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Successful Benefit-to-Work Transitions?
The Longer-term Outcomes of People who Move from
a Working-age Benefit to Employment

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Abstract

This study uses data from New Zealand's Linked Employer-Employee Database (LEED) to examine the longer-term employment outcomes of adults who moved from a government income support benefit to employment. The main study population is all those who made such a benefit-to-work (BTW) transition during 2001/02. They are observed for two years before and after the transition.

We find that people in the BTW transition group remained employed and off benefits for much of the post-transition period (72 percent of the first year on average, and 61 percent of the second). Part-time or part-month employment was common, however: at any given time approximately one-third of those in employment had part-time or part-month earnings. More than half received some further benefit income during the two years after the transition. Those who had some employment in the final six months (78 percent) experienced an 8.5 percent increase in their average monthly earnings, at the median.

An analysis of the factors associated with successful outcomes for people moving from a benefit to employment suggests that personal characteristics, prior employment experience, the timing and nature of the transition, and the characteristics of post-transition employers all play some role. However, the analysis does not allow us to fully distinguish between associative and causal effects.

The study also compares the employment outcomes of the BTW transition group with those of non-beneficiaries who began a new waged or salaried job in the same year, with and without controls for differences in measured characteristics. The results of these comparisons are informative but not entirely conclusive.

Acknowledgements and disclaimers

1. Introduction

Barriers to employment retention for people moving from benefits to employment are well documented. A considerable body of international literature, and some New Zealand research, indicates that former welfare recipients often struggle to retain employment, cycle between short-term jobs and welfare, and can remain in low paid situations for extended periods of time.[1] Assisting people who have had lengthy spells of income support to return to work, remain employed and improve their skills and incomes over time are important employment policy goals.

This study uses data from the Linked Employer-Employee Database (LEED) to examine the longer-term employment outcomes of people who moved from a working-age benefit to employment in 2001/02. LEED is a new data source which provides comprehensive national data on taxable income payments from April 1999 to the present. Employee earnings and income received from social welfare benefits are separately identified. Individuals and employers in LEED have unique identifiers which enable longitudinal linking of records. The database can therefore be used to study individuals' transitions between employment states and onto and off benefits, as well as their transitions between employers.

The paper has three main objectives. First, it describes the benefit-to-work experiences of former beneficiaries. We construct and report a variety of different measures of both short-term and longer-term outcomes for people who moved from a core benefit to employment during 2001/02, providing a reasonably detailed picture of post-benefit employment outcomes. We aim to identify what proportions achieved continuity in their employment, had monthly earnings that were above a minimum level consistent with full-time employment, and improved their earnings over time.

Secondly, the study examines the effects of factors such as demographic characteristics, prior employment experience, mobility between employers, and employer characteristics on individuals' employment and earnings outcomes, using regression methods and a richer set of explanatory variables than has been used in previous research. Building on but extending the work of Hyslop *et al* (2004), we identify changes of employer at the time of the benefit-to-work transition and subsequently, and use this information in our models of outcomes. We also incorporate information on the characteristics of post-transition employers, including their industry, number of employees, payroll per employee, expansion or contraction of employment and employee turnover rate.

Thirdly, the paper compares the employment outcomes of people who moved from benefits to employment with the outcomes of non-beneficiaries who began a new job in the same reference year. Studies of the employment experiences of former welfare recipients often have no basis for assessing what level of employment retention or earnings growth can be realistically expected. Taking advantage of the fact that LEED contains data on *all* employees in New Zealand, we compare the employment outcomes of former beneficiaries with those of two comparison groups: all non-beneficiaries who started a new job in 2001/02, and non-beneficiaries who made a transition from a state of low employment (defined as employment with earnings of less than $1,500 a month) or non-employment into work. These comparison groups provide two alternative reference points for evaluating the retention rates, earnings and earnings growth of the benefit-to-work study population.

We find that the benefit-to-work (BTW) transition group remained employed and off benefits for 72 percent of the first year on average, and 61 percent of the second year. Over the first two years, the average number of months of employment while off benefits was 16 months.

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1 See for example Wehipeihana and Pratt (2002) for a New Zealand example and Johnson (2002) for British and American examples.

However, the average number of months with earnings above $1,500 a month was only 12 months. The gap between these two outcome measures reflects a relatively high level of part-time and/or part-month employment.

Our analysis of the factors associated with successful outcomes suggests that both individual and employer characteristics may influence the employment retention and earnings growth of people who move from benefits to employment. The effects of employer characteristics persist in regression specifications that control for time-invariant individual heterogeneity.

The employment and earnings outcomes of the BTW group were generally poorer than those of non-beneficiary job entrants, but many of the mean differences were relatively small. The sign and magnitude of the outcomes 'gap' between former beneficiaries and non-beneficiaries is sensitive to decisions about what factors to control when making the comparison. These results are open to a number of different interpretations, which are discussed below.

The study has a number of important limitations, due to limitations of the dataset. For instance, we are unable to identify different types of benefits in LEED, and therefore do not have information on the factors that made people eligible for income support. We also have very limited socio-demographic information on beneficiaries and their families. Furthermore, the findings of this study may have been influenced by the timing of the study with respect to the business cycle: 2001/02 was a period of unusually strong employment growth. These and other limitations are discussed in more detail below.

The structure of the paper is as follows. Section 2 briefly summarises other relevant research on benefit-to-work transitions. Section 3 outlines the key features of the data source and study design. Section 4 describes the demographic characteristics and past employment and benefit receipt histories of the benefit-to-work study population, drawing comparisons with other groups of beneficiaries and with non-beneficiary job entrants. Section 4 also describes the circumstances of benefit-to-work transitions and the characteristics of on-benefit and post-benefit employers. Comparisons are drawn with non-beneficiary job entrants to better identify the distinctive characteristics of the ex-beneficiary study group and its transition experiences.

Section 5 presents the main results of the paper. Section 5.1 uses descriptive statistics to summarise the short-term and longer-term employment and earnings outcomes of the benefit-to-work study population. Section 5.2 examines the effects of factors such as personal characteristics, mobility between employers, and employer characteristics on outcomes, using more formal regression methods. Section 5.3 addresses the question of whether the employment outcomes of former beneficiaries are substantively different from those of non-beneficiary job entrants, using regressions to compare outcomes while controlling for differences in measured characteristics. Section 6 summarises the main results and section 7 concludes.

2. Previous Research

Until recently, most studies of benefit-to-work (BTW) transitions in New Zealand have relied either on data collected in benefit administration systems (for example, Wilson *et al* 2005) or on special client surveys undertaken for programme evaluation purposes. There are a small number of published New Zealand studies of the employment retention and longer-term outcomes of former beneficiaries. The most important recent studies are Department of Labour and Ministry of Social Development (2001), Wehipeihana and Pratt (2002), and Hyslop *et al* (2004).

An evaluation of reforms to the Domestic Purposes Benefit (DPB) and Widows Benefit, (Department of Labour and Ministry of Social Development, 2001), provides considerable

information on the early employment experiences of sole parents who moved from benefits to employment in 2000/01. Data were collected from several sources, including a survey of 1,016 sole parents who had left the DPB and moved into employment at some time in the eight months ending 28 February 2001, and had not returned to the DPB at the time of the interview.

Most respondents in the survey of sole parents had obtained permanent employment (78 percent). The rest were in casual or temporary employment. Most worked full-time hours. Half (51 percent) received an average weekly income of between $301 and $500 after tax and after repayments of student loans. Two-thirds (64 percent) reported they were financially better off after obtaining work.

Unfortunately, the study was not designed to provide reliable estimates of the employment retention rates of sole parents. However, interviews were used to identify some of the key factors that assist sole parents to stay in employment and the barriers that hinder retention (p47). Factors identified as having an important influence on retention included the sole parent's continued access to suitable and affordable childcare; the appropriateness and flexibility of the job's hours of work (crucial for combining paid work with family responsibilities); whether the sole parent could get to and from work easily; the level of earnings provided by the job; whether sole parents are financially better off in employment; and whether employment was interesting and rewarding.

Wehipeihana and Pratt (2002) summarise the lessons learned from two post-placement support pilot programmes that were conducted and evaluated from 1999 to 2002. One programme targeted sole parents and the other, Māori and Pacific people. The range of barriers to employment retention that were identified in the evaluations included problems with maintaining affordable and suitable childcare; difficulties in the workplace; limited awareness of the in-work financial entitlements that are available to low-income families; financial disincentives for those who were only marginally better off in employment; and the temporary or casual nature of some of the jobs available.

Hyslop, Stillman and Crichton (2004) use LEED data to examine benefit-to-work transitions, estimating the employment rates of former beneficiaries during the 18 months following their exit from a benefit. The reference period for evaluating post-benefit employment rates is October 2000 to March 2002. Average post-benefit employment rates were in the order of 55–60 percent. Hyslop *et al* also examine the effects of benefit spell length and prior employment experiences on post-benefit employment rates and earnings. They find evidence of negative benefit spell duration effects and positive prior employment experience effects.

The international literature on employment retention and advancement issues for former welfare recipients is extensive. Johnson (2002) provides a useful review of research evidence from the United Kingdom and the United States. Follow-up studies of former beneficiaries and welfare recipients who moved into full-time jobs have found that a fairly high proportion leave employment and return to income support within the first six months to one year. However, the reported rates of employment retention vary substantially between studies, locations and client groups. British studies indicate that sole parents have quite different retention patterns from the long-term unemployed, for example.

The studies reviewed in Johnson (2002) point to a number of common factors that are associated with early job loss and/or return to a benefit. Within any client group, those with the lowest skill levels and lowest qualifications tend to have the poorest rates of employment retention (ibid., p9). Health problems, difficulties in getting to and from work, and difficulties with maintaining childcare arrangements are associated with a greater probability of leaving work and returning to a benefit. Job and workplace characteristics, such as the availability of permanent jobs, also appear to play some role.

There is also extensive international literature on the effects of policies and programmes designed to help former beneficiaries to remain in work, such as employment support services and in-work earnings supplements. This includes studies that have used random assignment of participants to treatment or control groups, in order to identify programme effects more rigorously. Michalopoulous (2005) reviews the findings of an evaluation of four earnings supplement programmes that were recently implemented in the United States. Bloom *et al* (2005) report recent results from the Employment Retention and Advancement project, which is trialling and evaluating a variety of different approaches to post-placement employment support in the United States. Hall *et al* (2005) report results from the early stages of a British initiative designed to test a range of employment retention and advancement services for unemployed and low-paid workers. Overall, the research evidence suggests that both in-work earnings supplements and post-placement employment support services *can* increase the employment and earnings of programme participants in the short to medium term, if they are well designed and delivered. There is little evidence that they have long-term effects.

3. Data Description and Study Design

3.1 Important features of the data source

The Linked Employee-Employer Dataset is described in Appendix 1. Due to the way income tax data are collected, LEED is built upon monthly records of individuals' taxable incomes, as received from each employer or from the benefit system. Individuals and employers in LEED have unique identifiers which enable records to be linked longitudinally through time. The LEED dataset also contains information on gender, age, and address for employees, and industry and address for employers. These core variables can be used to create additional variables such as the number of employees and total payroll of an employer, the number of jobs held by an employee in a particular month, or the duration of an employee's job spell.

The benefit payments that are recorded in LEED are taxable benefits, a category that includes all core, income-tested working-age benefits such as Unemployment, Sickness, Invalid's, Domestic Purposes, Widow's, Emergency, Independent Youth and Transition to Retirement. Non-taxable allowances such as the Accommodation Supplement and Disability Allowance are *not* recorded. Therefore, when we refer to movement from benefits or income support, we are referring solely to transitions from one of the core, taxable benefits. People in this situation may have continued to receive income support through one of the supplementary allowances that are available to low-income individuals or families in employment.

An important point to note is that LEED records the taxable earnings and benefit payments that were received *in a particular calendar month*, which may not coincide perfectly with the employment period or the benefit spell. For example, earnings may be received and reported in arrears of the period of employment. If a person leaves employment part way through a month but is working again in the following month, no break in employment is recorded in LEED (although a temporary drop in earnings may be apparent). Furthermore, in months where an individual received income from multiple payers, it is not possible to identify whether the jobs occurred sequentially or concurrently. The aggregation of income data to calendar months also means that a person who is moving from the benefit system to employment is likely to receive payments from both sources for at least one calendar month (and in many cases two calendar months), and it is not possible to identify the precise time at which the transition occurred.

In this study, we define an individual as being *on benefit* if they received any benefit income during the calendar month. An individual is considered to have exited the benefit system in the first calendar month after their last benefit payment, and to be *off benefit* in any month

when they did not receive benefit income. Similarly, we define an individual as being *in employment* if they received any employment-based earnings (excluding ACC payments). Being 'in employment' and being 'on benefit' are not mutually exclusive states. Benefit abatement rules allow beneficiaries to retain a certain amount of income from part-time employment, and a reasonably high proportion of beneficiaries do in fact work in part-time jobs. Further information on rates of employment during benefit spells is provided below.

Because of the monthly aggregation of data in LEED, our definitions of being 'on benefit' and being 'in employment' differ from those that apply in the official benefit administration system. For example, if a person leaves a benefit but returns to it within the same month or in the following month, this may be counted as a benefit exit in the official system but it will not be recognised as such in LEED. In this study, a person must be without benefit income for at least one complete calendar month to be classified as having left a benefit.

Note that the LEED database does not currently include data on income from self-employment. Consequently, we cannot distinguish periods in which an individual is self-employed from periods in which they are not working.

3.2 The study population and comparison groups

Table 1 defines the study populations and comparison groups that were constructed for the analysis.

The main study population (the 'benefit-to-work transition group' or BTW) comprises all people of working age (defined here as 15–59 years) who moved off a core benefit, remained off for at least one complete calendar month, and were employed in the month after their last benefit payment, during the financial year from 1 April 2001 to 31 March 2002. To exclude those whose contact with the benefit system was fleeting, we also require that they were in receipt of benefit payments for at least three months before the transition to employment. This study population is used to estimate what proportion of all benefit-to-work transitions were followed by 'successful' outcomes in terms of employment retention, self-sufficiency and earnings growth.[2]

A slightly more restricted study population is used in section 5.3, which investigates the factors associated with variations in longer-term outcomes, given that a successful transition from a benefit to employment took place. For that analysis, we restrict the study population to people who remained employed and off benefit *for a minimum of three calendar months* after their transition from a benefit to employment. The benefit administration rules allow some beneficiaries to suspend their benefit for a short period of time in order to take short-term jobs. The three-month criterion excludes these people (who may not have genuinely left income support) and anyone else who was unable to remain off a core benefit for more than a month or two. The stricter definition of BTW transitions ensures that we focus on people who have unambiguously made a transition from income support to employment. The BTW-2 group represents 78 percent of the original group.

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2 Note that a small percentage of people who met the criteria for selection into the study population (around 2.5 percent), did so on two occasions during the selection year. In those cases, we randomly selected one of the two eligible benefit spells, and classified it as the reference benefit spell.

Table 1: Definitions of the study and comparison groups

Group	Criteria
Study population	
Benefit-to-work transition group (BTW)	• Received a benefit for at least three continuous months • Benefit income then ceased for at least one calendar month • Employed in the first post-benefit month • The first post-benefit month was in the year from April 2001 to March 2002 • Aged 15–59 years at BTW transition
Benefit-to-work transition group 2 (BTW-2)	• Same as above, but was employed and off benefits for at least the first three months after the reference benefit spell ended.
Beneficiary comparison groups	
Beneficiary source population (as at October 2001)	• On a benefit during October 2001 • Had a benefit spell duration of at least three months • Aged 15–59 years
Benefit-to-non-work transition group (BTNW)	• Received a benefit for at least three continuous months • Benefit then ceased for at least one calendar month • Was NOT employed in the first post-benefit month • The first post-benefit month was in the year from April 2001 to March 2002 • Aged 15–59 years at the transition
Non-beneficiary comparison groups	
Non-beneficiary job entrants (NBJE)	• Started a new waged or salaried job in the year from April 2001 to March 2002 • Had no benefit income in the previous two years • Had not worked for the new employer in the previous three months • Aged 15–59 years at month of job start
Non-beneficiary job entrants who came from low or no employment (NBJE-2)	• Started a new waged or salaried job in the year from April 2001 to March 2002 • Either non-employed or earning less than $1,500 a month in the 3 months immediately before starting the new job • Had no benefit income in those prior three months • Had not worked for the new employer in the previous three months • Aged 15–59 years at month of job start

To identify the distinctive characteristics of the benefit-to-work transition group, we compare it with two other groups of beneficiaries: all beneficiaries with a benefit spell duration of at least three months (representing the source population from which the BTW group is drawn); and people who exited from a benefit in 2001/02 but were *not* employed in the first post-benefit month. Although the true beneficiary source population is everyone who met the three month spell duration criterion at any time during 2001/02, for illustrative purposes we select and show results for those who met the criteria in October 2001 only. This means that individuals' benefit and employment histories can be calculated at a discrete point in time.

The benefit-to-non-work (BTNW) group is defined in a similar way to the BTW group. The key defining difference is simply that group members were not employed in the month after they left the benefit system.

To provide some reference points for evaluating the employment outcomes of the study population, we construct two non-beneficiary comparison groups. The 'non-beneficiary job entrants' group (NBJE) comprises all employees who started a new waged or salaried job in 2001/02, and had received no benefit income in the previous two years. This group represents a cross-section of all employees who were starting a new job, excluding former beneficiaries, and who are expected to have relatively good longer-term employment outcomes. It includes people who moved directly from one job to another, as well as people who were out of the labour force or out of New Zealand before starting their new job.

A second non-beneficiary comparison group comprises non-beneficiary job entrants who came from a situation of non-employment or low employment (defined as earnings of less than $1500 a month) in the preceding three months (NBJE-2). This is intended to represent people who, like members of the BTW study population, had been out of full-time employment for at least three months and were now starting a new job. People who received benefit income more than 3 months ago are not excluded to ensure that this group is not too unrepresentative of all transitions from part-time or non-employment into employment.[3] A priori, it is unclear how the employment outcomes of this second non-beneficiary group will compare with those of the BTW transition group.

