantially over 10 years for the exiters, however, it was the initial difference that was predictive of exit from marginalisation, rather than any subsequent increase. In other words, marginalised individuals with more social contact in 2001, despite their disadvantage, did better on two fronts: they were more likely to exit marginalisation as well as to see a sustained increase in social support across ten years. Indeed, by the end of the decade, their social support was at levels approaching those found among people who had never been marginalised. Whilst an increase in social support was also seen among those persistently marginalised, the rate of improvement was not as great as among the exiters and, further, only managed to attain the levels experienced by exiters in 2001. It may be that, like moving into home ownership and improving one's education, social contact and the benefits it brings take a very long time to grow.

Relationship Status

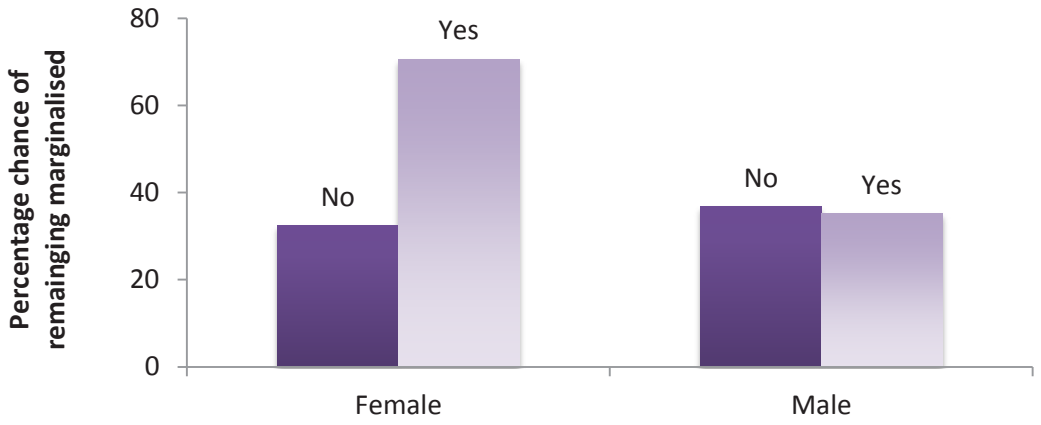
Moving from being single in 2001 to being partnered or in a relationship in 2010 was predictive of exit from marginalisation. Those who remained single in 2010 had a 52 per cent probability of remaining marginalised, compared to just 32 per cent for people who had entered a relationship.

Having More Children

In 2001, 85 per cent of marginalised individuals had children, which was substantially above the population average. Having one or more *further* children over the decade to 2010 increased the risk of persistent marginalisation, but only among women (see Figure 11). Marginalised women who had further children had an increased 70 per cent chance of remaining persistently marginalised, compared with a 32 per cent chance of remaining marginalised if a woman had no further children. There was almost no effect for men of having further children. Men's risk of remaining marginalised was 35 per cent if they had more children and 37 per cent if they had no further children.

Figure 11. Risk of Remaining Marginalised is Influenced by Having Further Children for Women, but not Men.

Source: Authors' calculations from HILDA Waves 1 and 10.



Summary: Predictors of Exit from Marginalisation

A summary of the modifiable and non-modifiable factors that predicted exit from marginalisation is shown below alongside specific caveats, where relevant, and the strength of each effect.

Table 5. *Non Modifiable* and *Potentially Modifiable* Factors Found to Predict the Risk of Remaining Marginalised after a 10-year Period.

Predictor	Caveats	Size of effects
Receiving income support in 2001	***BUT NOT*** A payment associated with a long-term health condition	Large
Having no further children	***BUT ONLY*** For women	Large
Obtaining full-time employment	***BUT NOT*** Obtaining part-time employment	Large
Staying in childhood home until at least age 18		Large
Being non-Indigenous ethnicity*	***ESPECIALLY*** immigrants from English-speaking backgrounds	Large
Staying in school until at least age 16		Medium
Recovering from a physical condition		Medium
Increased disposable income		Medium
Entering a relationship		Medium
Having better social connectedness in 2001		Medium
Gaining a tertiary degree	***BUT NOT*** Gaining a certificate or diploma	Medium
Owning a home or paying a mortgage		Small
No parental divorce or separation		Small
Improved mental health		Small
Being older *		Small

Note: * Non-modifiable factors

Chapter Three: Conclusions & Policy Implications

This project achieved its goal of identifying the characteristics that significantly predicted those who exited and those who remained marginalised over a decade. To achieve this scientific aim, the study used a variety of sophisticated analytic approaches to identify, describe and compare those who remained persistently marginalised over ten years to those who were able to exit marginalisation.

Key Findings from the Current Study

By following up these individuals a decade after they were first identified, this study shows that, fortunately and – given the nature of marginalisation, perhaps surprisingly – the majority of individuals do experience a significant improvement in their circumstances. Over the decade to 2010, three-fifths of those marginalised in 2001 had managed to exit.

By 2010, Australians who had exited marginalisation were still not as advantaged as the majority of Australians who had never been marginalised. **But there were significant positive developments in almost every aspect of their lives tested across the five domains of disadvantage**. Improvements were found in social stigma, early life disadvantage, poor health, financial hardship and social isolation.

This is an optimistic finding for researchers, practitioners and policy-makers alike, as it suggests two important conclusions: (i) that marginalisation need not be intractable and can resolve over time; and (ii) that there are trajectories out of marginalisation that might serve as a model for interventions to promote wellbeing.

Trajectories Out of Marginalisation

Remembering that the study controlled for initial depth of marginalisation, the project has found that exiters differed initially in 2001 from those persistently marginalised in many ways *and* that further differences emerged across the ten-year period. In all cases, these differences were negative for the persisters.

In exiting marginalisation, changes in financial and employment circumstances were particularly important. Individuals who were able to move off income support and into *full-time* work experienced a cascade of improvements in their financial circumstances, including a higher disposable income and, of very significant importance, buying their own home.

