Examining Benefit-to-Work Transitions Using Statistics New Zealand's

Linked Employer-Employee Data

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Abstract

Statistics New Zealand's Linked Employer-Employee Data (LEED) contains monthly information on taxable benefit receipt and earnings for all New Zealanders over a five-plus-year period. There is great potential to use this data to understand heterogeneity among the benefit-receiving population, to examine the medium-term outcomes of individuals receiving benefits, and to evaluate the impact of benefit receipt on these outcomes. This paper has three goals. First, it examines different approaches for defining the relevant benefit population to be used for analysing benefit transitions. In particular, it highlights the differences between examining first benefit spells versus randomly selected spells, and between examining individuals with single benefit spells versus those with multiple spells, during the sample period. Second, it summarises employment and benefit receipt patterns for different demographic groups. The variation found in these results illustrates the large heterogeneity found among the benefit-receiving population. Third, it extends the analysis in Hyslop, Stillman and Crichton (2004), which examines the relationship between benefit spell duration and pre-benefit spell employment experiences and post-benefit spell benefit receipt and labour market outcomes. This new analysis controls for a lengthier period of pre-benefit spell employment experiences than the earlier paper, and estimates separate models for each demographic group. These changes allow us to better control for heterogeneity in the benefit-receiving population.

1. Introduction

Studies that evaluate the effectiveness of active labour market programmes or examine benefit-to-work transitions typically rely on administrative data from state or federal benefit systems.[1] This data usually contains, at most, limited information on individuals' labour market outcomes when they are off benefit. In contrast, Statistics New Zealand's Linked Employer-Employee Data (LEED) contains monthly information on benefit receipt and employment earnings for all New Zealanders since April 1999, as well as the ability to follow all individuals longitudinally and match them to their employers. There is great potential to use this data to understand heterogeneity among the benefit-receiving population, to examine medium-term outcomes of individuals receiving benefits, and to evaluate the impact of benefit receipt on these outcomes.

A number of research papers have already used this data to examine outcomes for beneficiaries.[2] For example, Carroll and Wood (2003) use LEED to present some preliminary analysis of benefit-to-work transition rates, Hyslop, Stillman and Crichton (2004) use LEED to examine future labour market outcomes for individuals previously receiving welfare benefits, and Dixon and Crichton (2006) use LEED to examine the longer-term employment outcomes of adults who moved from a government income support benefit to employment.

This paper has three goals that are complementary to these previous analyses. First, it examines different approaches for defining the relevant benefit population to be used for analysing benefit transitions. In particular, it highlights the differences between examining first benefit spells versus randomly selected spells, and between examining individuals with single benefit spells versus those with multiple spells, during the period April 1999 to September 2004. Second, it summarises employment and benefit receipt patterns for different demographic groups. The variation found in these results illustrates the large heterogeneity found among the benefit-receiving population. Neither of these questions has been addressed in depth in the previous LEED research. Third, it extends the analysis in Hyslop et al. (2004), which examines the relationship between benefit spell duration and

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[1] This is true of both international literature (e.g. Chay et al. 1999) and New Zealand research on the benefit system (e.g. Gobbi and Rea 2002; Maré 2002; Wilson 1999).
[2] Also, Barker and Maloney (1998) used a pre-LEED pilot study of linked tax and benefit system data to estimate hazard models of the benefit-to-work transitions.

pre-benefit spell employment experiences and post-benefit spell benefit receipt and labour market outcomes. This new analysis controls for a lengthier period of pre-benefit spell employment experiences than the earlier paper, and estimates separate models for each demographic group. These changes allow us to better control for heterogeneity in the benefit-receiving population.

2. The New Zealand Welfare Benefit System

The New Zealand social assistance system for the working-age population has three broad components. The first is tax transfer assistance administered and delivered by Inland Revenue (IR) and/or the Ministry of Social Development (MSD).[3] The second component is a set of core welfare benefits granted on the basis of various categories of need.[4] To be entitled to any of these core benefits, individuals must satisfy a residential requirement, an income test, and potentially face a stand-down period, as well as other benefit-specific requirements. The third component of assistance is supplementary benefits and discretionary assistance granted on the basis of need in particular circumstances.[5] Eligibility for supplementary and discretionary benefit support is generally not restricted to those receiving (core) welfare benefits.

LEED directly identifies the receipt of core benefits.[6] The set of core benefits are intended to cover a broad range of situations. For example, the Unemployment Benefit (UB) provides income support during periods of unemployment, thus requires job search and other obligations. On the other hand, the Sickness and Invalid's Benefits (SB and IB) are intended to provide support during temporary or lasting incapacity, and these and other benefits tend to have less stringent work-tested obligations for recipients. Table 1 provides a summary of the core benefit population in December 1998, 2000, 2003 and 2005.[7] Panel A shows the distribution of core benefits by benefit type – across

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[3] This includes the Parental Tax Credit and the Child Tax Credit, which require certain hours of work but may be available to beneficiaries; and Family Support and the Family Tax Credit, which are available irrespective of benefit receipt status.
[4] The main core benefits are the Unemployment, Domestic Purposes, Sickness, Invalid's, Widow's, Independent Youth Benefit, Emergency, and Transitional Retirement Benefits.
[5] Supplementary benefits and discretionary assistance include the Accommodation Supplement, Disability Benefit, Away from Home Allowance, Residential Care Subsidy, Special Benefit, Special Needs Grant, etc.
[6] LEED includes only benefit payments that are subject to tax withholding. Core benefits are taxed, while supplementary and discretionary benefits are not. Although LEED contains some information on tax credits received by individuals, this is only for the selected sample of those who receive payments made by MSD. Payments made by IR, either as ongoing weekly or fortnightly payments during the year, or as end-of-year payment made following the end of year assessment are not included.
[7] This data is taken from a number of Benefit Factsheets available from MSD at http://www.msd.govt.nz/media-information/benefit-fact-sheets/index.html.

the two main benefits, the Domestic Purposes Benefit (DPB), the UB, and other benefits – and by sex and age in each year. Panels B–D describe the sex and age distributions of the three benefit populations.

Although the total number of benefit recipients fell about 20 percent over the period (probably reflecting the strengthening economy), this change masks quite different changes in recipients across the benefit types. The numbers of DPB and UB recipients fell 3 and 59 percent, respectively, while the numbers of other benefit recipients increased by 14 percent. As a result of these differences, the fraction of UB recipients fell from 40 to 21 percent, while the fraction of other benefit recipients increased from 32 to 45 percent and the fraction of DPB recipients increased from 28 to 34 percent. The sex and age mixes of the benefit population also changed (becoming more female and older), mainly reflecting the differences across the type of benefit but also, to a lesser extent, changes within each type over time. For example, in terms of the sex mix, more than 90 percent of DPB recipients are female and around 70 percent of UB recipients are male, although this fraction fell slightly over the period. There are also roughly equal numbers of males and females among the other benefit recipients. In terms of the age mix, the DPB recipients are more heavily prime aged: 80 percent are aged 25–54, compared with around 55 and 60 percent of UB and other benefit recipients, respectively. Also, other benefit recipients tend to be older than UB recipients.

3. The Linked Employer-Employee Data

This paper uses data from Statistics New Zealand's LEED, which is based on monthly administrative data collected by the IR.[8] All employers in New Zealand are required to file an Employer Monthly Schedule (EMS) with the IR that lists all individuals employed at that firm in the last month, the amount of income they received, and the amount of tax that was deducted at source.[9] In LEED,

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[8] Kelly (2003) and Carroll and Wood (2003) provide a detailed discussion of the LEED project and data.
[9] New Zealand has a relatively simple tax system, and most tax on income from wages and salary is paid on a 'pay-as-you-earn' (PAYE) basis, with few people needing to reconcile their taxes at the end of the year. LEED records only an individual's taxable earnings received in each calendar month, can include one-off payments such as bonuses or redundancy pay, and does not include undeclared income. Because calendar months have uneven numbers of days, and pay periods are often weekly or fortnightly, earnings levels are affected by the timing of pay and the number of pay periods in a month. Furthermore, in months when individuals receive PAYE income from multiple sources it is not possible to identify whether the receipt occurs concurrently or sequentially during the month. Income received in a particular month can also reflect work undertaken in the past. Similarly, benefit payments can be received for prior periods of eligibility.

individuals and firms each have unique identification numbers that enable them to be followed longitudinally. In addition, there is a separate identifier for the receipt of any working-age taxable benefits, although the particular benefit type is not identified. This paper focuses on the 66 months of linked employer-employee records from April 1999 to September 2004.

IR's administrative records also contain some basic demographic information on individuals and firms. This data includes sex, age and address details for employees and industry information for employers.[10] This core data can also be used to create additional variables, such as the number of employees and the total payroll for all firms, the number of jobs held by each employee in a particular month, and each individual's pattern of employment over the 66-month period. LEED has a number of limitations relevant to research on benefit transitions. Typical demographic variables such as education, occupation, ethnicity and, importantly for many benefit analyses, family status are not available. Information is also not currently available on earnings from self-employment.[11]

4. Defining the Benefit-Receiving Population

We begin by classifying individuals as 'on benefits' in any month they receive benefit income. A series of consecutive months receiving benefits is referred to as a 'benefit spell'.[12] Approximately 2.55 million individuals aged 15–62 in April 1999 worked and/or received benefit income in at least one month between April 1999 and September 2004. Of these, 1.60 million never received core welfare benefits, 126,000 received core benefits in all 66 months, and 825,000 received core benefits at some point in the sample period but not in all months. Table 2 presents the average characteristics of these three subgroups, including age, sex, region, employment and benefit status, average earnings and income, and benefit histories.

Individuals who receive benefits in all months are more likely to be female, older and living outside the more urban areas of New Zealand than individuals who never receive benefits. On

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[10] Sex is actually derived from the title and names provided on the initial registration form. Industry information for firms is available via the Statistics NZ Business Frame/EMS link. Documentation available on the Statistics NZ website discusses the creation of these variables in more detail.

[11] Slightly more than 20 percent of working-age New Zealanders report being self-employed, an employer of others, or unpaid in a family business as their main job in the 1999 Household Labour Force Survey (HLFS).

[12] We spent some time examining the gaps between spells for individuals with multiple benefit spells and decided not to fill in short gaps between spells. Filling in short gaps has a limited effect on the distribution of spells, as the majority of spells are separated by three or more months, and the decision on what is a 'short' gap is largely arbitrary.

average, all-month beneficiaries receive more monthly benefit income than other benefit recipients.[13] They are also employed, on average, in 10 out of the 66 months in the sample period. While they are an interesting subgroup of beneficiaries, these individuals are typically excluded from analyses of benefit-to-work transitions, since we have no data on their pre- or post-benefit spell experiences.

The remaining beneficiaries are also more likely to be female and living outside the main urban areas than the non-benefit receiving population, but these differences are much smaller. These individuals are, however, much younger than the non-benefit receiving population, reflecting the large number of youths that receive the UB. On average, these individuals actually spend more time in employment (30 months) than on benefits (23 months) during the sample period, reflecting the transient nature of benefits for most individuals, which is also indicated by the fact that these individuals average 1.9 benefit spells each in the sample period. Individuals who receive benefit income at some point in the sample period earn substantially less while employed and not receiving benefits than other workers ($2,030 versus $3,240 per month), although the differences in age composition between these samples may account for some of this gap.

