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Who Gets Off (and Stays Off) Payments?

Lixin Cai, Ha Vu and Roger Wilkins

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Lixin Cai, Ha Vu and Roger Wilkins*

Melbourne Institute of Applied Economic and Social Research
The University of Melbourne

Abstract

We use Centrelink payment records on Disability Support Pension (DSP) recipients over the period 1995 to 2002 to investigate individual transitions off the payment. Our analysis involves two distinct, but complementary, components. The first component, which can be represented as an 'entry cohort' analysis, investigates the factors associated with making a transition off DSP. The second component can be interpreted as an 'exit cohort' approach, whereby we examine the factors associated with sustaining an exit off all welfare payments, given that an individual has in fact made the transition from DSP to that state. Our findings are consistent with the existence of a close correspondence between disability benefit receipt and labour market outcomes: entry to DSP via unemployment benefits is associated with substantially reduced prospects of exiting DSP, while employment during the DSP spell is associated with not only an increased probability of exiting DSP, but also more success in staying off payments once an exit has been made. A further finding of our analysis is that persons who exit DSP due to take-up of employment have a relatively high rate of return to payments compared with persons who exit for other reasons, and indeed exhibit a high propensity to cycle off and on payments.

1. Introduction

The Disability Support Pension (DSP) is the Australian Government income support payment for people of working age with an illness or injury for a prolonged period of time that prevents them from undertaking full-time employment. To be eligible for DSP payments, a person must be over 16 years of age and be assessed as incapable, as a result of impairment, of working 30 or more hours a week at full award wages for at least the next two years (Department of Social Security (DSS) 1992).[1] The level of payment is the same as for the Age Pension, which has been maintained at 25 per cent of male total average weekly earnings since April 1998.

There has been strong growth in the number of persons receiving DSP payments over the last thirty years, particularly since the implementation of the Disability Reform Package in November 1991. In June 1991, there were 334,000 recipients, amounting to 2.96 per cent of the age-eligible population.[2] By June 2003, this had doubled to 673,000 recipients, or 5.14 per cent of the age-eligible population (FaCS 2004). While it is recognised that such payments provide an important safety net for people with disabilities who cannot work full-time, welfare dependence associated with disability has become an extremely important social policy issue for Australia. The widespread view is that the growth in DSP receipt has had adverse consequences for both the (new) recipients and the wider community.

Much of the public discussion in relation to this issue rightly focuses on inflows into the program – for example, examining ways to reduce the number of people entering DSP. However, the stock of DSP recipients is the outcome of not only inflows, but also outflows. For example, Cai and Gregory (2003) find important roles for both inflows and outflows in explaining the growth in the number of DSP recipients over the period 1971-1999. Policies that promote sustained exit from payments are therefore likely to be an important component

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[1] These eligibility requirements have remained essentially unchanged since the implementation of the Disability Reform Package in November 1991. Prior to November 1991, the income support payment for persons with disabilities was called the Invalid Pension, eligibility criteria for which differed somewhat to those for DSP. See DSS (1992) for details.

[2] The age-eligible population comprises persons aged 16 years to the minimum age of eligibility for the Age Pension (65 years for males and currently 63 for females). Note, however, that a small number of individuals will be eligible for the DSP and not eligible for the Age Pension, despite being over the minimum age of eligibility for the Age Pension.

of policies to reduce disability-related welfare dependence.[3] Appropriate formulation of such policies is in turn likely to benefit from understanding the determinants of exit behaviour.

This policy context provides the motivation for the current study, in which we make use of payments administration records on DSP recipients to investigate the factors associated with sustained exit from DSP that represents a movement towards increased self-reliance. The data consist of Centrelink fortnightly welfare payment records, which provide a complete history of individuals' income support receipt over the period 1995 to 2002, as well as information on personal characteristics and exit destinations.

The econometric models we estimate are aimed at formally investigating the factors associated with successful transition off DSP, and the factors associated with sustained exit. Consistent with this two-pronged objective, our analysis consists of two complementary approaches. The first approach is what could be termed an 'entry cohort' analysis, whereby we 'follow' all persons who commenced a DSP spell in a given period. The second approach is an 'exit cohort' analysis, whereby we 'follow' those who exited DSP in a given period. The entry cohort approach allows us to investigate the factors associated with exit from a DSP spell, while the exit cohort approach allows us to investigate the factors associated with sustained exit, given exit has occurred.

The motivation for this dual approach is essentially the limited observation period provided by the data. While the data runs from January 1995 to November 2002, only from May 1998 does it contain all of the information necessary for our analysis, implying our effective window is restricted to four and a half years. DSP is, by its nature, a long-term payment. A four-and-a-half year observation period therefore significantly constrains the inferences that can be made from a single cohort of entrants to DSP on the determinants of both exit from DSP and the length of time exit is sustained. By examining exit behaviour of a cohort of entrants to DSP, and then the length of time exit is sustained for a cohort that exited DSP in the same period, we effectively increase the span of the data for our purposes. The sample for the exit cohort analysis is selected to correspond to those in the entry cohort who exited DSP, but will in general comprise individuals who commenced DSP earlier than the entry cohort,

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[3] We use the term 'sustained exit' as shorthand for 'exit followed by a sustained period off all income support payments'.

because the exits occurred in the same (1998-99) period as the spell commencements of the entry cohort.[4]

Although we estimate econometric models of both whether exit occurs and how well it is sustained, this study should largely be interpreted as a descriptive exercise. For the most part, we do not make causal inferences on the determinants of exit behaviour of DSP recipients. Rather, the emphasis is on identifying empirical associations between characteristics of DSP recipients and exit behaviour.

2. Previous literature

Inflows and outflows are the key dynamic dimensions of disability benefit receipt and together determine the growth of the disability benefit program. Studies examining issues surrounding disability benefit programs can therefore generally be classified into inflow studies and outflow studies.

Inflow studies have largely focused on the roles played by benefit levels and labour market conditions in affecting take-up. International studies have generally found program participation increasing in benefit levels (e.g. Black, Daniel and Sanders 2002, Bound 1987, Bound and Burkhauser 1999, Kreider 1997, Halpern and Hausman 1986, Leonard 1979, Halpern 1979 and Lando, Coate and Kraus 1979), although estimated elasticities vary widely, from 0.2 to 1.3. Labour market conditions have also been found to have marked effects on both the number of applications and number of awards of disability benefits (e.g. Landot 1974, Lando, Coate and Kraus 1979, Stapleton, Coleman and Dietrich 1995, Rupp and Stapleton 1995, Stapleton, Coleman, Dietrich and Livermore 1998, and Black, Daniel and Sanders 2002 for the US, and Disney and Webb 1991 and Piachaud 1986 for the UK). In Australia, Cai and Gregory (2004) similarly find that increases in the unemployment rate have been associated with increased application and grant rates of DSP, while Cai and Gregory (2005) furthermore find that duration on unemployment benefits is an important determinant of subsequent transition to DSP. The role of population ageing in affecting inflows has also received attention in Australia, two studies finding that it has in fact played little role in the growth in DSP inflows (Jackson 1999 and Cai and Gregory 2003).

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[4] Of course, cohort differences and changes over time in economic conditions, government policy and other factors mean that inferences from the exit cohort analysis may not actually hold for the entry cohort who subsequently exit.

Less numerous are studies of outflows, which have generally focused on either durations of spells on disability benefits, or the destinations of exits. International duration analyses include Holmes and Lynch (1990) for the UK and Rupp and Scott (1995) for the US. Cai (2006) conducts a similar analysis to Holmes and Lynch (1990) using Australian administrative data. In terms of destinations studies, Hennessey and Dykacz (1989) use a random sample of social security beneficiaries who were first entitled to disability benefits in 1972 in the US and who were followed until 1981. They estimated that 11 per cent of this cohort would eventually leave the program due to return to work or recovery, 53 per cent due to retirement at age 65 years and 36 per cent would exit due to death. Buddelmeyer (2001) models the labour supply behaviour of a cohort of disabled workers in the Netherlands and finds that those who were younger and more educated were more likely to leave disability benefits for work.

The only Australian study of exit destinations of disability benefit recipients is that by Cai (2002). Using a one per cent sample of DSP recipients who exited the benefit between July 1998 and February 2000, and distinguishing four destinations (Age Pension, employment, death and 'other'), Cai found that those who returned to work were more likely than those who exited to the Age Pension to be young when entering DSP, be male, have earned income while on DSP and be multiple-spell recipients. He also found those who exited for other reasons were likewise more likely than those who exited to the Age Pension to be young when entering DSP, be male and be multiple-spell recipients, but were nonetheless different from those who returned to work in most other characteristics. The current study builds on Cai (2002) by examining a substantially larger sample and longer time-frame, by investigating the determinants of exit destination in greater depth (including modelling *failure* to exit DSP), and by additionally considering the issue of the extent to which exit is sustained.

3. Data

The data used comprise payment records of a 50 per cent random sample of persons who received DSP in the period January 1995 to November 2002. For each individual in the sample, a payment record is generated for every fortnight in which that individual received an income support payment in the period. Information included with each payment record includes sex, date of birth, postcode of residence, partner status, number of dependent children, age of youngest dependent child, earnings, other non-welfare (unearned) income, partner income, payment type, payment entitlement and, depending on the payment type, potentially other information (such as activity type for Newstart Allowance recipients). From

May 1998, we also have available the main medical condition and, for those whose payments were cancelled or suspended, the reason for the cancellation or suspension.

For the purposes of this study, we define a spell on payments to have ended only if there is a break in payments of seven or more fortnights. This is a high threshold, but is motivated by our view that shorter payment breaks could not sensibly be viewed as true exits, especially in the context of the long average duration of spells on DSP. One particular benefit of the seven-fortnight rule is that it makes it relatively unlikely that we will treat as spell breaks periods off payments caused by administrative factors that do not reflect actual movements off payments.[5]

Exits from DSP can arise for a number of reasons, and it is valuable to distinguish these reasons given our interest in exits that represent a movement towards increased self-reliance. Up until May 1998, exit 'destinations' that can be distinguished comprise transfers to other income support payments (which can be further distinguished by payment type), exit due to death and other (non-transfer non-death) exits. Clearly, it is the last type of exit in which we are interested. From May 1998, the administrative data set notionally contains cancellation and suspension reasons for all completed income support spells, permitting further disaggregation of non-transfer non-death exits. There are approximately sixty distinct reasons that apply to DSP recipients, which we aggregate into three groups which reflect pertinent distinctions from the perspective of our analysis: 'return to work', 'other positive exit' and 'other exit'. As the label suggests, a return to work exit occurs when an individual ceases DSP due to take-up of employment. Although the label implies the individual is returning to a job previously held, it in fact applies to any individual exiting DSP due to take-up of employment. The 'other positive exit' group consists of reasons such as exceeding income or assets tests, improvements in health, voluntary withdrawal and receipt of a compensation payout. As our label for this group reveals, we view these as 'positive' reasons for exit, but ones we think important to distinguish from a move into (substantive) employment. The

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[5] The seven fortnight break is also consistent with the required payment break under the *Social Security Act* 1991 (Section 38B) for a notional continuous payment spell to be deemed ended when the spell is in excess of twelve months duration at the end of the break in payments. Specifically, Section 38B defines a continuous payment spell to be a period on income support in which the maximum break in payments is 6 weeks in the first 39 weeks of the spell and 13 weeks thereafter.

remainder of exit types we interpret as largely not for positive reasons, primarily comprising failures to comply with administrative requirements.[6]

Table 1 presents a range of preliminary descriptive statistics on the sample used, providing some contextual information on the number and composition of recipients and the duration of DSP spells. Given the use of a 50 per cent random sample, population estimates of recipient numbers can be obtained simply by doubling the figures reported. Statistics are presented for each year and also for the entire sample period as a whole. The top four panels provide 'stocks' based information on recipients of DSP in each year, while the remaining panels provide information on 'flows' into and out of DSP.

The first panel shows substantial growth in the number of recipients over the eight year period spanned by the administrative data. For example, the third row estimates imply that, on average, there were 454,540 DSP recipients in each fortnight of 1995 and 645,572 DSP recipients in each fortnight of 2002. This corresponds to 42 per cent growth in recipient numbers. The next three panels provide information on the demographic composition of DSP recipients in terms of sex, country of birth, indigenous status and age. The majority of recipients are male, but the proportion of recipients who are female has increased from 30 per cent to 38 per cent over the period. This partly reflects the closing off of some other payment types previously available to females – in particular, Wife Pension and Widow B Pension – and the progressive increase in the minimum age of eligibility for the Age Pension for females. Changes in the country of birth and indigenous status composition of recipients have been relatively minor, although there has been some increase in the proportion of recipients who are indigenous and also a decrease in the proportion who are immigrants from non-English-speaking countries. The age distribution is heavily skewed towards older persons, with over two-thirds aged 45 years and over. There has, however, been a decline in the proportion aged 60 years and over and an increase in the proportion aged 35-60 years. To some extent, this reflects the increase in the number of female recipients, who qualify for the Age Pension in their early 60s over this period.

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[6] See Appendix Table 1 for details on the administrative cancellation and suspension reasons assigned to each of these three categories.