There seemed to be three important precipitants of this move out of financial hardship. The first was related to the kind of welfare support individuals were receiving in 2001. Those receiving a student payment, unemployment benefit or parenting payment were more likely to exit marginalisation than were those receiving carer's payment, a disability pension or, of great significance, no income support at all.

This highlights the importance that government transfers can play in reducing disadvantage over the longer-term and shows that individuals are often only in need of income support over relatively short periods of acute need.

It also suggests that income support is relatively well targeted: the majority of marginalised individuals are in receipt of a payment and cease to receive this support when they exit marginalisation. Finally, people receiving types of income support that reflect temporary (even if sometimes quite long-term) need seemed to be less deeply marginalised and more likely to be able to exit than their peers.

The second precipitant to reduced financial hardship was gaining a university degree (consistent with previous findings, e.g., Borland, 2000). Although very few marginalised individuals were able to achieve this exceptionally difficult goal, 95 per cent of those who did were able to exit

marginalisation, making this a very important trajectory out of disadvantage. Surprisingly, gaining a certificate or diploma actually reduced the probability that an individual would exit marginalisation, certainly warranting further investigation (see Box B).

It would be advantageous to investigate student outcomes among tertiary institutions that actively support students from disadvantaged circumstances, particularly where support is multifaceted reflecting the five domains of marginalisation that we have described.

Third, individuals who had more social support and social contact in 2001 (regardless of their depth of disadvantage) were more likely to exit marginalisation. This speaks to the importance of personal social capital (community participation and the social cohesion it generates, e.g., Berry et al., 2007b; Berry, 2009; Berry, 2008b; Berry & Welsh, 2010) in providing tangible resources, such as assistance in finding a job, practical advice or babysitting (as noted by Furstenburg & Hughes, 1995) and, particularly, for providing essential emotional resources, such as sense of belonging (Berry & Shipley, 2009).

Our findings suggest that, like acquiring other 'big ticket' advantages (such as buying a house or getting a degree), acquiring social capital is a very long-term investment taking time to build – but, ultimately, worth the investment, helping individuals to improve their life circumstances many years later.

This finding suggests the need to investigate exactly what kinds of investment in social capital are feasible and useful for people in marginalised circumstances.

Features of Persistent Marginalisation

The circumstances and experiences of exiters stand in stark contrast to the more chronic form of marginalisation observed among persisters. This is characteristically more deeply ingrained and bleak. Persistently marginalised individuals had experienced, at baseline, substantially more early-life disadvantage: they were more likely to have left home before the age of 18 and school before the age of 16, and to have parents who separated or divorced and fathers who did not have paid employment. Their early marginalisation is maintained by often severe and/or complex health problems (particularly to do with disability and mental health) and stigmatisation (being an Indigenous Australian, unemployed and a single mother).

Some of these factors can change over time (such as unemployment) and some inevitably do (such as children growing up), though perhaps, for the most part, with great difficulty among members of this group. Other factors cannot be changed for an individual (for example, early life disadvantage cannot be 'undone'). For this group of exceptionally vulnerable Australians, an intensive, customised package of interventions will be essential and likely required, on and off with more or less intensity, over a lifetime.

Services for Persistent Marginalisation

Our findings suggest that preventative strategies are vital in minimising the number of individuals who enter marginalisation at all. Because those who exit marginalisation do not attain a level of advantage equivalent to that of other Australians (at least, not over a decade), it is important to frame policy interventions in consideration of their very long-term, even lifelong disadvantage. Where at all possible, early intervention strategies from pre-birth through to adulthood must aim to prevent too many disadvantages accruing in an individual's life.

Further, packages of continuing support that cover services across many or all five domains of marginalisation are essential. Having higher rates of disadvantage and having experienced marginalisation could well confer ongoing risk and it would be wise to anticipate and manage this. Appropriate support can be structured to be intermittent: *intensive* at points of particular vulnerability and *'light touch'* when people are managing adequately on their own.

The availability of such support services to one generation of marginalised people may prevent their children from entering marginalisation and hence have profound benefit to individuals and the communities in which they live. Consistent with government policies over many years, such early intervention approaches aimed at increasing positive outcomes among the most disadvantaged children and youth in Australia will return substantial benefits for a whole generation of children across their lifespan – and, in all likelihood, for their children. But this is not enough: many individuals slip through the safety nets or never receive the early support that they need. Whole families and communities need long-term, consistent, effective and predictable support; programs that are single-faceted, or here one day and gone the next, are inadequate and their lack of longevity is potentially even harmful.

Through identifying those modifiable factors that predict exit from marginalisation, the current project has provided a statistically-derived, accurate and targeted list of intervention points. Similarly, through identifying non-modifiable characteristics and predictors associated with marginalisation, particular areas and populations warranting attention and further assistance have been specified. The current project has thus provided an evidence-based menu of practical targets for improving the long-term wellbeing of some of the most vulnerable people living in Canberra and wider Australia.

Implications for Integrated Service Provision

The implication of our findings for service provision is that the efficacy of welfare programs and community organisations may be enhanced by targeting multiple forms of disadvantage *within the one program* and refining delivery in terms of the nature and duration of support around the now-elucidated characteristics of marginalisation. The advantage of our statistical approach, that identifies similarities among people rather than among variables, is it allows us to confidently state that marginalised individuals typically exhibit disadvantage across five discrete but linked domains (e.g., poor health and social stigmatisation). That is, if programs as diverse as, for example, disability services and Indigenous education services have significant overlap in their target population, this represents an opportunity in several ways.

First, it suggests that resources might be saved in the identification and recruitment of members of the target population by using similar strategies across multiple programs, or by providing multifaceted support to groups at high risk of marginalisation. Second, where indicators of disadvantage are difficult to assess at a population level (such as social isolation), this research suggests that more easily measured proxies, such as income support status (Mood, 2006; Rosato & O'Reilly, 2006), may workably adequately target the same population. Third, it suggests that community services with quite disparate goals (e.g., affordable heathcare versus housing assistance; relationship counselling versus drug and alcohol rehabilitation; income management support versus making friends) might have mutually beneficial consequences, whereby an individual who experiences reduced disadvantage in one domain will, due to better-targeted service provision, have a reduced need for services in other domains.