Different approaches are taken in the literature to define the relevant benefit population to be used for analysing benefit transitions. Many of the individuals who receive benefits at some point during the sample period were already receiving benefits when LEED started in April 1999 (ie they have a left censored benefit spell) or are still receiving benefits at the end of the sample period in September 2004 (ie they have a right censored benefit spell). While these censored spells provide some information on benefit transitions, they are often excluded from analyses because this information is incomplete. Many individuals also experience multiple benefit spells (including censored and uncensored spells). Researchers often choose to focus their analyses on the first benefit spell experienced by these individuals (eg Hyslop et al. 2004) or occasionally on a randomly chosen spell (eg Dixon and Crichton 2006) in order to simplify the empirical modelling of the transition process. Furthermore, many benefit spells start near the beginning of the sample period and/or finish near the end. Since it is often desired in an analysis of benefit-to-work transitions to have a reasonable amount

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[13] This partly reflects the fact that partial months of benefit receipt may be included in the average benefit receipt for other beneficiaries.

of information on both pre- and post-benefit spell experiences in order to control for differences in the benefit-receiving population and to examine medium- to longer-term outcomes, these spells are often also excluded from analyses.

We consider four possible sampling approaches for defining the relevant benefit population to be used in the remaining analyses in this paper:

(1) Single Uncensored Spells: 224,000 individuals who have only one uncensored benefit spell during the sample period. All individuals in this sample are guaranteed to have both pre- and post-spell data, but this can be for a short period either pre- or post-spell or both in the case of long spells. This sample is likely to have better outcomes than the overall benefit-receiving population, since we know that they have only one benefit spell in more than five years.

(2) First Uncensored Spell: 583,000 individuals that have one or more uncensored benefit spells during the sample period, where the spell of interest is their first uncensored spell. This sample is likely to be more representative of the overall benefit-receiving population than the last, since it includes individuals with multiple benefit spells. Again, many of these spells are likely to start near the beginning of the sample period and thus have limited pre-spell information.

(3) First Uncensored Spell in Year 3: 106,000 individuals who have one or more uncensored benefit spells during the sample period and their first uncensored spell occurring between April 2001 and September 2002. At least two years of pre-spell information is available for these individuals, but with the trade-off that the sample is constrained to individuals with at most one previous censored spell prior to this spell in the middle of the sample period.

(4) Year 3 Reference Spell: 199,000 individuals with one or more benefit spells that start between April 2001 and September 2002, where the spell of interest is a randomly chosen spell meeting this criteria when multiple spells are started in this time period. Again, at least two years of pre-spell information is available for these individuals, and this sample is representative of all new benefit spells started in this year. However, as the current stock of ongoing benefit spells contains many longer-length spells, this sample will not be representative of the experiences of all current beneficiaries.

Table 3 presents the average characteristics of these four samples, including age, sex, region, employment and benefit status, average earnings and income, and benefit histories. It is important to note that these samples overlap. For example, the Single Uncensored Spell and First Uncensored Spell in Year 3 samples are each a subset of the First Uncensored Spell sample. While all individuals in the Year 3 Reference Spell sample are also in the First Uncensored Spell sample, the spell of interest will differ for individuals with one or more uncensored spells prior to year 3 and/or one or more uncensored spells in year 3.

A number of pertinent differences in characteristics are found when comparing the four proposed samples. Individuals in the Single Uncensored Spell sample have the longest average benefit spell length but the lowest average number of months receiving benefits. This is consistent with the fact that this group includes a heterogeneous population of long-term beneficiaries and more successful individuals with only one short benefit spell during the sample period. This finding is also reflected in the fact that this group has the highest average earnings when off benefit and is older, on average, than the other samples. On the other hand, individuals in the Year 3 Reference Spell sample have the shortest average benefit spell length but the highest average number of benefit spells and the highest average number of months receiving benefits. This is consistent with this sample being a representative sample of the inflow into the beneficiary population, thus oversampling from short benefit spells. This is also reflected in the fact that individuals in this sample are younger, on average, than the individuals in the other samples.

The characteristics of the remaining two samples are between the two extremes of the Single Uncensored Spell sample and the Year 3 Reference Spell sample, but are generally closer to the Year 3 Reference Spell sample. This suggests that these samples, as well as the Year 3 Reference Spell sample, may produce similar results when used to examine benefit-to-work transitions. Interestingly, individuals in all four samples are employed, on average, for the same number of months. In the four proposed samples, the individuals are much younger and there are fewer females compared with the characteristics of the benefit stock population described in Table 1. This suggests that long-term beneficiaries are more likely to be female and older.

We further compare the composition of these four sample populations by examining benefit receipt rates (Figure 1) and employment rates (Figure 2) before and after the benefit spell of interest. These results are stratified by the length of the benefit spell. The solid lines represent 1–3 month spells, the dash-dot lines 4–6 month spells, the dash-dash lines 7–12 month spells, and the dash-dot-dot lines greater than 12–month spells. These figures exclude the period of the benefit spell, thus month -1 is the month immediately prior to starting the spell, and month 1 is the first month after the spell ends, while the vertical lines indicate the start and end of the benefit spell.

Major differences are seen in the results across the four sample populations. Examining Figure 1, we see that if the first uncensored spell is used to define the benefit population (i.e. either the First Uncensored Spell or the First Uncensored Spell in Year 3 samples), benefit receipt rates prior to this spell are lower than in the Year 3 Reference Spell sample and do not reflect the dynamics of previous benefit experiences for current recipients. For example, in the Year 3 Reference Spell sample, we can see that there is strong annual seasonality in prior benefit receipt rates for individuals with short benefit spells. On the other hand, benefit receipt rates after the spell of interest are similar in all three samples.

Figure 2 shows that employment rates are higher both before and after benefit spells for the Single Uncensored Spell sample than for the other samples, which is consistent with the evidence in Table 3 that shows that this group is older and has higher average earnings when off benefit. Similar employment rates are found both before and after the benefit spell for the other three samples. However, the First Uncensored Spell in Year 3 and Year 3 Reference Spell samples, by focusing on a cohort of new spells, highlight the employment dynamics observed for beneficiaries with employment rates declining as one gets further away in time from either the start or end of the benefit spell. These dynamics are obscured when first uncensored spells from different calendar periods are mixed together.

Overall, the Year 3 Reference Spell sample is the only sample examined here that allows both pre- and post-spell benefit and employment dynamics to be analysed. As discussed above, this sample is representative of all new benefit spells started in the third year of LEED and potentially (if macroeconomic effects are unimportant) representative of all new benefit spells started in the last six

years. Because all new spells are given equal weight when drawing the sample, this sample under represents long benefit spells relative to the stock of current benefit spells at any time. This is reflected in the results presented in Table 3, which show that these individuals have more benefit spells than the other proposed samples. However, comparing the results in Table 3 with those in Table 2 also shows that these individuals have very similar characteristics (besides being much younger) to the overall population of individuals receiving benefits at some point during the sample period. Thus, the remainder of the analysis in this paper focuses on the Year 3 Reference Spell subsample of the population.

5. Employment and Benefit Receipt Patterns for Different Demographic Groups

We next examine employment and benefit receipt patterns for different demographic groups in the Year 3 Reference Spell sample. Table 4 presents the average characteristics of this sample stratified by four age groups (15–24, 25–39, 40–54 and 55–69) and sex. A comprehensive set of characteristics for these individuals, including their reference benefit spells, and their pre- and post-spell experiences are examined. Also included is information on whether an individual was employed immediately before and/or after the reference benefit spell. This is categorised under 'Benefit Transitions', with an individual labelled as a 'From Employment to Employment' transition if they were employed in either of the two months both immediately before and after the reference benefit spell, as a 'From NILF (Not in the Labour Force)[14] to NILF' transition if they were employed in neither of the two months both immediately before and after the reference benefit spell, and as a 'From Employment to NILF' or 'From NILF to Employment' transition as appropriate.

Overall, we find little difference between the characteristics of men and women in the benefit population, except for 25–39-year-old women. These women, compared with similar aged men, have lower employment rates and benefit receipt rates both before and after their benefit spell, are more likely to transition from NILF to NILF, and receive higher monthly benefits. These results suggest that many of these women are on the DPB. We also find that 15–24-year-olds and 55–69-year-olds,

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[14] NILF is measured here as not receiving benefits or earnings, since we are not able to identify in LEED whether individuals are actively seeking employment. This includes individuals that are only self-employed, receiving only non-taxable benefit income, receiving only paid parental leave, and people who are not currently residing in New Zealand, and thus may not correlate strongly with the standard definition of NILF used in national statistics.

regardless of sex, have characteristics quite different from prime-age individuals. Younger people have much shorter benefit spells, with many of these spells finishing at the end of the summer, and are much more likely to transition to employment than other age groups. Older individuals, on the other hand, have much longer benefit spells, are unlikely to work while on benefits or after leaving benefits, are much less likely to transition to employment, and have fewer previous benefit spells. Many of these older individuals on benefits appear to be transitioning to retirement.

We further compare the characteristics of these demographic groups by examining individuals' employment and benefit status over time in Figures 3a and 3b. Unlike Figures 1 and 2, these figures include the reference benefit spell, thus month 0 is now the first month of the benefit spell, and month 1 is the first month after the start of the spell. The single vertical line indicates the first month of the benefit spell. The horizontal lines represent the proportion of individuals in each month receiving only income from employment (solid line), receiving only benefits (solid line with squares), receiving income from both employment and benefits (solid lines with triangles), and receiving no income from either employment or benefits (dotted line).

For the most part, employment and benefit status dynamics appear quite similar for prime-age individuals (e.g. 25–39-year-old men and women and 40–54-year-old men and women), with nearly 40 percent of individuals employed and off benefit, 20–25 percent receiving benefits and not employed, 10–15 percent both receiving benefits and employed, and 30–35 percent receiving no income a year or more before the start of the benefit spell in each prime-age demographic group. Similarly, the corresponding rates are 45–50 percent employed and off benefit, 15–20 percent receiving benefits and not employed, 5–10 percent both receiving benefits and employed, and 25–30 percent receiving no income a year or more after the start of the benefit spell. The main differences between these groups are that women, in general, are more likely to be both receiving benefits and employed and less likely to be just receiving benefits than men, and that 25–39-year-old women, in particular, are more likely to have no source of income and less likely to be employed prior to going on benefits. This likely reflects the fact that individuals out of the labour force can become eligible for the DPB after giving birth to a child and that this mainly affects 25–39-year-old women. There is little difference in outcomes after leaving benefits between these groups.

Younger individuals are much more likely to have no source of income recorded in LEED and less likely to be receiving benefits (and be either employed or non-employed) a year or more before the start of the benefit spell than prime-age beneficiaries, but post-spell outcomes are quite similar for these demographic groups. Benefit and employment dynamics are quite similar for younger men and women, although men have slightly relatively higher benefit receipt rates a year or more before the start of the current benefit spell, and slightly relatively higher employment rates a year or more after the start of this spell. Older individuals are also more likely to have no source of income and less likely to be receiving benefits (and be either employed or non-employed) a year or more before the start of the benefit spell than prime-age beneficiaries. However, these individuals have substantially higher benefit receipt rates and lower employment rates, and are much more likely to have no source of income than prime-age individuals a year or more after the start of this spell. These differences are even stronger for older women, with only 20–25 percent of older women employed and not receiving benefits after the start of the benefit spell compared with 25–30 percent of older men. Again, this evidence suggests that many older individuals on benefits are transitioning to retirement.