Table 1: Summary features of the data

	1995	1996	1997	1998	1999	2000	2001	2002	All years
Stocks									
Number of recipients	258,736	275,513	287,840	302,463	316,691	328,929	343,001	353,365	502,999
Number of spells	259,943	276,343	288,724	303,759	317,935	330,433	344,478	354,444	531,054
Recipients per fortnight	227,270	245,650	259,054	272,273	284,387	295,035	308,321	322,786	276,439
Proportion of spells by sex (%)									
Male	69.7	68.1	66.7	65.3	64.4	63.3	62.5	61.6	64.9
Female	30.3	31.9	33.3	34.7	35.7	36.7	37.5	38.4	35.1
Proportion of spells by country of birth & indigenous status (%)									
ESB immigrant	8.3	8.4	8.4	8.4	8.3	8.2	8.1	8.1	8.2
NESB immigrant	22.5	22.2	21.8	21.5	21.1	20.7	20.3	20.0	21.2
Indigenous	2.3	2.5	2.6	2.7	2.8	2.9	3.1	3.2	2.8
Non-indig. Aus.-born	66.9	67.0	67.3	67.5	67.9	68.3	68.5	68.7	67.8
Proportion of spells by age group (%)									
<=24 years	5.7	5.5	5.6	5.6	5.7	5.7	5.8	5.8	5.7
25-34 years	10.9	10.9	10.8	10.5	10.4	10.2	10.1	10.1	10.4
35-44 years	15.9	16.2	16.4	16.6	16.8	16.8	16.7	16.5	16.5
45-54 years	25.6	26.0	26.3	26.2	26.3	26.3	26.1	25.8	26.1
55-60 years	23.3	24.1	24.6	24.5	24.4	24.1	24.2	24.4	24.2
60+ years	18.7	17.3	16.4	16.5	16.5	17.0	17.0	17.3	17.1
Inflows									
Number of inflows	33,955	38,248	36,455	38,305	40,310	38,961	42,564	37,094	305,892
Proportion of inflows from each origin (%)									
Outside IS	50.8	34.1	37.2	38.6	36.0	39.2	36.7	36.8	38.5
Sickness benefit	19.3	19.5	6.5	4.0	3.7	2.9	2.9	2.5	7.4
Unemployment benefit	19.0	33.6	45.1	47.5	50.2	47.1	50.2	50.3	43.3
Other payment	11.0	12.8	11.2	9.9	10.2	10.9	10.2	10.5	10.8
Proportion of inflows completed within each duration interval (%)									
0-1 year	9.8	10.9	11.5	12.4	12.1	12.7	11.6	4.6[a]	11.6[b]
1-2 years	7.4	7.5	8.5	8.1	7.9	8.0	2.7[a]		7.9[b]
2-3 years	6.7	7.1	7.3	7.2	6.8	2.5[a]			7.0[b]
3-4 years	5.9	5.8	5.8	5.7	2.1[a]				5.8[b]
4-5 years	5.6	5.6	5.3	2.3[a]					5.5[b]
5-6 years	5.6	5.5	2.2[a]						5.6[b]
6-7 years	4.8	2.2[a]							4.8[b]
7-8 years	1.5[a]								1.5[b]
Right-censored	52.8	55.4	59.5	64.4	71.1	76.8	85.8	95.4	52.8
Outflows (exits)									
Number of outflows	21,848	24,075	23,251	26,154	26,463	28,520	27,130	25,082	202,523
Spell duration distribution of outflows									
<=2 yrs (%)	32.6	33.0	33.9	32.9	32.8	32.2	34.4	31.2	32.9
2-4 yrs (%)	21.7	19.5	18.7	19.3	18.9	17.4	16.7	16.3	18.5
4-6 yrs (%)	12.5	13.9	15.5	14.2	15.0	15.3	14.1	13.4	14.3
6-8 yrs (%)	8.2	8.1	8.4	9.8	10.4	10.2	10.7	12.2	9.8
8-10 yrs (%)	7.3	6.6	5.4	5.6	6.2	7.2	7.5	7.5	6.7
>10 yrs (%)	17.8	18.8	18.1	18.2	16.7	17.7	16.6	19.4	17.9
Mean (fortnights)	140.1	143.4	141.5	144.5	143.1	148.3	144.2	156.9	145.4

Notes: (a) Some spells are right-censored at spell durations less than the upper bound of this interval. Estimates exclude these spells, some of which would in fact have completed durations less than the upper bound. (b) Only the spells that *could* be observed to have a completed spell duration in the relevant interval are included. For example, the first estimate (11.6) is based on spells commenced in the period 1995 to 2001, whereas the second estimate (7.9) is based on spells commenced in the period 1995 to 2000.

The remaining panels of Table 1 provide information on flows into and out of DSP. As must be the case for the number of DSP recipients to have grown, outflows have been consistently lower than inflows. There has, however, been considerable variation in both inflows and outflows (although the first and last years should not be included in comparisons across years, since flows early in 1995 and late in 2002 do not enter our data). There was some increase in the number of outflows in each year to 2000, but – aside from a dip in 2000 – the number of inflows also grew steadily over the period.

The sixth panel of Table 1 indicates the origins of inflows to DSP in terms of income support receipt. The category 'Outside IS' applies to inflows where the recipient was not on income support in any of the seven fortnights immediately prior to commencement of the DSP spell. The 'Sickness benefit', 'Unemployment benefit' and 'Other payment' categories indicate that recipient was on income support in at least one of the seven fortnights immediately prior to commencement of the DSP spell, with the applicable payment type determined by the *last* (most recent) observed payment type. Approximately two-thirds of inflows are transfers from other income support payments, which are most commonly unemployment payments.[7]

The bottom part of the inflows panel provides an indication of the duration distribution of DSP spells commenced in each year. For example, 11 per cent of spells that commenced in 1996 were shorter than one year, and 55 per cent were still in progress at the end of the sample period. Conversely, 45 per cent of DSP spells commenced in 1996 were observed to be completed within seven years of commencement. Comparing across years, there is some evidence of a tendency towards shorter spells in more recent years. For example, 9.8 per cent of spells commenced in 1995 were less than one year's duration, compared with 12.7 per cent of spells commenced in 2000.

The duration distribution of spells completed (i.e., outflows) in each year is presented in the lower-most panel of Table 1. In all years, approximately one-third of completed spells were less than two years duration, with a further one-third between two and six years duration and the remaining one-third of completed spells in excess of six years duration. The mean duration of completed spells on DSP across the eight calendar years was 67 months. While strong trends in the duration distribution of completed spells over the eight year period are

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[7] The proportion of inflows from Sickness Allowance dropped dramatically between 1996 and 1997, from 20 per cent to 6 per cent, due to a change in eligibility criteria for Sickness Allowance which confined receipt to persons employed at the time of incapacitation (and who have an expectation of returning to their previous job upon recovery).

difficult to discern, there has been some tendency towards longer durations. In particular, the proportion of completed spells in the 2-4 years duration range has declined while the proportions in the intervals above six years have increased. Thus, while there has been an increase in the proportion of spells commenced each year that end within one year (as evidenced by the Table 1 panel on inflows), this has not arrested a broader trend towards longer completed DSP spell durations.

3.1   Preliminary descriptive statistics on DSP exits

We begin our analysis of exits from DSP by describing the number and nature of all exits from DSP that occur in the full sample period. Table 2 presents the destination composition of exits from DSP in each year over the period 1995 to 2002. The table shows that around half of DSP exits are transfers to the Age Pension, while twenty per cent are exits due to death and about one-quarter are other exits from DSP that do not involve transferring to other income support payments (which we refer to as 'non-transfer non-death' exits).

Table 2: Destination composition of exits from DSP, by year of exit (%)

	All exits				Non-transfer non-death exits			Number of exits	Total number of spells[a]
	Transfer to Age Pension	Transfer to other payment	Death	Non-transfer non-death exit	*Return to work*	*Other positive exits*	*Other exits*		
	(1)	(2)	(3)	(4)	*(5)*	*(6)*	*(7)*		
Males									
1995	57.8	1.1	22.2	18.9	-	-	-	17,898	181,180
1996	59.5	1	20.8	18.7	-	-	-	18,219	188,190
1997	53.3	1.8	21.3	23.6	-	-	-	18,137	192,579
1998	51.3	4.3	20.5	23.9	*34.9*	*30.2*	*34.9*	18,577	198,355
1999	50.1	2.6	19.7	27.6	*39.3*	*25.9*	*34.9*	19,426	204,750
2000	51.1	2.4	19	27.5	*44.7*	*17.3*	*38*	19,194	209,164
2001	50	2.1	18.7	29.2	*39.5*	*19.2*	*41.4*	19,796	215,299
2002	55.5	2.1	20.2	22.1	*46.3*	*17.3*	*36.4*	16,488	218,338
All yrs	53.5	2.2	20.3	24.1	*41.2*	*21.2*	*37.4*	147,735	344,654
Females									
1995	30	2.7	28.6	38.8	-	-	-	3,950	78,763
1996	45.5	1.5	20.8	32.1	-	-	-	5,856	88,153
1997	31.4	4.8	26.1	37.7	-	-	-	5,114	96,145
1998	49.1	5.6	18.4	26.9	*26.4*	*43.3*	*30.4*	7,577	105,404
1999	39.3	4.9	21.5	34.3	*30.6*	*35.7*	*33.7*	7,037	113,503
2000	56	3.4	16	24.7	*33.3*	*28.9*	*37.7*	9,326	121,269
2001	40.1	4.1	21	34.9	*32.0*	*27.5*	*40.5*	7,334	129,179
2002	59.2	3.8	17.6	19.4	*37.3*	*26.6*	*36.2*	8,594	136,106
All yrs	46	3.9	20.3	29.8	*32.2*	*31.4*	*36.5*	54,788	186,400

Note: [a] Total number of DSP spells in progress at some stage of the relevant period. Columns (1) to (4) sum to 100 and columns (5) to (7) sum to 100.

An important feature of DSP receipt evident from Table 2 is that non-transfer, non-death exits from DSP are not common. For example, the sample estimates imply that fewer than 40,000 male DSP spells were completed in 2001, of which fewer than 12,000 were non-transfer non-death exits. This constitutes a small proportion of the 431,000 male DSP spells that were in progress at some stage of that year. The number of exits in each year increases over the sample period (excluding 2002, for which only exits up until November 2002 are available), but – as indicated by Table 1 – this seems primarily to be a product of growth in the number receiving DSP over the period.

In many respects, the low rate of non-transfer non-death exit is to be expected. Disabilities, by their nature, tend to be long-term and therefore the conditions leading to entry to DSP in the first place are likely to be highly persistent over time. Furthermore, in recent years the income test applied to DSP recipients has meant few are likely to be rendered ineligible by excessive earnings if working less than 30 hours per week (which is the amount of work a recipient is deemed incapable of undertaking in order to be eligible for DSP). For example, a single DSP recipient would currently need to earn in excess of $34,000 per annum to be ineligible for DSP on the grounds of exceeding maximum allowable income.

Non-transfer non-death exits (column (4) of Table 2) can in general be regarded as reflecting a move to increased self-reliance, whereas other exit destinations cannot. However, the degree to which this is in fact the case will depend on the exit reason or destination and the extent to which the exits are sustained. Columns (5) to (7) of Table 2 present the composition of non-transfer non-death exits in terms of three destinations from May 1998. Among non-transfer non-death exits, approximately 60 per cent are known to be for reasons that could be regarded as 'positive' – returning to work, exceeding allowable income or assets, improved health or voluntary withdrawal. Exits due to take-up of employment alone account for approximately 40 per cent of non-transfer non-death exits for males and for 32 per cent of these exits for females. Between 1998 and 2002, the exit destination composition of these non-transitional exits changes significantly from year to year. While somewhat volatile, a general trend apparent is an increase in the proportion of non-transitional exits due to return to work.

Table 3 briefly compares the characteristics of DSP recipients observed to exit DSP in the sample period (1995 to 2002) with the characteristics of other DSP recipients. As well as aggregate comparisons of persons observed to exit with persons not observed to exit, the table also presents comparisons across persons characterised by type of exit: transfer to the Age Pension; transfer to other income support payments; cessation of payments due to death; and

non-transfer non-death exits. Statistics presented relate to characteristics at the time of exit for those who exit and at the end of the sample period for those who do not exit DSP. Before proceeding, it should be noted that comparisons between those observed to exit and those who do not exit do need to be interpreted with caution, since we are comparing flows (exits from DSP) with stocks (DSP recipients at the end of the sample period). Nonetheless, at the very least, characteristics of those who do not exit DSP are useful as a kind of reference point for interpreting characteristics of those who exit.

The table shows that persons observed to exit are more likely to be male than persons not observed to exit: 73 per cent of those who exit are male, compared with 61 per cent of those not observed to exit. This is likely to mostly reflect a 'cohort' effect – that is, earlier cohorts of entrants to DSP are more male-dominated than recent cohorts, and earlier cohorts tend to have higher exit rates, for example because of exits to the Age Pension. Support for this contention is found in the breakdown by exit type, which shows the male share of exits is highest for transfers to the Age Pension.

Those who exit tend to be older than those who do not, which is to be expected given that a major share of exits comprises transfers to the Age Pension. Significantly, however, those who transfer to other income support payments or go off payments altogether tend to be younger than those who do not exit. For example, 88 per cent of those who transfer to other payments and 77 per cent of those who go off all payments are under 55 years of age at the time of the exit from DSP. By comparison, only 58 per cent of those who did not exit DSP by the end of the sample period were under 55 years of age at the end of the sample period.

The third panel for Table 3 presents the country of birth and indigenous status composition of recipients observed to exit DSP between 1995 and 2002. Australian-born persons are more highly represented in the 'no exit' group than the 'exit' group, with non-English speaking background immigrants in particular under-represented in the 'no exit' group compared with the 'exit' group. However, transfer to the Age Pension is the exit group in which the native-born are relatively under-represented and in which NESB immigrants are relatively over-represented. This suggests that age is an important explanatory factor in the relatively lower share of the native-born and the relatively higher share of NESB immigrants in exits.

