THE COSTS OF INVOLUNTARY JOB LOSS: IMPACTS ON WORKERS' EMPLOYMENT AND EARNINGS

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Abstract

This paper examines the impact of involuntary job loss on the employment and earnings of affected workers, using data from the Survey of Families, Incomes and Employment (SoFIE) for the 2002–09 period. It focusses on employees who had been working in their job for at least one year before the job loss. The impact of displacement is estimated by using a propensity score matching approach to select similar non-displaced workers and compare their employment and earnings with those of displaced workers. We find that the employment rate of displaced workers was on average 27 percentage points lower 0–1 years after displacement, 14 percentage points lower 1–2 years after, and 8 percentage points lower 2–3 years after, than that of the matched comparison group. The average wage of re-employed displaced workers was 12 percent lower 0–1 years after displacement, 11 percent lower 1–2 years after and 7 percent lower 2–3 years after. Other impacts include increases in unemployment and self-employment, reductions in average weekly hours, and reductions in weekly and annual earnings.

Introduction

This paper examines the impacts of involuntary job loss on the employment and earnings of affected workers in New Zealand.(1) Its objective is to shed new light on the patterns and effects of redundancy. A redundancy occurs when an employee's job is terminated by their employer because of a change in the employer's labour requirements.

Each year, some thousands of employees experience involuntary job loss due to business closures, contractions and restructurings. Although the process of business restructuring will often have benefits for firms, consumers, and the economy as a whole, it can also impose significant costs on employees who are displaced from their jobs, including periods of unemployment and reductions in future earnings. During recessions, redundancies tend to be both more common and associated with larger costs for workers.

Relatively little is known about the incidence and impacts of redundancy in New Zealand. There are no published measures of the incidence. The only comparable previous study of the impacts is Dixon and Stillman (2009). That study used LEED, an administrative data source containing linked employer and employee data. It relied on indirect evidence to select a sample of firms that were *likely* to have undergone a closure or restructuring and an associated sample of workers who were likely to have experienced a job displacement.

This study uses an alternative data source in which job loss events are directly reported by workers. The Survey of Families, Incomes and Employment (SoFIE) is a national longitudinal survey that gathered information from a representative sample of New Zealanders over an eight-year period from October 2002 to September 2010.

The population studied in this paper is employees who were aged 20–64 and had been employed for at least one year before being displaced (ie dismissed or made redundant).

The paper considers both the incidence of displacement and its impact on workers' labour market outcomes during the three years after the job loss. The impact of involuntary job loss is identified by matching each displaced worker with a group of similar workers who were not displaced, using a propensity score matching method.

Although it focusses mainly on employment rates and wages, the paper also provides a more limited set of results on the impacts of displacement on hours worked, weekly and annual earnings, annual income from transfer payments, and self-employment rates.

A full set of results can be found in Dixon and Maré (2012).

Literature on displacement

A recent literature review by the OECD (2011:3), comparing displacement rates across OECD nations, found that annual displacement rates generally ranged between 4 and 6.5 percent, but were as low as 2 percent or as high as 8 percent in some countries.

Displacement rates tend to be cyclical, rising during economic downturns and falling in expansions. They differ across industries, reflecting differences in firms' exposure to cyclical movements in demand or to other demand shocks. Construction and manufacturing, for example, are commonly found to have higher displacement rates than other industries. Among workers, displacement rates are lower for women than men and they decline with increases in the employee's job tenure.

Turning to impacts, the published literature has focussed mainly on labour market impacts, particularly the consequences for a worker's future earnings. It is clear from the literature that involuntary job loss can lead to significant and persistent reductions in workers' employment rates and earnings. According to one review, estimates of the average wage losses experienced by displaced workers range from zero to minus 16 percent, and estimates of average short-term reductions in monthly, quarterly or annual earnings range from minus 9 percent to minus 60 percent (OECD 2011:5). The range of impact estimates reported in the literature is wide because of differences in data sources, measurement methods, study populations, and time periods.