Note that the comparison groups are *not* matched to the study population in their characteristics or circumstances, and they do *not* represent control groups. There is no reason to expect their outcomes to be the same or similar to those of the study population. The purpose of these comparison groups is to illustrate the range of variation that occurs in the employment outcomes of newly-hired employees, so as to better understand the relative outcomes of former beneficiaries.

3.3 Period of observation and variable construction

At the time the study was begun, the LEED dataset covered the five year period from April 1999 to March 2004. By selecting people who experienced a transition in the year ending 31 March 2002, the study design provides a minimum *pre*-transition observation period of 24 months and a minimum *post*-transition observation period of 24 months for everyone in the sample.

To simplify comparisons across members of the study sample and comparison groups, we standardise reference periods for the calculation of all pre-transition and post-transition variables, using the 24 months on each side of the transition month. The 'history' variables are calculated using data for the 24 months leading up to and including the last month of benefit receipt. The 'outcome' variables are calculated using the 24 months following the end of the reference benefit spell. In the case of the non-beneficiary comparison groups, history variables are calculated using the 24 months prior to the first month of the reference job spell. Outcome variables are calculated using 24 months of data beginning with the first month of the new job.

Earnings and benefit payments are reported in gross terms and are converted to March 2004 dollar values using the CPI. Monthly earnings from each employer are capped at a maximum of $10,000. A small proportion of individuals in the database have very low earnings or

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3 However, only 10.5 percent actually did receive some benefit income in the 4–24 months before the reference job began. Nearly 90 percent would therefore be classified as non-beneficiaries using a stricter, two-year criterion.

benefit payments recorded. In this study, monthly earnings or benefit payments that fell between $0 and $1 were converted to zero. Payments of $1 or more were retained. This means that the effective threshold for classifying people as being 'in employment' or 'in receipt of a benefit' is $1 a month.

We investigated the sensitivity of the personal history and outcome measures to the level at which these earnings and benefit income thresholds were set, considering higher and more intuitively meaningful thresholds such as $50 a month. Although these changes in variable construction did alter the number of people in the study population and the means of some of the outcome variables of interest, the impact was small. For this reason we retained the more liberal and inclusive definitions of both 'employment' and 'benefit receipt'.

3.4 Data limitations

At present, different types of benefit are not identified in LEED, and therefore we have no information (either direct or indirect) on the factors that made people eligible for income support. Ideally, the analysis would focus separately on the different benefit types, to better distinguish between the differing circumstances of benefit recipients who are ill, disabled, caring for dependents or unemployed.

The range of socio-demographic information that is available in LEED on individual beneficiaries and employees is also very limited. Significant variables that are not available include education, ethnicity, family structure and the incomes of spouses or other family members.

At the time of writing, the LEED database contained a limited set of information on employer characteristics, including the number of employees, details of salaries or wages paid each month, industry and geographical location, but it did not include any data on job characteristics such as occupation or employment contract type. This means that only some of the employer and job-related factors that may influence employment retention and earnings growth can be included in the analysis.

The employer attribute measures have some minor quality limitations. Employers and firms are defined on the basis of PAYE income tax reporting systems. In the case of larger firms, PAYE reporting arrangements do not always correspond exactly to the structure of an enterprise.[4] In addition, changes in measured employer characteristics can come about simply because a change in reporting arrangements has been made.

As noted above, the LEED database does not currently include data on income from self-employment. Consequently, we cannot distinguish periods in which an individual is self-employed from periods in which they are not working. Similarly, we cannot tell whether a person who is not observed in the database is simply non-employed and living in New Zealand, or has left the country.

Information on non-taxable benefits (such as the Accommodation Supplement and the Disability Allowance) is not currently available in LEED. Because we are unable to calculate the total incomes that were received before and after a transition from a benefit to employment, this study does not consider the role of financial incentives in contributing to employment retention.

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4 For example, all employees in public educational institutions are associated with one employer IRD number, corresponding to the Ministry of Education payroll.

4. Description of the Study and Comparison Groups and their Employment Circumstances

This section summarises the demographic characteristics and recent benefit receipt and employment histories of the study population and comparison groups. It also outlines some key features of the benefit-to-work (BTW) transitions that are the focus of this paper, and summarises the characteristics of on-benefit and post-benefit employers.

The overview of demographic characteristics and recent employment experiences in Section 4.1 is designed to identify any distinctive characteristics that people in the BTW study population may have. These characteristics can be expected to influence post-transition outcomes (as shown in Hyslop *et al* 2004), and may help to explain differences between the outcomes of the study and comparison groups.

Section 4.2 describes the seasonal timing of transitions to work, the proportion of transitions that involved a change in labour force status or level of employment, and the proportion that involved a change of employer. Section 4.3 summarises the characteristics of on-benefit and post-benefit employers. Recent overseas research has suggested that employer characteristics influence the employment outcomes of former beneficiaries independently of other factors (Bartik, 1997; Lane and Stevens, 2001). This implies that 'matching' former beneficiaries to employers who offer stable jobs and opportunities for training, promotion or wage increases could improve the likelihood of successful benefit-to-work outcomes. Later in the paper, we consider whether the seasonal timing of job starts, mobility between employers at the time of benefit-to-work transitions, or particular employer characteristics, are associated with significant differences in longer-term employment outcomes in the New Zealand context.

4.1 Demographic characteristics and employment and benefit receipt histories

Comparison with other beneficiaries

We begin by comparing the BTW study population with the total population of working-age beneficiaries from which they were drawn, and with beneficiaries who left a benefit but exited into non-employment. The demographic characteristics and recent benefit receipt and employment histories of these three groups are summarised in the first three columns of Table 2. The first column gives data for the BTW group. The second column gives data for all beneficiaries who had spell durations of at least three months in October 2001. The third column gives data on those who left a benefit during 2001/02 but were not employed in the following month (BTNW).

The BTW study population comprises about 110,000 individuals. Compared with both the beneficiary source population and the BTNW comparison group, the transition-to-work group were significantly younger, more likely to be male, and much less likely to be living in the Auckland region.[5] Just under half were female. Thirty-five percent were aged 15–25, 57 percent were aged 25–49 and 8 percent were aged 50–59. Only 23 percent lived in Auckland, compared with 28 and 32 percent of the other beneficiary groups.

Data on the benefit receipt and employment histories of each group are shown in the lower half of Table 2. These measures focus on the two years prior to the transition off benefit (up to and including the last month of the reference benefit spell). We take steps to ensure that our measures of the prior employment and prior earnings of people in the BTW transition group

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5 Members of the BTW group were more likely to be living in Hawke's Bay or in Southland, and slightly more likely to be living in regions other than Northland and Auckland.

are not distorted by data relating to their first post-transition job.[6] For the beneficiary source population, the history measures refer to the two years up to and including October 2001. Note that although we take the arithmetic average of individuals' earnings across the months in which they had earnings, we report the *group median* of those individual averages. We do this because the distribution of earnings across people is skewed, and averages may be unduly influenced by a small number of very high payments.

Twenty-two percent of the BTW population were on benefits continuously for the entire two pre-transition years. The average duration of the pre-transition benefit spell was 11 months. On average, benefit income was received for 14 months (or 60 percent) of the past two years, indicating that this group's previous contact with the benefit system was quite substantial.

However, 92 percent were employed for at least one month of the two years before the transition, and therefore had some recent employment experience. Thirty-four percent had worked for at least 10 of the past 12 months. On average, the BTW group had been employed for 54 percent of the past two years (12.9 months of 24). This included employment during nearly half the months of the reference benefit spell. On the other hand, the average number of months of employment with *no* benefit income, during the past two years, was only 6.0 months.

On average, about 40–50 percent the BTW group were employed at any given time during their reference benefit spell. Figure 1 illustrates the on-benefit employment rates of the BTW group, classifying individuals by their benefit spell duration. Note that the employment rates shown in the graph appear to climb steeply at the end of benefit spells, but this is likely to be largely a consequence of the monthly aggregation of payment data in LEED and is driven by movement into post-benefit jobs. Employment rates were similar across the benefit duration groups and were increasing with time on a benefit.

Returning to Table 2, a comparison of the employment history data for the three beneficiary groups reveals that people who left benefits for employment had had considerably more employment experience in the previous two years than both the source population of all working-age beneficiaries and the group that exited into non-employment. They had had fewer months of benefit receipt in the past two years. Their average monthly earnings were also higher. In particular, average monthly earnings during the reference benefit spell were about $809 a month, well above the average on-benefit earnings of the other two beneficiary groups ($555 and $531 per month). The median off-benefit monthly earnings of the BTW group were also slightly higher.

In summary, beneficiaries who moved from a benefit to employment in 2001/02 were somewhat younger than other beneficiaries, more likely to be male, and less likely to be living in Auckland. They had been significantly more active in the labour market in the prior two years and they had shorter benefit spells on average. On the other hand, they had received benefit income for an average of 14 of the past 24 months, suggesting a substantial degree of reliance on public income support.

Comparison with non-beneficiary job entrants

The BTW study population is compared with the two non-beneficiary job entrant comparison groups in the fourth and fifth columns of Table 2.

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6 For 42 percent of people in the BTW group, the first post-benefit job began in the same calendar month as the last month of the reference benefit spell. For 14 percent, the first post-benefit job began in the month before the last month of benefit receipt. We exclude data relating to these overlapping jobs in the calculation of the pre-transition employment and earnings variables, to avoid biasing them upwards.

People in the BTW group were similar in age structure to all non-beneficiary job entrants (NBJE), but substantially older than non-beneficiary job entrants who came from low employment or non-employment (NBJE-2). The latter group includes a large proportion of young adults.

The region of residence data indicate that people who moved from benefits to employment during 2001/02 were much less likely to live in Auckland than newly-hired employees in general. Together with data on the regional profile of all working-age beneficiaries, these results suggest that (a) beneficiaries living in Auckland had a lower rate of transition to work in 2001/02 than beneficiaries living in other regions, but (b) this was not due to a generalised lack of demand for labour in Auckland. The reasons for the lower rate of exits from benefits to employment in Auckland during 2001/02 are not known. It is possible that there are regional variations in the composition of the beneficiary population by benefit type or socio-demographic characteristics (such as education, ethnicity, country of birth, or language skills) that contributed to the differences in transition-to-employment rates.

The BTW group were less likely than NBJE to have been employed for at least 10 months of the past year (34 percent met this criteria, compared with 47 percent of the NBJE group). Nevertheless, 92 percent had had some employment experience in the past 24 months. In contrast, the two comparison groups of newly-hired non-beneficiaries both contain a significant number of people who were absent from LEED in the past two years, indicating that they came from self-employment, non-employment, or outside New Zealand. Nearly 20 percent of all non-beneficiary job entrants (NBJE) were in this situation, as were 30.5 percent of non-beneficiaries who transited to work from a situation of low or non-employment (NBJE-2).

It is also instructive to compare the groups on recent job characteristics. Compared with non-beneficiary job entrants who *did* have employment histories recorded in LEED (a sub-set of the total NBJE group), people in the BTW group had had slightly more employers and job spells in the past two years, but shorter employment relationships and job spell durations. These differences in job characteristics suggest that their employment was somewhat less stable. Nevertheless, differences in the job stability measures for the two groups are not large.

The average monthly off-benefit earnings of the BTW group in the past two years were about 20 percent lower than those of the NBJE group ($1,573 compared with $1,963). These earnings were, however, far above the average monthly earnings of non-beneficiary job entrants who came from a low employment situation ($1,573 compared with only $818 per month). It seems likely that a high proportion of the latter group were working in part-time jobs.

Overall, the attribute and personal history data indicate that people who made the transition from working-age benefits to work in 2001/02 were a group with substantial prior contact with the benefit system, as well as substantial recent employment experience. As one might expect, their recent employment experience was much more extensive than that of beneficiaries who left a benefit for non-employment. Working while in receipt of benefits appears to have been the most common activity pattern for the BTW group during the year before the transition.

The average monthly off-benefit earnings of those with off-benefit employment in the past two years were relatively low, around 20 percent lower those of non-beneficiary job starters. Those off-benefit monthly earnings were, however, far above those of non-beneficiaries who moved from low employment situations into employment (NBJE-2). The latter group was characterised by a higher proportion of young adults and lower levels of recent employment experience.

4.3 Transition to work circumstances

This section summarises some key features of benefit-to-work transitions, including their seasonal timing, the proportion that involved a change in labour force status or level of employment, and the proportion that involved a change of employer. These results are summarised in Table 3.

Employment level changes at the time of the benefit-to-work transition

LEED does not contain data on hours worked, and therefore we cannot distinguish full-time employment from part-time employment. We use data on level of earnings to assign a notional employment level to each individual at two points in time: three months before the exit from the benefit system, and in the first 'complete' month immediately after the exit.[7] We use a figure of $1,500 per month to distinguish those who are most likely to have been working part-time hours from the rest. This figure is close to the monthly earnings that would be provided by a full-time job paid at the adult minimum wage rate in the final year of the study period ($8.50 per hour x 40 hours x 4.33 weeks = $1,473). Employment level is assessed at three months before the transition to unsupported employment rather than one or two months before, because of the problem of benefit spell/employment spell overlap in the LEED monthly payments data.[8]

Results for the entire BTW group are shown in the first column of Table 3. Just over half (52 percent) of the BTW group were employed three months before their transition off a benefit, while 48 percent were not employed. Thirty-eight percent had earnings below the threshold and 14 percent had earnings above it. This is consistent with the majority being in part-time or part-month employment.

By virtue of the study design, all members of the BTW group were employed in the month after they ceased to receive benefit income. However, only 64 percent had earnings above the $1,500 a month threshold in their first complete post-benefit month; the remaining 37 percent were below it. This suggests that at least one-third were probably in part-time or part-month employment immediately after their exit from a benefit.

Data on the percentage experiencing each type of transition are also presented in Table 3. The most frequent type of status change experienced by the BTW group was 'not employed' to earning more than $1,500 a month (32 percent experienced this type of transition). About one-third of the group stayed in the same employment level category, as crudely defined here.

Changes of employer

Overseas studies of low-waged workers (for example, Andersson *et al* 2005 and Holzer *et al* 2004) have shown that job mobility is an important channel through which people escape from (or enter) low earnings. Large adjustments in wages or weekly earnings are more likely to occur at the time of a job change than while remaining with the same employer.

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7 If the first post-benefit job began in the first post-benefit month, we use data on earnings in the second month, because earnings in the first calendar month could be affected by part-month employment. Only around 14 percent of the BTW group are in this situation. For the majority of individuals, employment in the first post-benefit job overlaps with the end of the reference benefit spell by at least one month.

8 However, if an individual's reference benefit spell began exactly three months before their benefit-to-work transition, we use data for the following month (two months prior to the transition) to avoid contamination by data relating to pre-benefit jobs.

Consequently, changes of employer may be relevant for understanding the likelihood of good employment outcomes among people moving from income support to employment.

Our analysis of employer identities around the time of the benefit-to-work transition shows that less than two-thirds began work with a new employer. A significant proportion continued to work for an employer that they were working for during the reference benefit spell. The relevant statistics are shown in the first row of Table 3. We allow earnings from the first post-benefit job and benefit payments to overlap for up to two calendar months, and classify all jobs that were in operation more than two months before the end of the reference benefit spell as 'continuing jobs'. Thirty percent of post-benefit jobs were continuing. These benefit exits without a job change probably came about because the person concerned lost their eligibility for a benefit, either because of increases in their own earnings or because of increases in their partner's earnings.

A further 12 percent of the BTW group returned to work for an employer that they had previously worked for in the past two years. This leaves 58 percent of the BTW group whose first post-transition employer, as far as we can tell, was new.

Most jobs held while people are in receipt of taxable working-age benefits are part-time jobs, suggesting that people who continue to work for a benefit spell employer after they cease to collect a benefit were likely to be working part-time. The available information on employee attributes and earnings before and after the transition provides some circumstantial support for this hypothesis. Women were more likely than men to be in the situation of staying with an existing employer, rather than starting a new job. Those who stayed with a benefit spell employer after leaving the benefit system had significantly *higher* average monthly earnings before the transition and significantly *lower* average monthly earnings in their first post-transition month, than those who started a new job. Nevertheless, the average monthly earnings of people who continued to work for a benefit spell employer did rise from $1,070 to $1,620 (an increase of 51 percent), suggesting that at least some members of this group increased their hours of work around the time of the exit from the benefit system.

The group that returned to an employer that they had worked for previously had the highest initial level of earnings (their median earnings were $2,125 in the first month). The relationship between changes of employer and longer-term outcomes is considered later in the paper.

Comparison with the transitions of non-beneficiary job entrants

Information on the transitions experienced by non-beneficiary job entrants is also presented in Table 3, in the two right-hand columns. People in the non-beneficiary job entrants group (NBJE) were more likely than the BTW group to have been earning more than $1,500 a month at three months before the transition to work: 37 percent were in this situation, compared with 14 percent of the BTW group. Nevertheless, the majority did *not* meet this relatively low earnings threshold requirement. In the first complete month of employment after the transition,[9] 57 percent earned more than $1,500 a month and 43 percent had earnings below this threshold. This indicates a fairly high rate of part-time and/or part-month employment on the part of non-beneficiary job entrants.

It is interesting to note that members of the NBJE comparison group were *less* likely to earn above the $1,500 per month threshold than were people in the BTW group. These results suggest that a high proportion of all new job entrants either go into part-time jobs or do not remain in work for a full month.

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9 We use data on earnings in the second calendar month of the new job where possible because earnings in the first calendar month may not be based on a full month of employment.

The data for non-beneficiary job entrants who came from low employment or non-employment (shown in the final column of Table 3) suggest that they largely moved into part-time or part-month jobs. Only 36 percent had earnings above $1,500 in the first complete month of employment after the transition (compared with 64 percent of the BTW group).

Timing of the transition to employment

The distribution of BTW transitions across months of the year is shown in Figure 2. People moving from benefits to employment were more likely to start their period of off-benefit employment in the months of March and April than in any other months of the year. Allowing for delays in administration and the aggregation of payments into calendar months within LEED, it is likely that they were actually losing their benefit entitlements in February and March.