Table 3: Characteristics of persons who completed DSP spells in the period 1995-2002, by type of exit (%)

	Exit to:				All exits	No exit [a]
	Age Pension	Other IS payment	Death	Non-transfer non-death exit		
Sex						
Male	75.8	59.8	72.9	68.6	73.0	61.4
Female	24.2	40.2	27.1	31.5	27.1	38.6
Age at exit						
16-24	0.0	8.4	2.5	11.3	3.6	6.2
25-34	0.0	19.9	5.9	17.6	6.3	10.3
35-44	0.0	30.1	12.7	22.5	9.1	16.9
45-54	0.0	29.8	26.4	25.7	12.7	26.5
55-60	7.6	10.1	29.7	15.7	14.2	25.2
61-64	16.4	1.6	21.7	6.8	14.6	14.4
65+	76.0	0.1	1.1	0.4	39.4	0.5
Country of birth & indigenous status						
ESB immigrant	10.5	8.2	10.5	10.2	10.4	8.0
NESB immigrant	30.7	17.3	17.4	16.6	24.0	19.9
Indigenous	1.0	7.1	3.6	3.7	2.4	3.3
Non-indig. Aus-born	57.8	67.5	68.5	69.6	63.3	68.8
Duration on DSP (fortnights)						
Mean	187.0	114.9	138.9	70.3	145.4	175.7
Standard deviation	149.9	124.4	163.6	95.2	148.6	177.9
Duration distribution (%)						
<=2 yrs	16.1	32.2	42.2	59.2	32.9	27.1
2-4 yrs	18.7	27.7	15.4	19.5	18.5	18.3
4-6 yrs	17.7	17.8	11.0	9.6	14.3	13.4
6-8 yrs	13.4	6.9	7.8	4.6	9.8	12.3
8-10 yrs	9.3	3.7	5.5	2.5	6.7	6.8
>10 yrs	24.7	11.7	18.1	4.7	17.9	22.2
Origin						
Left-censored	67.3	43.0	48.5	30.0	53.3	33.3
Outside IS	18.2	15.2	26.0	37.4	24.6	21.7
Sickness benefit	2.7	6.4	6.0	6.7	4.5	4.7
Unemployment benefit	7.8	28.0	14.3	21.0	13.0	32.7
Other payment	4.0	7.5	5.2	5.1	4.6	7.6
Number of persons	104,174	5,348	41,089	51,912	202,523	325,912

Note: (a) Spells that were still in progress on 29 November 2002 (the end of the sample period).

The fourth and fifth panels of Table 3 present information on the duration distribution of completed spells and spells still in progress at the end of the sample period.[8] They show the mean and standard deviation of spell duration and the proportion of exits in each duration interval. Significantly, recipients with completed spells tend to have a shorter duration on DSP than the duration on DSP at the end of the sample period of recipients who did not exit.

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[8] The measure of spell duration used here is explicitly provided in the administrative records (i.e. there is a data item 'duration on payment').

This is indicated by a lower mean spell duration, which is driven by a higher proportion of short spells and lower proportion of very long (ten or more years) spells.

The estimates presented for completed spells by exit destination (the first four columns of Table 3) provide some insight into the differences in the nature of DSP receipt across individuals who exit to different destinations. These estimates also provide some indication of the implications of the sample selection restrictions necessarily imposed for the entry-cohort econometric analysis, which only considers exits that occur within three years of commencement of a DSP spell. These estimates show there to be substantial differences in completed spell durations across exit destinations. Only 4.7 per cent of non-transfer non-death exits were from spells in excess of ten years duration, compared with nearly a quarter of transfers to the Age Pension. Conversely, 59 per cent of non-transfer non-death exits were from spells of less than two years duration, compared with 16 per cent for transfers to the Age Pension. In terms of implications of the restriction of the entry-cohort econometric analysis to exits occurring within three years of spell commencement, these results suggest that we will capture approximately 40-50 per cent of exits, and – importantly – 70-75 per cent of non-transfer non-death exits.[9]

The origin of DSP recipients in terms of income support receipt (bottom panel of Table 3) is only known for those who commenced the DSP spell after January 1995. Thus, the origin is not known for one-third of those who did not exit DSP and over half of those who did exit DSP. However, it is informative to compare DSP recipients who exited off all income support payments (the fourth data column) with DSP recipients who did not exit (sixth data column), since the rates of left-censoring are similar for these two groups. The differences between these two groups in their origin composition are striking. One-third of those who did not exit DSP are known to have transferred to DSP from unemployment payments, compared with only 21 per cent of those who exited off all payments. Correspondingly, 37 per cent of those who exited off all payments entered DSP from outside the income support system, compared

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[9] Examination of non-transfer non-death exits after May 1998 (when cancellation reason is recorded) shows that differences in the completed spell duration distribution across cancellation reasons are much less pronounced than across the four exit destinations distinguished in Table 3. Notable, however, is that only 50-55 per cent of spells ending due to improved health occur within four years of spell commencement, compared with 70-75 per cent for all non-transitional exits. Thus, the entry cohort analysis will not pick up a relatively larger proportion of this type of 'positive' exit. Also of note is that those exiting for 'non-compliance' reasons tend to have longer spell durations than those making other non-transitional exits.

with only 22 per cent of those who did not exit. This is highly suggestive of inability to engage successfully in the labour market, *irrespective of disability*, as a predictor of non-exit.

4.   Entry cohort analysis

An entry-cohort approach involves following each individual who commenced a DSP spell in a particular period until the spell ends, or until a pre-specified spell duration is reached (e.g. three years).[10] We define the destination of a completed (uncensored) DSP spell to be the first destination following the spell end.

4.1   Descriptive analysis

Figures 1 and 2 provide a preliminary picture of duration on DSP for all recipients in the sample who commenced a DSP spell prior to 2002, presenting survival functions by entry year. Consistent with evidence already presented, the survival functions show the majority of DSP recipients to be long-term recipients, with the median duration well in excess of four years. In terms of changes over the sample period, the impression from Figure 1 is that more recent entry cohorts have tended to have shorter spells than earlier cohorts, indicated by the survival function of the 1997 entry cohort lying above that of the 1996 cohort, which in turn lies above the survival function of the 1995 entry cohort. However, this trend is not apparent in Figure 2 when comparing the 1998-2001 entry cohorts.

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[10] Our requirement of a seven fortnight break in payments before a new spell can be deemed to have commenced means that the earliest date of spell commencement in our data is 22 April 1995.

Figure 1: Empirical survival functions of DSP spells, by year of commencement - 1995-1997
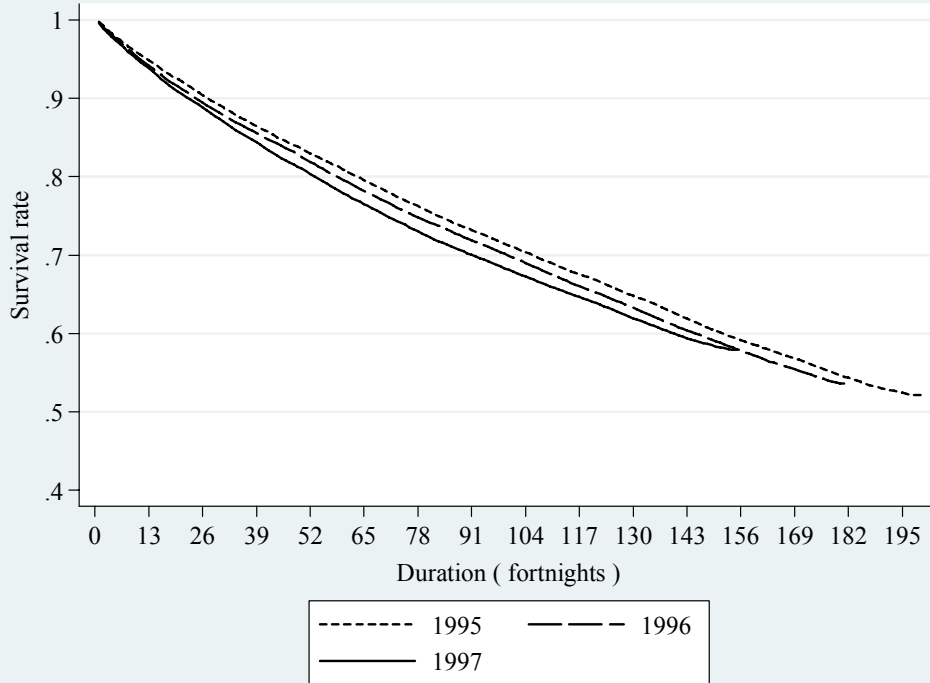

Figure 2: Empirical survival functions of DSP spells, by year of commencement - 1998-2001
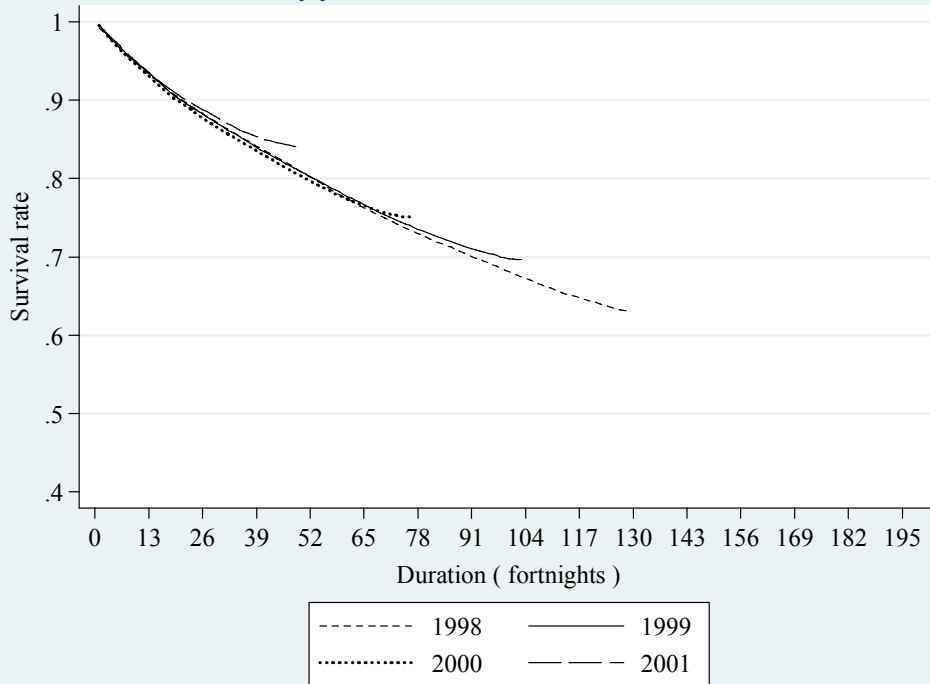
Table 4 provides some descriptive information on DSP spell destinations of the 1995 to 2000 entry cohort. The destinations distinguished are the same as for Table 2, but here we examine the proportion of the spells in this entry cohort ending at each destination, by elapsed duration.

Table 4: Proportion exiting to each destination, by spell duration – Individuals commencing a spell on DSP in the period 1995-2000 (%)

	Spell duration					
	<=1yr	<=2 yrs	<=3 yrs	<=4 yrs	<=5 yrs	<=6 yrs
A. Persons who commenced a DSP spell in the period 1995 to 2000[a]						
Males						
Age pension	2.2	5.2	8.2	11.3	14.9	18.7
Other payment	0.3	0.4	0.9	1.0	1.0	1.2
Death	4.0	5.7	6.9	7.9	9.0	9.9
Non transfer non death exit	6.1	9.7	12.1	13.5	14.2	14.6
Still on DSP	87.5	79.0	72.0	66.3	61.0	55.5
Females						
Age pension	1.5	4.0	6.5	9.4	11.9	14.1
Other payment	0.2	0.4	1.0	1.1	1.2	1.6
Death	3.1	4.5	5.4	6.3	7.0	7.5
Non transfer non death exit	4.3	7.2	9.4	11.0	12.0	13.0
Still on DSP	90.9	83.9	77.7	72.2	67.9	63.8
B. Disaggregation of non-transfer non-death exits – Persons who commenced a DSP spell in the period June 1998 to May 1999						
Males						
Return to work	*2.8*	*4.6*	*5.7*			
Other positive exits	*2.1*	*2.8*	*3.2*			
Other exits	*1.9*	*3.3*	*4.6*			
Total	6.8	10.7	13.5			
Females						
Return to work	*1.4*	*2.4*	*3.1*			
Other positive exits	*1.9*	*2.6*	*3.2*			
Other exits	*1.4*	*2.4*	*3.5*			
Total	4.7	7.4	9.8			

Note: [a] Only persons who can potentially be observed for a greater spell duration than indicated by the column heading are included. For example, only those commencing prior to December 1996 were used to estimate the proportion exiting within six years of spell commencement (right-most column).

Panel A presents the proportion exiting DSP within pre-specified periods of commencement of the spell, distinguishing between the same four destinations as in columns (1) to (4) of Table 2. The first column shows that, within one year of commencement, 2.2 per cent of male spells and 1.5 per cent of female spells ended via a transfer to the Age Pension, 0.3 per cent of male spells and 0.2 per cent of female spells ended via a transfer to another income support payment, 4 per cent of male spells and 3.1 per cent of female spells ended due to the

recipient's death, and 6.1 per cent of male spells and 4.3 per cent of female spells ended due to a non-transfer non-death exit. Within six years of spell commencement (right-most column of Table 1), 18.7 per cent of male recipients and 14.1 per cent of female recipients transferred from DSP to the Age Pension, 1.2 per cent of male recipients and 1.6 per cent of female recipients transferred to another income support payment, 9.9 per cent of male recipients and 7.5 per cent of female recipients died, and 14.6 per cent of male recipients and 13 per cent of female recipients exited all income support payments.[11]

Comparisons across the columns of Panel A indicate that the rate of exit from all payments is decreasing in spell duration. For example, 6.1 per cent of male DSP recipients exited all payments in the first year following spell commencement, compared with 3.6 per cent in the second year, 2.4 per cent in the third year and 1.8 per cent in the fourth year.[12] Thus, if a 'successful' exit from DSP is to be made (defined as a non-death transition off all payments), it is in general going to happen quite quickly after spell commencement. This is prima facie evidence of negative duration dependence for non-transfer non-death exits. Of course, the extent to which this derives from a 'lock-in' effect, whereby increased time on DSP itself makes exit more difficult, as opposed to systematic differences in the characteristics of DSP recipients by duration of receipt, cannot be resolved by examination of Table 4 alone.

Panel B of Table 4 examines exit reasons of non-transfer non-death exits in the three years following spell commencement for persons who commenced a DSP spell between June 1998 and May 1999. It reports the proportion of spells commenced in this period exiting for each of the three groups of reasons described in Section 3, with the cumulative proportions reported at one year, two years and three years after spell commencement. For example, 2.8 per cent of males who commenced a spell on DSP between June 1998 and May 1999 exited with a cancellation or suspension reason of 'return to work' within one year of commencement.