In explaining displacement impacts, the literature points to the role of job-specific, firm-specific and industry-specific skills in influencing both the time that displaced workers take to re-enter employment and the likelihood that they will need to accept a lower wage. Workers with these specialised skills may have difficulty finding a new job that rewards their skills and work experience as well as the one they were displaced from. This may lead them to undertake a prolonged period of job search or force them to accept a relatively large wage reduction to gain re-employment. Essentially, the skills acquired in the job that has been eliminated are less valuable to other employers, leading to a loss of returns.

Another reason for persistent wage losses is that some displaced workers lose pay premiums that were gained through years of service in the pre-displacement job, and were due to organisational pay structures or collective agreements rather than genuine differences in skills and productivity. These premiums are unlikely to be quickly regained.

A common finding in the literature is that older workers and those with higher job tenure tend to experience greater losses of earnings than younger workers and those with less job tenure (OECD 2011:7). This is often attributed to older and high-tenure employees being more likely to have high levels of job-specific or firm-specific skills, to be employed in declining industries, or to enjoy pay premiums based on years of service.

Recent impact studies have found that the costs of job displacement for affected workers can be very long-lasting. Studies focussing on 'high tenure' workers (people who had held their jobs for at least five years) have shown that annual earnings can be significantly below the expected levels for 10 years or even 20 years after the job loss (Eliason and Storrie 2006; Von Wachter et al 2009).

Recent impact studies have also identified substantial business cycle variations in the size of the employment and earnings losses experienced by displaced workers (Eliason and Storrie 2006; Morissette et al 2007; Davis and Von Wachter 2011). The negative effects of displacement on employees' earnings tend to be greater and more persistent when labour demand is weaker.

How displacement was measured in SoFIE

The Survey of Families, Incomes and Employment (SoFIE) is a longitudinal household survey that was conducted by Statistics New Zealand from 2002 to 2010. A representative sample of approximately 22,000 New Zealand residents (both adults and children) who lived in private dwellings was selected and interviewed for the first time in the year from 1 October 2002 to 30 September 2003. Respondents were re-interviewed at 12-month intervals over the next seven years. At each interview, spell information was collected retrospectively on employment activity during the previous 12 months.

When respondents in SoFIE reported having left a job, they were asked about their reasons for leaving. The response options included: 'laid off/dismissed/made redundant'.

In this paper, jobs that ended for one of these reasons are defined as displacements. The main problem this poses is that the category includes both dismissals (jobs the employer ended because of misconduct by the employee) and redundancies (jobs the employer ended because of a change in their labour requirements).

We assume that relatively few employees are dismissed for misconduct after a year of continuous employment. The study population is restricted to employees who had held their job for at least one year at the time of their 'baseline' pre-displacement interview, to reduce the proportion of dismissals.

There is relatively little information internationally on the actual frequency of dismissals. Borland et al (1999: 43) reports redundancy and dismissal rates for employees interviewed in the first six waves of the British Household Panel Survey, covering the period from 1991 to 1996. In those data, dismissals made up approximately 14 percent of all self-reported dismissals and redundancies, and 9 percent of dismissals and redundancies reported by employees with job tenure of two years or more. Stevens (1997) reports findings from an analysis of PSID responses undertaken in the 1990s in the United States, which found that dismissals made up

16 percent of job endings where the respondent reported they had been 'laid off' or 'dismissed'.

Together, these sources suggest that perhaps 5–15 percent of employees in our sample of dismissals and redundancies may have been dismissed rather than made redundant. It is difficult to speculate about the impact of the dismissed employees on the overall results, because little research appears to have been done on the employment patterns and wages of people who are dismissed. If these employees tend to have less continuous employment patterns and lower wage growth than other employees, their presence in the study sample could mean that the impact estimates given in this paper are too high.

The sub-sample of displaced workers who reported receiving redundancy pay can be treated as an alternative study sample. There is little doubt that employees in this group were made redundant rather than dismissed. We report results for this sub-sample below. It should be noted, however, that the redundancy-pay recipients have somewhat different characteristics than non-recipients. There is also a risk that the receipt of a lump sum payment may have changed their job search behaviour, affecting their outcomes to some degree.

The incidence of displacement

Table 1 presents descriptive statistics on the incidence of involuntary job loss for all employees with job tenure of at least one year, and for subgroups of this study population. On average, 1.8 percent of employees with job tenure of one year or more when interviewed had left their job because of a redundancy or dismissal when interviewed one year later. Assuming very few employees were dismissed after working in their job for at least a year, 1.8 percent is a rough estimate of the annual rate of redundancy for employees with at least one year's job tenure.