6. The Impact of Pre-Spell Characteristics and Benefit Spell Duration on Post-Spell Outcomes

Hyslop et al. (2004) examine the relationship between benefit spell duration and pre-benefit spell employment experiences and post-benefit spell benefit receipt and labour market outcomes in a sample of individuals whose first observed benefit spell started after the sixth month of LEED. The analysis in that paper was based on only 36 months of data available from LEED and controlled for employment experiences in the 6 months prior to the first benefit spell. This choice reflected the inherent trade-off between examining a representative sample of new benefit spells and capturing pre-benefit spell employment experiences. Re-examining this topic using the Year 3 Reference Spell sample allows us to control for a lengthier period of pre-benefit spell employment experiences (24 versus 6 months) and control for benefit receipt prior to the current benefit spell. Importantly, previous benefit receipt may capture different aspects of individual heterogeneity than employment histories, such as the stigma felt by different individuals while receiving benefits.

We also extend the prior analysis by estimating separate models for each demographic group. As shown in the previous section, there are large differences across sex and age groups in the characteristics and employment and benefit histories of individuals in the Year 3 Reference Spell sample. By estimating separate models for each demographic group we are able to control for this component of heterogeneity in the benefit-receiving population, and potentially focus the analysis more tightly on individuals receiving the same type of benefits.

For each demographic group we estimate the following regression model:[15]

$$Y_{it} = \sum_{j=1}^{41} \alpha_{1-3}^{j} * PostBen_{it}^{j} * Dur(1-3)_{i} + \sum_{j=1}^{38} \alpha_{4-12}^{j} * PostBen_{it}^{j} * Dur(4-12)_{i} +$$
$$\sum_{j=1}^{29} \alpha_{13-24}^{j} * PostBen_{it}^{j} * Dur(13-24)_{i} + \sum_{j=1}^{17} \alpha_{25+}^{j} * PostBen_{it}^{j} * Dur(25+)_{i} + X_{it}\beta + \varepsilon_{it}$$

(1)

where i indexes individuals, t indexes months, Y_{it} is either whether individual i is not receiving benefits in month t (off benefit) or whether they are employed in that month (employed), $PostBen_{it}^{j}$ is a dummy variable equal to 1 if month t for individual i is j months since the end of the reference benefit spell and equal to 0 otherwise (e.g. this variable indexes the current month relative to the end month of the reference benefit spell), $Dur(k)_i$ is a dummy variable that equals 1 if individual i's reference benefit spell is of length k, where k=1–3, 4–12, 13–24 and 25+ months, X_{it} is a vector of variables to control for other factors influencing the outcome, and ε_{it} is an error term to capture unobserved effects. The X_{it} vector in each regression includes controls for age, region, the start month of the reference benefit spell, the number of months employed and the number of months receiving benefits in the 24 months prior to the reference benefit spell (using a series of indicator variables), the average monthly earnings in all months employed in the 24 months prior to the reference benefit spell, and the average monthly benefit receipt in all months receiving benefits in the 24 months prior to the reference benefit spell.

We first focus on the coefficients $\alpha_{1-3}^{j}, \alpha_{4-12}^{j}, \alpha_{13-24}^{j}, \alpha_{25+}^{j}$, which represent the effects of benefit spells of 1–3, 4–12, 13–24 and 25+ months duration, respectively, on either off-benefit or

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[15] The complete Year 3 Reference Spell sample is used to estimate this model. The regression sample is set up with one observation for each month after the end of the reference benefit spell for each individual in this dataset. Thus, this sample is an unbalanced panel dataset with 66-n months of data for each individual, where n is the last month of the reference benefit spell.

employment rates j months after the end of the reference benefit spell. These coefficients are graphed in Figure 4a for each age group of men and Figure 4b for each age group of women.[16] Also displayed in Table 5 are the results for 12, 24 and 36 months after the end of the benefit spell for each duration group.[17] Regression model (1) does not include an intercept, and we normalise X_{it} by choosing particular omitted categories for discrete variables and subtracting particular amounts from the continuous variables. We choose a normalisation that results in the displayed coefficients measuring the average off-benefit or employment rate for individuals with a benefit spell of a particular duration of the indicated number of months after the end of the spell, with the following characteristics: age 20, 33, 48 or 60 (depending on the demographic group), living in Waikato, started their benefit spell in April 2001, employed in 12 months and received benefits in three of the 24 months prior to the benefit spell (the modal histories in the sample), and with mean earnings ($1,559) and benefit receipt ($621) in the 24 months prior to the benefit spell.

Starting with the results for men, we find that longer benefit spells are associated with a lower likelihood of being off benefits in the months after completing the current benefit spell, even after controlling for differences in the characteristics of individuals that experience longer versus shorter benefit spells. For example, 36 months after the end of the reference benefit spell, men with 1–3 month spells are 2–4 percent more likely to be off benefit than men with 4–12 month benefit spells, and 24 months after the end of the reference benefit spell they are 0–7 percent more likely to be off benefit than men with 13–24 month benefit spells. These differences do not appear to vary systematically across age groups for men. There are strong seasonal patterns in off-benefit rates, particularly for individuals with reference benefit spells less than 13 months in duration, with off-benefit rates substantially lower between 9 and 13 months after the reference spell, and again between 21 and 25 months after.

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[16] The estimated coefficients are displayed in this figure up to 36 months after the end of the spell for 1–3 and 4–12 months spells, 24 months after the end of 13–24 month spells, and 12 months after the end of 25+ month spells. Standard errors are quite large beyond this point for each spell length, thus while we estimate these effects, we choose not to display the coefficients. Confidence intervals are at most +/- 2 percent for all displayed coefficients.

[17] In our discussion, we focus on outcomes at 12, 24 and 36 months to ease exposition. As is discussed below, we find strong seasonal patterns in off-benefit rates, particular for individuals with short duration reference benefit spells, with off-benefit rates tending to be relatively low 12, 24 and 36 months after the end of the reference spell. Thus, differences in outcomes between short and long duration spells are smallest in these months. It is important to keep this in mind when reading this section.

The results for employment rates are quite different, illustrating the inadequacy of solely focusing on off-benefit rates to measure successful benefit-to-work transitions. Employment rates are lower than off-benefit rates at all observed points in time for all groups. For example, 24 months after the end of the reference benefit spell, employment rates are 5–8 percent lower than off-benefit rates for 15–24 year–olds, 17–27 percent lower for 25–39-year-olds, 17–19 percent lower for 40–54-year-olds, and 9–18 percent lower for 55–69-year-olds. Longer benefit spells are also associated with a lower likelihood of being employed in the months after completing the current benefit spell, but this relationship varies systematically across age-groups, with the relationship between benefit spell duration and employment rates weaker than the relationship with off-benefit rates for 15–24-year-olds, of similar strength for 25–39 and 40–54-year-olds, and much stronger for 55–69-year-olds. The difference for the oldest age-group is particularly notable, with men having 1–3 month spells 9 percent more likely to be employed than men with 4–12 month benefit spells 36 months after the end of the reference benefit spell (versus 3 percent more likely to be off benefit) and 11 percent more likely to be employed than men with 12–24 month benefit spells 24 months after the end of the reference benefit spell (versus 2 percent more likely to be off benefit).

We next compare our results for men with those for women. Off-benefit rates are lower for 15–24-year-old women, but higher for all other age groups of women compared with similar aged men. The relationship between benefit spell duration and off-benefit rates after the reference spell is similar for women compared with that found for men. For example, 36 months after the end of the reference benefit spell, women with 1–3 month spells are 0–4 percent more likely to be off benefits than women with 4–12 month benefit spells, and 24 months after the end of the reference benefit spell are 1–8 percent more likely to be off benefit than women with 13–24 month benefit spells. The magnitude of the difference between off-benefit rates and employment rates is the same for each age group of women as the equivalent group of men, except for 55–69-year-old women, where employment rates are 33–40 percent lower than off-benefit rates compared with 9–18 percent lower for that age group among men. Longer benefit spells are also associated with a lower likelihood of women being employed in the months after completing the current benefit spell but, unlike men, this relationship

does not vary systematically across age groups. Instead, we find a weaker relationship than that found between benefit spell duration and off-benefit rates for all age groups of women.

We next examine the β coefficients, which measure the impact of individual characteristics on either average off-benefit or employment rates after the end of the reference spell. These results are presented in Table 6a for each age group of men, and Table 6b for each age group of women.[18] A one-year increase in age is associated with a 1–2 percent increase in off-benefit rates for 15–24 and 55–69-year-old men and women and a 0–3 percent decrease in employment rates for these same groups. Age is unrelated to off-benefit and employment rates for 25–54-year-olds. We find interesting regional differences. Compared with Waikato, employment rates are 2–8 percent lower in Auckland and 1–6 percent lower in Wellington for all demographic groups, and 2–5 percent higher in Southland and 1–3 percent higher in Canterbury for all age groups of men. On the other hand, compared with Waikato, off-benefit rates are 3–7 percent lower in Hawkes Bay / Gisborne for all demographic groups, and 2–6 percent lower in Southland for all age groups of men.

Average earnings in the 24 months prior to the reference benefit spell are weakly related to post-spell outcomes, with individuals with 10 percent higher earnings 0.1–0.3 percent more likely to be employed (except for 55–69-year-old men, who are 0.3 percent less likely to be employed) and 0–0.2 percent more likely to be off benefit (except for 15–24-year-old women, who are 0.1 percent less likely to be off-benefit). Average benefit amounts in the 24 months prior to the reference benefit spell are also weakly related to post-spell outcomes, but with a slightly stronger relationship than that between average earnings and outcomes. For example, individuals with 10 percent higher benefit receipt are 0–0.5 percent more likely to be employed and 0–0.6 percent more likely to be off benefit.

However, benefit and employment histories are strongly related to individual post-spell outcomes. In particular, employment histories are strongly related to post-spell employment rates, with individuals employed in none of the 24 months prior to the reference spell having post-spell employment rates 23–39 percent lower than individuals employed in 12 months (the mode across all age groups), and 39–60 percent lower than individuals employed in all 24 months prior to the

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[18] Because of the extremely large sample sizes, all results that are economically significant (e.g. greater than 0.01) are also statistically significant.

reference spell. On the other hand, employment histories are weakly related to off-benefit rates. The opposite is found for benefit histories. These are strongly related to post-spell off-benefit rates, but are generally unrelated to post-spell employment rates.[19] For example, individuals receiving benefits in none of the 24 months prior to the reference spell have post-spell off-benefit rates that are 3–4 percent higher than individuals receiving benefits in 3 months (the mode across all age groups) and are 13–22 percent higher than individuals receiving benefits in all 23 possible months out of the 24 months prior to the reference spell (recall that in order to start a reference benefit spell, an individual must be off benefits for the month prior to the spell). As can be seen here, the relationship between employment histories and post-spell employment rates is stronger than the relationship between benefit histories and post-spell off-benefit rates, providing further evidence of the importance of having employment data available when evaluating the success of benefit transitions.