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[11] Note that some of these individuals may have subsequently gone back on to DSP or another income support payment. Estimates were also produced broken down by year of commencement, but are not reported. A trend evident from those estimates is that the proportion exiting all payments within two years of commencing a DSP spell steadily grew between 1995 and 1999, from 6.8 per cent of spells commenced in 1995 to 10.2 per cent of spells commenced in 1999. While there are a number of potential explanations for this trend, including policy changes over the period (for example, improvements in services to assist DSP recipients in obtaining employment) and changes to the composition of new DSP entrants, a likely candidate is the improvements in macroeconomic conditions that occurred over the period, fostering a labour market more receptive to DSP recipients attempting to obtain employment.

[12] Even if we take account of the diminishing 'stock' of recipients as duration increases (that is, examine rates of exit for each year of spell duration conditional on being 'at risk' of exit in that year), the male exit rates are 6.1% in the first year, 4.1% in the second year, 3.3% in the third year and 1.9% in the fourth year.

Within three years of spell commencement, 5.7 per cent of males had exited with this cancellation/suspension reason.

Return to work accounts for 42 per cent of the male non-transfer non-death exits that occur within three years of spell commencement, and 32 per cent of the female non-transfer non-death exits. A further 24 per cent of male and 33 per cent of female non-transfer non-death exits can be characterised as 'positive'. These shares are relatively stable irrespective of the spell duration window, being roughly the same for spells ending within one year as for all spells ending within three years. They are also similar to the shares identified for all non-transfer non-death exits in Table 2, which is further indication that the relative likelihood of exiting to each of these three 'destinations' is reasonably invariant with respect to spell duration.

4.2   Econometric analysis

For the econometric analysis, we estimate multinomial logit models of the probability of each of several DSP spell destinations occurring within three years of commencing a spell on DSP. Five destinations are distinguished: return to work; other 'positive' exit; other exit; no exit; and death. The definitions for the first three categories are the same as in Tables 2 and 4, while the no exit category comprises those who still on DSP and those who had transferred to other income support payments There are in fact very few transfers to other payments in our sample, because we eliminate the possibility of transitions to the Age Pension, which are simply a function of ageing. This restriction is achieved by including only persons below the qualification age for the Age Pension for the entire three year window. Thus, the maximum age at DSP spell commencement is 62 years for males and 58.5 years for females.[13]

The choice of the three-year observation window for examining exit destinations is the outcome of a trade-off between maximising the number of spells in our sample and

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[13] Clearly, an alternative approach to a logit model of destination within three years of spell commencement is a competing risk duration model. Such a model would offer additional information on the factors associated with *faster* exit, and would allow inclusion of time-varying explanatory variables. However, the logit model is a more attractive alternative for investigating the determinants of *whether* exit occurs, particularly in the context of the very low rates of exit and the need to model four distinct exit destinations (five outcomes). Note, however, that multinomial logit model requires the 'Independence of Irrelevant Alternatives' (IIA) assumption to hold. This requires the probability of one outcome relative to another to be insensitive to the existence of another possible outcome. Two commonly employed tests of the IIA assumption are the Hausman test and the Small-Hsiao test. However, these tests actually provide little guidance to violations of the IIA assumption, and in practice the validity of the IIA assumption depends on modelling outcomes that are sufficiently distinct from each other. Our judgement is that the five outcomes we have specified for our dependent variable satisfy the criterion of being sufficiently distinct from each other.

maximising the observation window. With a three-year window, we can examine spells commencing between May 1998 and August 1999. Spells commencing earlier will not have complete exit reason data, while the three-year destination will not be known for all spells commencing later.[14] We in fact restrict our sample to DSP spells commenced in the period June 1998 to May 1999, so that each calendar month is represented in the sample only once. Note that, while the exclusion of spells commencing prior to June 1998 is not ideal, this restriction does have the benefit of providing us with over three years of income support payment history (from 1995 on) for each sample member.

Explanatory variables are included for age, country of birth, partner status and income support receipt, presence of dependent children, earned and unearned income, location of residence, the local unemployment rate, main medical condition, income support payment history and housing circumstances. All variables other than the income variables are evaluated at commencement of the DSP spell.[15]

For income, we distinguish between labour market income and other personal (non-welfare) income on the basis that they potentially have different implications for exit behaviour. In general, one might expect non-welfare income that doesn't affect payment entitlement to reduce labour supply and hence reduce the likelihood of exit from payments. However, unlike other income, earnings are an indicator of successful labour market participation, and may therefore be associated with increased prospects of exit. Two variables are employed for each of these two types of income: (1) the proportion of time in the spell the recipient had income; and (2) mean income evaluated over those fortnights in the spell in which it is positive.

A strength of the administrative data is the comprehensive nature of the information on receipt of income support payments. One of the uses to which we put this information is to explore the effects associated with income support payment history prior to DSP spell commencement. Two sets of variables for payment receipt in the three and a half years leading up to the DSP spell are included in our reported specification. The first set captures the extent of reliance on income support payments, comprising four dummy variables for the proportion of time spent on income support payments (TTO): 0, 1-50%, 50-99%, 100%. The second set comprises three dummy variables for the origin of the individual immediately prior

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[14] Our definition of exit (off payments for at least seven consecutive fortnights) means that we require an observation window of three years plus seven fortnights, giving us the August 1999 cut-off.

[15] Full details on the variables are reported in Appendix Table 2.

to DSP spell commencement: not on income support, on unemployment benefits; and on other income support payment.

We allow for differential effects by age for the variables for the local unemployment rate, main medical condition and pre-DSP TTO by interacting them with a dummy variable equal to one if the individual was aged over 45 years at spell commencement. While in principle all age dummy variables could be interacted with all other variables, we settled on distinguishing between those under the age of 45 and those over the age of 45 on the basis that this should capture in a parsimonious manner any age dependence in the effects of other characteristics.[16]

Estimation results are reported in Table 5.[17] Coefficient estimates are not readily interpretable for logit models, and the effects of individual explanatory variables on the outcome variable depend on the values of the explanatory variables at which they are evaluated. Consequently, rather than report coefficient estimates, 'mean marginal effects' of the explanatory variables are reported. For a continuous explanatory variable, the marginal effect of explanatory variable x_k on outcome m is the change in the probability of outcome m per unit increase in x_k. For a binary (0-1) explanatory variable, the marginal effect is the change in the probability of outcome m resulting from a change in the explanatory variable from zero to one. The *mean* marginal effect is obtained by evaluating the marginal effect for each observation and then taking the mean over all observations in the sample.

Although mean marginal effects sum to zero across the five outcomes, estimates are reported for all five outcomes for the purposes of statistical inference (since the standard error for the omitted outcome cannot be inferred from the estimates for the other outcomes). Our primary interest is in the effects of characteristics on the probability of return to work and other positive exits, and so our discussion correspondingly focuses on the third and fourth data columns. Models are estimated separately for males and females on the basis that the determinants of three-year destinations of DSP spells are likely to differ substantially. However, it turns out that, although there are important differences, there are many similarities in the results for males and females; consequently, we discuss the results for males and females concurrently.

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[16] We experimented with interactions between the age dummy and the spell origin and income variables, but the coefficient estimates for these interaction terms were all statistically insignificant and so the reported specification excludes them.

[17] Sample means of the explanatory variables are reported in Appendix Table 3.

Considering first age, the point estimates imply that, for both males and females, return to work within three years of spell commencement is less likely the older the recipient. However, differences by age are only statistically significant for males aged over 55 versus all younger males, and for females aged over 35 versus all younger females. The probability of other positive exit does not significantly differ by age for males or females. Also notable is that, beyond age 25, the older the DSP recipient at entry, the more likely he or she is to remain on DSP the entire three year period (first column). Persons aged 16-24 years at entry on to DSP have a higher probability of remaining on income support than all older persons except those aged over 55 years at entry, which is likely to reflect differences in the nature of the disabilities of this young age-at-entry group (not captured by 'main medical condition').

The variables for country of birth and indigenous status indicate a positive impact on the probability of return to work of being either non-indigenous Australian-born or English-speaking background foreign-born. No significant differences in the probability of other positive exit exist for the country of birth and indigenous status variables. Partner status and partner income support receipt are associated with different effects on the likelihood of return to work for males and females. For females, being single is associated with a higher probability of return to work compared with being partnered, whether or not the partner is on income support. For males, only if the partner is on income support at commencement of the DSP spell does having a partner have a negative effect compared with being single. This might reflect higher disincentives for working when a partner is on income support, because of its effects on the partner's income support payments. The absence of this differential by partner income support status for females may derive from social norms with respect to labour force participation for women in couple families.

Also significant to note with respect to partner status is that, for both males and females, having a partner who is on income support on average increases the probability of not exiting DSP. In particular, compared with having a partner who is not on income support, having a partner on income support on average increases the probability of remaining on DSP for the entire three year period by 0.04 for females and by 0.07 for males. As with the finding with respect to return to work for males, this is consistent with reduced incentives to exit for recipients whose partner is also on income support. However, it should be emphasised that this result could derive from unobserved characteristics correlated with partner status.

Table 5a: Determinants of DSP spell destination – Males

	No exit		Death		Return to work		Other 'positive' exit		Other exit	
	MME	SE	MME	SE	MME	SE	MME	SE	MME	SE
Age group (16-24 omitted)										
25-34	-0.061**	0.018	0.033**	0.015	0.009	0.007	0.016	0.012	0.003	0.007
35-44	-0.036**	0.017	0.039**	0.015	-0.004	0.006	0.012	0.010	-0.011*	0.006
45-54	-0.008	0.022	0.033*	0.017	-0.011	0.010	0.012	0.011	-0.025**	0.010
55+	0.054**	0.021	0.036**	0.016	-0.040**	0.009	0.000	0.010	-0.049**	0.009
Country of birth & indigenous status (Non-indigenous Australian-born omitted)										
ESB	-0.019*	0.011	-0.003	0.005	0.004	0.006	0.001	0.004	0.017**	0.007
NESB	0.028**	0.008	-0.018**	0.004	-0.013**	0.004	0.000	0.003	0.003	0.005
Indigenous	-0.001	0.016	0.005	0.011	-0.034**	0.006	-0.009	0.008	0.039**	0.010
Partner status (Single omitted)										
Partner not on IS	-0.032**	0.011	-0.004	0.005	0.028**	0.007	0.015**	0.005	-0.007	0.007
Partner on IS	0.039**	0.009	-0.038**	0.004	-0.001	0.005	0.006	0.004	-0.006	0.005
Presence of children (No children omitted)										
Youngest 0-5	-0.039**	0.016	0.025**	0.012	-0.007	0.007	0.020**	0.008	0.001	0.009
Youngest 6-11	-0.037**	0.016	0.034**	0.012	0.005	0.008	-0.002	0.006	0.000	0.009
Youngest 12-14	-0.021	0.017	0.001	0.010	0.022**	0.010	0.002	0.006	-0.004	0.010
Youngest ≥15	0.030	0.028	0.002	0.019	-0.006	0.016	0.002	0.011	-0.029**	0.015
Earned income										
Amount	0.001	0.002	-0.008**	0.002	0.010**	0.001	-0.002**	0.001	-0.001	0.001
Time	0.030	0.019	-0.050**	0.017	0.034**	0.007	0.000	0.008	-0.014	0.011
Unearned income										
Amount	-0.006**	0.003	-0.002	0.002	-0.004**	0.002	0.005**	0.001	0.008**	0.001
Time	0.026**	0.008	-0.007	0.004	-0.003	0.005	0.007*	0.004	-0.023**	0.005
Region and local unemployment rate										
Capital city	-0.013**	0.006	0.006	0.004	0.005	0.004	-0.006**	0.003	0.009**	0.004
Unemp. rate	0.005**	0.002	-0.004**	0.001	-0.001	0.001	0.001	0.001	-0.001*	0.001
Unemp. rate*age 45+	-0.002	0.002	0.002*	0.001	-0.002*	0.001	-0.001	0.001	0.003**	0.001
Main medical condition (MUS omitted)										
PSY	-0.010	0.016	0.059**	0.016	-0.011**	0.005	-0.027**	0.003	-0.011*	0.006
INT	0.087**	0.017	-0.037**	0.015	-0.006	0.007	-0.032**	0.003	-0.012*	0.007
OTH	-0.061**	0.014	0.106**	0.012	-0.005	0.005	-0.023**	0.005	-0.017**	0.006
PSY*age 45+	-0.043**	0.020	-0.016	0.011	0.004	0.010	0.023*	0.013	0.032**	0.013
INT*age 45+	-0.208	0.134	0.079	0.129	0.032	0.045	0.099	0.146	-0.002	0.034
OTH*age 45+	-0.028*	0.015	0.009	0.010	-0.005	0.007	0.010	0.006	0.013	0.009
Spell origin (Outside IS omitted)										
Unemployment	0.157**	0.009	-0.032**	0.006	-0.062**	0.005	-0.015**	0.004	-0.048**	0.005
Other IS payment	0.104**	0.014	-0.019**	0.009	-0.042**	0.006	-0.018**	0.005	-0.024**	0.009
Past IS receipt (TTO=0 omitted)										
TTO: 1-50%	-0.190**	0.017	0.008	0.010	0.068**	0.010	0.022**	0.008	0.092**	0.014
TTO: 50-99%	-0.137**	0.017	-0.022**	0.008	0.066**	0.010	-0.007	0.006	0.100**	0.015
TTO: 100%	-0.012	0.019	-0.015	0.011	-0.001	0.010	-0.022**	0.005	0.050**	0.015
TTO: 1-50%*age 45+	0.045**	0.015	-0.002	0.010	0.003	0.009	-0.019**	0.005	-0.026**	0.007
TTO: 50-99%*age 45+	0.030*	0.016	0.005	0.012	0.009	0.010	-0.006	0.007	-0.037**	0.007
TTO: 100%*age 45+	0.016	0.021	0.025	0.015	-0.002	0.016	-0.017**	0.008	-0.021**	0.009