This pattern differs from the timing of all new job commencements. Figure 2 also plots the percentage of all new job 'matches' in the economy as a whole that began in each month of 2001/02. New job starts peaked in the months of November, December and March. The reasons for the peculiar seasonal pattern in the timing of transitions from benefits to employment are not currently known.

Figure 2 also illustrates the fact that members of the BTW group who returned to work for a previous employer were most likely to start work in the months from October through to March, suggesting they may have been returning to seasonal work. In New Zealand, seasonal jobs are more numerous in the summer months than in winter.

4.4 Employer characteristics

Overseas studies have found that employer characteristics may influence the employment outcomes of former beneficiaries independently of other factors, including employee characteristics (for example, Bartik, 1997; Andersson *et al* 2005). Bartik found that a welfare mother's industry of employment was significantly associated with her probability of employment and her earnings in the following year, after controlling for other relevant factors such as last year's wages, hours and occupation. An analysis of the long-term career paths of low earners in Andersson *et al* (2005) offers some reasonably rigorous evidence that employer characteristics affect the probability of escaping from a low-earning state in ways that are not easily explained by measured or unmeasured employee characteristics.

Five measures of employer characteristics are used in this study: industry, firm size, mean monthly earnings, recent changes in firm size (growth or decline); and the rate of workforce turnover. These are defined as follows:

- Industry is coded at enterprise level to ANZSIC. Because industry coding can change over time, we use the industry code that was assigned to the firm at the end of each financial year.
- Firm size is measured as a head count of employees. We calculate the average number of employees over the 12 months of each financial year. Months in which the firm did not report any earnings are excluded from the calculation.
- Mean monthly earnings per employee is also calculated as an average over the 12 months of each financial year (excluding months in which the firm did not report any earnings).
- The rate of firm growth or decline is calculated as the increase or decrease in the number of employees during the financial year, over average employment (calculated using start and end points only). This variable is bounded between -2 and +2.

- Workforce turnover is calculated as an excess turnover rate: half the sum of hires and separations that were not needed for the expansion or contraction of employment in the firm, during the reference period of one financial year. Only the job starts of employees who had not worked for that employer in the past six months are counted as 'hires', and only separations that lasted for at least six months are counted as 'separations', to avoid adding casual employees to the annual turnover count. The turnover number is converted to a rate by dividing by average employment during the year (calculated using start and end points only).

These measures can be calculated for each financial year or for any other reference period. In this paper, we use 2001/02 financial year measures to analyse the characteristics of first post-benefit jobs, and 2002/03 or 2003/04 financial year measures to analyse the characteristics of final jobs.[10]

Table A.1 in Appendix 2 gives data on the average characteristics of *all* employers in the LEED database for the year ending March 2002, using the measures outlined above and the employer as the unit of analysis. The average LEED employer had 11 employees; paid its employees an average of $2067 a month per person;[11] expanded in employment size by 6 percent during 2001/02 and had an employee turnover rate of 85 percent. Note that average employer characteristics vary extensively by industry and that the distribution of these characteristics is non-normal (so the mean is not necessarily the best measure of the centre of the distribution).

Table 4 presents the median characteristics of the on-benefit, first post-transition, main post-transition and final employers of the BTW study group. The 'on-benefit' employer is the main employer that individuals worked for during their reference benefit spell, if they were employed while on benefit. The 'first' employer is the employer that the person worked for in their first post-transition month.[12] The 'main' employer is the employer that paid the highest earnings in total during the first post-transition year. 'First' and 'main' employers are the same in 78.5 percent of cases. The 'final' employer is the employer who paid the highest total earnings 19–24 months after the end of the reference benefit spell. Thirty-three percent of people in the BTW group were still working for their first post-benefit employer at this stage, while the remainder were working for someone else or not employed.

To provide some reference points for evaluating these employer characteristics, Table 4 also shows the employer characteristics of *all* new job matches in the LEED database that began during the 2001/02 financial year,[13] and the employer characteristics of non-beneficiary job entrants (NBJE) in their reference job.

The typical on-benefit employer (shown in the first column of the table) had 53 employees, an average per employee monthly pay level of $1,708, a growth rate of 2 percent and a turnover rate of 68 percent. First post-benefit employers (column 2) were slightly larger at 57 employees, and had an average per employee monthly pay level of $2,025, a growth rate of 4 percent and a turnover rate of 63 percent. Comparison of the on-benefit, first, and main employer characteristics shows an increase in size and a significant increase in payroll averages, indicating that the study population as a group tended to be moving towards larger

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10 Our measures of expansion/contraction and employee turnover cannot be calculated for the last financial year (2003/04) without the use of data for the following year. We substitute measures of firms' growth and turnover rates in the preceding year (2002/03).

11 In March 2004 dollar values.

12 In the small number of cases where a person worked for more than one employer, we selected the one providing the highest earnings in that month.

13 Job starts are excluded if the employee had worked for that employer in the past six months.

and higher paying firms. Workforce turnover rates are also lower in post-transition than pre-transition jobs.

The industry data indicate that the jobs taken at the time of the transition-to-work (or subsequently) were more likely to be in manufacturing and less likely to be in agriculture or accommodation, cafes and restaurants, than were benefit spell jobs. This change in industrial composition is consistent with a move away from part-time towards full-time jobs.

A comparison of employer characteristics across the different groups in Table 4 indicates that the employers of the BTW population were substantially larger than the employers of other newly-hired employees. They also had moderately high levels of pay per employee (higher than the pay levels of all hiring employers, and similar to the pay levels of NBJE employers). Their workforce turnover rates were lower. The BTW group were more likely to be taking up jobs in manufacturing, government administration and health and community services than the NBJE group, industries in which firms tend to be larger. They were less likely to move into jobs in agriculture, fishing and forestry, or business services. Given this mix, it is hard to assess whether the jobs taken by the BTW group were more or less likely to involve seasonal employment than the jobs taken by the NBJE group.

4.5 Summary

Beneficiaries who moved from a benefit to employment were younger on average than other beneficiaries, more likely to be male, and more likely to be living outside the Auckland region. Compared with those who exited into non-employment, they had a substantially higher level of recent labour market experience. The benefit spell durations of the BTW transition group were also slightly shorter than those of people who exited into non-employment, although that difference was relatively small.

Measures of income flows in the two years prior to the BTW transition indicate that people who made a transition from working-age benefits to employment in 2001/02 were a group with substantial prior contact with the benefit system, as well as substantial employment experience. Working while in receipt of benefit income appears to have been a common activity pattern for this group. The average number of months of *off-benefit* employment in the past two years was relatively low at only 6.0 months.

The average *off-benefit* earnings of those with off-benefit employment experience in the past two years were relatively low, about 20 percent lower than the average earnings of non-beneficiary job entrants. There are a variety of possible reasons for this earnings differential, including a higher level of part-time or part-month employment, differences in levels of skills and experience, and differences in the quality of jobs or job matches.

We estimate that as many as 37 percent of the BTW group were employed part-time or part-month immediately after their transition off benefits into employment, based on the fact that they earned less than $1,500 a month. Nevertheless, the proportion who were in jobs paying less than $1,500 a month was lower than the comparable proportion of non-beneficiary job entrants (43 percent), and much lower than the comparable proportion of non-beneficiary job entrants who came from low employment or out of the labour force (64 percent). Overall, these figures suggest that a high proportion of all new job entrants go into part-time or part-month jobs, but former beneficiaries are somewhat less likely to be in this situation.

Only around 58 percent of the BTW group started work with a new employer at the time of transition. Thirty percent continued with an employer that they were working for during the benefit spell. A further 12 percent returned to an employer that they had worked for during the past two years.

Those who did not change their employer at the time of exiting from a benefit earned significantly less in the first complete post-transition month, and 45 percent earned less than $1,500. While some people in this group experienced a substantial increase in their level of earnings at the time of leaving a benefit, most did not. For a substantial minority of people in the BTW study population, therefore, the exit from a benefit was not actually accompanied by a material change in their employment circumstances. It may have been triggered by some other change that affected their benefit eligibility, such as the employment of a spouse or partner.

The first employers of people who moved from a benefit to employment in 2001/02 tended to be larger than the employers of other job entrants in that year. They had similar or higher levels of monthly pay per employee, and somewhat lower workforce turnover rates. The unavailability of data on occupation, contract type, or employment conditions is a significant drawback, but the evidence we do have on BTW employers, compared with the employers of other new job entrants, does not reveal a set of characteristics that would particularly discourage the employment retention of the BTW group.

5. Main Results: Employment Outcomes following Transition to Work

The employment outcomes and earnings of the benefit-to-work (BTW) transition group in the two years after individuals left a benefit are examined in this section. Section 5.1 begins with a brief discussion of alternative measures of employment outcomes, and then describes the outcomes of the BTW group using a selection of different descriptive measures.

In section 5.2 regression methods are used to analyse the associative effects of a variety of factors on benefit-to-work outcomes, focusing on three measures of 'successful' outcomes. We give particular attention to the effects of mobility between employers and the effects of employer characteristics, including size, payroll per person, growth, turnover, and industry. These factors have not been considered in previous New Zealand research.

Although the literature on BTW transitions offers some clear views on what types of employment outcomes are desirable, it is far less clear about the level of achievement that can reasonably be expected of former beneficiaries. One way of evaluating the outcomes of former beneficiaries and identifying what (if anything) is distinctive about their employment patterns is to compare their outcomes with those of other new job entrants. We do this in section 5.3, using the non-beneficiary job entrant comparison groups constructed earlier. Our goal is to evaluate whether the outcomes of the BTW group are substantially different from those of non-beneficiary job entrants, before and after differences in measured personal, transition and employer characteristics are controlled for.

5.1 Outcomes of the benefit-to-work transition group: A descriptive summary

The published literature on employment assistance for welfare recipients tends to emphasise three main goals: helping former beneficiaries to become and remain employed; helping them to stay off public income assistance; and fostering longer-run earnings growth (see for example, Bloom *et al*, 2005 and Rangarajan and Novak, 1999).

The Ministry of Social Development's *Statement of Intent 2005* defines 'sustainable employment' as a shift from benefit dependence to paid employment, and identifies a number of steps in the process, including preparation for employment; job acquisition; transition to employment (people successfully settle into a job); retention (people stay in work longer); and

advancement (people are able to advance into better jobs and remain independent of income support).

In this paper we focus primarily on three outcomes: remaining in employment without further income from core benefits; remaining in employment with earnings above a minimum level that is consistent with self-sufficiency; and achieving earnings growth over time. These outcomes are emphasised in the analysis that follows. However, we construct and report on a number of other outcome measures in order to provide a reasonably comprehensive picture of the employment and income support patterns of former beneficiaries in the two years after they move from a benefit to employment.

Summary measures of the post-transition outcomes of the BTW study group are reported in the left-hand column of Table 5. The figures shown represent group means or percentages, except in the case of earnings and income variables, in which case the group median is used. The second and third columns of the table report the outcomes of those with the shortest benefit spell durations (3–6 months) and those with the longest (24 months or longer). Initially we focus on the results for the entire BTW group. The variations by benefit spell duration are discussed later.

Our measures of employment retention are reported in two metrics: average months and percentages of time. Percentages of time are shown in parentheses under the results they refer to.

Sustained employment

A key dimension of successful benefit-to-work transitions is whether people remain in employment and do not return to income support. In this study, we use the proportion of months in which the individual was employed and not in receipt of any means-tested benefit income as the preferred measure of sustained employment. Under this measure, employment does not have to be continuous.

On average, people in the BTW group spent 4.9 months or 81 percent of their first six post-transition months employed and off benefits (as shown in the first and second rows of the table). The average proportion of time in which group members were employed and not on benefits dropped to 62 percent in the second six months and 61 percent in the second year. Over the entire period, it was 66 percent (or 15.9 out of 24 months).[14]

Two alternative measures of employment retention are also shown under the 'sustained employment' subheading: average months of employment (with or without benefit receipt); and the percentage of the BTW group that was *continuously* employed and off benefits for 6, 12 and 24 months. The former is a more inclusive measure of employment activity. If months with benefit income are included, people in the BTW group were employed for an average of 18.4 months of the first two years (or 77 percent of the time).

As far as we can tell using LEED data (which do not reveal employment gaps of less than one month), 61 percent were *continuously* employed and off benefits for the first six months after exiting from a benefit. Twenty-nine percent remained continuously employed and off benefits for the full two years.

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14 Note that due to the study design and the monthly aggregation of LEED payments data, all members of the BTW group had to be employed and off benefits for at least one complete month (the first post-transition month).

Sustained employment with the potential for self-sufficiency

It is important to distinguish between any employment and employment in jobs that were substantive enough to provide a minimum level of weekly income. We set a threshold of $1,500 per month (in March 2004 dollars) as a notional self-sufficiency criterion. That threshold is similar to the monthly earnings that would be provided by a full-time job paid at the adult minimum wage rate in the final year of the study period ($8.50 per hour x 40 hours x 4.33 weeks = $1,473). To obtain a proxy measure of employment with self-sufficiency, we calculate the number of post-transition months in which each individual was employed, not receiving benefit income, and earning at or above this threshold.

The constant threshold we have adopted here is somewhat on the high side for 1999–2002, relative to the minimum wage. The real value of the minimum wage rose during the study period. In the first year, it was $7.00 an hour in nominal terms, which equates to about $7.80 in March 2004 values. After a number of annual increases, it was raised to $8.50 an hour on 23 March 2003. However, any threshold is inherently arbitrary, and differing family circumstances mean that some individuals would require a much higher income level to be genuinely self-sufficient than would others. In the absence of data on family circumstances, we adopt a simple threshold that is the same for everyone.

Measures of the average proportion of time that people in the BTW group spent in work and with earnings above the threshold, after their transition, are given in the second section of Table 5. On average, the BTW group met this condition for 54 percent of the first six months, just under half of the second six months and just under half of the second year. These percentages are substantially lower than the percentages of time classified as 'sustained employment' without any minimum earnings threshold. The gap indicates that either a considerable number of people were working part-time hours or that part-month employment was common.

Post-transition employment provides earnings growth

Our main measure of earnings growth is the ratio of average monthly earnings in the second, third and fourth half years after the transition, to earnings in the first half year (conditional upon being employed for at least one month of each sequence). Earnings growth is measured in this way to avoid excluding people who may have been temporarily off work in a particular post-transition month.[15]

The median earnings increase for those who were still employed in months 7–12 (shown in the third section of Table 5) was 1.1 percent. The median increase for those who were still employed in months 13–18 was 6.1 percent. Just over four-fifths (82 percent) of the BTW group had some employment during the final six months of the observation period. The median increase for these people was 8.5 percent. Note that the earnings growth recorded here could have come from increases in the number of hours worked per week, increases in the regularity of employment (in terms of weeks worked per month), or pay rate changes.

About 71 percent of the study group had some *off-benefit* employment in the final six months of the post-transition period. The earnings growth rate of this group, counting only earnings during months of off-benefit employment, was 11.7 percent.

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15 Note that while we take the arithmetic average of individuals' earnings across the months in which they had earnings, we report the *group median* of those individual averages. We use medians because the distribution of earnings across people is skewed and averages may be unduly influenced by a small number of very high payments.

Jobs are retained

Job retention measures are measures of the extent to which people stayed with a single employer and worked continuously for that employer during the post-transition period. There are two dimensions – continuity of the employment relationship and the duration of job spells within that employment relationship. A selection of different measures is shown in the fourth section of Table 5.

The first post-transition job was retained for 12.2 months on average. The average number of employers in the post-transition period was 2.7, while the average number of distinct job spells was 3.5. The average duration of post-transition employment relationships (counting only time falling within the 24-month observation window) was 11.6 months, and the average duration of job spells was 9.3 months. Note that the two-year window of observation used in this analysis cuts short any job that was in progress at 24 months and leads to lower average durations than if the data weren't censored in this way.

Further receipt of benefit income

Indicators of whether any further benefit income was received in the post-transition period were calculated. These show that 27 percent of the BTW group had received some further benefit income by the end of the first six months, 44 percent had done so by the end of the first year, and 54 percent had done so by the end of the second year. The rate of return was fastest in the short term but declining as time passed. Those who returned to a benefit received 10.1 months of further benefit income, on average.

Differences in outcomes by duration of the reference benefit spell

Table 5 also presents information on the extent of variation in employment outcomes by the duration of the reference benefit spell (the one immediately prior to the transition to work). Forty-two percent of the BTW group had been continuously on a benefit for just 3–6 months. The outcomes of this subgroup are shown in the second column, while the outcomes of those with benefit spell durations of 24 months or longer (21.9 percent) are shown in the third column.

As one would expect, members of the low duration subgroup generally had better outcomes than the high duration group. However, the differences are relatively small, suggesting that benefit spell duration is probably not a very strong predictor of post-transition outcomes. The marginal effect of time on benefits before the transition to work is estimated in the regression analysis below.

Differences in outcomes by gender and age group

Variations in outcomes by gender and age group are set out in Table A.2 in Appendix 2. As a general rule, women had slightly better outcomes than men on measures of sustained employment, while men had better outcomes on measures of self-sufficiency in employment (which incorporate a minimum earnings threshold). Sustained employment and self-sufficiency in employment measures are positively correlated with age. Measures of earnings growth are negatively correlated with age (that is, younger adults recorded greater earnings growth than older adults). These patterns are consistent with long-standing gender and age-related variations in the employment patterns and earnings of all employees.

5.2 Regression analysis of factors associated with successful post-transition outcomes

The factors that are associated with variations in employment outcomes following a transition from benefits to employment are examined in this section. We draw on three sets of information: data on the employment and benefit receipt histories of the study population; data on their mobility between employers; and data on the firm-level characteristics of those employers.

There are a number of reasons to expect correlations between an individual's past employment and income support patterns and his or her subsequent employment patterns. In the first instance, past performance could directly influence outcomes through the job openings, promotion or training opportunities that employers make available, given the information they have about a job seeker's abilities and experience. Secondly, data on past employment patterns and earnings may capture information on personal attributes or circumstances that directly influence outcomes but are not measured in LEED, such as health status, literacy skills, or preferences regarding number of hours worked. Both these hypotheses suggest that pre-transition measures will be positively correlated with post-transition measures.