Supporting Women at Risk

The current project has demonstrated some significant areas for policy intervention regarding the role of gender in disadvantage. The study's findings clearly indicate that the large majority of marginalised Australians are women, and that women are much more likely than are men to be persistently marginalised. However, gender itself (as a variable in statistical analyses) was not a significant predictor of exit, likely because it is not being a woman that, in itself, influences capacity to achieve what is needed to exit. Rather, it is the experience of systematic disadvantage: having fewer opportunities across multiple domains combined with having more onerous responsibilities

Box E: Marginalisation and Stigma

A key feature of marginalisation is membership of groups that are stigmatised. In fact, when the five domains of disadvantage are considered separately, social stigmatisation is the most powerful predictor of marginalisation. At least one route through which this link arises is that people who are born into stigmatised groups are discriminated against and systematically denied opportunities for education, fulfilling employment and adequate services (Cuneen, 2005; Lauster & Easterbrook, 2012; Phelan, 2005). A considerable evidence base suggests that discrimination can entrench poverty and disadvantage (Quinn and Earnshaw, 2013; Link et al 1997) and have a direct impact on health outcomes (Fuller-Rowell, Evans & Ong, 2012).

Three stigmatised groups that were particularly overrepresented in the marginalised category were Indigenous Australians, income support-reliant single mothers and unemployed people. However, other stigmatised groups were also in evidence: marginalised people were more likely to be current smokers, to have a mental illness, to have a low level of education and to have a disability. In this report, we provide evidence of the stark reality that individuals in these stigmatised groups have poorer life chances and are much more likely to experience persistent marginalisation. This has implications not just for these stigmatised people but also for the large number of children growing up in marginalised households.

The role of stigma in shaping the experience of marginalisation is apparent when one compares Australia to other countries with different levels of stigma – for instance, in Scandinavian countries, single mothers receive much greater support and experience less disadvantage (NOSOSCO, 2004). One explanation for this is the social democratic nature and the higher levels of social expenditure allocated to family policy in the Nordic countries which, among other benefits, normalises a more inclusive range of life circumstances. In a similar way, although Indigenous peoples experience disadvantage across many countries in the world, Australia has the largest disparity between Indigenous and non-Indigenous outcomes (Bramley, Hebert, Jackson & Chassin, 2004). In other words, although ethnicity may be fixed and there will always be single-parent families, the stigma associated with such circumstances is not inevitable.

(especially for children) that is key in determining whether at-risk women will enter into or remain persistently marginalised. Having more children, but not having the means to support them (in this case, little money, no job, no partner, less social support), increased the risk of persistent marginalisation to 70 per cent for women. It had no impact on men.

The policy implications for this are that these women must be supported in innovative and integrated ways to a) build supportive social relationships, b) build financial security, c) make empowered choices about parenthood and d), have access to mental health and related services (especially as mental health problems are more prevalent among women; ABS, 2010).

This analysis provides indicative support for recent controversial interventions (for example in New Zealand) to expand the availability of free family planning services to

disadvantaged women. We note that, in the present study, marginalised women were went on to have further children were no more likely to want or plan more children than were other women. One-half of marginalised women indicated they did not desire or intend to have more children.

Given the clarity with which the findings of this study show that having children while marginalised predicts poorer outcomes, interventions to enable women to avoid unwanted pregnancies and plan their family size are likely to reduce their chronic, complex and profound disadvantage.

Welfare Support and Workforce Participation

A policy stance in favour of a progressive approach to family planning would sit comfortably with the equally powerful findings of this study that reducing welfare reliance and increasing workforce participation is an extremely important trajectory out of disadvantage. It must be clearly understood, however, that our findings do *not* support the conclusion that marginalised people should be discouraged from receiving welfare or required to enter paid work. In fact, marginalised people *not* receiving income support in 2001 were some of the least likely to exit marginalisation over time, with only those on Carer's Payment or Disability Pension (which require the presence of a long-term illness) having comparatively poorer long term outcomes.

Instead, finding that a person is in receipt of income support should be regarded as (i) a reliable predictor that the person is genuinely in need of *additional support* and (ii) an indication that the person may well be on a trajectory towards self-support. Providing such support is often a successful intervention towards later independence.

It is highly likely that meeting the multiple challenges of marginalisation is already a big ask and that a requirement to undertake paid work, in addition to managing a difficult set of life circumstances, is unreasonable and impractical – at least for a time.

To illustrate this point, a very common typical profile of a marginalised person in the HILDA Survey is that of an income support-reliant single mother living in poverty with limited education, poor social support and high levels of psychological distress. Although the majority of women in such circumstances seek to re-enter the workforce, the low-level positions that are open to them are often insufficient to cover childcare costs (Daley et al, 2012).

This scenario also offers little hope of home ownership or other life-changing improvements in these women's lives; and they have almost no forms of support to help meet the demands of managing work and parenting – demands that most parents find difficult, even in much more favourable circumstances (Baxter et al., 2007).

Yet women who are in receipt of parenting payment (single) are some of the most likely to exit marginalisation across a ten-year period, perhaps because the support they receive provides sufficient relief and reliable assistance so that, as their children grow older, some of their barriers to re-entering paid work are reduced. The point is that it is better for society (and for these women) to support them more, not less, during these exceptionally vulnerable years. That their disadvantages are also among the most important predictors of their children's own entry into marginalisation as adults should make this policy stance all the more obvious.

Two recent policy initiatives in Australia are relevant here. The first was increased support for single parents to cover childcare costs

while they are working or studying (Jobs, Education and Training Child Care Fee Assistance). Our findings would unreservedly support such a policy as likely to help enable exit from marginalisation among this vulnerable group of women and, later, their children.