Table 5a continued: Determinants of DSP spell destination – Males

	No exit		Death		Return to work		Other 'positive' exit		Other exit	
	MME	SE	MME	SE	MME	SE	MME	SE	MME	SE
Housing status (Home owner outright omitted)										
Home-purchasing	-0.027	0.018	0.004	0.010	0.030**	0.011	0.008	0.007	-0.014	0.010
Owner-other	-0.020	0.015	0.011	0.008	0.005	0.009	-0.002	0.005	0.007	0.011
Private renting	0.000	0.009	-0.007	0.005	0.008	0.005	-0.009**	0.003	0.008	0.006
Public renting	0.054**	0.012	-0.018**	0.007	-0.012*	0.007	-0.019**	0.004	-0.005	0.008
Other renting	0.015	0.011	-0.011*	0.006	0.004	0.007	-0.017**	0.004	0.009	0.007
Renting: Unknown	0.012	0.010	-0.024**	0.005	0.013**	0.007	-0.008*	0.004	0.006	0.007
State or territory of residence (NSW omitted)										
VIC	0.014*	0.007	0.001	0.005	0.002	0.004	-0.001	0.003	-0.016**	0.004
QLD	0.005	0.008	0.002	0.005	0.004	0.005	-0.011**	0.003	0.000	0.005
SA	0.038**	0.010	0.007	0.007	-0.010*	0.006	-0.019**	0.003	-0.016**	0.005
WA	-0.004	0.011	0.005	0.007	0.012*	0.007	-0.011**	0.004	-0.002	0.006
TAS	0.054**	0.014	-0.027**	0.008	-0.009	0.009	-0.006	0.006	-0.012	0.008
NT	-0.001	0.029	0.047**	0.021	-0.027*	0.014	-0.008	0.011	-0.012	0.014
ACT	0.032	0.022	-0.020*	0.012	0.009	0.014	0.000	0.010	-0.021*	0.011

Number of observations: 20,375	Log likelihood: -14,424.0	Pseudo R^2: 0.144

Notes: Estimates are multinomial logit mean marginal effects on the probability of each spell destination. The sample comprises persons who commenced a DSP spell in the period June 1998 to May 1999. *MME* – mean marginal effects; *SE* – standard errors for the estimates, derived from 400 bootstrap samples. * and ** indicate significance at the 10% and 5% levels, respectively. See Appendix Table 2 for explanation of the variables.

The presence of young dependent children is associated with an increased probability of exit from DSP for males. However, this largely arises via an increased probability of death, implying it is driven by a selection effect: males with young children who enter DSP are relatively more likely to have a terminal illness. For females, having dependent children is associated with a decreased probability of return to work. On average, the presence of dependent children, the youngest of whom is below secondary school age, decreases a female's probability of return to work within three years of DSP spell commencement by approximately 0.03. This likely reflects associated caring responsibilities acting to decrease labour supply (e.g. Kalb 2002). Having a youngest dependent child aged 15 or older is also associated with a decreased probability of return to work within three years of spell commencement, which is less easily explained. Selection effects are likely to be at least part of the explanation.

Table 5b: Determinants of DSP spell destination – Females

	No exit		Death		Return to work		Other 'positive' exit		Other exit	
	MME	SE	MME	SE	MME	SE	MME	SE	MME	SE
Age group (16-24 omitted)										
25-34	-0.083**	0.027	0.034*	0.019	-0.005	0.005	0.039*	0.023	0.015	0.010
35-44	-0.059**	0.023	0.049**	0.018	-0.011**	0.005	0.027	0.017	-0.006	0.008
45-54	-0.037	0.027	0.080**	0.022	-0.018**	0.008	0.004	0.014	-0.029**	0.012
55+	-0.012	0.029	0.076**	0.027	-0.022**	0.006	-0.007	0.013	-0.035**	0.009
Country of birth & indigenous status (Non-indigenous Australian-born omitted)										
ESB	-0.040**	0.013	0.004	0.007	0.009	0.006	0.003	0.006	0.024**	0.009
NESB	0.022**	0.009	-0.012**	0.005	-0.013**	0.004	-0.002	0.004	0.005	0.006
Indigenous	-0.015	0.018	0.001	0.010	-0.013**	0.006	0.005	0.011	0.022*	0.011
Partner status (Single omitted)										
Partner not on IS	-0.010	0.010	0.007	0.006	-0.010**	0.005	0.015**	0.006	-0.003	0.006
Partner on IS	0.032**	0.009	-0.022**	0.005	-0.011**	0.005	0.005	0.005	-0.005	0.006
Presence of children (No children omitted)										
Youngest 0-5	0.021	0.018	-0.005	0.011	-0.025**	0.004	-0.003	0.007	0.012	0.011
Youngest 6-11	0.000	0.016	0.013	0.010	-0.025**	0.004	-0.005	0.007	0.017	0.010
Youngest 12-14	0.011	0.015	-0.014*	0.007	-0.008	0.006	0.009	0.008	0.002	0.010
Youngest ≥15	0.017	0.020	-0.010	0.011	-0.015**	0.008	0.025*	0.014	-0.017*	0.010
Earned income										
Amount	0.005	0.003	-0.009**	0.003	0.007**	0.001	-0.004**	0.002	0.002	0.001
Time	-0.032*	0.018	-0.015	0.015	0.018**	0.005	0.011	0.009	0.018**	0.009
Unearned income										
Amount	-0.011**	0.005	0.003	0.002	0.001	0.004	0.006**	0.001	0.002	0.003
Time	0.016*	0.009	-0.004	0.005	-0.002	0.004	0.001	0.004	-0.011**	0.006
Region and local unemployment rate										
Capital city	0.000	0.007	-0.004	0.004	0.005	0.003	0.001	0.003	-0.003	0.004
Unemp. rate	0.003*	0.002	-0.002**	0.001	-0.001	0.001	0.000	0.001	0.000	0.001
Unemp. rate*age 45+	0.001	0.002	0.000	0.001	0.000	0.001	0.000	0.001	0.000	0.001
Main medical condition (MUS omitted)										
PSY	-0.007	0.024	0.044*	0.024	-0.006	0.005	-0.021**	0.005	-0.011*	0.006
INT	0.076**	0.030	0.014	0.029	-0.024**	0.004	-0.030**	0.003	-0.036**	0.005
OTH	-0.065**	0.020	0.109**	0.019	-0.004	0.005	-0.025**	0.006	-0.015**	0.006
PSY*age 45+	-0.025	0.023	-0.031**	0.011	0.014	0.013	0.023	0.015	0.020	0.014
INT*age 45+	0.010	0.097	0.005	0.069	-0.032**	0.001	-0.032**	0.014	0.050	0.080
OTH*age 45+	-0.026	0.019	-0.007	0.014	0.010	0.010	0.019*	0.010	0.004	0.010
Spell Origin (Outside IS omitted)										
Unemployment	0.120**	0.011	-0.035**	0.007	-0.036**	0.005	-0.017**	0.005	-0.033**	0.006
Other IS payment	0.074**	0.011	-0.007	0.008	-0.029**	0.003	-0.015**	0.005	-0.023**	0.006
Past IS receipt (TTO=0 omitted)										
TTO: 1-50%	-0.092**	0.018	-0.014	0.009	0.076**	0.014	0.012	0.008	0.018*	0.009
TTO: 50-99%	-0.050**	0.018	-0.022**	0.008	0.072**	0.015	-0.006	0.008	0.006	0.009
TTO: 100%	0.014	0.020	-0.015	0.010	0.035**	0.015	-0.023**	0.006	-0.011	0.009
TTO: 1-50%*age 45+	0.015	0.017	-0.006	0.011	-0.012*	0.007	0.001	0.008	0.002	0.010
TTO: 50-99%*age 45+	0.023	0.019	-0.009	0.011	-0.014**	0.007	-0.010	0.008	0.010	0.013
TTO: 100%*age 45+	0.026	0.020	-0.009	0.010	-0.013	0.009	-0.007	0.009	0.004	0.015

Table 5b continued: Determinants of DSP spell destination – Females

	No exit		Death		Return to work		Other 'positive' exit		Other exit	
	MME	SE	MME	SE	MME	SE	MME	SE	MME	SE
Housing status (Home owner outright omitted)										
Home-purchasing	-0.009	0.018	0.013	0.012	0.006	0.010	0.002	0.008	-0.012	0.009
Owner-other	-0.007	0.017	0.000	0.009	0.014	0.013	-0.004	0.006	-0.003	0.011
Private renting	-0.006	0.010	0.007	0.006	-0.008*	0.005	-0.007	0.004	0.014**	0.007
Public renting	0.029**	0.012	-0.006	0.007	-0.003	0.006	-0.006	0.006	-0.014**	0.007
Other renting	-0.003	0.014	0.009	0.010	0.001	0.007	-0.014**	0.006	0.009	0.009
Renting: Unknown	0.010	0.012	-0.013*	0.007	0.002	0.006	-0.003	0.006	0.003	0.008
State or territory of residence (NSW omitted)										
VIC	0.008	0.009	0.003	0.006	-0.002	0.004	0.005	0.004	-0.013**	0.005
QLD	0.003	0.009	0.002	0.006	-0.002	0.004	-0.005	0.004	0.001	0.005
SA	0.027**	0.011	0.005	0.007	-0.002	0.005	-0.005	0.006	-0.025**	0.005
WA	0.000	0.012	0.010	0.008	-0.008*	0.005	0.003	0.006	-0.005	0.007
TAS	0.026	0.018	-0.022**	0.009	-0.011	0.007	-0.004	0.008	0.011	0.012
NT	-0.010	0.036	0.043*	0.026	0.012	0.020	-0.022**	0.011	-0.023	0.015
ACT	0.019	0.024	-0.025**	0.012	-0.010	0.009	0.018	0.016	-0.002	0.014

Number of observations: 12,478   Log-likelihood: -7,124.3   Pseudo R^2: 0.151

Notes: Estimates are multinomial logit mean marginal effects on the probability of each spell destination. The sample comprises persons who commenced a DSP spell in the period June 1998 to May 1999. *MME* – mean marginal effects; *SE* – standard errors for the estimates, derived from 400 bootstrap samples. * and ** indicate significance at the 10% and 5% levels, respectively. See Appendix Table 2 for explanation of the variables.

As suggested by the estimated effects of the partner status variables, income from sources other than own income support payments is likely to impact on DSP spell destination. Earned income has the potential to be particularly important, not so much because of the income it delivers *per se*, but rather because its frequency and level are proximate measures of work capacity and the level of engagement with the labour market of the individual while receiving DSP. The estimates obtained bear this out, with both the earned income variables having statistically significant effects on the return to work probability of both males and females. However, neither of these effects is large in an economic sense. A $100 increase in mean fortnightly earnings in those fortnights in which earnings were positive is associated with an increase in the probability of return to work of only 0.01 for males and 0.007 for females. Similarly, an increase in the proportion of the spell that an individual has earnings from zero to 100 per cent increases the probability of return to work by 0.034 for males and 0.018 for females.

Importantly, greater earnings do not significantly impact on the probability of staying on DSP for the entire three-year period. It might have been expected that the increased probability of return to work would have been associated with a reduced probability of non-exit. However, the increased probability of return to work in fact comes about largely via a lower probability of death. This suggests that some of the effect we are capturing for the earnings variables is in

fact a health effect rather than a 'labour market engagement' effect. That is, healthier recipients, as measured by risk of death, are more likely to work while on DSP.

Unearned income is associated with quite different effects to earned income. Only for males is there a discernible impact on the likelihood of return to work, which is that increased unearned income marginally *decreases* the probability of return to work. Unearned income does, however, increase the probability of 'other positive' exits for both males and females, which may be connected with partner earnings and income and assets payment eligibility criteria. Interestingly, increased time with unearned income increases the likelihood of remaining on DSP for the entire three years following spell commencement, whereas increased mean unearned income decreases this likelihood. The former effect may reflect a negative labour supply effect of unearned income, while the latter result possibly reflects greater risk of failing the income test – that is, the higher is unearned income, the more likely it is to subsequently increase beyond the allowable limit. The latter result may also in part reflect a lower opportunity cost of exiting DSP: unearned income will cause a reduction in benefits payable once the 'free area' is exceeded, implying the loss of benefits from exiting DSP is lower the higher is unearned income.

Variables for the location of residence at commencement of the spell comprise a capital city dummy, state dummies and the local unemployment rate. Residing in a capital city is not associated with any significant effects for females, but for males does have a significant negative effect on the probability of 'other positive exit'. We use the unemployment rate in the individual's ABS labour force statistical region (of which there are 63; see ABS, 2002 for details) to proxy for labour demand conditions faced by the individual. Estimates imply that labour demand conditions impact on the probability of remaining on DSP for males, each percentage point increase in the local unemployment rate on average increasing the probability of remaining on DSP for the entire window by 0.005 for males and 0.003 for females. This does not translate into a significantly lower probability of return to work; rather, it largely reflects a reduced likelihood of death within three years of spell commencement. This may in turn reflect the fact that adverse labour market conditions increase inflows of 'healthier' persons. That is, a higher unemployment rate may reduce employment prospects for a wider spectrum of persons with disabilities and lead to increased inflow of persons to DSP of persons with less severe disability (where severity is measured by risk of death).

The specification reported in Table 5 allows the effect of the local unemployment rate to differ between recipients under 45 years of age and recipients over 45 years of age. For males,

significant (but small) differences do exist between the two age groups. In particular, there is a weakly significant negative effect on the likelihood of return to work associated with an increased local unemployment rate for males aged over 45 years, which is not present for males under 45 years of age.