On the other hand, historical employment and earnings data could incorporate the effects of short term and temporary 'shocks', such as job loss or illness, which led to a spell of income support but are not repeated. In that case, the post-transition data could show evidence of 'reversion to mean' as people return to their longer-run employment and earnings levels. This would weaken any positive correlation between historical and current performance measures.

Employer characteristics are relevant because variations across firms in factors such as job characteristics, technology and work organisation, personnel policies, productivity and profitability have been shown in previous research to affect the tenure and earnings of employees. We hypothesise that the employment retention, earnings and earnings growth of the BTW group will be positively correlated with firm size, average pay per person, and recent growth history, but negatively correlated with workforce turnover. The outcomes of the BTW group are also expected to vary significantly across industries, reflecting industry differences in hours worked, the use of temporary or seasonal employees, occupational composition or other factors.

The analysis in this section uses a slightly more restricted study population, comprising people who remained employed and off benefits *for at least the first three months* after their transition to work. This ensures we are examining the correlates of longer-term 'success' for a group of people who unambiguously made a transition from income support to employment. Just under four-fifths (78 percent) of the original BTW study population met this criteria. The mean characteristics of the restricted study population are summarised in Table A.3 in Appendix 2.

Employment retention and self-sufficiency

The following model is used to estimate the relationship between individual or employer characteristics and employment retention:

$$Y_i = \alpha + X_i\beta + \varepsilon_i \qquad\qquad (1)$$

where Y_i is a measure of employment retention, α is an intercept, X_i is a vector of personal and first employer characteristics, β is a vector of estimated coefficients on those characteristics and ε_i is an error term.

Two measures of employment retention are modelled using this specification: the number of post-transition months in which the individual was employed but had no benefit income (Model 1); and the number of post-transition months in which the individual was employed, off benefit, and earning at least $1,500 per month (Model 2).

The explanatory variables (X_i) are as follows:
- Demographic characteristics: gender, age at the end of the reference benefit spell, and region of residence at the end of the reference benefit spell. Age is included as a series of dummies for each individual year of age, and is fully interacted with gender.
- Measures of benefit receipt and employment in the two-year pre-transition period: months with benefit income; months employed and off-benefit; months employed and on-benefit; an indicator for having had no employment in the past two years; average monthly earnings during the pre-transition period (in logs); the average duration of employment relationships in the past two years; and the total number of employers in the past two years. The last two variables are censored by the boundaries of the standardised two-year observation period.
- Indicator variables representing the month when unsupported employment began. These are included to control for seasonal effects on outcomes.
- Indicator variables for whether the individual continued to work for a benefit-spell employer after transition, returned to work for a pre-transition employer, or changed their employer during the two-year post-transition period.
- First employer characteristics. These include an indicator for whether the employer was operating at both ends of the financial year; total size (number of employees in logs); mean earnings per employee (in logs); the annual rate of employment growth or decline; the workforce turnover rate; and 2-digit industry. Because the turnover variable has an irregular distribution, we substitute a 10-category interval variable in which the 10 categories correspond to deciles in the distribution of the turnover variable.[16]

Estimates from the first two regressions are shown in Table 6. For brevity, the coefficients for personal attributes and job seasonality are not shown.[17]

We focus firstly on the effects of individuals' employment and benefit receipt histories. Most of the employment and benefit history coefficients are statistically significant in these models of employment retention. The main results are that employment retention is positively associated with having had less time on benefits, more months of employment, and higher earnings, in the two years prior to the benefit-to-work transition, but the magnitude of these effects is relatively small.

In particular, the duration of benefit receipt in the two years before the transition has a small negative effect. A one-month increase in benefit duration is associated with a reduction in the sustained employment outcome of 10 percent of a month, or 3 days. The duration of employment in the two years before the transition has a positive effect. A one month increase in on-benefit months of employment, for example, is associated with an increase in sustained employment of 11 percent of a month, or roughly 3 days. Average pre-transition earnings are

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16 Note that the growth/decline and turnover measures require that an employer be in existence for at least 13 months, and cannot be calculated if this condition is not met. Consequently, there are a small number of individuals in the study population, about 2 percent, with missing values for the growth/decline and turnover variables. To avoid dropping those people from the regression analyses, we impute values, assigning them the median value of each variable. This is likely to bias coefficients on the growth and turnover variables downwards to some small degree.

17 Being female is significantly associated with retention in unsupported employment (first model) but negatively associated with remaining in employment with earnings over $1,500 a month (second model). Age is positively associated with both employment outcomes.

positively correlated with employment retention, and this effect is much larger in the second model (with its minimum earnings threshold) than the first. The coefficient of 2.8 on the log of average pre-transition earnings in Model 2 indicates that a 10 percent increase in pre-transition earnings is associated at the mean with a 0.28 increase in months of employment with earnings above $1,500 a month, or approximately 8.5 days. The number of employers in the past two years is negatively associated with employment retention, but this effect is quite small in both models.

Although we do not show the coefficients on the control variables for the month when supported employment began in Table 6, it is interesting to note that these 'seasonal' effects are statistically significant in many cases. In particular, starting work in the months of November through to March is associated with a lower rate of employment retention in the following two years than is starting work in winter or spring. Taking the two extremes of October and January, the coefficients imply that starting in January is associated with a 28 day reduction in off-benefit employment in the following two years, on average, relative to starting work in October. At the mean, 28 days represents a 5 percent reduction in the duration of unsupported employment.

The models include controls for whether the individual remained with a benefit spell employer after the transition; returned to a previous employer; or changed their employer between the first and final months of the post-transition observation period. Remaining with an on-benefit employer and returning to a previous employer have negative coefficients in both regressions, indicating that people in these situations had fewer months of off-benefit employment in the following two years. In the first model, the effect of staying with an on-benefit employer is quite small. In the second model, the coefficient of 1.59 indicates that people who stayed with a benefit-spell employer had approximately 1.6 fewer months of sustained employment with earnings above $1,500 a month on average (which is equivalent to an 8.9 percent reduction in months of employment at the mean). The negative effects of returning to a previous employer are also large in both models (-1.53 and -2.02 months respectively).

Just under half of the sample changed their employer in the interval between their first post-transition job and 19–24 months later. Changing employer has a positive effect on employment retention in the first model (0.8 months, or 24 days) and a small negative effect in the second model.

Turning to the effects of employer characteristics, the coefficients on employer pay level, growth rate and turnover rate indicate that employment retention is associated with working for an employer with higher than average earnings, an employer that was expanding in size, and an employer with a lower workforce turnover rate. The employer payroll average has a particularly large effect on outcomes in the second model, where the dependent variable includes a minimum monthly earnings criterion. In the second model, a 10 percent increase in the average pay per employee of the firm is associated with 0.40 months of additional employment with earnings over the $1,500 threshold for sample members (equivalent to 12.5 days). The coefficients on the employer turnover variable indicate that an increase of one decile in the employer turnover distribution is associated with a reduction in sustained employment of 0.29 months (or 9 days) in the first model and 0.15 months (or 4 days) in the second. The coefficients on employer size are small but negative in these models, contrary to our expectations.[18]

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18 There are a variety of possible explanations for the negative effect of employer size on employment outcomes. One possibility is that coefficients on the size variable are reflecting differences in job characteristics, such as the proportion of jobs that are part-time or temporary, that are not perfectly correlated with other measured employer characteristics.

Many of the industry coefficients are statistically significant. For example, individuals whose first post-transition jobs were in retail trade, transport, finance and insurance, or health and community services had relatively better employment retention outcomes in the first model, controlling for other factors. However, those whose first jobs were in finance and insurance, property and business services or government administration did relatively better in terms of the 'sustained employment with self-sufficiency' outcome of Model 2. Conversely, individuals whose first employers were in agriculture or in manufacturing had poorer rates of employment retention in Model 1. Those whose first employers were in agriculture, mining, accommodation, restaurants and cafes, and cultural and recreational services had poorer outcomes in the second model. These industry coefficients could be picking up industry-level average tenure variations in the first model, and a mixture of tenure and average wage effects in the second.

Overall, these transition-to-work regression results suggest that demographic characteristics, recent benefit and employment history and employer characteristics are all associated with employment retention and plausibly may play some role in influencing it. Some of the largest effects in the regression estimates came from continuing to work for a benefit-spell employer after the transition, or returning to an employer that the individual had worked for previously, which have negative effects on employment retention (controlling for other factors including industry). Possibly these variables are acting as proxies for other job or employer characteristics that are not directly measured and therefore are not fully controlled for, such as whether jobs are part-time or full-time and whether they are permanent or temporary in nature. They could also be acting as proxies for unmeasured personal characteristics that are correlated with employer continuity, such as lower skills or a preference for part-time work. Whatever the interpretation, those who changed their employer at the time of their transition off a core benefit remained in unsupported employment for longer.

The first employer's average pay level, growth and turnover characteristics are also significantly associated with employment retention and self-sufficiency in employment. There are also a number of significant industry effects. To some extent these variables may also be acting as proxies for other job or employer characteristics that are not directly measured, such as the use of full-time versus part-time employment or different patterns of labour utilisation.

Earnings level and earnings growth

The following model is used to estimate the relationship between individual or employer characteristics and earnings:

$$\ln(\text{earn})_{it} = \alpha_1 + X_{it}\beta_1 + P_t\alpha_2 + X_{it}P_t\beta_2 + \varepsilon_{it} \qquad (2)$$

where $\ln(\text{earn})_{it}$ is a measure of average monthly earnings in a given time period, α_1 is an intercept, X_{it} is a vector of personal and employer characteristics, P_t is a dummy variable denoting period and $X_{it}P_t$ is a full set of interactions between individual or employer characteristics and period. The variables included in X_{it} are exactly the same as those used above in the sustained employment regressions.

The model is estimated on a pooled dataset containing two observations on each individual. The first observation (P=1) captures their characteristics and employment situation in the first six months after their transition from a benefit to employment, while the second (P=2) captures their characteristics and employment situation in the final six months of the observation window (months 19–24). The estimation sample is now restricted to those who were employed in the final half-year for at least one month. This represents 83 percent of the original sample. Standard errors are adjusted for the fact that each individual appears twice in the pooled sample. To verify that our results are not unduly influenced by the restriction of the sample to people with earnings in both periods, we also estimated an earnings level model

using the first period information only and the full sample. The results, shown in Table A.4 in Appendix 2, are similar to those reported below.

Results obtained by estimating equation 2 using Ordinary Least Squares (OLS) are shown in the first column of Table 7. The upper half of the table gives the coefficients on variable levels (β_1), which represent the effect of each variable on earnings in the first six post-transition months. The lower half of the table gives the coefficients obtained from the interaction of characteristics with period (β_2), representing the marginal effects of changes between period 1 and period 2 on the change in individual earnings (ie earnings growth). An advantage of using this specification to estimate earnings growth is that the effects of personal and employer characteristics on *initial* earnings levels are fully controlled for.

Initial level of earnings

The most substantial effects on earnings in this model come from the individual's average monthly earnings in the two years prior to the BTW transition, and their first employer's average monthly pay level, which are both strongly positively correlated with earnings in months 1–6. A 10 percent variation in average monthly earnings in the past two years is associated with a 3.4 percent variation in average monthly earnings after the transition. A 10 percent variation in the first employer's average pay per employee is associated with a 4.1 percent variation in average monthly earnings after the transition.

The duration of benefit receipt in the past two years has a small positive effect on post-transition earnings (contrary to what might have been expected). Recent on-benefit employment experience also has a small positive effect.

Individuals who stayed with a benefit-spell employer at the time of their transition off a benefit had earnings that were around 16 percent lower than people who started work with a new employer. Those who returned to a pre-benefit-spell employer had initial earnings that were around 6 percent lower. Furthermore, people who changed their employer in the interval between their first post-transition job and 19–24 months later, had initial earnings that were around 10 percent lower than those who stayed with the same employer during the post-transition period.

The initial level of earnings is negatively associated with employer size, but positively associated with the employer's level of turnover. The latter, somewhat surprising result, could perhaps reflect longer than average hours or the payment of higher than average wages in firms or industries that make considerable use of seasonal or temporary workers.

Individuals who worked in manufacturing, finance and insurance, property and business services, or health and community services, had relatively high earnings, controlling for the effects of other personal and employer characteristics. Employees in the education industry had the lowest average monthly earnings in the first six months, after controlling for other factors.

Earnings growth

We turn now to discuss the coefficients on characteristics interacted with period (shown in the lower half of the Table 7). These can be interpreted as the effect of characteristics on earnings growth, where 'earnings growth' is the total change in real monthly earnings between months 1–6 and months 19–24.

The coefficient on months of benefit income in the pre-transition period indicates that people who spent relatively more time on benefits prior to the transition had lower post-transition earnings growth. Somewhat surprisingly, the log of pre-transition earnings is also *negatively*

associated with earnings growth, indicating that those who had a relatively high level of earnings in the recent past did not gain as much by months 19–24. The coefficient of -0.131 means that by the end of the observation period, a 10 percent variation in average monthly earnings in the pre-transition period was associated with a 2.1 percent variation in average earnings (down from 3.4 percent in months 1–6). Those who had higher pre-transition earnings still had higher post-transition earnings, but their relative advantage had been reduced.

The coefficient for remaining with a benefit-spell employer indicates that people who were in this situation continued to have lower earnings on average by months 19–24, despite some earnings growth. Returning to a pre-benefit spell employer is associated with lower earnings growth. People in the latter situation experienced an estimated 10 percent earnings growth penalty, on average.

Those who changed employers during the post-transition observation period also tended to have lower earnings growth than those who stayed with the same employer. By months 19–24 their estimated earnings penalty was -0.251 log points or around 29 percent.

Earnings growth is negatively associated with employer size and positively associated with the employer's average pay level. A 10 percent increase in the employer's average pay level is associated with a 2.1 percent increase in individual earnings between the two periods. Finally, the employer's workforce turnover rate is negatively associated with earnings growth.

The coefficients on pre-transition earnings, staying with a benefit-spell employer, and returning to a pre-benefit spell employer all suggest that people whose post-transition earnings were initially relatively high experienced less earnings growth. Conversely, those who started with quite low earnings were more likely to increase them later on. To further explore this hypothesis, Figure 3 plots the quarterly average earnings of the study population, dividing the sample in two ways. We distinguish (a) those whose pre-transition average earnings were above the median from those whose pre-transition average earnings were below the median; and (b) those whose earnings in the first post-transition quarter were above the median from those whose initial earnings were below the median. Regardless of which way we divide the sample, we find that the initially lower paid experienced much greater earnings growth in the following seven quarters than those who began at a higher level. Individuals whose earnings were below the median before or immediately after their transition had earnings growth of around 15–17 percent by the end of the observation period. Those whose earnings were above the median before or immediately after their transition gained around 4–5 percent.

These results highlight the potential importance of changes in hours worked in influencing the total earnings of former beneficiaries, and suggest that the group-level results could be strongly influenced by the transitions made between full-time and part-time jobs. People who initially started in part-time jobs may have had more scope to achieve earnings growth by subsequently increasing their hours. Conversely, people who were initially working in full-time jobs may have been more likely to reduce their hours at some later time.

Interpretation of coefficients and fixed effect estimates

The regressions presented so far, using cross-sectional data and linear estimation, suggest that employer characteristics and mobility between employers (or lack of mobility) may significantly affect the outcomes of people who are making a transition from benefits to employment. However, those models do not control for unmeasured differences in the characteristics of employees and the possibility that 'better quality' employees (such as the more skilled) may be selected by 'better quality' employers (employers who pay more and offer stable, longer-term jobs). If individuals with better prospects for retention or earnings

growth were more likely to obtain jobs with higher quality employers, then the employer effects in the cross-sectional regressions could be overestimated. The coefficients on employer characteristics would reflect worker heterogeneity and the sorting of workers across employers, and not just the causal effect of working for a particular type of employer on earnings.

The panel structure of LEED allows this concern to be addressed by using fixed effects estimation. The basic idea is that any fixed person-specific characteristics that may influence employment retention or level of earnings are eliminated when individual-specific means are extracted from both the dependent and independent variables. Identification comes from the relationship between differences (or changes) in characteristics and differences (or changes) in earnings. The fixed effect specification should reduce the effects of individual heterogeneity on coefficient estimates and better identify the independent effects of employer characteristics.

Fixed effect estimates of equation (2) are shown in the second column of Table 7. All variables in this model are the same as in the previous one. As before, the sample is restricted to individuals who were still employed in the final half year. Fifty-six percent of the sample had changed their main employer by that time. We focus on the first set of coefficients, which represent the effects of the explanatory variables on the initial earnings level.

The effect of remaining with a benefit spell employer is smaller in this model, indicating that part of the negative effect estimated previously is likely to have come from an association between remaining with a benefit spell employer and having low earnings (or unmeasured characteristics that lead to low earnings). The coefficient on returning to a pre-benefit spell employer becomes insignificant in the fixed effects estimates of earnings levels, presumably for the same reason.

The positive effect of working for a highly-paying employer on earnings is slightly smaller in the fixed effects results than the OLS results, but continues to be relatively large and statistically significant. Working for a larger employer continues to be negatively associated with earnings. Many of the industry coefficients remain large in magnitude and statistically significant. The negative coefficients for accommodation, cafes and restaurants, education and cultural and recreational services are particularly large, for example. However, the coefficient on the workforce turnover variable is reduced in magnitude in the fixed effect estimates, suggesting that part of the turnover effect previously estimated was due to the sorting of heterogeneous workers across workplaces with different levels of turnover.