The annual rate of displacement was fairly constant during the first five waves of the analysis. It increased sharply to 3.3 percent in wave 7 (2007–09), which coincided with the 2008–09 recession.

The average rate of displacement from 2002 to 2009 was somewhat higher for men than women (2.1 percent compared with 1.5 percent), somewhat higher for those aged 20–24 and 55–64 than for the age groups between, and somewhat higher for less educated employees. For example, employees with no qualifications had an average annual rate of 2.2 percent compared with 1.5 percent for those with degree-level qualifications

Ethnic group variations were small. The incidence of displacement declined with rising job tenure: it was highest in the lowest-tenure group (2.1 percent of those in the 1<2 years category) and lowest in the highest-tenure group (1.5 percent of those with tenure of 10 years or more).

The largest variations in the incidence of displacement are apparent when industries are compared. Employees in the government and defence, education, and health and community services industry groups had the lowest rates on average (0.7 – 0.9 percent). Employees in manufacturing, utilities and construction, wholesale trade and transport and storage had the highest rates (2.7 – 2.9 percent).

Compared with other OECD countries, New Zealand appears to have a low aggregate rate of displacement. As noted above, a literature review by OECD (2011) indicates that in the countries with relevant data, annual displacement rates typically ranged between 4 and 6.5 percent. The aggregate rate of 1.8 percent reported in this paper is likely to be lower partly because the study population is restricted to employees with minimum job tenure of one year, and partly because the time period covered in the New Zealand data was largely one of strong employment growth. Although there are other possible explanations, the evidence needed to assess them is lacking.

However, the socio-economic incidence patterns reported here are broadly consistent with patterns reported in other countries. In particular, it is common for displacement rates to be higher for men than for women, higher for low-tenure workers than high-tenure workers, and higher in the manufacturing and construction industries than in other industries (OECD, 2011: 3).

Redundancy pay

Fifty-four percent of employees in the study population received redundancy pay. The proportion of displaced workers that received redundancy pay is shown in the fourth column of table 1.

Job duration is one of the most significant predictors of redundancy pay. The fraction receiving redundancy pay ranged from 34 percent for workers with 1–2 years' employment to 81 percent for workers with at least 10 years' employment.

Workers in managerial and professional occupations were more likely than average to receive redundancy pay. Employees in service and sales occupations, trades occupations, and elementary occupations were less likely to do so.

Rates of receiving redundancy pay were relatively high in the wholesale trade, communications, finance and insurance, and government and defence industries. But they were very low in hospitality (which covers accommodation, restaurants, and cafes) and low in utilities, construction, and retail trade.

The median redundancy pay amount was just over $15,000, and the mean was just over $28,000 (before tax and expressed in March 2012 values). As would be expected, groups with relatively high annual earnings (such as professionals and managers) reported much

larger payments than groups with relatively low earnings. For example, the mean for employees in managerial occupations was $45,100, while the mean for employees in sales and service, agricultural and elementary occupations (which are grouped together for sample size reasons) was $13,600.

Job tenure was also an important source of variation in the size of redundancy payments, with average payments ranging from $12,100 for the 2–3 year tenure group to $47,800 for the 10-years-plus tenure group. Although the mean and median payments vary from year to year, no consistent trend emerges.

Matching and impact estimation methods

We would like to know the difference between displaced workers' actual employment and earnings after displacement and the employment and earnings they would have had if they hadn't been displaced. Because the latter outcomes can't be observed, we estimate the impact of displacement by comparing the post-displacement outcomes of our displaced worker sample with those of a matched group of non-displaced workers who were as similar as possible on all relevant characteristics prior to the displacement.

The potential comparison group for each wave of displaced employees is all never-displaced employees who were also employed in a wage or salaried job at the baseline wave; had continuous job tenure of at least one year; and were aged 20–64. A propensity score index, combined with exact matching by wave and certain other characteristics, was used to select the five best matches for each displaced worker from the potential comparison group. To implement the propensity score matching approach, we estimated a binary choice model of the probability of displacement. We used the records of all displaced and potential comparison group employees, and information on the personal and job characteristics and employment and wage history of each individual. More details are given in Dixon and Maré (2012).