The nature and severity of the disability experienced by the DSP recipient is likely to be very important to three-year spell destination. While the administrative data set does not contain information on disability severity, it does contain information on the type of the disability as captured by the data item 'main medical condition'. We use this information to generate four dummy variables: musculoskeletal and connective tissue (MUS); psychological and psychiatric (PSY); intellectual and learning (INT); and other (OTH). Point estimates imply that, for persons under 45 years of age, 'return to work', 'other positive exit' and 'other exit' are more likely if the individual has a musculoskeletal condition, although for return to work the difference from other main medical conditions is mostly not statistically significant. Also notable for females in the under-45 age group is that intellectual disability is associated with a significantly lower probability of return to work than the other medical conditions. 'Other' medical conditions are associated with the highest likelihood of death within three years of spell commencement, while musculoskeletal conditions are associated with the lowest likelihood of death.

Interactions between the medical condition dummies and the age dummy variable indicate several differences between younger and older persons in the effects associated with medical condition, although these differ between males and females. For males, psychological and psychiatric conditions are associated with an increased probability of 'other exit' for those over 45, which is not apparent for males under 45; and the negative effect of such conditions on the probability of 'other positive exit' compared with musculoskeletal conditions that is evident for males under 45 is not evident for males over 45. 'Other' medical conditions are also associated with a greater increase in probability of exit from DSP (first column) for the older male age group. For females, intellectual/learning conditions have a larger negative mean impact on probabilities of return to work and other positive exit for those over the age of 45. In addition, the increased probability of death associated with psychological/psychiatric conditions for females under 45 does not hold for females over 45.

Recent income support history is captured by two sets of variables: three dummy variables for spell origin and four dummy variables for the proportion of the three years proceeding DSP spell commencement on income support (TTO). In terms of spell origin, compared with entry

to DSP from outside the income support system, transferral from unemployment payments on average decreases the probability of return to work significantly – by 0.06 for males and by 0.04 for females. Transferral from other income support payments is likewise associated with a (smaller) negative impact on probability of return to work when compared with entry from outside the IS system. Transferral to DSP from income support payments (whether or not unemployment payments) also decreases the probability of other positive exit. Perhaps most telling is that, relative to originating from outside the income support system, transferring from unemployment payments on average increases the probability of staying on DSP for the entire three-year period following spell commencement by 0.16 for males and 0.12 for females. The corresponding figures for transferral from other income support payments are 0.1 and 0.07.

A recent history of income support receipt is associated with an increased probability of return to work, and decreased probability of remaining on DSP for the entire three year period, provided the period was not entirely spent on income support – and provided the individual did not transfer directly from another income support payment. For example, focusing on persons under 45 years of age, compared with no recent history of income support receipt, the mean effect of *some* receipt in the three period prior to spell commencement is to increase the probability of return to work by approximately 0.07, and to decrease the probability of remaining on DSP for the entire three year period by at least 0.14 for males and by at least 0.05 for females. On the surface, this appears to be a somewhat odd result – that a history of income support receipt increases the likelihood of returning to work compared with no history. However, this most likely reflects a relatively high degree of churning behaviour by individuals who exit DSP due to return to work.

In terms of differences in effects of recent income support receipt by age, the main finding is that positive effects on likelihood of exit associated with recent history of income support receipt are less pronounced for older recipients. For example, the estimates imply that a history of some income support receipt decreases the probability of remaining on payments for the entire three years by at least 0.11 for males aged over 45 (compared with 0.13 for under-45s) and by at least 0.03 for females aged over 45 (compared with 0.05 for under-45s). For males, this derives from lower probabilities of other positive exits and other exits, while for females it derives from a lower return-to-work probability.

To summarise the results of the entry-cohort analysis, we find a number of factors significantly impact on the destination of DSP recipients in the three years following

commencement of a DSP spell. The numerous results obtained from this analysis can be difficult to synthesise, but some of the findings deserve particular emphasis for their significance. Two results in particular stand out. First is the finding of adverse effects associated with transferral to DSP from unemployment payments. This finding would seem to be important, because it is not clear that persons in this group are in general more severely disabled than persons entering DSP from other sources. The strong suggestion is that DSP receipt for the group entering from unemployment payments is very much connected to inability to successfully participate in the labour market that is not fully explained by the presence of a disability. The second result concerns the finding that recent history of income support receipt increases the probability of 'successful' exit, provided the individual was not continuously on income support in the period immediately preceding commencement of the DSP spell and did not transfer directly from another income support payment.

5. Exit cohort analysis

Our exit cohort analysis involves following DSP recipients for a pre-specified period following exit from DSP. Interest is in the extent to which the transition off DSP is sustained, which naturally limits our focus to non-transfer non-death exits. The reason for excluding transfers to other income support payments is that we are primarily interested in the predictors of exit off *all* income support payments.[18] Note, however, that in 'following' recipients in the period after exit, we know nothing about the circumstances of the individuals when they are not on income support, other than that they are not on income support. Thus, for example, a person who exits DSP and does not return will be regarded as a person who has sustained a situation of non-reliance on income support, but it may be that the individual in fact died shortly after exiting DSP. While this is likely to be a relatively rare occurrence, it will apply to some individuals.

5.1 Descriptive analysis

A useful starting point for the exit cohort analysis is to examine the proportion returning to DSP or other income support payments in the period following exit. Figure 3 does this, showing the cumulative proportion of the 1995-98 exit cohort (those making a non-transfer non-death exit in the period 1995 to 1998) returning to income support payments at each duration after exit. Note that the graph includes all persons who have at some stage up to that

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[18] Indeed, most transfers to other income support payments comprise transfers to the Age Pension.

point returned to payments, even if they have since left income support payments again. It indicates there is a high rate of return to payments. For example, approximately 50 per cent of those who exited DSP in 1995-98 returned to income support payments within two years. The graph also distinguishes returns to DSP from returns to other income support payments (on the basis of the destination of the *first* return to payments). Mostly, persons who return take-up DSP receipt again: within four years of exit, approximately 53 per cent return to DSP, and a further 12 per cent return to other income support payments.

Figure 3: Cumulative proportion returning to payments, by duration since exit
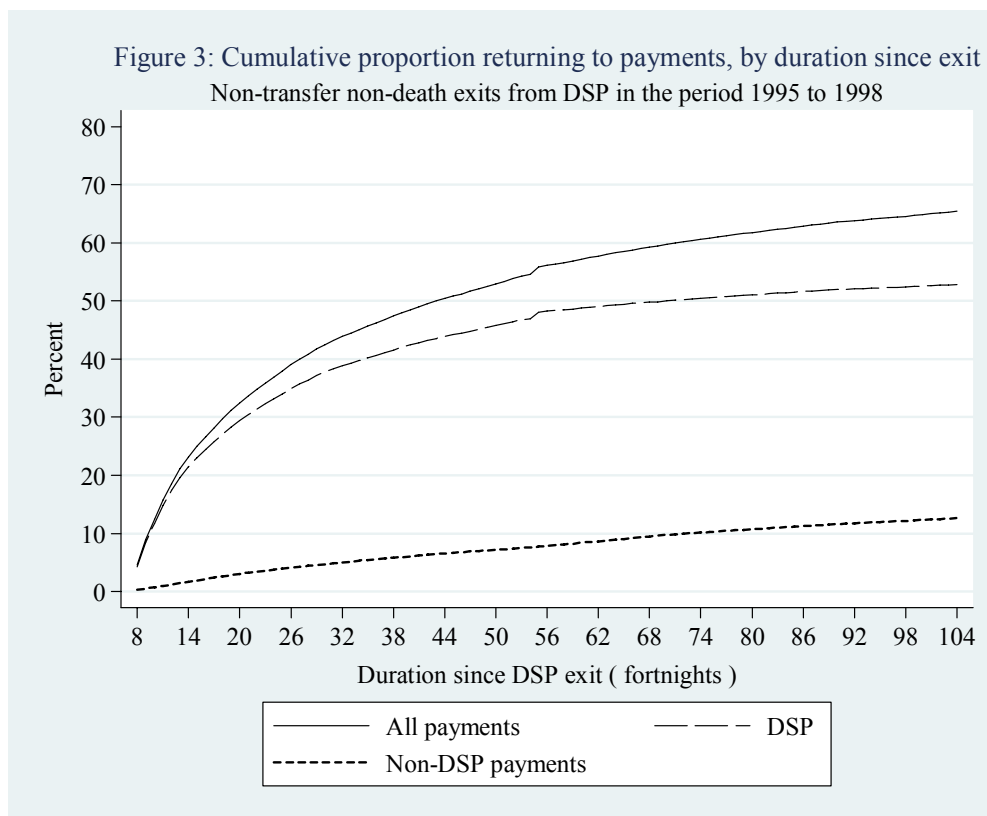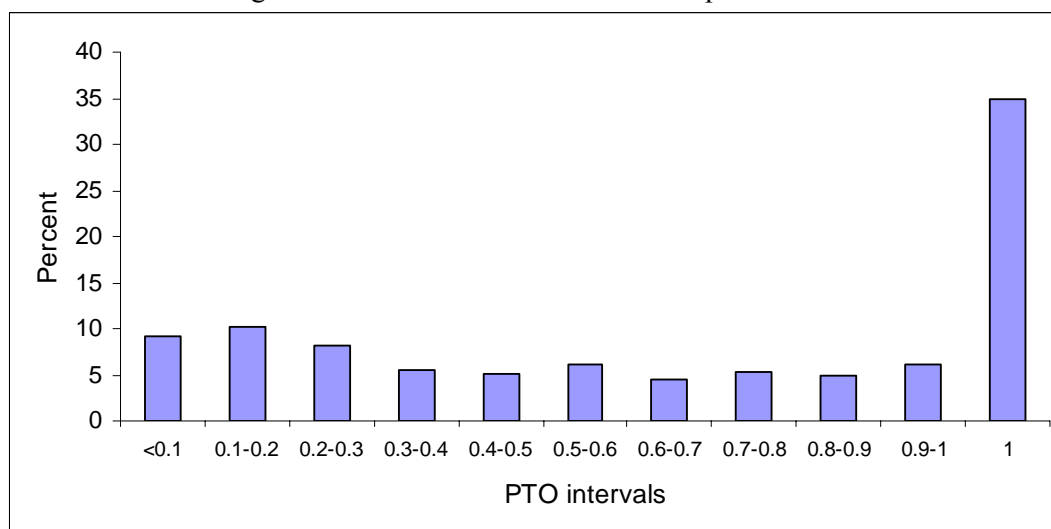Non-transfer non-death exits from DSP in the period 1995 to 1998

Table 6 examines rates of return to income support payments disaggregated by exit reason. Significantly, those who exit due to take-up of employment have quite a high rate of return, comparable to those who exit for non-compliance ('other') reasons. Most of those who exit to return to work have DSP payments suspended rather than cancelled, which reflects the uncertainty about the recipient's capacity to cope with employment. The maximum suspension period is two years, so it is unsurprising that most of the returns to payments occur within two years of exit. Those who exit for 'other positive' reasons, included improved health, have a comparatively low rate of return to DSP, but this is slightly offset by a higher rate of return to other income support payments.

Table 6: Cumulative proportion returning to payments, by duration since DSP exit and exit reason – Persons making a non-transfer non-death exit in the period June 1998 to May 1999 (%)

Duration since exit	Return Payment	Return to work	Other positive exit	Other exit
	DSP	22.9	5.9	23.6
Half year	Other payment	0.4	1.6	1.5
	Total	23.3	7.5	25.1
	DSP	42.3	14.5	38.3
1 year	Other payment	1.2	4.4	6.1
	Total	43.6	18.8	44.4
	DSP	57.3	24.7	47.6
2 years	Other payment	2.6	9.5	12.5
	Total	59.9	34.3	60.1
	DSP	60.2	31.5	50.4
3 years	Other payment	7.4	13.3	16.6
	Total	67.5	44.8	66.9
No. of persons		2086	1696	1852

Figure 4: Distribution of proportion of time off payments (PTO) in the four years following exit – Persons making a non-transfer non-death exit in the period 1995 to 1998

While the 'time to first return' measure is useful, perhaps more informative is the 'proportion of time off income support payments in the period following exit' (PTO) measure. This provides an aggregate summary measure of the extent to which a person who exits DSP is reliant on income support in subsequent years. Figure 4 presents the four-year PTO distribution of those who made a non-transfer non-death transition from DSP between 1995 and 1998. The four-year PTO is the proportion of time off income support payments in the four years following exit. Each 0.1 interval therefore approximately corresponds to a 10-fortnight interval. Outcomes are distributed across the whole PTO range, but the distribution

is somewhat double-peaked, with a relatively large concentration at low PTO levels (less than 0.3) and about 35 per cent with a PTO of 1 (i.e., off payments for the entire four-year period).

Table 7 examines differences in PTO by exit reason, presenting descriptive statistics on the three-year PTO distribution for the June 1998-May 1999 exit cohort. Differences in the mean PTO across these groups are not particularly large, varying from a low of 58 per cent for male 'other exits' to a high of 77 per cent for male 'other positive exits'. Nonetheless, this ordering of mean PTO, with 'other exits' having the lowest mean PTO and 'other positive exits' having the highest mean PTO, is evident for both males and females. Perhaps the most important finding from Table 7, because of its contrast with the inferences drawn from the analysis of 'time to first return to payments' in Table 6, is that the 'return to work' group has an intermediate-level average PTO that is markedly higher than that for 'other' exits. Taken together with the finding that this group has among the highest rate of return to payments, the implication is that this group contains a number of recipients who cycle off and on DSP (i.e., churn).

Table 7: Distribution of three-year PTO – Persons making a non-transfer non-death exit in the period June 1998 to May 1999

	Return to work	Other positive exit	Other exit
Males			
Mean	0.64	0.77	0.58
Standard deviation	0.34	0.31	0.35
No. of persons	1536	1007	1271
Females			
Mean	0.68	0.74	0.63
Standard deviation	0.33	0.32	0.35
No. of persons	547	679	530

5.2   *Econometric analysis*

Analogous to the entry-cohort econometric analysis, for the exit cohort econometric analysis we examine the June 1998 – May 1999 exit cohort, employ a three-year observation window and exclude those whose age at exit was above 62 years for males and above 58.5 years for females. The 'dual' nature of the entry cohort and exit cohort analyses is achieved by further restricting the exit cohort the sample to persons exiting a DSP spell of duration no greater than three years. Thus, we are in essence examining the same individuals as were found in the entry cohort analysis to make a non-transfer non-death exit. Of course, our analysis is in fact of different individuals, who exited DSP in the same period the entry cohort analysis sample commenced DSP receipt.