These results strengthen the evidence that employer characteristics may affect outcomes independently of fixed individual characteristics. With the current data, however, we are unable to pin-point exactly *which* employer characteristics are most important, or to estimate accurately the magnitude of those employer effects, relative to the effects of other factors. It is possible that the estimated effects of employer characteristics are confounded by the effects of (correlated) job characteristics. Also, we have not ruled out the possibility that *changes* in individual characteristics or preferences could be playing some role, contributing to the employer effects on individual earnings that are apparent here. This could be the case if people self-select certain jobs, industries or employers because of their preferences for certain job characteristics, such as part-time work or seasonal employment, and move to an employer with different characteristics when those preferences change. Future research could explore these alternative hypotheses using more sophisticated methods, such as the use of instruments that shift individuals' employment opportunities but are uncorrelated with unobserved personal characteristics.

5.3 Comparison of the employment outcomes of the study and comparison groups

This section of the paper addresses the question of whether the employment outcomes of the benefit-to-work (BTW) group are substantially different from those of non-beneficiary job entrants (NBJE). We begin by comparing group outcomes using the descriptive measures of section 5.1. We then pool the BTW and NBJE samples and estimate the marginal difference in outcomes (or 'outcome gap') after applying controls for the personal, transition and employer characteristics that are measured in LEED.

The entire BTW sample is used in this part of the analysis, rather than the restricted sample of people who remained employed for at least the first three months.

A key motive for comparing the employment outcomes of former beneficiaries and non-beneficiaries, and estimating the size of the 'outcomes gap', is to better understand the extent to which former beneficiaries may have special employment assistance needs. However, we are *not* attempting to identify the specific effect of being on a benefit in the analysis that follows. This reflects the fact that we do not have a control or comparison group that matches the study population closely enough to enable a matched comparison of outcomes before and after the benefit experience.

Comparison using descriptive statistics

Comparative statistics on the outcomes of non-beneficiary job entrants are presented in Table 8. The outcomes of the BTW study population are shown in the first column. The second column shows the outcomes of the non-beneficiary job entrant comparison group (NBJE), while the third column gives data for non-beneficiary job entrants who came from low employment or out of the labour force (NBJE-2). These groups are defined above in Table 1. As before, the observation period for the BTW group is the 24 months following the end of the reference benefit spell. The observation period for the NBJE groups is 24 months starting with the first month of the reference job.

Recall (from Table 2) that the first non-beneficiary job entrant group had a similar age structure and reasonably similar gender balance to the BTW group. It included a larger share of people living in Auckland. One might expect that employees who have not received any benefit income in the past two years would have higher average levels of skill and human capital than the BTW group (because they have not needed to draw on public income support). Unfortunately, this hypothesis cannot be confirmed, due to the lack of relevant demographic data in LEED. We do know that new job entrants without a recent history of benefit receipt were less likely to have worked as employees in New Zealand in the previous two years. Twenty percent of the NBJE group had no employment recorded in the past two years, compared with only 8 percent of the BTW study group. These people may have been living in other countries, out of the labour force, or self-employed.

Overall, the similarities in the employment outcomes of the BTW and first non-beneficiary comparison group (NBJE) shown in Table 8 are more striking than the differences. Based on the simple comparison of group means and medians, our study population of former beneficiaries remained in employment for almost as long as the NBJE group and were almost as likely to earn over $1,500 a month. Although the benefit-to-work group had poorer employment retention outcomes on many (although not all) of the measures shown, the differences are relatively small. The two groups had similar numbers of jobs and tenure patterns in the two years following job start. The first job durations of former beneficiaries were relatively short, but this was also the case for non-beneficiary job entrants. The benefit-to-work group worked for an average of 2.7 employers in two years, but this was only slightly higher than the mean number of employers for the NBJE comparison group.

One interpretation of the overall similarity in the employment retention rates of the former beneficiary and non-beneficiary groups is that the outcomes of both groups reflect the existence of great deal of worker turnover and movement in and out of the labour market. The dynamic nature of the labour market is particularly evident when we focus on new jobs and new hires, as opposed to continuing jobs and people holding continuing jobs. The short-lived nature of many new jobs is worth bearing in mind when forming retention goals or expectations for people who are moving from means-tested benefits to employment.

Some significant differences *are* evident from the comparison. Former beneficiaries experienced less earnings growth in the two years following their transition (although this is not the case if we only consider earnings in the months when individuals were not also receiving benefit income). Former beneficiaries were much more likely than the non-beneficiary group to receive further benefit income.

A comparison of column 1 with column 3 indicates that the BTW group had higher rates of employment retention and substantially higher monthly earnings than the comparison group of people moving from non-employment or low employment situations into new jobs (NBJE-2). The latter group was younger in age composition and had much less recent employment experience, so the fact that it had poorer employment outcomes is not particularly surprising.

Figures 4 to 6 provide a graphical summary of the labour force situation and median earnings of the three groups during the two years prior to the transition-to-work and in the two years afterwards. Each graph shows the percentage of people in each of three labour force states: not working, employed with earnings under $1,500 a month, and employed with earnings of $1,500 a month or higher. Median monthly earnings (conditional upon being employed) are also shown (with a corresponding scale on the right-hand axis). The time of the transition to work is marked on each graph with vertical lines.

A comparison of Figure 4 (BTW) and Figure 5 (NBJE) highlights some distinctive features of the BTW experience. People in the BTW group had a much lower level of employment with earnings above the $1,500 threshold and a much higher level of low-earnings employment during the period leading up to the transition to work, particularly in the final months when the majority were on benefits. After the transition to employment, the proportions of the BTW and NBJE groups who were in each of three employment level groups (not working, earning below $1,500 a month and earning above this threshold) are broadly similar. At any given time, approximately one-third of those in employment were earning less than $1500 a month, although this proportion was declining over the two-year observation period. One significant difference, however, is that the median monthly earnings of the BTW group are lower than those of non-beneficiary job entrants, and they do not catch up during the period of observation.

Another point of interest is that the longer-term change in employment circumstances experienced by the BTW group is far more dramatic than the change in the circumstances of the NBJE groups. This may be an indirect consequence of the factors that lead both to benefit receipt and to benefit exit. People who are entitled to income support do not leave at random, and may do so only if they find a job that offers a reasonably high level of earnings (relative to the benefit) and reasonably good job security. Non-beneficiaries are likely to have a different set of reservation conditions for selecting a new job, reflecting their personal and family circumstances but without the option of remaining on a benefit.

Regression estimates of net outcome differences

Because the study population of former beneficiaries differs from the non-beneficiary comparison groups in its demographic characteristics and recent employment experiences, we would not expect its outcomes to be exactly the same. In this section, we use the information

that is available about these group differences to provide a more rigorous comparison of the outcomes of these groups. We attempt to identify whether there is an 'unexplained' difference in outcomes associated with moving into work from a benefit, once the effects of measured demographic characteristics, recent employment experience, and other factors are controlled for. An 'unexplained' outcome gap might be interpreted as evidence that former beneficiaries are relatively disadvantaged in the labour market. The possible reasons for that disadvantage are multiple and could include personal factors, the effects of prior labour market experiences, the effects of the event or events that triggered benefit receipt, and the effects of the benefit spell experience itself.

We use the entire NBJE group rather than the subset of non-beneficiaries who moved from non-employment or low employment into work (NBJE-2) for the comparison, because the former is more like the BTW group in its demographic characteristics and employment history in the past two years. We pool the entire benefit-to-work (BTW) and non-beneficiary job entrant (NBJE) samples and re-estimate the employment retention, earnings and earnings growth models using this pooled sample and equations (1) and (2). Some minor changes to the explanatory variables are needed because the NBJE group did not receive any benefit income in the two years before their reference job start. The modified set of employment history variables includes average months employed in the two years before the transition; the log of average monthly earnings in that time; the average duration of pre-transition employment relationships, the average number of pre-transition employers and an indicator variable for having no recorded employment experience. The control variables for remaining with a benefit spell employer or returning to a previous one are also dropped.

A dummy variable that identifies members of the BTW study group is also included in each equation. The coefficient on this dummy variable provides an estimate of the mean BTW-NBJE difference in the level of the dependent variable, controlling for differences in the explanatory variables, and constraining the effect of each independent variable to be the same for both samples.

Table 9 gives the results of this analysis for four outcome measures: months employed and off-benefit; months employed while earning $1,500 or more; average monthly earnings in the first six months; and growth in average monthly earnings (controlling for the initial level of earnings). Only the coefficient on the study population indicator variable is shown in the table, along with its standard errors. All of these coefficients are statistically significant at a 95 or 99 percent confidence level.

The first column of Table 9 shows the raw or unadjusted outcome differential. The raw outcomes of the BTW group are below those of the NBJE group on two outcome measures (months of employment, months of employment with earnings above $1,500) and above them on the other two (the level of earnings in the first six months and earnings growth). The numbers in the second column show the study population outcome differential controlling for differences in demographic characteristics (gender, age and region). These adjusted differentials are all more negative than the raw differences and they indicate that former beneficiaries have poorer employment outcomes than demographically-matched employees with no recent benefit receipt history. On average, people in the BTW group were employed and off benefits for 2.0 fewer months in the two years after transition. Monthly earnings in the first six months after the transition to work were 8.7 percent lower for people in the BTW group. In addition, members of the BTW group who remained employed experienced approximately 10 percent less earnings growth between the first and final observation periods.

Recall that the BTW group was slightly younger and was substantially less likely to be living in Auckland than the NBJE group. It is possible that the regional variables in the regression are partly adjusting for unmeasured differences in ethnicity, immigrant status or other

personal attributes that are correlated with region of residence, giving rise to a larger negative outcome differential when demographic characteristics are controlled for.[19]

In the third column of Table 9, the regression model is re-estimated with additional control variables to adjust for some differences in recent employment history. Recall that the BTW group had substantially fewer months of employment in the pre-transition years and lower earnings when employed. The additional controls for employment history reduce the size of some of the negative coefficients for beneficiary group membership (months employed and off benefits, and earnings growth) and reverse the sign of others (months employed while earning $1,500 or more and earnings level), suggesting that the differences in outcome between the two samples can, partially at least, be attributed to differences in recent employment experience.

However, it is unclear whether adjusting for recent employment history is a valid adjustment to make. The recent employment patterns of the BTW group may be quite untypical of their usual employment patterns. They could reflect the effects of exogenous 'shocks', such as involuntary job loss. Alternatively, they could reflect the effects of benefit system rules (if, for example, abatement rules discourage people from taking up jobs while they are in receipt of a benefit). If these sorts of factors were in operation, then adjusting for differences in recent employment levels when comparing the current outcomes of former beneficiaries and non-beneficiaries could lead to over-adjustment.

The final column of Table 9 gives the results from estimating the regressions with a full set of controls, including controls for the month in which the job began and employer characteristics. These additional control variables do not have a large impact on our estimates of the average outcome differential.

To summarise, simple descriptive statistics suggest that former beneficiaries perform more poorly than non-beneficiary job entrants on most measures of employment retention and self-sufficiency in the first two post-transition years, but the differences in mean outcomes are typically fairly small. This could be interpreted as evidence that the employment outcomes of former beneficiaries are not as bad as commonly supposed, or that the scope for improving the employment rates of former beneficiaries is relatively modest.

However, it is questionable whether comparing simple group means provides a valid comparison of performance because former beneficiaries and non-beneficiaries are likely to differ on a wide range of measured and unmeasured characteristics. If we take into account differences in age, gender and region of residence, a somewhat more substantial outcome deficit becomes apparent on all outcome measures: former beneficiaries remained employed and off benefits for less time (around 11 percent less); earned 8.7 percent less in the first six months; and had 9.8 percent less earnings growth than demographically-matched non-beneficiaries. If we adjust further for differences in pre-transition employment levels and earnings as well as demographic differences, the post-transition outcomes of former beneficiaries are not uniformly worse than those of non-beneficiaries: they are better on some dimensions and poorer on others. If the available data allowed us to adjust for other sets of factors, such as differences in education, health status, or family responsibilities, the estimated 'outcome gaps' might change again.

Overall, we are not able to provide a conclusive answer to the question of whether former beneficiaries have significantly poorer employment outcomes than non-beneficiaries. We have simply provided some initial estimates of the size of the gap.

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19 If people living in the Auckland region tend to have poorer employment outcomes than people living in other regions, then adjusting for the lower proportion of Aucklanders in the BTW group will reduce its mean outcomes.

6 Summary of the Main Results

This study has examined the short and longer-term labour market outcomes of people who make a transition from a working-age benefit to waged or salaried employment. The study population is all 15–59 year olds who moved from a benefit to unsupported employment during the year ended March 2002, after spending at least three months on a benefit. The post-benefit experiences of this group were analysed using information from the Linked Employer-Employee Database (LEED) on employment and earnings during the two years following the transition to work. The study describes the employment outcomes of the benefit-to-work (BTW) transition group, examines factors that are associated with differences or variations in outcomes, and compares the outcomes of the ex-beneficiary study group with those of non-beneficiaries who began new jobs in the same reference year.

Background information on the study group

Information was available on the gender, age, region, previous employment and previous earnings of the BTW transition group. Compared with a cross-section of all working-age beneficiaries, the BTW group was significantly younger and contained a higher proportion of men. People in the BTW study group also had a significantly higher level of recent labour market experience. The vast majority had had some employment in the past two years. Working while in receipt of benefit income was a common activity pattern. The average number of months of *on-benefit* employment during the two pre-transition years was 6.9 months, and the average number of months of *off-benefit* employment was 6.0 months.

Only around 58 percent of the BTW group started work with a new employer at the time of transition. Twelve percent returned to an employer that they had worked for previously, and a further 31 percent continued to work for an employer that they were working for during their benefit spell. While some people in the latter group experienced a substantial increase in their level of earnings at the time of leaving a benefit, most did not. For a substantial minority of people in the BTW study population, therefore, the exit from a benefit was not actually accompanied by a material change in their employment circumstances. It may have been triggered by some other change that affected their benefit eligibility, such as the employment of a spouse or partner.

We estimate that as many as 37 percent of the entire BTW group were employed on a part-time or a part-month basis immediately after their transition off a benefit, based on the fact that they earned less than $1,500 a month in their first 'complete' post-transition month.[20] Those who continued to work for a benefit-spell employer after exiting from a benefit had substantially lower average monthly earnings than those who started work with a new employer, suggesting that part-time employment was particularly common within this group.

Longer-term outcomes

People in the benefit-to-work transition group were employed and off benefits for an average of 72 percent of the first year (or 8.6 out of 12 months) and 61 percent of the second year (or 7.3 out of 12 months). While these employment retention rates may appear to be relatively good, it is worth noting that employment gaps of less than one calendar month are not recorded in LEED and employment rates would probably be lower if weekly data were available. In addition, a substantial amount of the post-benefit employment of the study group appears to have been part-time or part-month in nature. The data suggest that at any given

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20 Earnings in the first calendar month of a new job are disregarded in this calculation because many new jobs begin in the middle of a calendar month.

month during the post-transition period, around one-third of those who were working had part-time or part-month earnings.

If only months with earnings of $1500 or above are counted, to provide a better indication of employment with the potential for self-sufficiency, employment retention rates are poorer. The BTW group had monthly earnings of $1500 or more for 51 percent of the first year (or 6.1 months) and 47 percent of the second (or 5.7 months).

Just over half (56.3 percent) of the BTW group remained off benefits for all of the first year and just under half (44.6 percent) remained off benefits for the entire two years. Those who returned to a benefit received 10.1 months of further benefit income, on average.

Approximately four-fifths of the BTW group had some employment (of any duration) during the final six months of the post-transition observation period. The median increase in the average monthly earnings of this subgroup, between the first and last six months of the two-year observation window, and including on-benefit earnings, was 8.5 percent.

The analysis of earnings growth identified a negative relationship between initial earnings level and subsequent increases. Those who started with a relatively high level of monthly earnings achieved less growth in the following two years on average. Those who started with a relatively low level of earnings experienced much greater growth. One possible explanation for this finding is that it reflects the pattern of changes in hours worked. People who initially started in part-time jobs are likely to have had more scope to achieve earnings growth by subsequently increasing their hours. Conversely, people who were initially working in full-time jobs may have been more likely to reduce their hours at a later date.

Analysis of variations in outcomes within the BTW group

Our analysis of factors that could potentially influence employment retention and earnings growth offered evidence that demographic characteristics, recent employment experiences, the timing and circumstances of the benefit-to-work transition, and employer characteristics are all associated to some degree with variations in outcomes. People with shorter benefit spell durations and greater employment experience before and during their benefit spell tended to have higher rates of employment retention and higher earnings, although these effects were relatively small. There were quite substantial variations in employment retention rates according to the month of the job start, which may reflect seasonal variations in the types of jobs that are taken up by former beneficiaries.

We found that people who stayed with a benefit-spell employer or returned to a pre-benefit spell employer tended to have poorer employment and earnings outcomes (controlling for other measured personal and employer characteristics) than people who changed their employer at the time of the benefit-to-work transition. For example, individuals who remained with a benefit-spell employer had 1.6 fewer months of employment with earnings above $1,500 a month in the two-year post-transition period than those who started work with a new employer (a difference of 12 percent). Individuals who returned to a pre-benefit employer had 2.0 fewer months of employment with earnings above $1,500 (a difference of 15 percent). The monthly earnings of these two groups in the first six months after the transition to work were 16 percent and 6 percent lower, respectively, than those of people who changed their employer.

People who changed their employer during the two years *after* the transition off a benefit also tended to have poorer employment and earnings outcomes than those who stayed with one employer. Their average monthly earnings in the initial post-transition period were approximately 11 percent lower and their earnings growth over the first two years was approximately 16 percent lower.

These 'employer mobility' effects could be partly due to correlations with unmeasured individual characteristics – for example, people who continued to work for a benefit-spell employer could have had poorer employment outcomes for other reasons such as lower skills or constraints on the hours they could work. The negative coefficients on some of these 'employer mobility' variables do become smaller in our fixed effect estimates,[21] but they do not disappear, leaving open the possibility of some causal effect between changes of employer and employment or earnings outcomes.

We also found that employer characteristics were correlated with the employment and earnings outcomes of the BTW group. The most substantive of these effects came from the employer's average monthly pay. For example, a 10 percent increase in the average pay per employee of the first post-benefit employer is associated with 12.5 additional days of employment with earnings over the $1,500 threshold; a 4.1 percent increase in average monthly earnings; and a 2.1 percent increase in earnings growth, over the two-year follow-up period. Variations in outcomes according to the employer's industry were also relatively large. The effects of these employer characteristics persist in fixed effect estimates of individual's earnings and earnings growth, suggesting they are not simply due to differences in unmeasured time invariant individual characteristics.