The second initiative is the gradual restriction of eligibility for the parenting payment (the Welfare to Work initiative), such that many income support-reliant single parents are now in receipt of the less generous Newstart allowance. We note that we found no differences in the likelihood of exiting marginalisation between single parents receiving Newstart and those receiving the Parenting Payment. But this does not mean there is no disadvantage associated with reduced income support: our finding could well be explained by the increasing age of these mothers' children over the decade (and having no further children), which were strongly associated with exiting marginalisation, as were improved financial circumstances. A key trajectory out of marginalisation for these women was returning to full-time work as their children grew older, and this is a trajectory that Welfare to Work aims to encourage (Thomas and Daniels, 2010).

However, three other, less positive trajectories were also noted – re-entry into part-time work, study for a certificate or diploma (neither of which increased the chances of exiting marginalisation), or transitioning onto other forms of income support (particularly the Disability Support Pension). We found that a greater proportion of marginalised individuals were in receipt of disability payments in 2010 than in 2001.

Therefore, it would seem that, although the Welfare to Work policy has influenced the job-seeking behaviours of marginalised people, it has not led directly to a reduction in marginalisation. It may, instead, have led to an increase in people applying for disability support. It will be essential to continue to evaluate this policy as new data become available, especially the recent changes in 2013 that are not captured in our analysis.

Further, the minority of marginalised individuals who were *not* in receipt of income support in 2001 had among the poorest long-term prospects. Policies that reduce support to marginalised single parents are likely to undermine their chances of exit and place at risk their own wellbeing and that of their children, current and future.

This is a concern given the disproportionate numbers of children growing up in marginalised households and the effects of childhood adversity on lifelong disadvantage. The present policy of restriction may thus not provide the additional assistance needed for vulnerable single parents to re-enter the workforce.

The findings of this report also highlight the enormous importance of the National Disability Insurance Scheme for people with disabilities *and their carers*. Given that recipients of the Disability Support Pension and Carer's Payment were particularly likely to experience persistent marginalisation (the latter most of all), increased levels of support are warranted and likely to help address this vulnerability.

This is particularly true in light of the finding that people who recovered from a long-term health condition or experienced an improvement in their mental health were among the most likely to exit marginalisation. Affordable healthcare for this population is likely to be beneficial not only for the welfare of people with disabilities and their families but also the community more generally. It will be essential, in due course, to re-evaluate transitions out of marginalisation in the light of this major policy initiative.

It will also be important to monitor whether people receiving other kinds of income support are now more inclined to seek eligibility for disability support. This would not necessarily be a desirable shift, given the likelihood of remaining marginalised once receiving this kind of support.

Links to Current ACT Government Policy

Importantly for policy-makers, there is little nationally representative Australian research that has explored the long-term outcomes of individuals with the type of multiple, complex disadvantage described in this report. Research and subsequent policy are often formulated from studies assessing individuals at a single point in time or, at most, across a short period of time, and almost always on a limited range of factors.

There is insufficient research investigating the long-term outcomes of multiple, complex disadvantage and, crucially, which factors are pivotal in increasing wellbeing over time for these individuals.

The present study was designed to help fill this gap to aid in understanding where support is likely to provide the greatest benefit and best life-course outcomes for those in the greatest need of support. This information is crucial to the development of any successful policy aimed at reducing the incidence, prevalence and duration of marginalisation.

Identifying factors that are strongly related to exiting marginalisation, especially where these factors are modifiable, allows for the formulation of practical intervention targets. It also provides a guide for assessing existing and possible new policy.

For instance, a goal of the ACT Government's 'People, Place, Prosperity' policy (2009) is to identify ways of operationalising community inclusion as a first step towards addressing disadvantage. This is an important goal and, if successful, highly likely to improve the wellbeing and outcomes of marginalised Canberrans. The ACT Government has previously noted that existing area-based indices of disadvantage significantly underestimate the degree of disadvantage in the ACT (particularly SEIFA; Detecting Disadvantage in the ACT, 2012). The SEIFI will help address this concern to some extent but it does not include the range of factors involved in marginalisation or show how they are constellated within particular individuals.

This gap in comprehensive and useful indicators underscores the importance of the present research, which demonstrates the validity of marginalisation as a means of operationalising disadvantage, as well as being the first study to investigate trajectories of marginalisation over time and important factors predicting exit from marginalisation.

The current project is also highly relevant to the Canberra Social Plan (2011), which emphasises social inclusion and belonging as social policy priorities. Specifically, the ACT Government's vision for Canberra as "a place where all people reach their potential, make a contribution and share the benefits of an inclusive community" (Canberra Social Plan, 2011), speaks directly to the need to address marginalisation in a comprehensive manner.

Our findings can make a contribution to making practical, effective decisions about how best to meet these priorities. In particular, Canberra's Social Plan (2011) outlines how the government will prioritise investment in education and skills, increase the availability of health services and deliver more affordable housing. All three of these initiatives are strongly supported by the findings of this research, where (specific) improvements in education, health and housing security each independently predicted moving out of marginalisation. The Canberra Social Plan (2011) also touches on the importance of assisting parents to re-enter the workforce, and early intervention to prevent the intergenerational transfer of disadvantage, both of which are similarly in line with the findings of our research.

To assist the ACT Government in deciding how best to realise the plan, our findings specify how to accurately identify which Canberrans might benefit the most from such initiatives, thus enabling more accurate targeting of interventions.

Towards a Simple Tool to Measure Marginalisation

To further advance the usefulness of these findings, which are based on complex and

difficult to conduct analyses, it will be necessary to develop a simple marginalisation assessment tool that enables a range of end-users to accurately and easily assess marginalisation in a variety of contexts.

Such a tool should be suitable for use in frontline service agencies, hospital emergency departments and police stations – some of the places in which marginalised people are disproportionately found – as well as in policy areas of governments, sector peak bodies and research institutions. A simple to use, online version of such a tool, with useful guidance on interpretation, links to relevant information, automatic calculation of marginalisation circumstances and a linked database would provide a valuable resource for multiple end-users.

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Appendix 1

Characteristics of marginalised individuals compared to those never marginalised

Table A. Descriptive Statistics for Marginalised versus never-Marginalised individuals in 2010.