We use the 'proportion of time off income support payments' (PTO) in the three-year period following exit from DSP as our measure of exit success. We estimate linear models of three-year PTO, thereby investigating the question "given exit, what are the predictors of more successful exit?" where an exit is defined to be more successful the greater is the proportion of time off income support in the three years following initial exit.

Most of the explanatory variables employed for the exit cohort model are the same as those employed for the entry-cohort analysis – namely, the variables for age, country of birth and indigenous status, partner status, presence of children, earned and unearned income, location of residence, the local unemployment rate, main medical condition, DSP spell origin and housing status. Note, however, that characteristics evaluated at the point of spell commencement for the entry cohort analysis are evaluated at the point of exit for the exit cohort analysis. The income variables are also somewhat different in nature in the exit cohort model: because they are defined in the same way as for the entry cohort analysis, they capture recent history of income receipt, as opposed to the contemporaneous information they represented for the entry cohort analysis. That is, income received in the DSP spell is historical information for the exit cohort analysis, but current information for the entry cohort analysis.

Similar to the variables for recent history of income support receipt included in the entry cohort analysis, we include variables for income support receipt in the three years preceding exit. These comprise a set of dummy variables for the proportion of time on income support in the three-year period (1-50%, 50-75%, 75-99% and 100%) and an indicator variable equal to one if the number of spells on income support in the period exceeds one (where a change in payment type is treated as completion of one spell and commencement of another spell). We furthermore explicitly investigate the implications of exit reason for the sustainability of exit by including dummy variables for the three reasons distinguished in the entry cohort analysis for non-transfer non-death exits: return to work, other positive exit and other exit. One of the criteria for distinguishing between these three exit destinations in the entry cohort analysis was that they are likely to correspond to different degrees of exit 'success'. By establishing whether there are in fact systematic differences in sustainability of exit across these exit

destinations, inclusion of these variables in the exit cohort model therefore provides direct information on this front.[19]

As with the entry-cohort econometric analysis, we investigate the dependence of the effects of characteristics on the age of the individual by interacting variables with an 'aged over 45' dummy variable. Age interactions were tried with the variables for income, the local unemployment rate, main medical condition, DSP spell origin, the proportion of time on income support in the three years preceding exit, the multiple-spell indicator and cancellation/suspension reason. However, our reported specification only contains interactions with the main medical condition and cancellation/suspension reason variables, since all of the coefficient estimates for interactions with the other variables were not statistically significant, implying no age dependence for these characteristics.

Table 8 presents coefficient estimates for the explanatory variables included in OLS regressions on PTO.[20] It bears emphasising that the restriction to those who make a transition off all payments means that the PTO models estimated are of the determinants of exit success, *given exit has occurred*. That is, we are not examining the determinants of exit success, but rather the determinants of the extent to which a 'successful' exit is in fact a success. We therefore refer to the PTO as a measure of '*conditional* exit success' or 'exit sustainability'.

For both males and females the point estimates imply little role for age, the only exception being that, for males, exit aged over 55 years is associated with a 0.07 reduction in the predicted proportion of time off payments. Country of birth and indigenous status are similarly associated with few effects on PTO. A significant positive effect associated with NESB immigrant status is evident for males, but all other coefficient estimates are not significantly different from zero.

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[19] The distinction between these three exit reasons in the entry cohort analysis is, however, not invalidated by a finding of no systematic differences in PTO, since the three types of exit are nonetheless different in nature and therefore warrant modelling as distinct outcomes.

[20] Sample means of the explanatory variables are reported in Appendix Table 3.

Table 8: Determinants of exit success (three-year PTO)

	Males		Females	
	Estimate	SE	Estimate	SE
Age group (16-24 omitted)				
25-34	0.004	0.025	0.063	0.040
35-44	0.021	0.026	0.023	0.042
45-54	-0.001	0.033	0.025	0.050
55+	-0.071*	0.037	-0.017	0.058
Country of birth & indigenous status (Non-indigenous Australian-born omitted)				
ESB	0.027	0.021	0.008	0.033
NESB	0.038**	0.019	-0.017	0.030
Indigenous	-0.019	0.036	-0.050	0.055
Partner status (Single omitted)				
Partner not on IS	0.038*	0.021	0.040	0.025
Partner on IS	0.010	0.023	-0.050	0.037
Presence of children (No children omitted)				
Youngest 0-5	0.058*	0.031	-0.090*	0.046
Youngest 6-11	-0.004	0.030	-0.100**	0.043
Youngest 12-14	-0.009	0.034	-0.011	0.047
Youngest ≥15	0.042	0.062	-0.041	0.073
Earned income				
Amount	-0.002	0.002	-0.001	0.004
Time	0.081**	0.026	0.035	0.034
Unearned income				
Amount	-0.001	0.004	0.001	0.009
Time	0.054**	0.016	0.041*	0.025
Region and local unemployment rate				
Capital city	0.032**	0.014	0.054**	0.022
Unemp. rate	-0.003	0.003	0.007	0.004
Main medical condition (MUS omitted)				
PSY	-0.077**	0.022	-0.074**	0.032
INT	-0.018	0.032	-0.087	0.058
OTH	0.029	0.021	0.016	0.032
PSY*aged 45+	0.103**	0.036	0.070	0.049
INT*aged 45+	0.183	0.227	-0.556*	0.334
OTH*aged 45+	-0.031	0.030	0.006	0.045
DSP spell origin (Outside IS omitted)				
Unemployment	-0.004	0.015	-0.026	0.025
Other IS payment	-0.017	0.041	-0.014	0.033
3-year IS history prior to exit (TTO<50% omitted)				
TTO: 50-74%	-0.026	0.017	0.012	0.027
TTO: 75-99%	-0.034**	0.017	-0.013	0.025
TTO: 100%	-0.034	0.023	0.007	0.035
Multiple-spell indicator	-0.049**	0.016	-0.070**	0.024
Cancellation/suspension reason (Return to work omitted)				
Positive exit	0.146**	0.023	0.099**	0.033
Other exit	-0.042**	0.019	-0.006	0.032
Positive exit*aged 45+	-0.099**	0.030	-0.093**	0.043
Other exit*aged 45+	0.053*	0.032	-0.033	0.048

Table 8 continued: Determinants of exit success (three-year PTO)

	Males		Females	
	Estimate	SE	Estimate	SE
Housing status (Home owner outright omitted)				
Home-purchasing	0.021	0.035	-0.036	0.049
Owner-other	-0.007	0.031	0.033	0.044
Private renting	-0.002	0.020	0.032	0.028
Public renting	-0.022	0.030	-0.039	0.042
Other renting	0.000	0.026	0.029	0.045
Renting: Unknown	0.029	0.024	0.019	0.036
State or territory of residence (NSW omitted)				
VIC	0.046**	0.017	-0.060**	0.026
QLD	-0.002	0.018	-0.043	0.028
SA	-0.063**	0.027	-0.083**	0.039
WA	-0.064**	0.023	0.016	0.036
TAS	0.017	0.040	-0.072	0.058
NT	-0.088	0.070	-0.156	0.104
ACT	-0.057	0.049	-0.085	0.065
Constant	0.672**	0.046	0.635**	0.069
Adjusted R^2	0.093		0.042	
Number of observations	2,608		1,182	

Notes: Estimates are OLS coefficient estimates from a model of PTO in the three years following exit from DSP. The sample comprises persons who, in the period June 1998 to May 1999, made a non-transfer non-death exit from a DSP spell of duration no greater than three years. *SE* – standard error. [*] and [**] indicate significance at the 10% and 5% levels, respectively. See Appendix Table 2 for explanation of the variables.

Having a partner is associated with a 0.04 increase in PTO compared with being single, for both males and females, but only if that partner was not on income support at the time of exit from DSP. Indeed, for partnered females, the predicted PTO is lower than for single females if the partner was on income support. Consistent with effects on likelihood of exit from DSP, young dependent children decrease the predicted proportion of time off payments for females. For males, a dependent child under five years of age acts to increase the three-year PTO.

With respect to earned and unearned income, the striking finding for males is that the proportion of time off payments is increasing in the proportion of the DSP spell in which the individual had income. All else equal, a male with earned income in every fortnight of the DSP spell has a predicted PTO 0.08 higher than a male who did not have earned income in any fortnight of the DSP spell. Similarly, a male with unearned income in every fortnight of the DSP spell has a predicted PTO 0.05 percentage points higher than a male who did not have unearned income in any fortnight. The larger size of the coefficient estimate for earned income is likely to derive from a labour market engagement effect that does not operate for unearned income. Positive effects of the proportion of the spell with income are also evident for females, but the statistical significance of the estimates is weak. Significantly, the level of

income, whether earned or unearned, does not appear to matter, with none of the variables for their mean values having a significant impact.

The local unemployment rate is not associated with any discernible impact on conditional exit success, but residing in a capital city is associated with a sizeable positive effect, increasing the predicted PTO by 0.03 for males and by 0.05 for females. The main medical condition coefficient estimates show that, for persons under 45 years of age, those with psychological/psychiatric conditions have the lowest conditional exit success, all else equal. For persons over 45 years of age, effects associated with psychological/psychiatric conditions are not significantly different from effects associated with musculoskeletal conditions (the omitted category).

While origin prior to commencement of the DSP spell, was found by the entry cohort analysis to be associated with substantial effects on three-year spell destination, no association with conditional exit success is apparent. Thus, while transferral from unemployment benefits acts to reduce the likelihood of exit from DSP, it has no (direct) implications for the extent to which exit is sustained in the event that exit does occur. For males, however, the total amount of time spent on income support in the three years leading up to exit *does* seem to matter, with the predicted PTO lower for males who spent more than half the three-year period on income support.

For both males and females, the predicted PTO is also lower, all else equal, if the individual had more than one income support spell in the three-year period preceding exit – that is, if the individual is a recent churner. It follows that conditional exit success is greatest for persons who have a single short DSP spell with no prior time on income support. Interestingly, a person with two or more short spells prior to exit will, all other characteristics held constant, have a lower predicted PTO than a person with a single long spell prior to exit, even if that spell had a duration as long as three years. It therefore seems that past churning is particularly detrimental to sustaining exit, or reflective of characteristics particularly detrimental to sustained exit.

Cancellation reason variables show that, for persons under 45 years of age, those making 'other positive' exits have the greatest conditional exit success and those making 'other'

(negative) exits have the lowest conditional exit success.[21] It is significant that 'other positive' exits are associated with a higher PTO than return to work exits, since it suggests that many persons who exit to return to work have difficulty in maintaining employment over the intermediate term. The indications are that persons who exit due to take-up of employment are relatively more likely to 'churn' – that is, cycle on and off payments.

Table 9 provides support for this contention. It presents, for both the entry cohort and exit cohort samples, information on churning in the three years leading up to entry/exit and over the 1995-2002 period as a whole, disaggregated by spell destination or reason. An individual is defined to churn if that individual completes an income support spell and subsequently commences another income support spell. Churning is clearly more prevalent among those who exited due to take-up of employment than among other DSP recipients, including those who exited for other reasons. For example, the incidence of churning in the three years preceding entry to DSP was 58 per cent for males who exited to return to work, 29 per cent for males who exited for other positive reasons, 47 per cent for males who exited for 'other' reasons, and 25 per cent for males who did not exit within three years or exited due to death.

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[21] For persons over 45 years of age, differences in conditional exit success by exit reason are less pronounced, and indeed are essentially absent for females in this age category.

Table 9: Churning by exit destination/reason – 1998-99 entry and exit cohorts

	Still on DSP	Death	Return to work	Other Positive Exit	Other Exit
1998-99 DSP entry cohort					
Males					
Three years preceding entry[a]					
Churning incidence	0.25	0.25	0.58	0.29	0.47
Mean number of churns	0.3	0.3	0.8	0.4	0.6
Over the entire data period (1995-2002)					
Churning incidence	0.32	0.31	0.82	0.67	0.71
Mean number of churns	0.4	0.4	1.7	1.0	1.4
Females					
Three years preceding entry[a]					
Churning incidence	0.20	0.20	0.52	0.30	0.35
Mean number of churns	0.2	0.2	0.7	0.4	0.4
Over the entire data period (1995-2002)					
Churning incidence	0.26	0.25	0.79	0.68	0.63
Mean number of churns	0.3	0.3	1.6	1.1	1.0
1998-99 DSP exit cohort					
Males					
Three years preceding exit					
Churning incidence			0.42	0.17	0.32
Mean number of churns			0.5	0.2	0.4
Over the entire data period (1995-2002)					
Churning incidence			0.84	0.66	0.81
Mean number of churns			1.8	0.9	1.6
Females					
Three years preceding exit					
Churning incidence			0.37	0.24	0.30
Mean number of churns			0.4	0.3	0.4
Over the entire data period (1995-2002)					
Churning incidence			0.79	0.69	0.76
Mean number of churns			1.5	1.0	1.3

Notes: *Churning incidence*: Proportion of individuals who churned (completed an income support spell and subsequently commenced another income support spell). *Mean number of churns*: Mean of 'number of times an individual churned in the period'. [a] Includes churns involving the DSP spell commenced in 1998-99. That is, a person who exits income support payments in the three-year period and then commences the 1998-99 DSP spell is deemed to have churned.

6. Conclusion

In studying exits from DSP – and in particular transitions off all income support payments – the rightful starting point is to acknowledge that such transitions are not a common occurrence. Less than three per cent of DSP recipients make the transition off all payments each year, of which less than forty per cent are classified as returning to work.