One possible interpretation of the results on employer characteristics is that getting a job with a 'higher quality' employer is one of the factors contributing to retention and advancement in the labour market. This would be consistent with results from other studies in which more discriminating methods have been used to identify employer effects on earnings and employment retention (such as Andersson *et al*, 2005). However, there are other possible interpretations. The employer variables could be correlated with job characteristics that are not measured in LEED, such as occupation, biasing our estimates. In addition, our fixed effect analysis does not rule out any possible effects that may have come from individual characteristics that were not constant during the follow-up period.

Comparison of BTW outcomes with the outcomes of non-beneficiary job entrants

Two comparison groups were selected to provide reference points for evaluating the outcomes of the BTW study group: all non-beneficiaries who began new waged or salaried jobs during 2001/02; and non-beneficiaries who moved from non-employment or employment with earnings of less than $1,500 a month, into a new job. The second comparison group is a sub-set of the first.

A comparison of simple, unadjusted group means showed that the employment outcomes of the BTW group were generally poorer than those of *all* non-beneficiary job entrants, but many of the differences in average outcomes were relatively small. On the other hand, the employment outcomes of the BTW group were significantly better than those of the second comparison group, namely the sub-set of non-beneficiary job entrants who moved from non-employment or low employment into new jobs.

There were substantial differences between the three groups in demographic characteristics and past patterns of employment experience. Given these substantial differences in measured characteristics and the likelihood of significant differences in other, unmeasured attributes such as skills, family responsibilities or health status, one would not expect the groups' employment outcomes to be the same.

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21 In the fixed effect estimates, the effects of any individual-level factors that did not change over the two-year post-transition period (such as skills, personality attributes, or hours of work constraints) were removed by subtracting the individual mean from all variables. This estimation strategy should provide more robust estimates of the effects of the explanatory variables on the dependent variable.

We used regression methods to compare the employment and earnings outcomes of the study and comparison groups while adjusting for differences in measured characteristics. However, because of limitations in the range of available data, we were not able to provide conclusive answers to the question of whether former beneficiaries have similar or significantly poorer longer-term employment outcomes than 'similar' non-beneficiaries.

Limitations and future research

One important limitation of the study is that its findings may be influenced by the timing of the analysis. Labour market conditions between 2001 and 2004 were favourable to job seekers. There was strong demand for labour and total employment in New Zealand increased by 2.8 percent per year on average between 2001/02 and 2003/04. This environment may have made it easier for former beneficiaries (as well as non-beneficiaries) to retain employment and improve their earnings. Future research could examine business cycle or period effects on the employment experiences of former beneficiaries.

Another important limitation is that we were not able to distinguish between different categories of beneficiary and had limited information on personal characteristics, reasons for being on a benefit, and other circumstances that would help to explain post-transition outcomes. Future research could extend these findings using richer datasets.

7 Concluding Comments

This study has used data from LEED to examine the employment and earnings outcomes of people who made a transition from a working-aged benefit to unsupported employment, during the following two years. The research illustrates how LEED data can be used to measure, and potentially to evaluate, beneficiaries' employment outcomes. The study also analyses the effects of different factors on the likelihood of a successful outcome, exploring the impact of employer characteristics and mobility between employers, as well as personal characteristics and prior employment and benefit histories.

The results indicate that people who made a benefit-to-employment transition tended to remain employed for much of the following two years, although in many instances their monthly earnings were not at a level consistent with self-sufficiency. Part-time and/or part-month employment appears to have been common, and more than half of the group received some further benefit income during the two year follow-up period.

The employment patterns of the benefit-to-work transition group were, in many respects, broadly similar to those of non-beneficiary job entrants. Both groups tended to have short job durations, more than one employer in the follow-up period, and relatively low average monthly earnings. Rates of off-benefit earnings growth were similar. The short-lived nature of many new jobs is worth bearing in mind when the employment outcomes of people who are moving from benefits to employment are assessed.

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Figure 1

Employment Rates of the Benefit-to-Work Group during the Reference Benefit Spell, by Duration of Benefit Spell
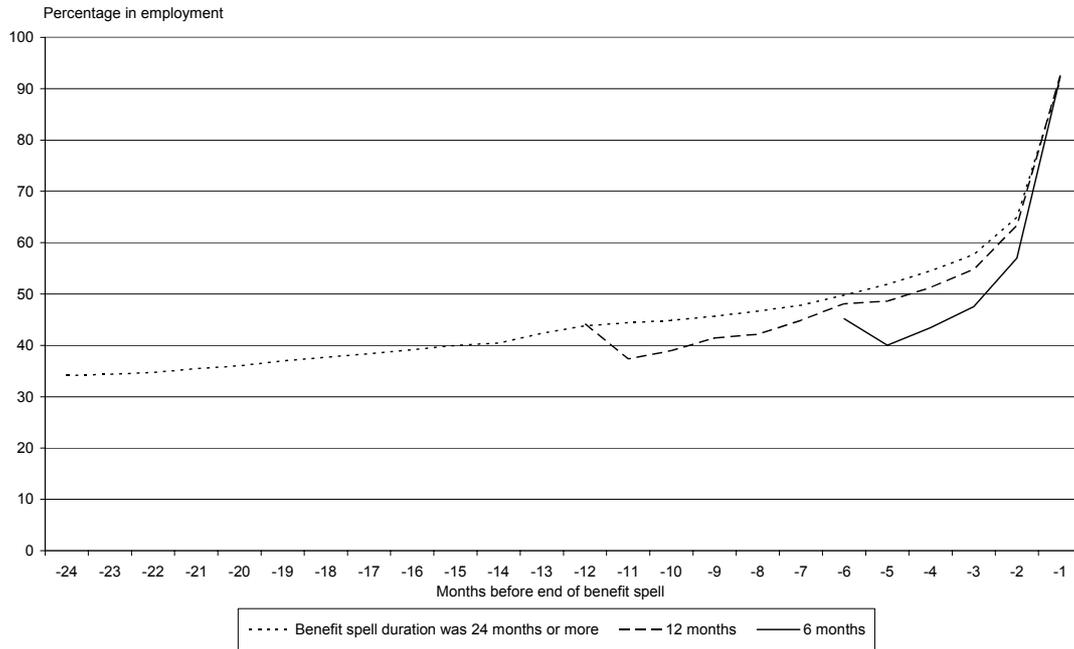
Figure 2

Month of Transition from a Benefit to Employment
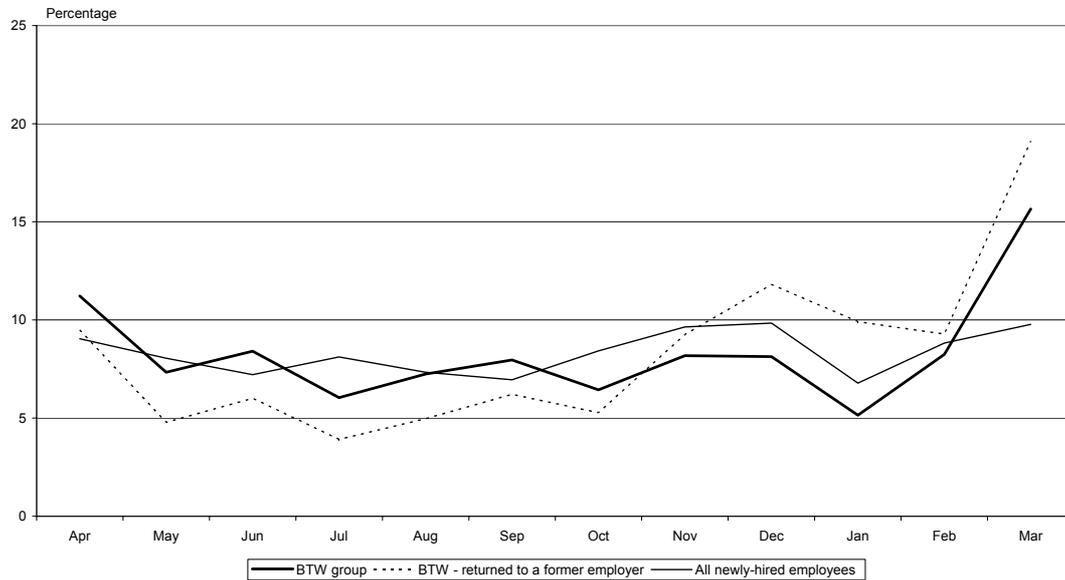
Figure 3

Post-Transition Earnings Paths of the Benefit-to-Work Group
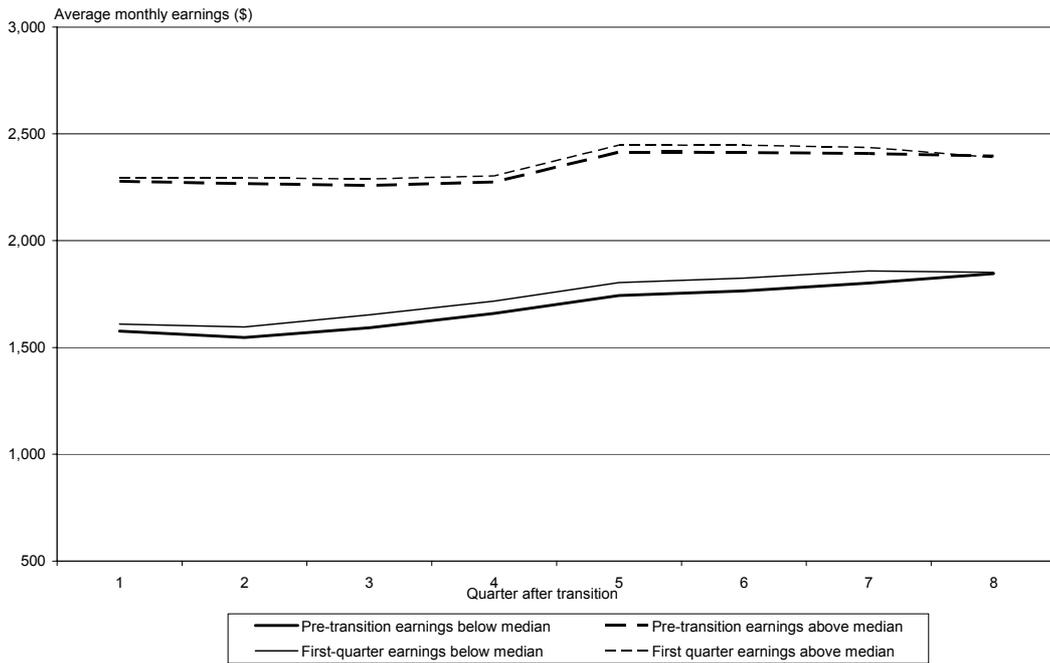
Figure 4

Employment Experiences and Median Earnings of the Benefit-to-Work Group
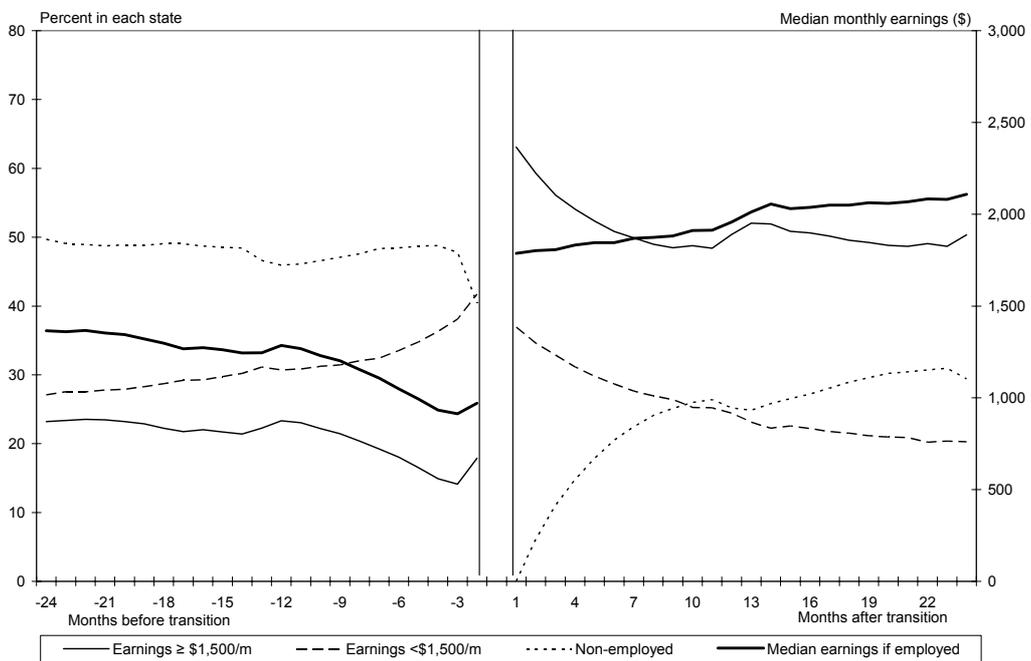
Note: The gap between the vertical lines represents the transitional month. Benefit payments and payments from the first post-benefit job typically overlap in this month.

Figure 5

Employment Experiences and Median Earnings of the
Non-Beneficiary Job Entrant Group (NBJE)
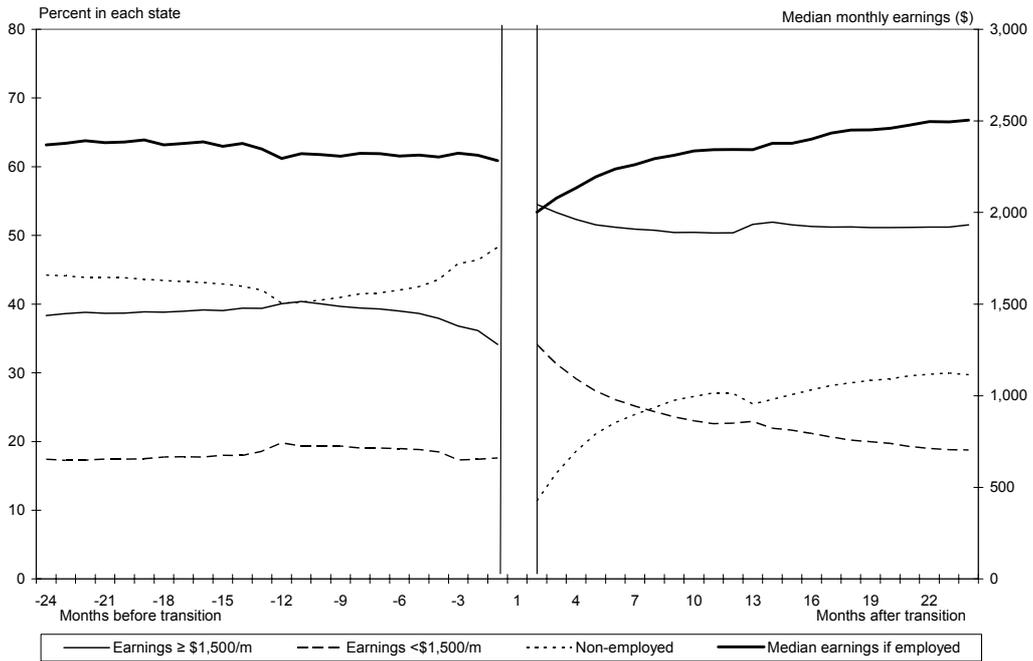
Note: The gap between the vertical lines represents the transitional month: the first calendar month of the new job.

Figure 6

Employment Experiences and Median Earnings of the
Low Employment Non-Beneficiary Job Entrant Group (NBJE-2)
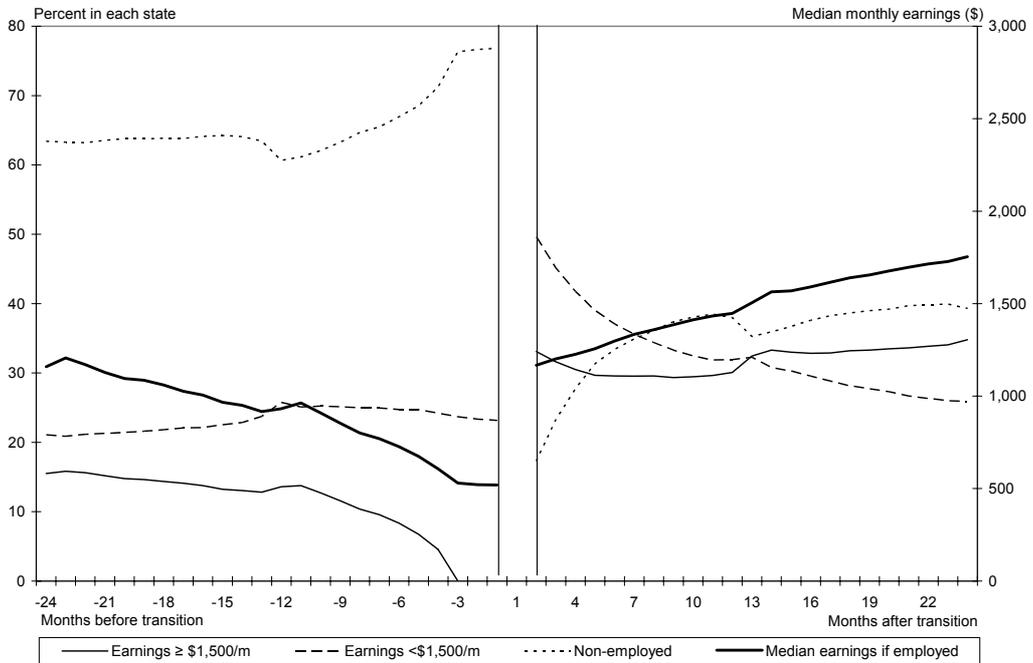
Note: The gap between the vertical lines represents the transitional month: the first calendar month of the new job.