	Never marginalised	Marginalised
Age	54.47 (SD = 16.38)	39.77 (SD = 11.72)
Sex	48% female	68.7% female
Long-term health condition	27.6% Yes	40.7% Yes
Ethnicity	0.7% Indigenous	8.6% Indigenous
	22.4% non-Aus born	19.4% non-Aus born
Risky drinking	6.8%	8.5**%**
Number of children <15 yrs living at home	0.43 (SD = 0.86)	1.15 (SD = 1.35)
Number of people in household	2.47 (SD = 1.28)	3.39 (SD = 1.86)
Has non-resident children <15 yrs	2.2%	6.8%
Family type	37.3% couples w no kids	6.7% couples w no kids
	34.6% couples w kids	32.5% couples w kids
	3.7% single parents	42.5% single parents
	23.5% singles	12.6% singles
	0.9% other	5.8% other
Relationship status	10.7% never married/de facto	28.7% never married/de facto
	71.3% married/de facto	38.1% married/de facto
	8.5% separated/divorced	30.9% separated/divorced
	9.6% widowed	2.3% widowed
Ever divorced	14.7%	11.6%
Income support status	88.7% None	12.9% None
	4.8% Other	13.0% Other
	0.2% Parenting (partnered)	5.3% Parenting (partnered)
	0% Parenting (single)	18.3% Parenting (single)
	0.9% Newstart	21.2% Newstart
	1.6% Disability	25.2% Disability
	0.1% Student	0.9% Student
	3.7% Age-related	3.3% Age-related
Equivalised disposable income	Median = $ 61970 (SD = $55351)	Median = $35215 (SD = $21314)
Housing	44.9% Own (no mortgage)	13.5% Own (no mortgage)
	32.8% Own (mortgage)	22.9% Own (mortgage)
	17.0% Renting	60.2% Renting
	5.3% Other	3.4% Rent-free/Other
Employment status	44.4% Full time	4.6% Full time
	17.5% Part time	19.8% Part time
	29.8% Retired	9.5% Retired
	6.0% Home duties	31.3% Home duties
	1.2% Unemployed	17.4% Unemployed
	1.0% Student/Other	17.2% Student/Other
Highest Education Level	30.9% Didn't finish high school	40.7% Did not finish school
	12.3% Yr 12	16.2% Yr 12
	34.4% Cert/Diploma	38.5% Certificate or diploma
	22.4% Tertiary+	4.5% Tertiary +
Parents separated or divorced	82.3% No	64.0% No
Age left school	30.6% 15 yrs or less	37.3% Under 16
Age left home	22.1% under 18	49.6% Under 18
Father unemployed when 14 yrs	76.04 (15.80)	5.2% Yes
Mental Health	80.17 (24.43)	62.51 (SD = 20.39)
Physical health	26.7% Yes	73.79 (SD=28.99)
Income support >30% of income	39.3% Always or often	83.7% Yes
Too much spare time	5.6% Always or often	18.1% Always or often
Social functioning	M = 83.12 (SD = 22.47)	68.10 (SD=27.45)
Smoker	17.4%	51.0%
Total children ever had	2.04 (1.48)	2.12 (1.75)
Total (N)	**N = 6170**	**N = 1267**

Appendix 2

Weighting the Sample

HILDA provides weights for the purpose of ensuring the sample remains nationally representative despite non-random attrition. However, for our purposes the HILDA weights were not appropriate, as we found that these weights assigned a "0" weight to a large number of respondents who could potentially be included in the sample. For instance, due to the multiplicative calculation of the weights, any respondent who did not participate fully at any of the intervening waves between 1 and 10 received a 0 weight, despite having full data on the variables of interest for our analysis. For this reason, we recalculated the sample weights based on a logistic regression equation for attrition at Wave 10. The sample used for this analysis was all Wave 1 respondents over the age of 4 who remained eligible for participation at Wave 10 (i.e., had not died or moved out of scope). This yielded a sample of N = 16,780 for the calculation of sample weights.

The HILDA strategy for weight development was followed closely. A logistic regression was used to optimise a model of sample attrition at Wave 10. There were two important differences between the approach used in the development of the HILDA weights (Watson & Wooden, 2006) and our approach: 1) the inclusion of *all* participants who participated at Wave 10, i.e., no one was assigned a weight of 0 unnecessarily; and 2) the exclusion of variables that did not improve the predictive power of the model, consistent with the principles of parsimony. Therefore the final model was somewhat simpler than that described in Watson & Wooden (2006).

For all statistical analyses, weights were recalibrated to the raw sample size for each analysis (each participants' probability of attrition was divided by the sum of the probabilities and multiplied by N), in order to preserve the correct standard errors for the analysis. In the absence of this correction, spurious associations are highly likely to be significant due to sample size inflation. The simplest solution was to preserve the raw sample size in our weightings.

The full model is outlined in Table B. Overall, the model accurately predicted a respondent's wave 10 participation status in 97.4% of cases. This was comprised of a sensitivity of 93.0% and a specificity of 98.9%.

Table B.
Coefficients for the equation to predict sample attrition.