The impact of displacement was then calculated by comparing the average employment rate or wage of the displaced workers in the post-displacement period with that of the matched comparison group. This gives an estimate of the average treatment effect on the treated.

Main results on the employment and wage impacts of displacement

Our main estimates of the impacts of displacement on employment and wages at 0–1 years, 1–2 years and 2–3 years after are presented in table 2 and the first two panels of figure 1. The first row of the table gives the average impact of displacement for the total sample. The second row gives the average impact for the employees who received redundancy pay. The third and subsequent rows give results for sub-samples defined by gender, age group, level of education, job tenure, and whether the pre-displacement wage was below or above the median. We use bold font to identify the estimates that are significantly different from zero at the 95 percent confidence level, and show the standard errors in brackets below each estimate. Although many of the results are significantly different from zero, they have large standard errors, indicating that the point estimates are fairly imprecise.

In figure 1, we graphically illustrate the impacts of displacement by plotting the outcomes of the displaced workers and their matched comparisons before and after displacement.

The results shown in the first row of table 2 and in figure 1 indicate that the employment rate of displaced workers was on average 27 percentage points lower than that of workers in the matched comparison group 0–1 years after displacement; 14 percentage points lower 1–2 years afterwards; and 8 percentage points lower 2–3 years afterwards. For displaced workers who reported redundancy pay, the employment impacts were initially larger (with a 34 percentage point reduction 0–1 years after displacement) but of similar size after 1–2 years (a 15 percentage point reduction) and 2–3 years (a 6 percentage point reduction).

Thus, the impact of displacement on workers' employment rates is initially large, but declines rapidly during the next three years. It is not surprising that the employment impacts were initially larger for workers who received redundancy pay, because their average job tenure was 8.2 years compared with 6.3 years for the full sample. The prior research on displacement has found that larger employment and wage impacts are experienced by high-tenure workers.

The other rows of table 2 give impact estimates for the sub-groups of employees defined by demographic and job characteristics. Statistically significant reductions in the employment rate of each of these sub-groups were identified at 0–1 years after the event, ranging from –21 percentage points to –34 percentage points. Most groups also had statistically significant employment reductions at 1–2 years after the event, ranging from –8 to –22 percentage points.

Because the sampling errors are relatively large, there are no statistically significant differences between those demographic groups in the size of the estimated employment impacts. Nevertheless, some of the main patterns of variation are consistent with the differences in impacts we would expect in the light of past research. In particular, the short run employment rate losses, as measured at the first post-displacement interview, appear to be materially larger for older employees (those aged 50–64) than for younger and prime-aged employees. They are also materially larger for higher-tenure employees (those with continuous employment of five years or more) than lower-tenure employees. These differences had diminished by the second post-displacement interview.

The right-hand side of Table 2 presents the estimated wage impacts for displaced workers who were re-employed in waged or salaried jobs. The figures show the difference between the average log wage of the displaced workers and that of the matched comparison group workers, which is a reasonable approximation of the percentage difference in mean wages.

Considering all re-employed displaced workers, the estimated impact was a 12 percent loss of earnings at 0–1 years after displacement; an 11 percent reduction 1–2 years after; and a 7 percent reduction 2–3 years after. For the sub-sample of displaced workers who received redundancy pay, the average wage impacts are slightly larger: wages were 17 percent lower 0–1 years after displacement; 14 percent lower 1–2 years after; and 8 percent lower 2–3 years after. Only the 0–1 year and 2–3 year estimates are statistically significant.

Given the large standard errors, few of the wage impacts estimated for the demographic sub-groups shown in table 2 are statistically different from those estimated for the contrasting groups. However, the results suggest younger and older employees experienced larger reductions in their wages than workers in the 35–49 year age group. Workers with low educational attainment experienced larger wage reductions than more highly educated workers. Employees with high job tenure (five years or more) experienced substantially larger wage reductions than those with less tenure, and the difference at 0–1 years was statistically significant. Specifically, the reduction in wages for re-employed high tenure employees was 22 percent at 0–1 years (compared with 8 percent for lower-tenure employees) and 14 percent at 1–2 years (compared with 6 percent for lower-tenure employees).