7. Concluding Discussion

LEED contains monthly information on taxable benefit receipt and employment earnings for all New Zealanders and the ability to longitudinally follow all individuals and match them to their employers. There is great potential to use this data to understand heterogeneity among the benefit-receiving population, to examine medium-term outcomes of individuals receiving benefits, and to evaluate the impact of benefit receipt on these outcomes. A number of research papers (e.g. Carroll and Wood 2003; Hyslop et al. 2004; and Dixon and Crichton 2006) have already used this data to examine outcomes for beneficiaries. This paper has three goals complementary to these previous analyses.

First, it examines different approaches for defining the relevant benefit population to be used for analysing benefit transitions. We create four different benefit spell samples, which either examine first benefit spells or randomly selected spells, and either individuals with single benefit spells or those with multiple spells, during the sample period. One of these samples consists of all new benefit spells started in the third year of LEED. This sample, which we refer to as the Year 3 Reference Spell sample, is shown to be the only one of the four examined that allows both pre- and post-spell benefit

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[19] We find similar results even when we do not also control for individual employment histories. For example, off-benefit histories are still generally unrelated to post-spell employment rates. Similarly, the relationship between employment histories and post-spell off-benefit rates does not strengthen if we do not control for benefit histories.

and employment dynamics to be analysed. It is also representative of all new benefit spells started in the third year of LEED. Because all new spells are given equal weight when drawing the sample, this sample under represents long benefit spells relative to the stock of current benefit spells at any time. However, individuals in this sample have very similar characteristics (besides being much younger) to the overall population of individuals receiving benefits at some point during the sample period.

Second, this paper summarises employment and benefit receipt patterns for different demographic groups. Overall, we find little difference between the characteristics of prime-age men and women in the benefit population, except for 25–39-year-old women. These women, compared with similar aged men, have lower employment rates and benefit receipt rates both before and after their benefit spell, are more likely to transition from NILF to NILF, and receive higher monthly benefits, suggesting that many of these women are on the DPB. Employment and benefit status dynamics are also similar for prime-age individuals. The main differences between these groups are that women, in general, are more likely to be both receiving benefits and employed and less likely to be just receiving benefits than men, and that 25–39-year-old women, in particular, are more likely to have no source of income and less likely to be employed prior to going on benefits, which is also consistent with DPB receipt.

We find that 15–24-year-olds and 55–69-year-olds, regardless of sex, have characteristics quite different from prime-age individuals. Youth have much shorter benefit spells, with many of these spells finishing at the end of the summer, and are much more likely to transition to employment than other age groups. They are also much more likely to have no source of income recorded in LEED, and less likely to be receiving benefits before the start of the benefit spell, than prime-age beneficiaries. Older individuals, on the other hand, have much longer benefit spells, are unlikely to work while on benefits or after leaving benefits, are much less likely to transition to employment, and have fewer previous benefit spells. They are also more likely to have no source of income, and less likely to be receiving benefits before the start of the benefit spell, than prime-age beneficiaries. However, these individuals have substantially higher benefit receipt rates and lower employment rates, and are much more likely to have no source of income than prime-age individuals after the start of this spell. These differences are even stronger for older women. This evidence suggests that many older individuals on benefits are transitioning to retirement.

Third, this paper extends the analysis in Hyslop et al. (2004), which examines the relationship between benefit spell duration and pre-benefit spell employment experiences, and post-benefit spell benefit receipt and labour market outcomes. The current analysis controls for a lengthier period of pre-benefit spell employment experiences than previously, and estimates separate models for each demographic group. We find that, for all demographic groups, longer benefit spells are associated with a lower likelihood of being off benefits in the months after completing the current benefit spell, even after controlling for differences in the characteristics of individuals that experience longer versus shorter benefit spells. For men, these differences do not appear to vary systematically across age groups. However, for women, we find that the relationship between benefit spell duration and post-spell benefit receipt is weaker for younger women than for older women.

The results for employment rates are quite different, illustrating the inadequacy of focusing solely on off-benefit rates to measure successful benefit-to-work transitions. Employment rates are lower than off-benefit rates at all observed points in time for all groups. Longer benefit spells are also associated with a lower likelihood of being employed in the months after completing the current benefit spell, but this relationship varies systematically across age groups for men, with the relationship between benefit spell duration and employment rates weaker than the relationship with off-benefit rates for 15–24-year-olds, of similar strength for 25–54-year-olds, and much stronger for 55–69-year-olds. Longer benefit spells are also associated with a lower likelihood of women being employed in the months after completing the current benefit spell but, unlike men, this relationship does not vary systematically across age groups. Instead, we find a weaker relationship than that found between benefit spell duration and off-benefit rates for all age groups of women.

We also examine the impact of individual characteristics on average off-benefit and employment rates after the end of the reference spell. Average earnings and average benefit receipt in the 24 months prior to the reference benefit spell are found to be weakly related to post-spell outcomes. However, benefit and employment histories are strongly related to post-spell outcomes. In particular, employment histories are strongly related to post-spell employment rates but weakly related to off-benefit rates, while benefit histories are strongly related to post-spell off-benefit rates but generally unrelated to post-spell employment rates. The relationship between employment histories and post-

spell employment rates is stronger than the relationship between benefit histories and post-spell off-benefit rates, providing further evidence of the importance of having employment data available when evaluating the success of benefit transitions.

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Figure 1

Benefit receipt rates before and after benefit spells for different samples of beneficiaries

| 1–3 months | 4–6 months | 7–12 months | 13+ months |
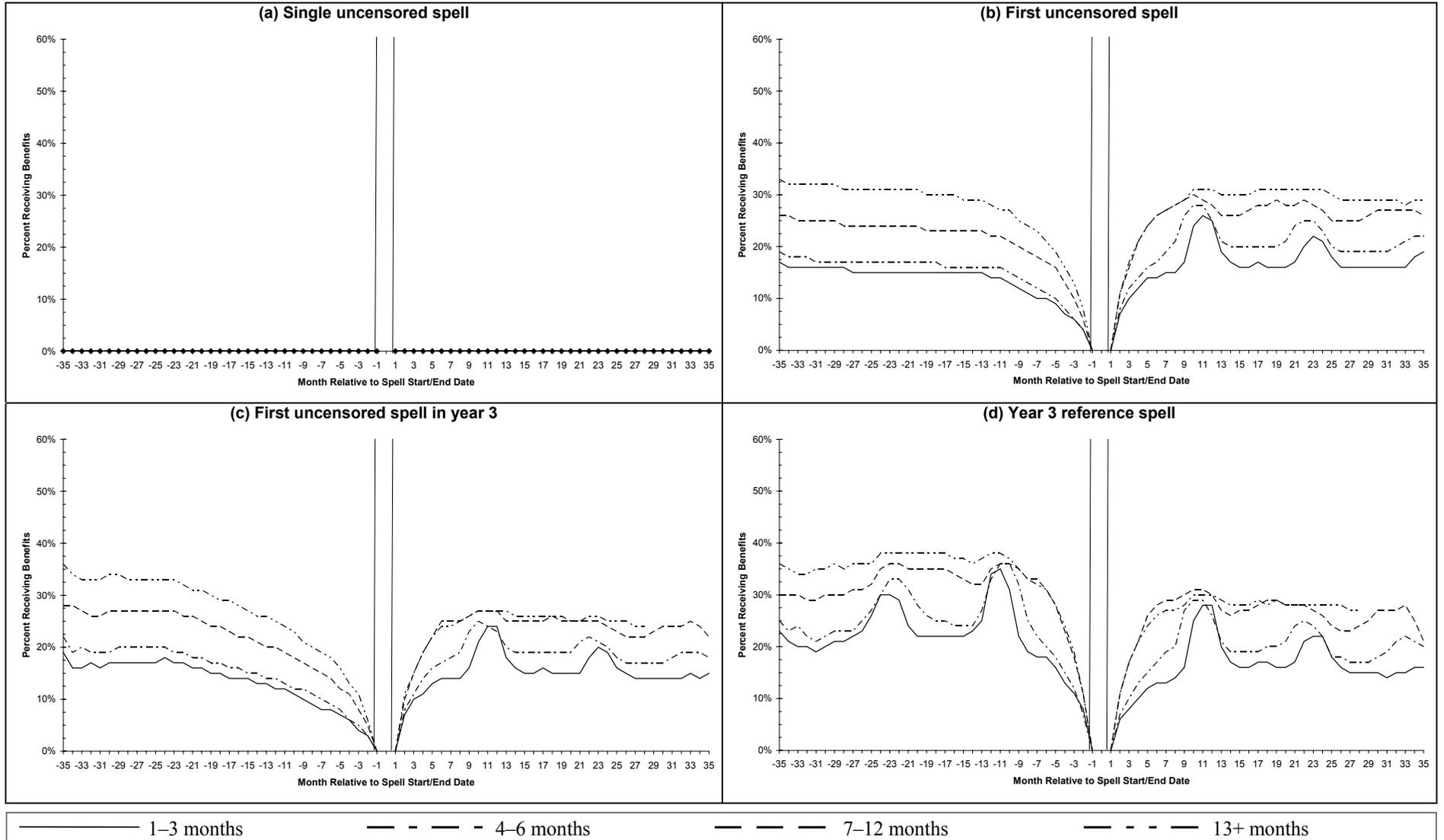
Figure 2

Employment rates before and after benefit spells for different samples of beneficiaries