Table 2

Attributes of the Benefit-to-Work and Comparison Groups

	Study population	Beneficiary comparison groups		Outcome comparison groups	
	Benefit-to-work transition group	Beneficiary cross-section as at October 2001 (all those with spell durations of 3+ months)	Benefit to non-employment transitions (BTNW)	Non-beneficiary job entrants (NBJE)	Non-beneficiary job entrants who came from low or no employment (NBJE-2)
Personal attributes					
Female (%)	47.6	59.4	50.3	50.6	55.0
Mean age (years)	31.6	36.3	32.5	31.7	29.2
Aged 15–24 (%)	35.1	20.0	31.5	35.2	45.8
Aged 25–49 (%)	56.7	62.3	57.4	54.5	46.0
Aged 50–59 (%)	8.2	17.7	11.2	10.3	8.2
Living in Auckland (%)	23.2	28.2	31.8	32.2	31.5
Reference benefit spell					
Duration of reference benefit spell in months (censored at 24)	11.4	18.4	12.6	…	…
Months employed during reference benefit spell (censored at 24)	4.5	3.7	1.5	…	…
Average monthly benefit payments during reference benefit spell[1] ($)	645	853	678	…	…
Average monthly earnings if employed during reference benefit spell[1] ($)	809	555	531	…	…
Benefit receipt history – 24 months before transition to employment					
Had some income support (%)	100.0	100.0	100.0	0.0	10.5
Income support for all 24 months (%)	21.9	58.5	27.7	0.0	0.0
Months of benefit receipt	14.4	20.0	14.9	0.0	0.7
Recent employment experience – year before transition to employment					
Employed at least 10 months of the past 12 (%)	33.9	13.8	4.8	46.5	16.1
Employed at least 10/12 months with earnings >=$1,500 per month (%)	4.5	1.0	0.2	30.3	0.0
Employment history – 24 months before transition to employment					
Had some employment experience (%)	92.1	55.1	56.6	80.2	67.8
Months employed	12.9	6.1	5.0	13.7	8.2
Months employed and off benefits	6.0	1.8	2.8	13.7	8.0
Number of employers, if employed	2.8	2.1	2.1	2.2	2.1
Number of separate job spells, if employed	3.6	2.8	2.6	3.1	3.0
Average duration of employment relationships, if employed	8.2	8.0	6.2	12.1	9.0
Average duration of job spells, if employed (months)	5.9	5.9	4.5	9.8	6.3
Average earnings during months of employment[1] ($)	1,177	798	829	1,963	811
Average earnings during months when employed and off benefit[1] ($)	1,573	1,522	1,201	1,963	818
Number of individuals	110,450	350,870	74,010	581,020	378,170

(1) Group median. All income variables are in March 2004 quarter dollar values.
Symbol:
... not applicable

Table 3

Type of Transition to Employment

	Study population			Outcome comparison groups	
	Total benefit-to-work transition group (BTW)	Stayed with a benefit spell employer	Returned to a previous employer	New employer	Non-beneficiary job entrants (NBJE)	Non-beneficiary job entrants who came from low or no employment (NBJE-2)
Percentage of BTW group with different transition types	…	30.4	11.8	57.9	…	…
Personal attributes						
Female (%)	47.6	59.4	40.5	42.8	50.6	55.0
Mean age (years)	31.6	33.3	33.3	30.3	31.7	29.2
Mean monthly earnings if employed during prior benefit spell[1] ($)	809	1070	696	633		
Employment level three months prior to the transition						
Not employed (%)	47.5	0.0	68.9	68.1	45.9	76.3
Earned less than $1,500 (%)	38.2	64.5	25.7	26.9	17.3	23.7
Earned $1,500 or above (%)	14.3	35.5	5.4	5.0	36.8	0.0
Employment level in first complete month after the transition						
Earned less than $1,500 (%)	36.5	45.0	28.7	33.5	43.3	64.3
Earned $1,500 or above (%)	63.5	55.0	71.3	66.5	56.7	35.7
Mean monthly earnings in first complete post-transition month[1] ($)	1,796	1,620	2,125	1,830	1,808	1,000
Type of transition (using earnings threshold of $1,500 per month)						
Below threshold to above (%)	19.7	25.1	16.3	17.6	6.0	6.6
Below threshold before and after (%)	18.4	39.4	9.4	9.3	11.3	17.1
Not employed to above threshold (%)	32.0	0.0	50.7	45.0	18.0	29.1
Not employed to below threshold (%)	15.5	0.0	18.2	23.1	27.9	47.2
Above threshold before and after (%)	11.8	29.9	4.2	3.9	32.7	0.0
Above threshold to below (%)	2.5	5.7	1.2	1.1	4.1	0.0
Number of individuals	110,450	33,530	13,010	63,910	581,020	378,170

(1) Group median. All income variables are in March 2004 quarter dollar values. Employment status is assessed at three months prior to the transition off benefits (study population) or job start (comparison group) and in the first 'complete' month following these transitions. We avoid using earnings data for the first month of a new job because it may not be based on a full month of employment. We assess prior employment status at three months prior to the transition / job start because there is typically an overlap between the end of the reference benefit spell and the beginning of the first post-benefit job spell.
Symbol:
...   not applicable

Table 4

Median Employer Characteristics

	Benefit-to-work transition group (BTW)				All employee job starts in 2001/02	Non-beneficiary job entrants (NBJE)
	Main on-benefit job	First post-transition job	Main job in first post-transition year	Final post-transition job		
Firm size (no. employees)	53	57	60	72	31	38
Average monthly pay per employee ($)	1,708	2,025	2,139	2,382	1,788	2,078
Expansion / contraction rate	0.02	0.04	0.05	0.04	0.07	0.08
Turnover rate	0.68	0.63	0.58	0.50	0.82	0.68
Industry						
Agriculture, fishing & forestry	12.2	11.1	10.6	9.4	17.7	11.2
Mining	0.1	0.1	0.1	0.2	0.1	0.1
Manufacturing	12.6	16.5	17.3	17.6	10.1	10.4
Electricity, gas & water	0.1	0.2	0.2	0.2	0.2	0.2
Construction	4.2	5.1	5.4	5.7	4.1	4.7
Wholesale trade	3.2	4.1	4.3	4.4	4.3	5.2
Retail trade	12.9	12.2	12.3	11.7	10.7	12.7
Accommodation, cafes & restaurants	10.3	7.9	7.5	6.6	8.4	8.2
Transport & storage	3.9	3.6	3.9	4.3	3.2	3.3
Communication	1.2	1.1	1.1	1.1	1.1	1.0
Finance & insurance	0.9	1.2	1.3	1.6	1.6	2.4
Property & business services	14.5	12.9	12.5	12.2	14.7	15.0
Government administration	1.5	2.3	2.5	2.8	2.0	2.3
Education	3.5	3.8	3.7	3.9	5.5	6.2
Health & community services	8.7	7.6	7.9	8.7	6.5	7.1
Cultural & recreation services	2.5	2.3	2.2	2.0	2.9	2.8
Personal & other services	2.9	3.1	3.2	3.1	2.4	2.6
Missing	5.0	5.0	4.1	4.5	4.7	4.7
Number of individuals	78,880	110,450	109,320	89,890	1,454,690	568,390

Note: All income variables are in March 2004 quarter dollar values. The *main* job in the first post-transition year is identified as the employer who paid the highest total earnings in that year. The *final* post-transition job is defined as the employer who paid the highest total earnings 19–24 months after the transition. 'All employee job starts' are defined at job level and include multiple records for people who started more than one job in the year. 'Non-beneficiary job entrants' are defined at person level, with only one record per person.

Table 5

Outcomes of the Benefit-to-Work Transition Group

	Study population		
	Total benefit-to-work transition group	Reference benefit spell duration of 3–6 months	Reference benefit spell duration of 24+ months
Sustained employment			
Months employed and off benefits during months 1–6	4.9	5.0	4.7
(Percentage of time)	*(80.9)*	*(84.0)*	*(78.4)*
Months employed and off benefits during months 7–12	3.7	3.9	3.6
(Percentage of time)	*(62.4)*	*(65.1)*	*(60.4)*
Months employed and off benefits during months 13–24	7.3	7.8	6.7
(Percentage of time)	*(60.7)*	*(65.0)*	*(56.1)*
Months employed and off benefits during first two years	15.9	16.7	15.1
(Percentage of time)	*(66.2)*	*(69.8)*	*(62.8)*
Months employed during months 1–6	5.3	5.4	5.3
Months employed during months 7–12	4.5	4.6	4.5
Months employed during months 13–24	8.6	8.8	8.4
Months employed during first two years	18.4	18.7	18.3
Continuously employed and off benefit for months 1-6 (%)	61.0	65.3	59.3
Continuously employed and off benefit for months 1-12 (%)	42.1	42.2	43.8
Continuously employed and off benefit for months 1-24 (%)	28.8	29.2	30.1
Self-sufficiency in employment			
Months with earnings of $1,500 or above and no benefit income – months 1–6	3.3	3.3	3.1
(Percentage of time)	*(54.2)*	*(55.5)*	*(52.0)*
Months with earnings of $1,500 or above and no benefit income – months 7–12	2.8	2.9	2.6
(Percentage of time)	*(46.0)*	*(47.8)*	*(43.8)*
Months with earnings of $1,500 or above and no benefit income – months 13–24	5.7	6.1	5.1
(Percentage of time)	*(47.1)*	*(50.7)*	*(42.8)*
Months with earnings of $1,500 or above and no benefit income – first two years	11.7	12.3	10.9
(Percentage of time)	*(48.6)*	*(51.2)*	*45.3*
Earnings growth (conditional upon being employed)			
Average monthly earnings in the first half year[1] ($)	1,760	1,816	1,685
Ratio of average monthly earnings in 2nd post-transition half year to 1st[1]	1.011	1.023	1.003
Ratio of average monthly earnings in 3rd post-transition half year to 1st[1]	1.061	1.080	1.036
Ratio of average monthly earnings in 4th post-transition half year to 1st[1]	1.085	1.110	1.060
Sustained job spells			
Duration of first job (months, censored at 24)	12.2	12.1	13.2
Number of employers	2.7	2.8	2.4
Number of separate job spells	3.5	3.6	3.1
Average duration of employment relationships (months)	11.6	11.5	12.4
Average duration of job spells (months)	9.3	9.1	10.2
Further benefit receipt			
Benefit income in first 6 months (%)	27.3	28.3	29.3
Benefit income in first year (%)	43.7	41.6	45.0
Benefit income in first two years (%)	54.4	51.7	55.9
Number of individuals	110,450	45,940	24,210

(1) Group median. All income variables are in March 2004 quarter dollar values.

Table 6

Regression Models of Employment Retention and Sustained Self-Sufficiency

| | | Model 1 | | | Model 2 | | |
| | | Months employed and off-benefit in first two years | | | Months employed, off-benefit and earning $1,500+ in first two years | | |
	Mean	Estimate	SE	t	Estimate	SE	t
Benefit & employment history (24 months before the transition)							
Months with benefit income	14.03	-0.100	0.005	-19.8	-0.078	0.006	-13.6
Months employed & off benefit	6.32	0.054	0.006	8.6	0.026	0.007	3.7
Months employed & on benefit	6.89	0.113	0.006	18.0	0.150	0.007	20.9
Log of average earnings	6.92	0.588	0.040	14.7	2.821	0.046	61.7
Average duration of employment relationships	7.67	-0.001	0.006	-0.1	-0.036	0.006	-5.6
Number of employers	2.51	-0.073	0.012	-6.0	-0.069	0.014	-5.0
Employer continuity							
Working for a benefit spell employer	0.31	-0.121	0.058	-2.1	-1.588	0.066	-23.9
Working for a pre-benefit spell employer	0.12	-1.532	0.080	-19.3	-2.022	0.091	-22.2
Change of employer between first & final half year	0.47	0.807	0.047	17.3	-0.055	0.053	-1.0
First employer characteristics							
Size (log of employment)	4.56	-0.016	0.010	-1.6	-0.029	0.012	-2.5
Average monthly pay (log earnings/employee)	7.62	0.869	0.059	14.7	4.010	0.068	59.4
Expansion / contraction rate	0.15	0.274	0.035	7.8	0.194	0.040	4.8
Turnover rate	5.50	-0.286	0.010	-29.4	-0.146	0.011	-13.1
Employer industry (Manufacturing is omitted)							
Agriculture, fishing & forestry	0.088	-0.387	0.100	-3.9	-0.785	0.115	-6.8
Mining	0.001	-0.005	0.617	0.0	-1.192	0.706	-1.7
Electricity, gas & water	0.002	0.761	0.513	1.5	0.456	0.586	0.8
Construction	0.051	0.239	0.115	2.1	-0.021	0.132	-0.2
Wholesale trade	0.043	0.859	0.121	7.1	0.550	0.138	4.0
Retail trade	0.130	1.246	0.088	14.1	0.475	0.101	4.7
Accommodation, cafes & restaurants	0.078	0.419	0.106	4.0	-0.510	0.121	-4.2
Transport & storage	0.037	1.054	0.129	8.2	0.868	0.148	5.9
Communication	0.011	0.815	0.221	3.7	0.624	0.253	2.5
Finance & insurance	0.013	1.404	0.202	6.9	1.351	0.231	5.8
Property & business services	0.129	0.714	0.086	8.3	0.928	0.099	9.4
Government administration	0.025	1.016	0.155	6.6	0.934	0.177	5.3
Education	0.038	0.986	0.130	7.6	-0.166	0.149	-1.1
Health & community services	0.081	1.335	0.103	13.0	0.521	0.117	4.4
Cultural & recreation services	0.023	0.056	0.160	0.4	-0.874	0.183	-4.8
Personal & other services	0.033	0.450	0.136	3.3	-0.020	0.156	-0.1
Mean of dependent variable	…	17.94	…	…	13.45	…	…
R squared	…	0.072	…	…	0.219	…	…
Number of individuals	…	86,500	…	…	86,500	…	…

Note: Both models include controls for gender, single year of age, age interacted with gender, region, month in which the job began, having no recent employment history, and working for an employer who was not in operation for a full year.

Symbol:
... not applicable

Table 7

Regression Models of Post-Transition Earnings Level and Growth

	Model 3 Log average monthly earnings in first or final half year: OLS estimation			Model 4 Log average monthly earnings: estimated using deviations from individual means		
	Estimate	SE	t	Estimate	SE	t
Earnings level in first half year						
Benefit & employment history (24 months before the transition)						
Months with benefit income	0.001	0.000	2.3	…	…	…
Months employed & off benefit	-0.007	0.000	-15.9	…	…	…
Months employed & on benefit	0.004	0.000	9.5	…	…	…
Log of average earnings	0.336	0.004	78.5	…	…	…
Average duration of employment relationships	0.000	0.000	-0.1	…	…	…
Number of employers	0.006	0.001	7.9	…	…	…
Employer continuity						
Working for a benefit spell employer	-0.161	0.004	-37.3	-0.108	0.013	-8.5
Working for a pre-benefit spell employer	-0.060	0.006	-9.9	-0.023	0.018	-1.3
Change of employer between first & final half year	-0.104	0.003	-30.7			
Employer characteristics						
Size (log of employment)	-0.005	0.001	-6.2	-0.006	0.002	-2.8
Average monthly pay (log earnings/employee)	0.406	0.005	74.0	0.372	0.012	30.4
Expansion / contraction rate	0.001	0.003	0.2	0.002	0.006	0.3
Turnover rate	0.009	0.001	12.6	0.004	0.002	2.5
Employer industry (Manufacturing is omitted)						
Agriculture, fishing & forestry	0.004	0.006	0.7	-0.013	0.020	-0.6
Mining	-0.006	0.039	-0.2	-0.038	0.106	-0.4
Electricity, gas & water	-0.028	0.026	-1.1	-0.039	0.075	-0.5
Construction	-0.004	0.006	-0.6	-0.005	0.022	-0.3
Wholesale trade	-0.037	0.007	-5.1	-0.054	0.021	-2.5
Retail trade	-0.013	0.006	-2.2	-0.041	0.018	-2.2
Accommodation, cafes & restaurants	-0.041	0.008	-5.1	-0.116	0.023	-5.1
Transport & storage	0.000	0.008	0.0	-0.054	0.025	-2.1
Communication	-0.070	0.018	-4.0	-0.077	0.047	-1.6
Finance & insurance	-0.019	0.014	-1.4	-0.035	0.039	-0.9
Property & business services	0.053	0.006	9.4	-0.008	0.016	-0.5
Government administration	-0.021	0.011	-1.9	-0.052	0.035	-1.5
Education	-0.104	0.013	-8.1	-0.209	0.033	-6.4
Health & community services	-0.002	0.007	-0.2	-0.078	0.027	-2.9
Cultural & recreation services	-0.073	0.013	-5.5	-0.101	0.036	-2.8
Personal & other services	-0.006	0.010	-0.6	-0.034	0.029	-1.2
Marginal change in 2nd period (earnings growth)						
Second period mean effect	-0.580	0.117	-5.0	-0.423	0.158	-2.7
Benefit & employment history (24 months before the transition)						
Months with benefit income	-0.007	0.001	-13.1	-0.007	0.001	-9.7
Months employed & off benefit	0.004	0.001	5.1	0.004	0.001	3.8
Months employed & on benefit	0.000	0.001	0.5	0.001	0.001	0.7
Log of average earnings	-0.131	0.005	-26.4	-0.121	0.007	-17.2
Average duration of employment relationships	0.000	0.001	-0.7	0.000	0.001	-0.4
Number of employers	-0.002	0.002	-1.5	-0.003	0.002	-1.3
Employer continuity						
Working for a benefit spell employer	0.018	0.007	2.4	0.033	0.010	3.5
Working for a pre-benefit spell employer	-0.103	0.010	-10.0	-0.091	0.014	-6.7
Change of employer between first & final half year	-0.147	0.006	-26.1	-0.122	0.009	-13.5

Table 7
continued

Regression Models of Post-Transition Earnings Level and Growth

| | Model 3 | | | Model 4 | | |
| | Log average monthly earnings in first or final half year: OLS estimation | | | Log average monthly earnings: estimated using deviations from individual means | | |
	Estimate	SE	t	Estimate	SE	t
Employer characteristics						
Size (log of employment)	-0.006	0.001	-5.1	-0.006	0.002	-3.9
Average monthly pay (log earnings/employee)	0.206	0.008	24.7	0.154	0.011	13.5
Expansion / contraction rate	0.045	0.005	8.8	0.022	0.009	2.6
Turnover rate	-0.015	0.001	-13.6	-0.013	0.002	-7.5
Employer industry (Manufacturing is omitted)						
Agriculture, fishing & forestry	-0.006	0.012	-0.5	-0.008	0.017	-0.4
Mining	0.060	0.056	1.1	0.035	0.085	0.4
Electricity, gas & water	-0.097	0.036	-2.7	-0.048	0.056	-0.9
Construction	0.039	0.010	3.9	0.043	0.015	2.8
Wholesale trade	0.032	0.012	2.7	0.046	0.017	2.7
Retail trade	0.120	0.009	13.0	0.120	0.013	9.1
Accommodation, cafes & restaurants	0.093	0.014	6.7	0.094	0.019	4.9
Transport & storage	0.019	0.012	1.6	0.056	0.017	3.3
Communication	0.052	0.022	2.4	0.086	0.032	2.7
Finance & insurance	0.039	0.017	2.4	0.061	0.025	2.5
Property & business services	-0.043	0.010	-4.4	0.002	0.014	0.1
Government administration	0.038	0.015	2.5	0.057	0.022	2.6
Education	0.077	0.017	4.5	0.117	0.022	5.3
Health & community services	0.057	0.011	5.2	0.086	0.015	5.7
Cultural & recreation services	0.057	0.022	2.6	0.055	0.031	1.8
Personal & other services	0.039	0.015	2.6	0.061	0.021	2.9
Mean of dependent variable	…	7.469	…	…	7.469	…
R squared	…	0.363	…	…	0.548	…
Number of observations	…	146,690	…	…	146,690	…
Number of individuals	…	73,350	…	…	73,350	…

Note: Both models include controls for gender, single year of age, age interacted with gender, region, month in which the job began, having no recent employment history, and working for an employer who was not in operation for a full year. The estimation sample is individual in the BTW-2 group who were employed for at least one month 19–24 months after their reference benefit spell exit.