Variable name	Description	Wald's F	Example
Wave 5 participation status	A categorical HILDA variable indicating response status in Wave 5, including reason for drop out.	23.21	Most likely to attrit if in prison at Wave 5.
Wave 6 participation status	A categorical HILDA variable indicating response status in Wave 6, including reason for drop out.	19.69	Most likely to attrit if refused participation at Wave 6 for "other reason".
Wave 7 participation status	A categorical HILDA variable indicating response status in Wave7, including reason for drop out.	47.32	Most likely to attrit if in prison at Wave 7.
Wave 8 participation status	A categorical HILDA variable indicating response status in Wave 8, including reason for drop out.	69.78	Least likely to attrit if non-response at Wave 8 was due to being overseas.
Wave 9 participation status	A categorical HILDA variable indicating response status in Wave 9, including reason for drop out.	961.54	Most likely to attrit if classified as "home, but unable to contact" at Wave 9
Major statistical region	Categorical HILDA indicator of broad ABS region of residence, e.g. Sydney, Greater NSW.	23.18	Least likely to attrit if lived in the ACT.
Family type at Wave 1	10 level categorical variable; calculated from HF8: Living Circumstances.	15.28	Most likely to attrit if household had a single parent with children <15 yrs at Wave 1.
Age left home	4 level categorical variable: under 18, 18-21 yrs, 21+, or still at home.	3.35	Most likely to attrit if left home when aged under 18.
Relationship status at Wave 1	4 level categorical variable: Never married/de facto Married/de facto Separated/divorced Widowed	4.56	Most likely to attrit if separated/divorced at Wave 1.
Remoteness area at Wave 1	Categorical HILDA variable: 4 levels of remoteness + migratory.	14.53	Most likely to attrit if living in a major city in Wave 1.
Housing	Categorical: Own (no mortgage) Own (paying off mortgage) Renting Rent-free/Other	1.29	Least likely to attrit if own home outright at Wave 1.
Age	Continuous HILDA variable.	0.81	Older respondents less likely to attrit.
Sex	Categorical HILDA variable.	1.25	Women less likely to attrit.
Number of children < 15 living at home at Wave 1	Continuous (count) variable.	8.79	Households with more young children are less likely to attrit.
Employment status at wave 1	6 level categorical variable: Full time employed Part time employed Retired Home duties Unemployed Student/Other	8.22	Most likely to attrit if unemployed at Wave 1.
Income support status at Wave 1	8 level categorical variable: None Other (e.g., Carer's payment, Special benefit) Parenting (partnered) Parenting (single) Newstart (unemployment) Disability Support Pension Student	11.33	Most likely to attrit if on parenting (single) at Wave 1.
Highest Level of Education Attained at Wave 1	4 level categorical variable: Didn't finish high school Finished high school Certificate/Diploma Tertiary (or higher)	7.00	Most likely to attrit if educated to the level of Certificate/Diploma.
Household Response Status at Wave 1	Categorical HILDA variable.	6.14	Most likely to attrit if household partly incapable of responding at Wave 1 due to death/illness.

Appendix 3

The Development of an Equation to Predict Marginalisation

Developing a method that enabled the measurement of marginalisation at Wave 10 was not an easy task. Marginalised individuals in Wave 1 had been identified through the use of Cluster Analysis, but in order for marginalised persons to be tracked over time, the construct of marginalisation had to be operationalised in a manner that allowed its re-measurement in novel samples (unlike in the original Berry et al. (2008) cluster analysis). That is, in order to re-identify a marginalised subpopulation at Wave 10 of the HILDA dataset, a predictive model of marginalisation needed to be developed.

One option would have been to perform another cluster analysis in the Wave 10 sample. However, this strategy would have been statistically inferior, as cluster analysis is an iterative technique that is highly reactive to the characteristics of the entire sample. Although this was not problematic in Wave 1 of HILDA (due to its nationally representative nature and, because it was Wave 1, a complete sample with no attrition), over time, attrition in HILDA Survey respondents has been higher among those highly represented in the marginalised cluster, such as Indigenous people, people without paid employment, and people with lower levels of educational attainment (Summerfield, Dunn, Freidin, Hahn, Ittak, Kecmanovic, et al., 2011).

Therefore, the distortion in the population prevalence of characteristics associated with marginalisation, such as unemployment, makes it highly likely that a cluster analytic procedure would produce results that differed from the original solution in systematic ways. The most important consequence of this would be difficulty in inferring whether a person's exit from marginalisation was due to a measurable improvement in their life circumstances (the phenomenon of interest), or simply due to a change in the weighting of characteristics in the cluster solution. In other words, the cluster analysis technique used by Berry et al. is a tool used to summarise population characteristics, not to produce a decision rule to identify marginalised individuals in new populations.

Consequently, a decision rule that could the marginalisation equation was developed using the subsample of the 2001 HILDA Survey utilised by Berry et al. (2008) for their work characterising the five Australian archetypes. Therefore, to identify a decision rule and make marginalisation measurable across populations, it was necessary to use the binary status of being marginalised (yes *vs* no) from the Berry et al. (2008) cluster analysis to model the predictors of this status. This was achieved by using binary logistic regression modelling. This is a statistical technique that examines the ability of variables of interest to predict membership in one of two outcome categories through producing a probability estimate of category membership (in this case, marginalised or not). As part of this kind of analysis, multiple variables are tested as predictors and, if they contribute significantly to predicting inclusion in the category of interest, they are retained in further analyses, and pitted against other possible predictors of the same outcome. As well as single factor measures (such as income), predictors will include complex combinations of factors, such as interactions between gender, level of income and number of children (for example, 'female, poor, with three children' vs 'male, poor with no children'). An iterative process is used until a 'final solution' is derived in which an optimal combination of independently significant predictors, and complex combinations of predictors, has been systematically selected.

To develop the marginalisation decision-rule, the variables from the original cluster analysis and all other variables relevant to the five domains of disadvantage discussed in the preceding section were entered into the

binary logistic regression. After running the first binary logistic regression, only those variables that significantly predicted membership in the marginalised or non-marginalised groups were retained and included in further iterations. This procedure was repeated in order to arrive at the final solution, which contained the combination of variables that best predicted membership in the marginalised archetype that Berry had identified using cluster analysis. The final equation was the one that optimised *sensitivity* (capacity to identify marginalised people) and *specificity* (capacity to exclude those unlikely to be marginalised) in predicting marginalisation. The final equation (detailed in Table C below) was able to re-identify the originally marginalised subsample with 99 per cent accuracy.

Binary logistic regression modelling yields a probability score for each individual in the dataset that specifies the likelihood of membership of the marginalised archetype. Probability scores for marginalisation ranged from 0 (definitely not a member) to 1 (definitely a member). A cut-point of 50% was selected[5] to define membership in the marginalised archetype (i.e., the individual had a greater than chance probability of being a member). The marginalisation probability scores thus reflected (a) the number of disadvantage-related factors a person had in their life, as well as (b) the severity of those factors. The probability score can thus be understood as an indicator for the depth of disadvantage. For example, a participant with a marginalisation probability of 53% would be much less profoundly marginalised than a participant with a probability of 99%, and less confidently categorised. Participants could thus vary substantially in their degree of marginalisation (or not) at both waves and this information could be included in further analyses.