| 1–3 months | 4–6 months | 7–12 months | 13+ months |
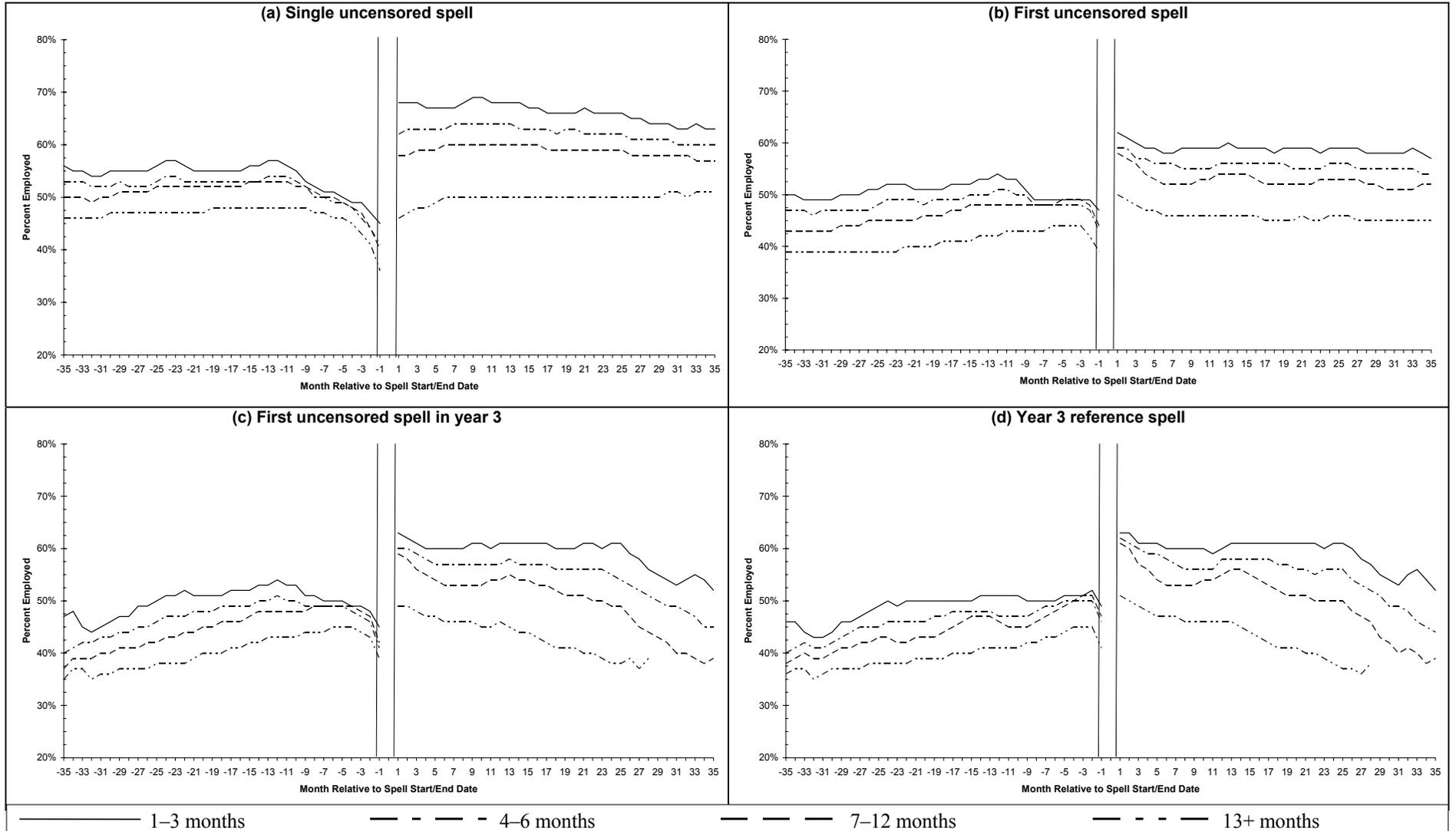
Figure 3a

Economic activity relative to the start of receiving benefits for year 3 reference spells, 15–39-year-olds
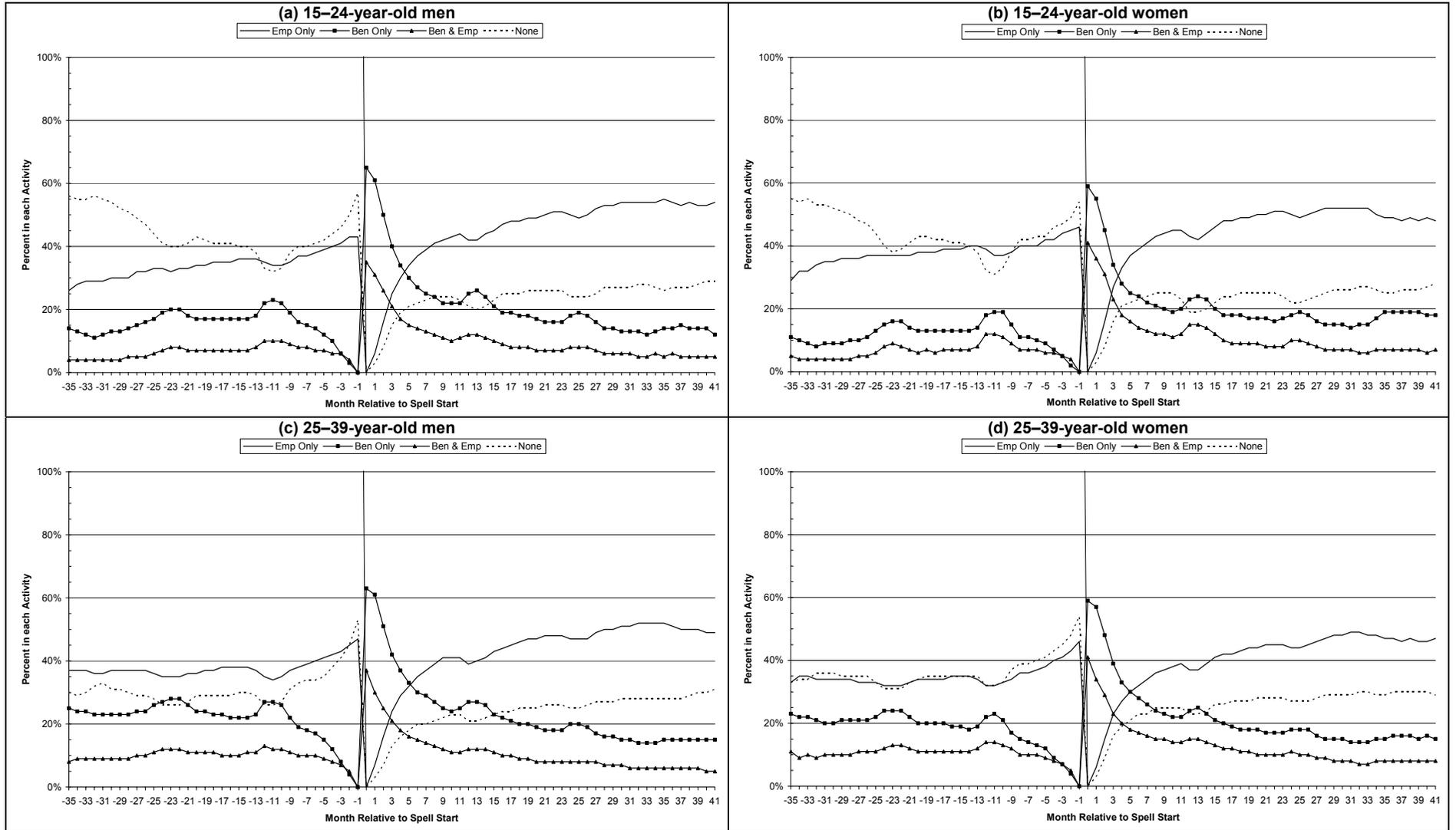
Figure 3b

Economic activity relative to the start of receiving benefits for year 3 reference spells, 40–69-year-olds
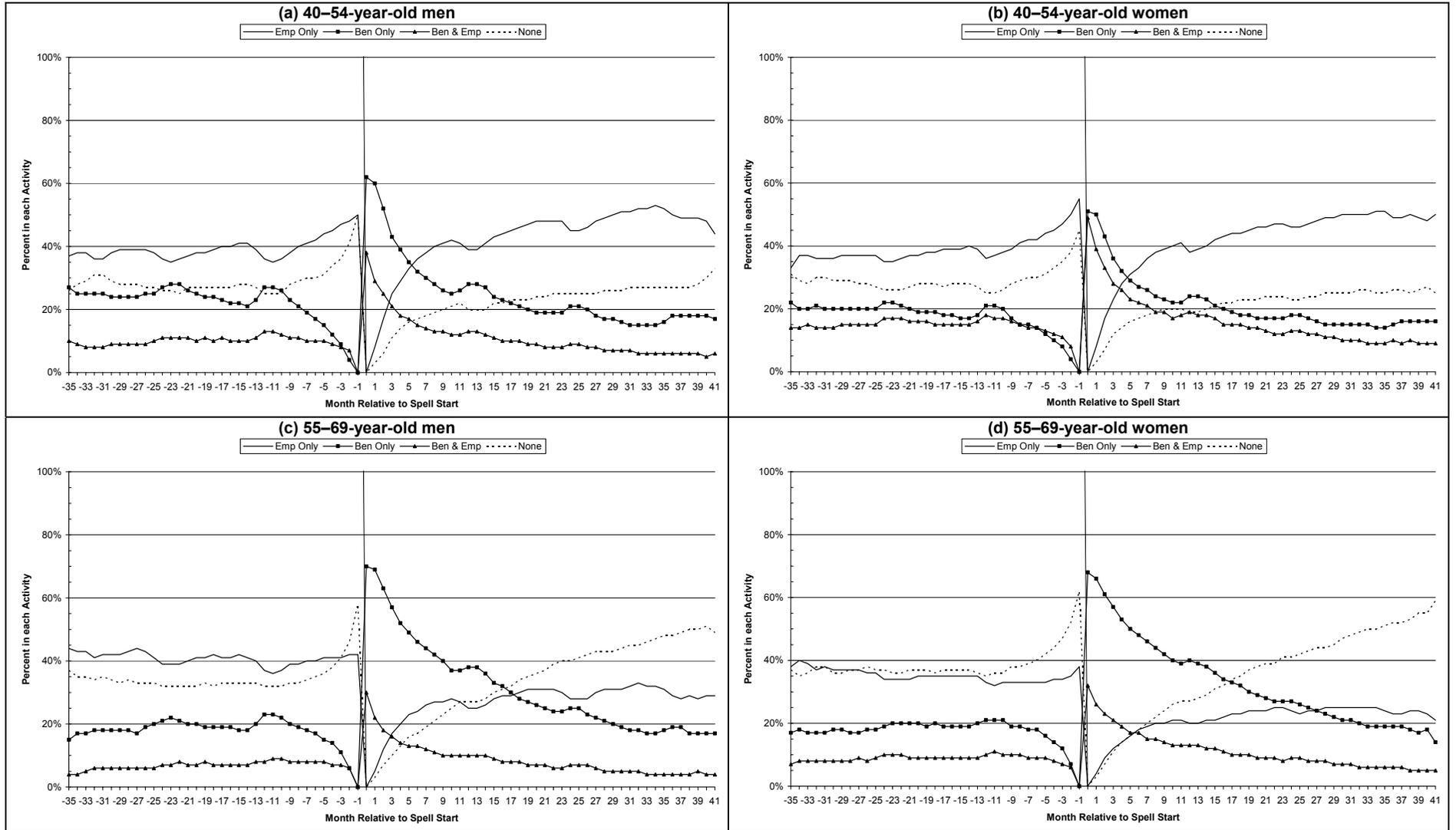
Figure 4a

Off-benefit and employment rates after year 3 reference spells for men, by spell duration