Symbol:
... not applicable

Table 8

Outcomes of the Benefit-to-Work and Non-Beneficiary Comparison Groups

	Benefit-to-work transition group (study population)	Non-beneficiary job entrants (NBJE)	Non-beneficiary job entrants who came from low or no employment (NBJE-2)
Sustained employment			
Months employed and off benefits during months 1–6	4.9	5.1	4.6
(Percentage of time)	*(80.9)*	*(84.3)*	*(76.3)*
Months employed and off benefits during months 7–12	3.7	4.4	3.7
(Percentage of time)	*(62.4)*	*(73.0)*	*(61.1)*
Months employed and off benefits during months 13–24	7.3	8.4	7.1
(Percentage of time)	*(60.7)*	*(70.3)*	*(59.6)*
Months employed and off benefits during first two years	15.9	17.9	15.4
(Percentage of time)	*(66.2)*	*(74.5)*	*(64.1)*
Self-sufficiency in employment			
Months with earnings of $1,500 or above and no benefit income – months 1–6	3.3	3.1	1.8
(Percentage of time)	*(54.2)*	*(51.9)*	*(29.7)*
Months with earnings of $1,500 or above and no benefit income – months 7–12	2.8	3.0	1.8
(Percentage of time)	*(46.0)*	*(50.3)*	*(29.3)*
Months with earnings of $1,500 or above and no benefit income – months 13–24	5.7	6.1	4.0
(Percentage of time)	*(47.1)*	*(51.1)*	*(33.0)*
Months with earnings of $1,500 or above and no benefit income – first two years	11.7	12.3	7.5
(Percentage of time)	*(48.6)*	*(51.1)*	*(31.3)*
Earnings growth, conditional upon being employed			
Average monthly earnings in the first half year[1] ($)	1,760	1,804	1,015
Ratio of average monthly earnings in 2nd post-transition half year to 1st[1]	1.011	1.028	1.080
Ratio of average monthly earnings in 3rd post-transition half year to 1st[1]	1.061	1.083	1.198
Ratio of average monthly earnings in 4th post-transition half year to 1st[1]	1.085	1.116	1.282
Earnings growth, conditional upon being employed and off benefit			
Average monthly earnings in the first half year[1] ($)	1,827	1,819	1,025
Ratio of average monthly earnings in 2nd post-transition half year to 1st[1]	1.032	1.029	1.081
Ratio of average monthly earnings in 3rd post-transition half year to 1st[1]	1.082	1.084	1.201
Ratio of average monthly earnings in 4th post-transition half year to 1st[1]	1.117	1.119	1.288
Sustained job spells			
Duration of first job (months, censored at 24)	12.2	9.5	8.0
Number of employers	2.7	2.5	2.5
Number of separate job spells	3.5	3.4	3.4
Average duration of employment relationships (months)	11.6	11.6	10.6
Average duration of job spells (months)	9.3	9.1	7.7
Further benefit receipt			
Benefit income in first 6 months (%)	27.3	3.3	6.0
Benefit income in first year (%)	43.7	5.9	9.8
Benefit income in first two years (%)	54.4	10.4	15.9
Number of individuals	110,450	581,020	378,170

(1) Group median. All income variables are in March 2004 quarter dollar values.

Table 9
Outcome Differential for the Benefit-to-Work Group relative to Non-Beneficiary Job Entrants

Outcome measure	Unadjusted differences	Demographic controls only	Controls for demographic characteristics plus employment history	Full set of controls
Months employed and off benefit in first two years	-1.99	-2.032	-1.137	-1.201
		(0.026)	(0.025)	(0.024)
Months with earnings of $1,500 or above and off benefit in first two years	-0.60	-1.560	0.073	0.079
		(0.029)	(0.027)	(0.026)
Average monthly earnings in the first half year (in logs)	0.05	-0.087	0.099	0.116
		(0.003)	(0.003)	(0.003)
Change in log of average monthly earnings from first to final half year, controlling for initial earnings	0.03	-0.098	-0.100	-0.119
		(0.003)	(0.003)	(0.003)

Note: Regressions use a pooled sample of all individuals in the BTW and NBJE groups. The coefficients
shown represent the average difference in outcomes for the BTW group, after controlling for the covariates.
The covariates included in each regression are explained in the paper. Numbers in parentheses are
standard errors.

Appendix 1

The Linked Employer-Employee Database
This paper uses an experimental dataset under development at Statistics NZ called the Linked Employer-Employee Database (LEED). In this appendix we provide a brief description of LEED for the purposes of the analysis in this paper.[22]

All employers in New Zealand file a monthly record with Inland Revenue called an Employer Monthly Schedule (EMS), which lists all employees at that firm in the last month, the amount of income they received, and the amount of tax that was deducted at source. Two types of recipients are covered by EMS: those who have pay-as-you-earn (PAYE) tax deducted, who are employees, and those who pay withholding tax, who are a sub-set of self-employed individuals. Individuals and firms each have unique administrative identification numbers (IRD numbers) that can be used to track them longitudinally.23 The LEED research database currently contains 76 months of linked employer-employee records covering April 1999 to July 2005. The analysis in this paper uses data for the first five years, April 1999 to March 2004.

In addition to the earnings information provided on the EMS, Inland Revenue's administrative records contain some basic demographic information on individuals and firms that can be merged with each unique employer-employee record. This data includes gender, age, and address details for employees, and industry and address details for employers.[24] This core data can 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 all employees in a particular month and each individual's pattern of employment over time. In addition, several important 'employee-employer' relationships are identified in the database. Of particular relevance for this study are the separate records for individuals receiving core social welfare benefits. These include Unemployment, Domestic Purposes, Sickness, Invalid's, and Widow's Benefits.[25]

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22 See Kelly (2003) and Carroll and Wood (2003) for more detailed discussions of the LEED data.
23 Some issues do exist here. About 1.3 percent of monthly records have either missing or invalid payee IRD numbers, of which about 40 percent can be imputed using matching procedures. Imputation procedures are implemented by the Statistics NZ LEED development team and more information can be found on the Statistics NZ website: www.stats.govt.nz. Employer IRD numbers are usually assigned uniquely to firms but can represent other administrative reporting units such as head offices or holding companies. The rules for transferring IRD numbers when firms change ownership are complex. While these issues are important, they have a very limited effect on the analyses undertaken in this paper.
24 Gender is actually derived from the title and names provided on the initial registration form. Date of birth is recorded on this initial form. The actual addresses of firms and individuals are not provided to the researchers but are replaced with aggregated location variables. Industry and address records for firms are affected by the problem noted in the previous footnote; these can refer to head offices and holding companies. We use both the individual location and industry variables in our analysis but expect the problems with them to have no quantitative effect on our results. Documentation available on the Statistics NZ website discusses these issues in more detail and describes the cleaning of the data that is now being undertaken.
25 In addition to the benefit income identifier, there are also separate identifiers for weekly earnings compensation from ACC, student allowances, NZ superannuation, and parental leave payments. Social welfare benefits are taxed at source and thus recorded on an EMS for Inland Revenue. Unique IRD numbers identify the social welfare agency (MSD) as the 'employer' for these payments and this is different than the IRD number used for their true employees.

Appendix 2

Table A.1

Average Employer Characteristics

	Firm size (no. employees)	Monthly pay per employee ($)	Expansion / contraction rate	Employee turnover rate	Number of firms
All industries	**11**	**2,067**	**0.06**	**0.85**	***221,720***
Agriculture, fishing & forestry	4	1,582	0.07	1.88	*44,750*
Mining	15	3,272	-0.06	0.47	*270*
Manufacturing	18	2,394	0.05	0.55	*17,310*
Electricity, gas & water	82	4,314	0.00	0.27	*130*
Construction	5	2,269	0.11	0.59	*26,220*
Wholesale trade	11	2,901	0.05	0.46	*12,170*
Retail trade	9	1,668	0.02	0.56	*30,840*
Accommodation, cafes & restaurants	11	1,104	0.02	1.07	*11,280*
Transport & storage	13	2,308	0.03	0.65	*7,840*
Communication	28	1,824	0.01	0.51	*1,730*
Finance & insurance	21	4,074	0.07	0.39	*3,830*
Property & business services	11	2,941	0.09	0.57	*33,450*
Government administration	329	3,976	0.02	3.01	*230*
Education	20	1,380	-0.04	0.84	*5,390*
Health & community services	21	1,970	0.04	0.44	*9,890*
Cultural & recreation services	10	1,700	0.02	0.95	*6,100*
Personal & other services	8	1,688	0.06	0.59	*10,290*

Note: The Ministry of Education payroll is excluded from the data in this table.

Table A.2

Outcomes of the Benefit-to-Work Group by Gender and Age Group

	Males aged 15–24	Males aged 25–49	Males aged 50–59	Females aged 15–24	Females aged 25–49	Females aged 50–59
Sustained employment						
Months employed and off benefits during months 1–6	4.8	4.8	4.8	4.9	4.9	4.7
Mths employed and off benefits during months 7–12	3.6	3.7	3.7	3.7	3.9	3.7
Mths employed and off benefits during months 13–24	7.2	7.3	7.4	7.1	7.5	7.1
Months employed and off benefits during first two years	15.7	15.8	15.9	15.7	16.3	15.5
Continuously employed and off benefit for months 1–6 (%)	57.6	60.4	60.5	62.3	63.5	59.8
Continuously employed and off benefit for months 1–12 (%)	38.5	41.6	42.1	40.8	45.8	42.9
Continuously employed and off benefit for months 1–24 (%)	25.3	28.6	30.6	26.3	32.3	30.9
Self-sufficiency in employment						
Months with earnings of $1,500 or above and no benefit income – months 1–6	3.0	3.9	3.9	2.6	3.1	2.7
Months with earnings of $1,500 or above and no benefit income – months 7–12	2.6	3.1	3.1	2.3	2.7	2.3
Months with earnings of $1,500 or above and no benefit income – months 13–24	5.6	6.3	6.4	4.9	5.5	4.6
Months with earnings of $1,500 or above and no benefit income – first two years	11.3	13.2	13.3	9.8	11.4	9.6
Earnings growth (conditional upon being employed)						
Average monthly earnings in the first half year[1] ($)	1,631	2,105	2,173	1,431	1,704	1,554
Ratio of average monthly earnings in 2nd post-transition half year to 1st[1]	1.026	0.999	0.986	1.037	1.011	0.993
Ratio of average monthly earnings in 3rd post-transition half year to 1st[1]	1.093	1.054	1.034	1.092	1.049	1.019
Ratio of average monthly earnings in 4th post-transition half year to 1st[1]	1.141	1.063	1.012	1.148	1.072	1.016
Sustained job spells						
Duration of first job (months, censored at 24)	10.3	11.9	13.8	11.1	13.9	15.4
Number of employers	3.0	2.7	2.3	2.8	2.5	2.3
Number of separate job spells	3.6	3.6	3.3	3.5	3.3	3.2
Average duration of employment relationships (months)	9.9	11.4	13.5	10.4	12.9	14.5
Average duration of job spells (months)	8.1	9.1	10.2	8.6	10.5	11.4
Further benefit receipt						
Benefit income in first 6 months (%)	27.1	28.9	31.6	24.1	26.4	32.2
Benefit income in first year (%)	45.0	45.1	47.3	43.6	40.5	45.3
Benefit income in first two years (%)	56.6	55.7	55.6	55.5	50.5	54.4
Number of individuals	20,710	32,630	4,530	18,070	29,960	4,550

(1) Group median. All income variables are in March 2004 quarter dollar values.

Table A.3

Characteristics of the Complete and Restricted Benefit-to-Work Groups

	Benefit-to-work transition group (BTW)	Restricted benefit-to-work transition group (BTW-2)
Personal attributes		
Female (%)	47.6	48.0
Mean age (years)	31.6	31.5
Aged 15–24 (%)	35.1	35.1
Aged 25–49 (%)	56.7	56.9
Aged 50–59 (%)	8.2	7.9
Living in Auckland (%)	23.2	23.9
Reference benefit spell		
Duration of reference benefit spell in months (censored at 24)	11.4	11.2
Months employed during reference benefit spell (censored at 24)	4.5	4.4
Average monthly benefit payments during reference benefit spell[1] ($)	645	641
Average monthly earnings if employed during reference benefit spell[1] ($)	809	828
Benefit receipt history – 24 months before transition to employment		
Income support for all 24 months (%)	21.9	0.2
Months of benefit receipt	14.4	14.0
Recent employment experience - year before transition to employment		
Employed at least 10 months of the past 12 (%)	33.9	0.4
Employed at least 10/12 months with earnings >=$1,500 per month (%)	4.5	0.1
Employment history – 24 months before transition to employment		
Had some employment experience (%)	92.1	0.9
Months employed	12.9	13.2
Months employed and off benefits	6.0	6.3
Number of employers, if employed	2.8	2.7
Number of separate job spells, if employed	3.6	3.5
Average duration of employment relationships, if employed	8.2	8.4
Average duration of job spells, if employed (months)	5.9	6.1
Average earnings during months of employment[1] ($)	1,177	1,221
Average earnings during months when employed and off benefit[1] ($)	1,573	1,602
Key post-transition outcomes		
Months employed and off benefits in first two years	15.9	17.9
Months with earnings of $1,500 or above and no benefit income in first two years	11.7	13.5
Average monthly earnings in the first half year[1] ($)	1,760	1,913
Ratio of average monthly earnings in 4th post-transition half year to 1st[1]	1.085	1.071
Number of individuals	110,450	86,500

(1) Group median. All income variables are in March 2004 quarter dollar values. The BTW-2 group comprises the subset of people in the BTW group who were continuously employed and off benefits for at least the first three months.

Table A.4
Log Average Earnings in the First Half-Year: Estimates using the Complete BTW-2 Sample

	Log average monthly earnings in first half year: OLS estimation		
	Estimate	**SE**	**t**
Benefit & employment history (24 months before the transition)			
Months with benefit income	0.001	0.000	2.4
Months employed & off benefit	-0.007	0.000	-16.9
Months employed & on benefit	0.005	0.000	10.8
Log of average earnings	0.344	0.003	126.5
Average duration of employment relationships	0.000	0.000	0.1
Number of employers	0.006	0.001	7.2
Employer continuity			
Working for a benefit spell employer	-0.160	0.004	-40.5
Working for a pre-benefit spell employer	-0.064	0.005	-11.8
Change of employer between first & final half year	-0.052	0.003	-16.4
Employer characteristics			
Size (log of employment)	-0.005	0.001	-7.5
Average monthly pay (log earnings/employee)	0.417	0.004	104.0
Expansion / contraction rate	0.006	0.002	2.6
Turnover rate	0.007	0.001	10.0
Employer industry (Manufacturing is omitted)			
Agriculture, fishing & forestry	0.002	0.007	0.2
Mining	0.018	0.042	0.4
Electricity, gas & water	-0.019	0.035	-0.5
Construction	-0.004	0.008	-0.5
Wholesale trade	-0.040	0.008	-4.9
Retail trade	-0.010	0.006	-1.7
Accommodation, cafes & restaurants	-0.042	0.007	-5.9
Transport & storage	0.006	0.009	0.7
Communication	-0.066	0.015	-4.4
Finance & insurance	-0.011	0.014	-0.8
Property & business services	0.053	0.006	9.0
Government administration	-0.010	0.011	-1.0
Education	-0.103	0.009	-11.6
Health & community services	-0.003	0.007	-0.5
Cultural & recreation services	-0.074	0.011	-6.9
Personal & other services	-0.006	0.009	-0.7
Mean of dependent variable	…	7.45	…
R squared	…	0.447	…
Number of individuals	…	86,500	…

Note: The model includes controls for gender, single year of age, age interacted with gender, region, month in which the job began, having no recent employment history, and working for an employer who was not in operation for a full year. Incomes are expressed in March quarter 2004 values.

Symbol:
… not applicable