The decision rule was then generalised to the full 2001 HILDA survey sample to identify all marginalised individuals in that wave of data for inclusion in our analyses (N = 1,439; compared to N = 788 in the original Berry et al. subsample from which the marginalisation equation was developed. Confirming the equation's validity, statistical comparisons showed that the participants forming part of the marginalised archetype in the original study and the full marginalised sample selected by applying the decision rule were highly comparable on all variables. The only exception was that the whole sample (*vs* the original study sample) contained more couples and fewer single parents. This difference was due to the fact that the subsample selection method used by Berry et al. (2008) under-represented multiple adult households.

The decision rule was then applied to the Wave 10 sample to identify marginalised individuals a decade later. Following this, it was possible to compare for each individual their probability of being marginalised at Wave 1 to their probability of being marginalised ten years later, at Wave 10.

[5] Note that binary logistic regression results in a log-distribution of probability scores, such that the vast majority of individuals have a probability of being marginalised that is very close to 0 or very close to 1. Therefore although the 50% cut-off point provides the optimal accuracy of classification, a small change to this cut-off point would make little difference to the results.

Table C.

Variables predicting marginalisation and their coefficients, using dummy variables as required.

This equation was applied at Wave 1 and 10 to identify marginalised individuals independent of the original cluster analysis. Duplicate variables are omitted. This table provides all the information necessary to replicate our results or calculate probability of marginalisation in a novel sample (assuming the same variables were available).

Variable (vector)	Coefficient	
	Negative values (less likely to be marginalised)	Positive values (more likely to be marginalised)
Constant	-6.458049695951319	
Sex (0=Male; 1=Female)		0.23149515871035545
Life stage – (reference: 15-25 years)		
Life stage – 26-39 years		0.23149515871035545
Life stage – 40-55 years	-4.664968430097284	
Life stage – 56-65 years	-13.109959086829173	
Life stage – 66-79 years	-37.40083009885077	
Life stage – 80+ years	-28.580323683332185	
Ethnicity (reference: Australian born, Indigenous)		
Ethnicity – Australian born, not Indigenous	-5.349746127003721	
Ethnicity – Overseas born, English first language	-5.811781978510121	
Ethnicity – Overseas born, non-English first language	-5.388932744648885	
Relationship status (reference: Never married/de facto)		
Relationship status – Married/de facto		2.4617986824686873
Relationship status – Separated or divorced		2.2410924870150852
Relationship status – Widowed		2.0289100815421985
Family type (reference: Couple, no kids <15 yrs)		
Family type – Couple with kids < 15 yrs	-0.5549441140046645	
Family type – Single parent family		0.48722688719121177
Family type – Singles	-1.9962953433208799	
Family type – Other	-8.570529194334169	
Employment status (reference: full-time)		
Employment status – part-time		8.073115644744542
Employment status – unemployed < 1 yr		14.898952741194902
Employment status – unemployed > 1 yr		14.049453779320501
Employment status – home duties		17.1547156417223
Employment status – retired		9.799871108903359
Employment status – student/other		13.657096010395751
Income support status (reference: None)		
Income support status – Other		5.347425679711947
Income support status – Parenting (partnered)		4.051623121343373
Income support status – Parenting (single)		8.957343569295036
Income support status – Newstart		9.61600631827053
Income support status – Disability Support		7.918540607140168
Income support status – Youth Allowance		7.015641930572847
Income support status – Age-related		3.173198245145851
Welfare >30% of income (0=No; 1=Yes)		6.0466816689498195
Highest level of education (reference: Didn't finish school)		
Highest level of education – Completed High School	-1.3734828243775252	
Highest level of education – Certificate/Diploma	-1.5938368895521822	
Highest level of education – Tertiary		3.204542082802532
Highest level of education – Higher degree	-1.7538791409689118	
Mental health (reference: lowest tertile)		
Mental health = middle tertile	-0.8326088027390146	
Mental health = highest tertile	-1.9422963494620582	
Physical functioning (reference: lowest tertile)		
Physical functioning = middle tertile	-1.6082144223795167	
Physical functioning = highest tertile		3.5066898042745853
Age left home (reference - under 18 years)		
Age left home – 18-20 years	-4.561281301810264	
Age left home – 21+ years	-5.569314933938278	
Age left school (0=Under 16 years; 1=Over 16 years)	-5.920255233600971	
Number of children <15 yrs living at home		3.681817231638712
Interaction: Life stage*age left home		
Interaction: age 26-39 years * left home 18-20		2.490480241849963
Interaction: age 26-39 years * left home 21+		2.986386985058838
Interaction: age 40-55 years * left home 18-20		2.66228771770269
Interaction: age 40-55 years * left home 21+		3.097052414768015
Interaction: age 56-65 years * left home 18-20		2.2559914972193433
Interaction: age 56-65 years * left home 21+		3.229332250575077