(a1) 15–24-year-olds – Off-benefit rate

(a2) 15–24-year-olds – Employment rate

(b1) 25–39-year-olds – Off-benefit rate

(b2) 25–39-year-olds – Employment rate

(c1) 40–54-year-olds – Off-benefit rate

(c2) 40–54-year-olds – Employment rate

(d1) 55–69-year-olds – Off-benefit rate

(d2) 55–69-year-olds – Employment rate

- - - 1-3   —— 4-12   —■— 13-24   —▲— 25+ Months
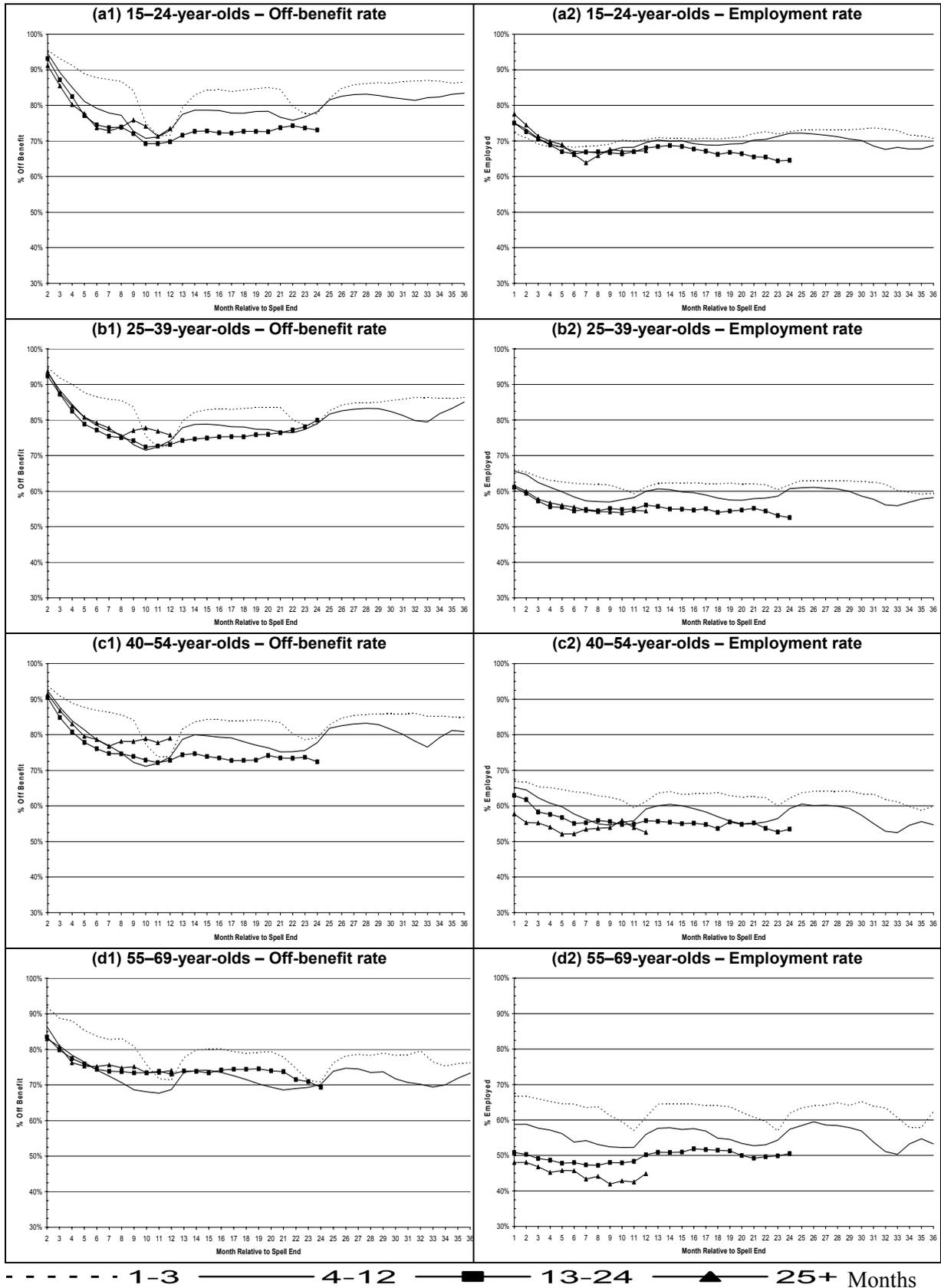
Figure 4b

Off-benefit and employment rates after year 3 reference spells for women, by spell duration

(a1) 15–24-year-olds – Off-benefit rate

(a2) 15–24-year-olds – Employment rate

(b1) 25–39-year-olds – Off-benefit rate

(b2) 25–39-year-olds – Employment rate

(c1) 40–54-year-olds – Off-benefit rate

(c2) 40–54-year-olds – Employment rate

(d1) 55–69-year-olds – Off-benefit rate

(d2) 55–69-year-olds – Employment rate

- - - - 1–3   ——— 4–12   —■— 13–24   —▲— 25+   Months
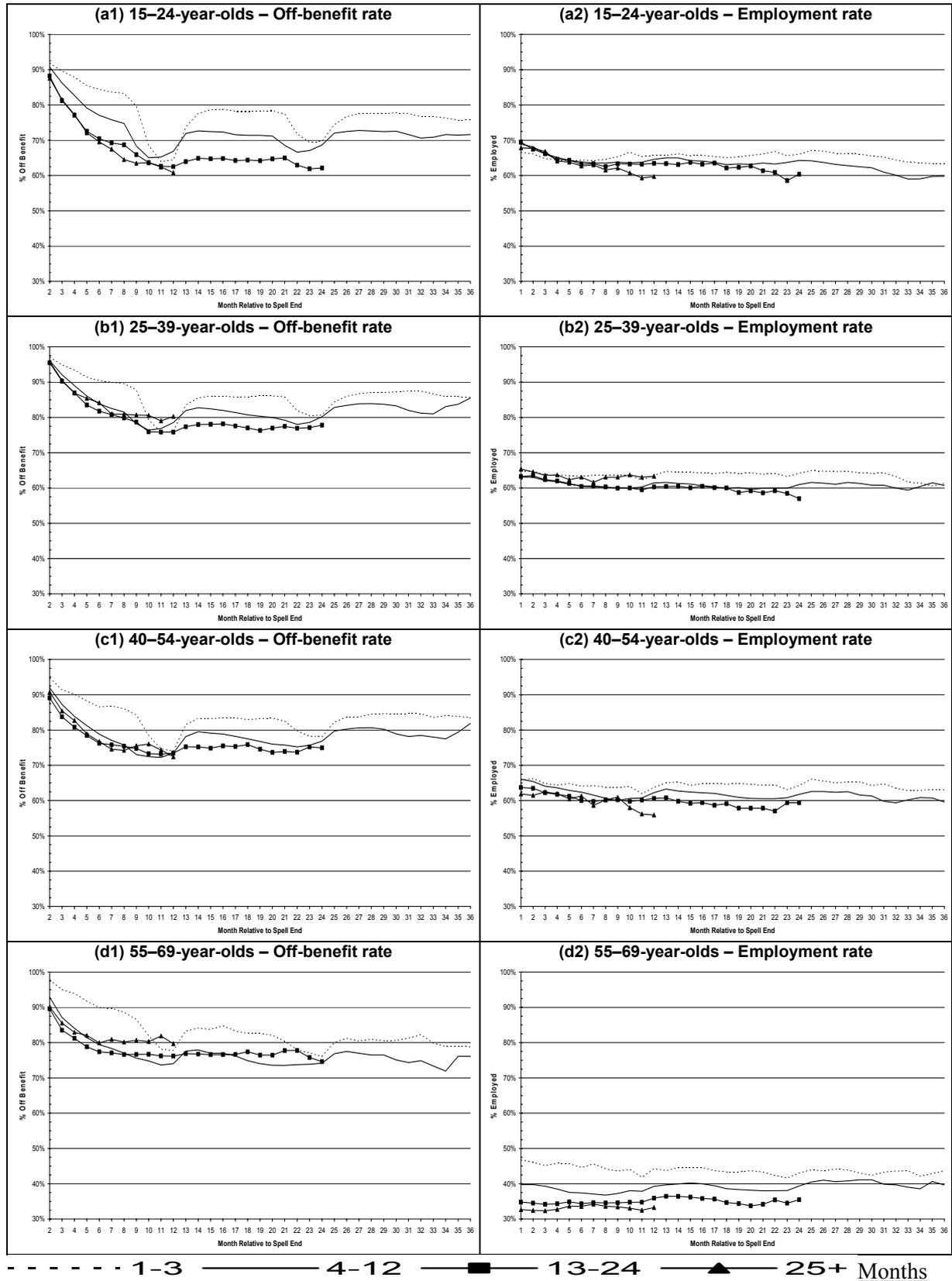
Table 1

Summary of core benefits in December of each year, 1998–2005

	1998	2000	2003	2005
A: All core benefits				
Benefit type				
Unemployment Benefit	40	37	27	21
Domestic Purposes Benefit	28	28	32	34
Other benefits	32	35	41	45
Female	53	54	58	61
Age (years)				
18–24	24	22	19	18
25–39	40	38	37	36
40–54	23	24	27	28
55–64	13	16	17	18
Totals	399,071	392,307	348,847	319,699
B: Unemployment Benefit				
Female	30	32	35	36
Age (years)				
18–24	34	31	29	28
25–39	37	35	32	31
40–54	20	22	20	20
55–64	10	13	19	21
Totals	159,907	146,692	94,348	65,969
C: Domestic Purposes Benefit				
Female	91	91	91	91
Age (years)				
18–24	18	18	17	17
25–39	59	58	55	53
40–54	20	21	24	25
55–64	3	3	4	4
Totals	112,523	109,663	111,065	109,339
D: Other benefits				
Female	48	49	49	49
Age (years)				
18–24	16	16	15	13
25–39	29	26	26	25
40–54	29	29	33	34
55–64	27	29	26	28
Totals	126,641	135,952	143,434	144,391

Note: The main entries in the table are (column) percentages of the relevant totals in each panel; these percentages do not sum to 100 because the groupings are not exhaustive. The data for this table are taken from a number of Benefit Factsheets available from the Ministry of Social Development at http://www.msd.govt.nz/media-information/benefit-fact-sheets/index.html.

Table 2

Characteristics of the benefit-receiving and non-benefit populations, 1999–2004

Sample characteristic	Never received benefits	Received benefits in all months	Received benefits in some months
Percent			
Female	48	66	52
Age (years)			
15—19	5	1	8
20—24	11	8	19
25—29	14	11	15
30—34	14	13	13
35—39	13	13	11
40—44	13	12	9
45—49	11	11	7
50—54	9	11	6
55—59	6	12	5
60—64	4	7	6
65—69	0	0	1
Region			
Northland	3	5	4
Auckland	34	27	29
Waikato	9	10	10
Bay of Plenty	5	7	7
Hawke's Bay / Gisborne	4	6	6
Taranaki	2	3	3
Manawatu / Wanganui	5	7	6
Wellington	12	10	11
West Coast / Tasman / Nelson / Marlborough	4	4	4
Canterbury	13	12	12
Otago	5	4	5
Southland	2	2	3
Missing	2	1	1
Mean			
Employment and Benefit Status			
Months employed	43.6	10.3	30.3
Months receiving benefit	0	66.0	23.1
Months both employed and receiving benefit	0	10.3	6.5
Income			
Monthly earnings ($)	3,237	0	2,031
Monthly benefit receipt ($)	0	1,015	709
Benefit Histories			
Number of benefit spells	0	1	1.9
Number of uncensored benefit spells	0	0	1.2
Number of individuals	1,598,419	126,317	824,781

Note: All incomes are adjusted using the CPI to be measured in constant March quarter 2004 dollar-values. Mean monthly earnings are conditional on employment and no benefit receipt; mean monthly benefit is conditional on benefit receipt. Age and region are measured in December 2001 for each group.