Nonetheless, systematic examination of the nature of exits and the characteristics of those who exit successfully is informative. The entry-cohort analysis provides information about the determinants of non-transfer non-death exits (which we term 'successful' exits), while the exit-cohort analysis then investigates the determinants of the extent to which these exits are sustained, as measured by the proportion of time off all income support payments in the period following exit. It is useful to collect together the results for these two approaches to consider the total impact on exit success of characteristics common to both approaches. While the samples for the two sets of analysis differ, implying we should be cautious in our inferences, our sample selection rules have been designed such that the exit cohort is essentially the group found to make a non-transfer non-death exit in the entry cohort analysis.

Combining the results of the entry-cohort and exit-cohort analyses in this manner indicates that persons with no earnings while on DSP, persons with a partner on income support, persons with a psychological or psychiatric disability, indigenous persons, males aged over 55 years and females with a dependent child under 12 years of age have both the lowest probabilities of making a successful exit, and the least success in sustaining such exits when they do make them. Individuals with one or more of these characteristics are therefore comparatively unlikely to make the transition to sustained non-reliance on income support.

While the variables for income support receipt patterns in the period leading up to entry or exit are necessarily different for the entry- and exit-cohort approaches, the collective findings for these variables are also interesting. Those with a recent history of some income support receipt prior to commencement of the DSP spell are more likely to exit than those with no history, provided they did not transfer directly to DSP from another income support payment; but those with more time on payments in the period leading up to exit from DSP do not sustain exit as well. Furthermore, a recent history of churning prior to exit has a negative effect on the extent to which extent is sustained. The question then arises of how we reconcile these findings. The answer would seem to be found in the churning behaviour of those who exit to return to work – they are more likely to exit, but are also more likely to return to payments. While the reasons for this predisposition towards churning cannot be ascertained

from our analysis, we note that this pattern is *consistent* with this group of recipients having fluctuating earnings capacity, perhaps deriving from fluctuations in health or ability to manage a disability.

A further significant finding from the entry cohort analysis is that individuals who transfer to DSP from unemployment payments have very low exit rates from DSP. Compared with entry to DSP from outside the income support system, transferral from unemployment payments decreases the probability of exit from DSP by 0.16 for male and 0.12 for females. The clear implication is that failure to exit DSP is for many members of this group intimately connected to difficulties in the labour market that are not just a function of disability. For example, evidence from other studies (e.g. Nickell and Bell 1995, Borland 2000 and Wooden 2000) suggests demand for low-skill workers has declined in recent years, and growth in DSP receipt via transfers from unemployment payments may be one manifestation of this.

What policy implications emerge from the above findings? As indicated in the introduction, the key policy concern at present appears to be reducing the extent of reliance on DSP, while still providing social support to those incapable of maintaining sufficient employment because of disability. In this context, several concrete policy implications are forthcoming. First, the findings obtained with respect to persons entering DSP from unemployment payments suggest that particular policy attention ought to be focused on this group of DSP recipients. There is no apparent reason to believe disabilities experienced by this group of recipients are in general more prejudicial to employment than those experienced by other DSP recipients (and indeed there is possibly reason to believe quite the reverse). The administrative data set employed in this study does not permit identification of the reasons for the adverse effects associated with transferral from unemployment payments – and therefore the appropriate policy responses – but, as we suggest above, one suspects these reasons are connected to mismatches between skills of DSP recipients and skills demanded in the labour market.

A second policy implication concerns the churning behaviour of those who exit DSP to return to work. The relatively high probability of return to income support for this group represents a prima facie case for additional assistance when in employment in order to promote *sustainability* of employment. Our study does not, however, provide specific information on the reasons why the rate of return to payments is so high for those who exit to return to work – and it therefore provides little guidance on the particular steps that could assist them in sustaining exit. Identifying the appropriate policies in this regard requires the collection of information on experiences while off income support payments, since this could be used to

determine the roles played by various factors, such as unstable health, unstable employment and the two-year limit on payment suspensions, in driving returns to DSP.

A third policy implication concerns our finding that earnings while on DSP are associated with a higher probability of exit, and more sustained exit when it occurs. While earnings are likely to be correlated with the work capacity of an individual that is permitted by his or her health, this result nonetheless suggests that policies which promote employment of DSP recipients while on DSP may have beneficial effects on rates of sustained exit from income support.

Appendix

Appendix Table 1: Classification of cancellation/suspension reasons

Broad grouping	Detailed cancellation/suspension reasons (Names given in administrative data set)	
Return to work	Earnings preclude payment - late notification	Return to work - notify by 14 days
	Earnings preclude payment (DSP)	Returned to work
Positive Exit	Assets greater than allowable limit, given family circumstances	Income greater than allowable limit, given family circumstances
	Less than 20 points of impairment	More than 20 points of impairment, but can work full time
	More than 20 points of impairment, but can be re-skilled	
	Withdrawn/voluntary surrender	Voluntary surrender trust and company
	Compo settlement under investigation	Compo preclusion period
	Precluded due to compo Dir/DD	Customer on precluding payment
Other Exit	Departure/absence overseas	Not residentially qualified
	Former resident left within 2yr	NZ agreement pensioner perm. over
	Customer in prison	NZ agreement pensioner temp. over
	One of a couple interstate transfer	Autonomous pensioner perm. in NZ
	Interstate transfer out	Overseas 12 months
	Not resident in Australia (agreement)	Overseas 26 weeks
	Overseas - paid 6 monthly (IOB)	Overseas in NZ for 4 weeks
	Returned to Australia (IOB)	
	Does not meet age requirements	Customer failed to advise TFN
	Fail to attend interview	Partner failed to advise TFN
	Fail to undergo medical exam	Cancelled, review not return
	Failed to return overseas review	Failed to return entitlement review
	Fail to reply to correspondence	Proof of identity not provided
	Fail to return DSP medical review form	Returned direct credit payment
	Investigation	Whereabouts unknown
	Fail to claim foreign payment	
	Claim lodged early	Foreign pension direct deductions
	Delete record	Income details not provided
	Did not lodge form	No departure certificate
	Disability is short term	Not permanently blind
	NEIS/AEIS direct deductions applied	No payment destination details
	Pending enquiries	Suspended-review not returned
	End of payment	Other
	Extension period ended	Failed to return trust and company correspondence
	Failed to return life certificate (IOB)	
	_ (up until 1 June 2001)	(blank from 15 June 2001)

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Appendix Table 2: Description of explanatory variables

Unless otherwise stated, all variables are evaluated at commencement of the DSP spell for the entry cohort analysis and at exit from DSP for the exit cohort analysis. Categories in parentheses are the omitted dummies in the regressions.

Variable name	Description
1. Applicable to all analysis	
Country of birth & indigenous status	
Indigenous	Aboriginal, Torres Straight Islander or South Sea Islander
ESB	Immigrant born in one of the main English speaking countries
NESB	Immigrant born in a non-English speaking country
(Non-indigenous Australian-born)	Non-indigenous Australian-born
Partner status	
(Single)	No partner
Partner not on IS	Have a partner and that partner is not in receipt of income support
Partner on IS	Have a partner and that partner is in receipt of income support
Presence of children status	
(No children)	No dependent children
Youngest 0-5	Youngest dependent child aged 0-5 years
Youngest 6-11	Youngest dependent child aged 6-11 years
Youngest 12-14	Youngest dependent child aged 12-14 years
Youngest ≥15	Youngest dependent child aged >=15 years
Housing status	
(Home owner outright)	Own home outright
Home-purchasing	Purchasing home, i.e., paying off mortgage
Owner-other	Other home-owner
Private renting	Renter with private landlord
Public renting	Renter in public housing
Other renting	Other renter
Renting: Unknown	Renter: status unknown
Earned income	For the entry cohort analysis, this refers to labour market earnings in the DSP spell up to the point of exit. For the exit cohort analysis, this refers to labour market earnings in the fortnights in the three-year period preceding exit that the individual was on income support.
Amount	Average earned income in each fortnight on income support that the individual had positive earnings (1 unit = $100).
Time	Proportion of fortnights on income support in which the individual had positive earned income (1 unit = 100%)
Unearned income	For the entry cohort analysis, this refers to unearned income received in the DSP spell up to the point of exit. For the exit cohort analysis, this refers to unearned income received in the fortnights in the three-year period preceding exit that the individual was on income support.
Amount	Average unearned income in each fortnight on income support that the individual had positive unearned income (1 unit = $100)
Time	Proportion of fortnights on income support in which the individual had positive unearned income (1 unit = 100%)
Capital city	Indicator equal to one if the individual resides in one of the capital cities
Unemp. rate	Unemployment rate in ABS labour force statistical region. There were 63 regions Australia-wide in 2001. See ABS (2002) for details on the regions.
Main medical condition	
(MUS)	Musculoskeletal and/or connective tissue condition
PSY	Psychological/psychiatric condition
INT	Intellectual/learning condition
OTH	Any other condition (including condition unknown)

Appendix Table 2 continued: Description of explanatory variables

Variable Name	Description
Spell Origin	
(Outside IS)	Not on income support for at least 7 fortnights prior to DSP entry
Unemployment	Received unemployment benefits or Sickness Allowance within 7 fortnights of DSP entry (transferred from unemployment benefits or Sickness Allowance)
Other IS payment	Received an income support payment other than unemployment benefits or Sickness Allowance within 7 fortnights of DSP entry (transferred from another income support payment)
2. Specific to entry cohort analysis	
Past IS receipt	Proportion of the three-year period prior to DSP spell commencement that the individual was in receipt of income support
(TTO: 0)	Did not receive income support at any stage in the period
TTO: 1-50%	Received income support for 1-49% of the fortnights in the period
TTO: 50-99%	Received income support for 50-99% of the fortnights in the period
TTO: 100%	Received income support for 100% of the fortnights in the period
3. Specific to exit cohort analysis	
Cancellation reason	
(Return to work)	Return to work
Positive exit	Other 'positive' exit (e.g. improved health, exceeded assets test)
Other exit	Other exit
3-year income support history prior to exit	
Multiple-spell indicator	Dummy indicator variable equal to one if more than one income support spell in the 3-year period
Percentage of time on income support (inclusive of both DSP and non-DSP payment types)	
TTO: 100	Was in receipt of income support for the entire three-year period
TTO: 75-99	Was in receipt of income support for 75-99% of the three-year period
TTO: 50-74	Was in receipt of income support for 50-74% of the three-year period
(TTO: 1-50)	Was in receipt of income support for 1-49% of the three-year period

Appendix Table 3: Sample means of the explanatory variables

	Entry cohort		Exit cohort	
	Males	Females	Males	Females
Age group (%)				
16-24	11.7	11.5	14.6	11.3
25-34	11.5	10.8	19.6	19.5
35-44	18.3	20.5	24.1	25.0
45-54	26.3	37.7	22.0	32.8
55+	32.2	19.5	19.7	11.4
Country of birth & Indigenous status (%)				
Non-Indig. Aus-born	68.9	68.8	71.1	72.8
ESB	8.9	8.1	10.3	10.1
NESB	19.1	19.2	15.2	13.8
Indigenous	3.1	3.9	3.4	3.4
Partner status (%)				
Single	53.8	64.3	59.3	55.2
Partner not on IS	13.0	14.3	21.4	35.4
Partner on IS	33.2	21.4	19.3	9.4
Presence of children (%)				
No children	83.9	82.8	82.4	81.0
Youngest 0-5	5.8	4.0	6.2	5.8
Youngest 6-11	5.2	4.5	6.3	6.6
Youngest 12-14	4.0	5.4	4.1	4.9
Youngest ≥15	1.1	3.2	1.0	1.8
Earned income				
Amount ($)	380	335	604	503
Time (%)	6.7	7.9	11.7	17.1
Unearned income				
Amount ($)	88	67	131	97
Time (%)	41.0	38.6	37.4	40.1
Region & local unemployment rate				
Capital city (%)	53.9	56.9	55.5	58.5
Unemp. Rate (%)	8.4	8.3	8.1	8.3
Main medical condition (%)				
MUS	33.8	31.1	38.3	36.8
PSY	21.5	24.9	23.2	25.5
INT	5.8	5.1	8.4	4.6
OTH	38.9	38.8	30.1	33.1
Spell origin (%)				
Outside IS	35.7	30.1	53.1	52.7
Unemployment/sickness	62.3	48.2	44.3	34.3
Other IS payment	2.0	21.7	2.6	13.0

Appendix Table 3 continued: Sample means of the explanatory variables

	Entry cohort		Exit cohort	
	Males	Females	Males	Females
Past IS receipt (%) – 3 years prior to DSP entry				
TTO: 0	22.9	20.5	-	-
TTO:1%-50%	28.8	25.2	-	-
TTO: 50%-99%	26.8	22.8	-	-
TTO: 100%	21.5	31.5	-	-
3-year IS history prior to exit				
TTO category (%)				
TTO: <50%	-	-	31.8	32.3
TTO: 50-74%	-	-	23.9	20.8
TTO: 75-99%	-	-	30.4	31.0
TTO: 100%	-	-	13.8	15.8
Multiple-spell indicator (%)	-	-	31.6	29.7
Cancellation/suspension reason (%)				
Return to work	-	-	41.0	30.5
Positive exit	-	-	29.3	40.4
Other exit	-	-	29.7	29.1
State or territory of residence (%)				
NSW	31.9	30.7	34.2	31.7
VIC	24.7	26.5	1.7	2.4
QLD	19.8	18.4	24.6	24.0
SA	9.9	10.8	19.9	19.6
WA	8.2	7.9	6.6	8.5
TAS	3.2	3.4	9.4	9.7
NT	0.9	0.8	2.7	3.0
ACT	1.3	1.6	0.8	0.9
Housing status (%)				
Home owner outright	33.6	32.1	30.0	32.8
Home-purchasing	3.1	3.1	3.5	4.5
Owner-other	4.0	4.4	4.8	5.7
Private renting	25.2	25.6	27.6	27.7
Public renting	6.6	12.3	6.2	7.4
Other renting	10.4	7.1	11.5	6.5
Renting: Unknown	17.1	15.3	16.5	15.3
Number of observations	12,478	20,375	2,608	1,182

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