Variable (vector)	Coefficient	
	Negative values (less likely to be marginalised)	Positive values (more likely to be marginalised)
Interaction: age 66-80 years * left home 18-20		32.30583450599578
Interaction: age 66-80 years * left home 21+	-4.847748886429584	
Interaction: age 66-80 years * left home 21+	-4.847748886429584	
Interaction: age 81+ years * left home 18-20		4.960328621172739
Interaction: Life stage * number of kids <15 at home		
Interaction: age 26-39 years*number of kids	-3.2518789459168604	
Interaction: age 40-55 years*number of kids	-3.0327330870194094	
Interaction: age 56-65 years*number of kids	-1.3034215884332947	
Interaction: age 66-80 years*number of kids		16.1337605377379
Interaction: age 81+ years*number of kids		11.501464043564098
Interaction: Sex*Employment status		
Interaction: sex (female)*part-time		0.3561314605346598
Interaction: sex (female)*unemployed <1 yr	-1.2696039284170635	
Interaction: sex (female)*unemployed >1 yr		1.7490808186296136
Interaction: sex (female)*home duties	-0.3547333103658703	
Interaction: sex (female)*retired		4.696022277441486
Interaction: sex (female)*student/other	-1.6812725659250836	
Interaction: Life stage* Employment status		
Interaction: age 26-39 years*part-time	-4.153304814560603	
Interaction: age 26-39 years*unemployed <1 yr		6.537682367007088
Interaction: age 26-39 years*unemployed >1 yr	-8.881066278311161	
Interaction: age 26-39 years*home duties	-5.015601114392447	
Interaction: age 26-39 years*retired		6.525761535113472
Interaction: age 26-39 years*student/other	-8.91605459506604	
Interaction: age 40-55 years*part-time		5.3393912283880365
Interaction: age 40-55 years*unemployed <1 yr	-8.542519331601477	
Interaction: age 40-55 years*unemployed >1 yr	-10.207043645684221	
Interaction: age 40-55 years*home duties	-6.897260359531337	
Interaction: age 40-55 years*retired	-7.429816931809119	
Interaction: age 40-55 years*student/other	-9.48811769207033	
Interaction: age 56-65 years*part-time	-0.31859892119722255	
Interaction: age 56-65 years*unemployed <1 yr	-2.3099965746105817	
Interaction: age 56-65 years*unemployed >1 yr	-10.29506426795934	
Interaction: age 56-65 years*home duties	-7.214822996405295	
Interaction: age 56-65 years*retired	-7.939787391951886	
Interaction: age 56-65 years*student/other	-7.5219807478331076	
Interaction: age 66-80 years*part-time		8.324553862018051
Interaction: age 66-80 years*home duties		12.522823521226208
Interaction: age 66-80 years*retired	-6.901149855929064	
Interaction: age 66-80 years*student/other		16.99877460147063
Interaction: age 81+ years*part-time	-5.1011575749451845	
Interaction: age 81+ years*home duties	-9.163051336708392	
Interaction: Life stage * Family type		
Interaction: age 26-39 years*couple with kids < 15 yrs		0.6071163567133496
Interaction: age 26-39 years*single parent family		8.709140741501226
Interaction: age 26-39 years*single		4.157551827334823
Interaction: age 26-39 years*other		7.879808834866394
Interaction: age 40-55 years*couple with kids < 15 yrs		5.737876572554289
Interaction: age 40-55 years*single parent family		11.782784287961725
Interaction: age 40-55 years*single		9.138387486863804
Interaction: age 40-55 years*other		18.144888018690875
Interaction: age 56-65 years*couple with kids < 15 yrs		9.430184466501695
Interaction: age 56-65 years*single parent family		13.622523227558498
Interaction: age 56-65 years*single		11.154496934984884
Interaction: age 56-65 years*other		21.573892355017307
Interaction: age 66-80 years*couple with kids < 15 yrs		23.670520133186955
Interaction: age 66-80 years*single parent family	-14.229994928585302	
Interaction: age 66-80 years*single		4.26051204028165
Interaction: age 66-80 years*other		5.325548847428229
Interaction: age 81+ years*couple with kids < 15 yrs	-0.44793370347938144	
Interaction: age 81+ years*single parent family		3.4813994274486832
Interaction: age 81+ years*single		11.832784352253267
Interaction: age 81+ years*other		8.453713095292558
Interaction: Relationship status* Employment status		
Interaction: married/de facto*part-time	-0.24885943387261295	
Interaction: married/de facto*unemployed <1 yr		0.9459945507179278
Interaction: married/de facto*unemployed >1 yr		7.287030803219958
Interaction: married/de facto*home duties	-5.435296194343991	

Variable (vector)	Coefficient	
	Negative values (less likely to be marginalised)	Positive values (more likely to be marginalised)
Interaction: married/de facto*retired	-0.6094540439857776	
Interaction: married/de facto*student/other		3.510402734787673
Interaction: separated/divorced* part-time		0.36634934230042204
Interaction: separated/divorced*unemployed <1 yr		2.041693326447907
Interaction: separated/divorced*unemployed >1 yr		3.1055891714696386
Interaction: separated/divorced*home duties	-0.44267796269605647	
Interaction: separated/divorced*retired	-1.357325008038278	
Interaction: separated/divorced*student/other		0.5482384633644488
Interaction: widowed*part-time	-2.434225739134816	
Interaction: widowed*home duties	-10.039277176540272	
Interaction: widowed*retired	-18.468254500274433	
Interaction: widowed*student/other	-2.069461004396338	
Interaction: Life stage by age left school		
Interaction: age 26-39 years*age left school (over 16 years)		3.196074072845692
Interaction: age 40-55 years*age left school (over 16 years)		5.965133855049958
Interaction: age 56-65 years*age left school (over 16 years)		3.6449371080398163
Interaction: age 66-80 years*age left school (over 16 years)		13.32297217774759
Interaction: age 81+ years*age left school (over 16 years)		7.777920534878002
Interaction: Life stage *Physical functioning		
Interaction: age 26-39 years* physical functioning middle tertile	-1.6901919352926686	
Interaction: age 26-39 years* physical functioning top tertile		0.42955829633834586
Interaction: age 40-55 years* physical functioning middle tertile	-1.4798022328270886	
Interaction: age 40-55 years* physical functioning top tertile		1.5181503069642401
Interaction: age 56-65 years* physical functioning middle tertile		1.5311696589136619
Interaction: age 56-65 years* physical functioning top tertile		4.692559816605845
Interaction: age 66-80 years* physical functioning middle tertile		8.198513623464999
Interaction: age 66-80 years* physical functioning top tertile		24.86725196905428
Interaction: age 81+ years* physical functioning middle tertile	-2.329408332838497	
Interaction: age 81+ years* physical functioning top tertile		10.333349260210262

Notes: Binary logistic model of marginalisation propensity. Positive coefficients increase the likelihood of marginalisation, while negative coefficients decrease the likelihood Parameters for each block of dummy variable factors are measured relative to a **reference** state (marked alongside the variables). The choice of reference category has **no** bearing on the estimated marginalisation propensity.

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