Table 3

Characteristics of alternative benefit-receiving populations

Sample characteristics	Single uncensored spell	First uncensored spell	First year-3 uncensored spell	Year-3 reference spell
Percent				
Female	49	49	50	47
Age (years)				
15—19	10	10	17	13
20—24	20	22	18	24
25—29	16	16	15	16
30—34	13	13	12	12
35—39	10	11	10	10
40—44	8	9	8	8
45—49	6	6	6	6
50—54	5	5	5	5
55—59	4	4	4	3
60—64	6	4	5	4
65—69	1	0	0	0
Region				
Northland	3	4	4	4
Auckland	31	29	31	28
Waikato	9	10	9	10
Bay of Plenty	7	7	8	8
Hawke's Bay / Gisborne	5	6	6	7
Taranaki	2	3	3	3
Manawatu / Wanganui	6	6	6	6
Wellington	12	11	11	10
West Coast / Tasman / Nelson / Marlborough	4	4	4	4
Canterbury	13	12	12	12
Otago	5	5	5	5
Southland	2	3	2	3
Missing	1	1	0	0
Mean				
Employment and Benefit Status				
Months employed	35.4	33.0	32.6	32.9
Months receiving benefit	8.8	19.3	18.4	21.1
Months both employed and receiving benefit	2.8	6.2	5.8	7.2
Income				
Monthly earnings ($)	2,292	2,033	1,969	1,907
Monthly benefit receipt ($)	587	648	652	642
Benefit Histories				
Number of benefit spells	1.0	2.2	2.0	2.8
Number of uncensored spells	1.0	1.7	1.5	2.4
Start month of first benefit spell (April 99 = 1)	26.4	22.4	30.6	21.9
End month of first benefit spell (April 99 = 1)	34.1	30.1	37.9	28.4
Length of first benefit spell (months)	8.8	8.8	8.3	7.5
Number of individuals	223,747	582,658	105,545	199,059

Note: All incomes are adjusted using the CPI to be measured in constant March quarter 2004 dollar-values. Mean monthly earnings are conditional on employment and no benefit receipt; mean monthly benefit is conditional on benefit receipt. Age and region are measured in December 2001 for each group.

Table 4

Characteristics of year-3 reference benefit spell population, by age and sender

Sample characteristic	Overall	15–24-year-olds Men	15–24-year-olds Women	25–39-year-olds Men	25–39-year-olds Women	40–54-year-olds Men	40–54-year-olds Women	55–69-year-olds Men	55–69-year-olds Women
Average Age (years)	31.9	20.6	20.5	31.1	31.3	45.9	46.1	59.9	59.4
Region (Percent)									
Northland	4	4	4	4	4	4	4	4	3
Auckland	28	26	26	30	31	26	27	26	29
Waikato	10	10	11	9	9	9	9	8	8
Bay of Plenty	8	8	8	8	8	8	8	8	8
Hawkes Bay / Gisborne	7	7	6	7	6	8	7	7	6
Taranaki	3	3	3	3	2	3	3	3	2
Manawatu / Wanganui	6	7	7	6	6	6	6	6	5
Wellington	10	11	11	11	10	9	9	9	10
West Coast /…/ Marlborough	4	3	4	4	4	5	5	6	5
Canterbury	12	12	13	11	12	12	12	13	12
Otago	6	6	6	5	5	5	5	6	5
Southland	3	3	3	3	3	4	3	4	3
Transitions (Percent)									
Employment to Employment	43	41	42	44	42	48	52	35	31
Employment to NILF	10	11	11	10	10	9	8	14	12
NILF to Employment	20	26	24	21	19	17	14	10	7
NILF to NILF	26	22	23	24	29	25	26	40	50
Prior-to-spell Histories									
No. benefit spells	0.98	0.96	0.84	1.14	0.98	1.08	1.01	0.83	0.79
No. of months									
Employed in prior 12	5.76	5.42	5.74	5.83	5.59	6.16	6.69	5.61	5.05
Employed in prior 24	11.31	10.42	11.22	11.54	11.03	12.03	13.10	11.34	10.34
Received benefits in prior 12	2.70	2.47	2.11	3.01	2.72	3.13	3.09	2.75	2.86
Received benefits in prior 24	6.25	5.48	4.62	7.23	6.61	7.31	7.30	5.99	6.31
Average									
Earnings in prior 12 ($)	1572	1210	982	1957	1530	2337	1620	2655	1714
Earnings in prior 24 ($)	1545	1157	936	1959	1521	2328	1586	2636	1691
Benefit received in prior 12 ($)	607	523	530	642	699	631	662	572	596
Benefit received in prior 24 ($)	632	538	546	666	735	658	702	588	612
Reference spell									
Spell length (months)	7.88	6.99	6.90	7.80	8.17	8.21	8.57	10.52	11.83
Months also employed (%)	42	41	46	41	43	41	50	29	31
Average benefit receipt ($)	599	522	538	632	690	605	631	586	630
Average monthly earnings ($)	1133	995	861	1341	1120	1463	1147	1406	1029
Spell length (percent)									
1–3 months	40	41	45	39	40	38	38	29	24
4–12 months	40	43	39	41	39	41	39	39	38
13–24 months	14	12	11	14	14	15	16	21	24
25+ months	6	4	5	6	7	7	7	11	14
Spell ends in March 2002	16	18	23	15	16	12	12	7	7
Post-spell Histories									
No. benefit spells	1.04	1.10	1.06	1.07	0.96	1.08	1.06	0.87	0.85
No. of months									
Employed in next 12	6.89	7.05	7.22	6.99	6.76	7.10	7.36	4.96	4.39
Employed in Next 24	14.01	14.27	14.51	14.15	13.56	14.46	14.89	10.89	9.52
Received benefits in next 12	2.19	2.20	2.13	2.22	2.03	2.29	2.33	2.19	2.34
Received benefits in next 24	4.66	4.55	4.57	4.68	4.46	4.82	4.96	4.94	5.37
Average									
Earnings in next 12 ($)	1776	1589	1393	2121	1740	2317	1698	2228	1479
Earnings in next 24 ($)	1865	1690	1498	2229	1810	2408	1766	2279	1511
Benefit received in next 12 ($)	620	554	580	652	708	623	645	599	627
Benefit received in next 24 ($)	626	559	597	653	718	622	646	599	632
Percentage of overall sample	100	20	18	20	17	9	9	4	3
Number of individuals	199,059	39,330	35,245	40,747	33,918	18,565	17,286	7,173	6,795

Note: All incomes are adjusted using the CPI to be measured in constant March quarter 2004 dollar-values. Mean monthly earnings are conditional on employment and no benefit receipt; mean monthly benefit is conditional on benefit receipt. Age and region are measured in the first month of the benefit spell. NILF represents not in the labour force (see text for details).

Table 5

Off-benefit and employment rates after year 3 reference spells, by spell duration

	15–24-year-olds		25–39-year-olds		40–54-year-olds		55–69 year-olds	
	Off benefit	Employed	Off benefit	Employed	Off benefit	Employed	Off benefit	Employed
Men								
1–3 month benefit spell								
12 months after	0.72	0.70	0.73	0.61	0.74	0.61	0.71	0.61
24 months after	0.78	0.73	0.79	0.62	0.79	0.62	0.71	0.62
36 months after	0.87	0.71	0.86	0.59	0.85	0.60	0.76	0.62
4–12 month benefit spell								
12 months after	0.73	0.70	0.74	0.60	0.74	0.59	0.69	0.56
24 months after	0.78	0.72	0.79	0.61	0.78	0.59	0.70	0.57
36 months after	0.83	0.69	0.85	0.58	0.81	0.55	0.73	0.53
13–24 month benefit spell								
12 months after	0.70	0.68	0.73	0.56	0.73	0.56	0.73	0.50
24 months after	0.73	0.65	0.80	0.53	0.72	0.53	0.69	0.51
25+ month benefit spell								
12 months after	0.74	0.67	0.76	0.54	0.79	0.53	0.74	0.45
Number of individuals	1,143,783	1,143,783	1,164,561	1,164,561	528,475	528,475	188,694	188,694
Women								
1–3 month benefit spell								
12 months after	0.64	0.66	0.76	0.64	0.74	0.64	0.78	0.44
24 months after	0.70	0.66	0.81	0.64	0.78	0.64	0.76	0.43
36 months after	0.76	0.63	0.86	0.61	0.84	0.63	0.79	0.44
4–12 month benefit spell								
12 months after	0.67	0.65	0.79	0.61	0.73	0.62	0.74	0.39
24 months after	0.69	0.64	0.80	0.61	0.77	0.62	0.74	0.39
36 months after	0.72	0.60	0.86	0.61	0.82	0.60	0.76	0.40
13–24 month benefit spell								
12 months after	0.63	0.63	0.76	0.60	0.73	0.61	0.76	0.36
24 months after	0.62	0.60	0.78	0.57	0.75	0.59	0.75	0.35
25+ month benefit spell								
12 months after	0.61	0.60	0.80	0.63	0.72	0.56	0.80	0.33
Number of individuals	1,015,872	1,015,872	950,857	950,857	482,590	482,590	169,102	169,102

Note: The displayed coefficients are the average off-benefit or employment rate for individuals with a benefit spell of a particular duration of the indicated number of months since the spell ended with the following characteristics: age 20, 33, 48 or 60 (depending on the demographic group), living in Waikato, started their benefit spell in April 2001, employed 12 months and received benefits in 3 of the 24 months prior to the benefit spell, and with mean earnings ($1,559) and benefit receipt ($621) in the 24 months prior to the benefit spell.

Table 6a

The impact of characteristics on post-spell off-benefit and employment rates, for men

Characteristic	15–24-year-olds		25–39-year-olds		40–54-year-olds		55–69-year-olds	
	Off benefit	Employed	Off benefit	Employed	Off benefit	Employed	Off benefit	Employed
Age	0.01	-0.01	0.00	0.00	0.00	0.00	0.02	-0.03
Region								
Northland	0.00	-0.01	0.00	0.01	-0.01	-0.03	0.05	0.01
Auckland	0.02	-0.04	0.03	-0.04	0.01	-0.08	-0.04	-0.08
Bay of Plenty	-0.01	-0.01	0.01	0.01	-0.01	-0.01	-0.02	0.01
Hawkes Bay / Gisborne	-0.03	0.00	-0.04	0.02	-0.04	0.02	-0.03	-0.03
Taranaki	-0.02	0.03	0.01	0.05	0.00	0.04	-0.08	-0.06
Manawatu / Wanganui	-0.01	0.01	-0.01	0.01	-0.01	0.01	-0.06	-0.03
Wellington	-0.01	-0.02	0.01	-0.02	-0.02	-0.05	-0.03	-0.06
West Coast / … / Marlborough	0.02	0.02	0.03	0.03	0.00	-0.01	-0.02	-0.01
Canterbury	0.03	0.01	0.04	0.03	0.02	0.02	0.00	0.01
Otago	0.02	0.02	0.04	0.02	0.00	0.02	-0.02	-0.03
Southland	-0.02	0.04	-0.02	0.05	-0.06	0.02	-0.06	0.03
Log earnings in prior 24 months	0.00	0.03	0.01	0.02	0.02	0.01	0.02	-0.02
Log benefits in prior 24 months	-0.03	-0.03	-0.05	-0.02	-0.04	-0.02	0.00	-0.03
Number of months employed in 24 months prior to reference spell								
0	-0.05	-0.25	-0.01	-0.23	-0.01	-0.30	0.01	-0.29
1	-0.03	-0.17	0.02	-0.14	0.01	-0.20	0.05	-0.18
2	-0.04	-0.14	0.01	-0.15	0.01	-0.15	-0.01	-0.19
3	-0.03	-0.10	0.01	-0.13	-0.01	-0.12	0.01	-0.17
4	-0.03	-0.10	0.02	-0.12	0.02	-0.09	0.06	-0.05
5	-0.02	-0.08	0.01	-0.06	0.02	-0.09	0.05	-0.07
6	-0.02	-0.06	0.01	-0.09	0.01	-0.06	0.05	-0.17
7	0.00	-0.03	0.02	-0.02	-0.02	-0.04	0.00	-0.09
8	0.00	-0.04	-0.01	-0.06	-0.01	-0.05	0.05	-0.05
9	-0.01	-0.04	0.02	-0.03	0.01	-0.01	0.02	-0.02
10	0.00	-0.01	0.00	0.00	-0.01	-0.03	0.04	-0.01
11	-0.01	-0.02	0.01	0.01	-0.01	0.00	0.00	-0.01
13	0.01	0.00	0.02	0.02	-0.01	0.02	-0.01	0.01
14	0.01	0.03	0.01	0.03	0.00	0.03	-0.01	0.02
15	0.02	0.03	0.01	0.04	0.00	0.08	0.02	0.05
16	0.02	0.05	0.02	0.06	0.01	0.09	0.04	0.10
17	0.02	0.05	0.01	0.08	-0.02	0.08	0.03	0.08
18	0.00	0.05	0.03	0.09	-0.02	0.09	0.02	0.08
19	0.01	0.07	0.02	0.10	0.00	0.14	0.03	0.06
20	0.02	0.08	0.02	0.10	0.01	0.15	0.05	0.13
21	0.01	0.08	0.02	0.13	-0.01	0.12	0.03	0.10
22	0.02	0.11	0.01	0.15	0.00	0.16	0.02	0.13
23	0.02	0.13	0.02	0.16	0.01	0.18	0.05	0.14
24	0.03	0.14	0.02	0.19	0.01	0.21	0.04	0.17
Number of Months Received Benefits in 24 Months Prior to Reference Spell								
0	0.03	0.01	0.04	0.01	0.04	0.01	0.04	-0.04
1	-0.01	-0.04	-0.02	-0.04	0.00	-0.03	0.02	0.03
2	-0.01	-0.02	0.00	0.01	0.01	0.01	0.03	-0.02
4	-0.02	-0.03	0.00	0.00	0.01	0.00	0.00	0.03
5	-0.02	0.00	-0.01	-0.01	0.02	0.01	-0.03	0.01
6	-0.02	0.00	-0.02	0.01	-0.01	0.03	0.00	0.05
7	-0.04	-0.02	-0.03	0.00	-0.01	0.01	-0.03	0.02
8	-0.04	-0.02	-0.04	0.01	-0.05	-0.01	-0.03	0.00
9	-0.05	-0.03	-0.07	-0.01	-0.03	0.01	-0.04	0.04
10	-0.06	0.00	-0.06	-0.01	-0.03	0.00	-0.06	0.06
11	-0.08	-0.01	-0.06	-0.02	-0.07	-0.01	-0.04	0.02
12	-0.05	0.00	-0.07	0.00	-0.04	0.02	-0.10	0.01
13	-0.10	-0.03	-0.08	-0.01	-0.06	0.02	-0.05	0.03
14	-0.10	0.00	-0.09	-0.01	-0.04	0.01	-0.02	0.07
15	-0.10	0.01	-0.11	-0.01	-0.09	0.02	-0.07	0.03
16	-0.12	-0.01	-0.12	-0.02	-0.09	0.02	-0.13	0.03
17	-0.12	-0.02	-0.14	-0.01	-0.11	-0.01	-0.08	0.10
18	-0.14	-0.03	-0.15	-0.01	-0.12	-0.01	-0.10	0.02
19	-0.15	-0.01	-0.14	0.02	-0.10	0.04	-0.13	0.00
20	-0.17	-0.03	-0.14	0.02	-0.12	0.04	-0.10	0.06
21	-0.17	-0.02	-0.16	-0.02	-0.15	0.03	-0.18	0.03
22	-0.18	-0.04	-0.17	-0.01	-0.12	0.06	-0.12	0.02
23	-0.17	-0.01	-0.15	0.00	-0.14	0.03	-0.11	0.03
Number of individuals	1,143,783	1,143,783	1,164,561	1,164,561	528,475	528,475	188,694	188,694

Note: The displayed coefficients indicate the marginal effect of particular characteristics on the outcome in each column, relative to those for an individual living in Waikato, employed 12 months prior, and receiving benefits in 3 prior months. All regressions control for the benefit spell start-month and duration interacted with the time since the benefit spell ended.

Table 6b

The impact of characteristics on post-spell off-benefit and employment rates, for women

Characteristic	15–24-year-olds		25–39-year-olds		40–54-year-olds		55–69-year-olds	
	Off benefit	Employed	Off benefit	Employed	Off benefit	Employed	Off benefit	Employed
Age	0.02	0.00	0.00	0.00	0.00	0.00	0.02	-0.02
Region								
Northland	-0.02	-0.02	-0.02	-0.01	-0.01	0.02	0.02	-0.02
Auckland	0.01	-0.04	0.00	-0.06	-0.01	-0.06	-0.04	-0.02
Bay of Plenty	-0.02	-0.02	-0.02	-0.02	-0.03	-0.01	0.01	0.00
Hawkes Bay / Gisborne	-0.04	-0.01	-0.03	0.01	-0.04	0.00	-0.07	0.03
Taranaki	0.02	0.02	0.01	0.02	0.00	0.00	0.00	0.03
Manawatu / Wanganui	0.01	0.00	0.00	0.01	-0.03	0.00	0.01	0.02
Wellington	0.00	-0.01	0.01	-0.01	-0.03	-0.03	-0.05	-0.01
West Coast / … / Marlborough	0.02	0.00	0.01	0.03	-0.02	-0.02	0.00	0.01
Canterbury	0.04	0.03	0.02	0.03	0.01	0.00	-0.02	0.00
Otago	0.02	0.03	0.02	0.02	0.01	0.00	0.01	0.03
Southland	0.01	0.03	0.00	0.05	-0.03	0.04	-0.03	-0.01
Log earnings in prior 24 months	-0.01	0.01	0.01	0.03	0.01	0.02	0.01	0.01
Log benefits in prior 24 months	-0.06	-0.05	-0.04	0.00	-0.03	0.00	-0.03	-0.01
Number of months employed in 24 months prior to reference spell								
0	-0.06	-0.27	-0.01	-0.28	-0.01	-0.39	-0.03	-0.29
1	-0.06	-0.14	0.01	-0.15	0.03	-0.17	0.06	-0.22
2	-0.07	-0.15	0.00	-0.10	0.04	-0.16	0.07	-0.07
3	-0.04	-0.11	0.00	-0.10	-0.01	-0.15	-0.03	-0.11
4	-0.04	-0.11	0.00	-0.10	0.03	-0.15	0.06	0.03
5	-0.04	-0.10	-0.02	-0.10	0.02	-0.11	0.01	-0.02
6	-0.05	-0.07	-0.01	-0.06	0.01	-0.12	0.01	-0.09
7	-0.03	-0.06	0.00	-0.04	-0.01	-0.12	0.01	-0.08
8	-0.02	-0.03	0.00	-0.04	-0.02	-0.05	-0.03	-0.07
9	-0.01	-0.03	0.00	-0.03	0.00	-0.03	-0.07	-0.08
10	-0.02	-0.04	0.01	-0.03	-0.01	-0.05	-0.03	-0.03
11	0.00	0.00	0.00	-0.03	0.01	-0.04	-0.06	-0.04
13	-0.01	-0.02	0.01	0.00	0.01	0.01	-0.01	0.11
14	0.01	0.00	0.00	0.01	0.00	-0.01	-0.04	0.10
15	-0.01	0.01	0.01	0.01	0.00	-0.01	-0.01	0.11
16	0.01	0.03	0.02	0.04	-0.02	0.03	0.05	0.18
17	-0.01	0.03	0.01	0.07	0.02	0.05	0.02	0.09
18	0.00	0.04	0.01	0.07	0.00	0.06	-0.02	0.12
19	0.00	0.05	0.03	0.08	0.02	0.09	0.06	0.18
20	0.00	0.05	0.00	0.10	0.02	0.09	0.04	0.12
21	0.00	0.06	0.01	0.09	0.01	0.12	0.01	0.17
22	0.00	0.07	0.01	0.12	0.02	0.13	0.00	0.18
23	0.00	0.07	0.01	0.14	0.01	0.15	0.01	0.22
24	0.01	0.12	0.00	0.18	0.03	0.20	0.01	0.31
Number of months received benefits in 24 months prior to reference spell								
0	0.04	0.03	0.03	0.02	0.04	0.04	0.04	-0.03
1	-0.02	-0.03	-0.01	-0.02	-0.03	-0.01	-0.01	-0.07
2	0.00	-0.01	-0.01	-0.01	0.01	0.04	-0.03	-0.01
4	-0.01	-0.01	-0.02	0.00	-0.01	0.03	0.00	0.03
5	-0.04	-0.03	-0.04	-0.01	-0.01	0.02	0.01	0.03
6	-0.03	0.00	-0.03	0.01	-0.01	0.06	-0.02	0.03
7	-0.04	0.00	-0.03	-0.01	-0.04	0.05	-0.06	0.03
8	-0.05	-0.01	-0.05	-0.01	-0.04	0.05	-0.04	-0.01
9	-0.06	-0.01	-0.07	-0.03	-0.01	0.05	0.03	0.06
10	-0.08	-0.03	-0.08	-0.03	-0.05	0.05	0.01	0.00
11	-0.07	-0.01	-0.05	-0.01	-0.04	0.06	-0.02	0.07
12	-0.08	-0.02	-0.08	-0.02	-0.05	0.06	-0.05	0.06
13	-0.09	0.00	-0.11	-0.02	-0.09	0.04	-0.07	-0.04
14	-0.10	-0.01	-0.09	-0.01	-0.08	0.06	-0.06	0.04
15	-0.14	-0.06	-0.11	-0.02	-0.10	0.07	-0.11	-0.03
16	-0.11	-0.06	-0.13	-0.03	-0.07	0.04	-0.08	0.00
17	-0.13	-0.03	-0.13	0.00	-0.10	0.07	-0.06	0.07
18	-0.13	-0.03	-0.16	0.00	-0.09	0.05	-0.12	0.07
19	-0.17	-0.04	-0.17	-0.01	-0.10	0.06	-0.16	0.01
20	-0.14	-0.02	-0.16	-0.04	-0.12	0.07	-0.11	0.04
21	-0.16	-0.05	-0.17	0.00	-0.12	0.07	-0.15	0.04
22	-0.18	-0.04	-0.17	0.01	-0.12	0.06	-0.10	0.03
23	-0.18	-0.03	-0.16	0.02	-0.09	0.11	-0.10	0.05
Number of Individuals	1,015,872	1,015,872	950,857	950,857	482,590	482,590	169,102	169,102

Note: The displayed coefficients indicate the marginal effect of particular characteristics on the outcome in each column, relative to those for an individual living in Waikato, employed 12 months prior, and receiving benefits in 3 prior months. All regressions control for the benefit spell start-month and duration interacted with the time since the benefit spell ended.