The larger wage losses experienced by higher tenure workers can be attributed to the factors discussed above, such as the loss of returns on firm-specific or industry-specific specialised skills and the loss of pay premiums gained through years of service. The reason workers with low levels of education might suffer larger wage losses than those with average or higher levels of education is less obvious. However, in this sample the 'low education' group had substantially higher mean job tenure than the other educational groups, and this could explain the larger wage impacts found.

Impacts on other labour market outcomes

In this section we briefly discuss the impacts of displacement on eight additional labour market outcomes:

- The proportion of people who had experienced at least one spell of unemployment in the year since their previous interview.
- The unemployment rate, defined as the proportion of people who were not working and searching for work at each post-displacement interview.(2)
- The self-employment rate, defined as the proportion of people who were working in a self-employment job at each post-displacement interview.
- The average weekly hours worked in all waged or salaried jobs, measured at the time of each post-displacement interview.
- The log of real weekly earnings from waged or salaried jobs, measured at the time of each post-displacement interview.
- Real annual earnings from all waged or salaried jobs, measured over the year between each interview.
- Real annual incomes from all sources, measured over the year between each interview.
- Real annual incomes from government income transfers, measured over the year between each interview.

The last three variables (annual earnings, annual total incomes and annual transfer incomes) are measured in constant (March 2007) dollars and are defined for all sample members, including those whose income in the reference year was zero. This ensures that changes in average incomes in the post-displacement period are not affected by changes in the set of people that received income from each source.

The method used to estimate the impact of displacement on each outcome variable was analogous to that used for the employment and wage impacts. The results obtained are given in table 3. Estimates that are statistically significant are shown in bold font. We illustrate the impacts in figure 1.

Displacement raised the proportion of employees that reported an unemployment spell in the previous 12 months by 21 percentage points at the first post-displacement interview and 7 percentage points at the second. The unemployment rate of the displaced workers was 9.4 percentage points higher than that of the matched comparison group at the first post-displacement interview and 2.9 percentage points higher at second. By 2–3 years after displacement, no difference remained.

The self-employment rate of displaced workers was around 5 percentage points higher at both the first and second post-displacement interviews. By the third interview, there was no significant difference between the displaced and comparison samples in self-employment rates.

The average weekly hours of the displaced workers who were re-employed in waged or salaried jobs were 2–3 hours a week—or 5–8 percent— lower than those of the matched comparison group at each time point after displacement. This impact persisted at the third interview.

The weekly earnings of displaced workers who were re-employed were 23 percent lower at 0–1 years, and 17

percent lower at both 1–2 years and 2–3 years. Note that these are larger than the reductions in hourly earnings presented above because they include the impact of the reduction in average hours worked. (3)

Annual earnings were, on average, around 21 percent lower than those of the matched comparison group at the first interview after displacement; 40 percent lower at the second interview, and 21 percent lower at the third interview. The first time point does not capture the full impact of displacement on annual earnings as it includes earnings from the period before the job loss. Note that individuals with zero earnings were included in the annual earnings, annual incomes, and transfer payment figures, and this helps explain the relatively large impacts on these outcomes.

Average annual personal incomes were 20 percent higher than those of the matched comparison group at the first displacement interview. This rise in incomes was due to the receipt of redundancy pay. If we subtract redundancy payments from annual incomes, we estimate an income reduction of 5.4 percent.

Average annual incomes were 20 and 19 percent lower at the second and third post-displacement interviews, but neither impact estimate is statistically significant. As for annual earnings, the first time point (0–1 years) does not capture the full impact of the displacement as it includes income from the period before the job loss.

Average annual incomes from government income transfers were around 50 percent higher than those of the matched comparison group at 0–1 years and 1–2 years after displacement. However, these estimates are either insignificant or only marginally significant.

Summarising these results, there is evidence of significant negative impacts on a range of labour market outcomes. The unemployment rate of the displaced workers was 9.4 percentage points higher 0–1 years after their job loss and 2.9 percentage points higher 1–2 years afterwards. Displacement was followed by an increase in the proportion who were self-employed (of around 5 percentage points) and a decline in the average weekly hours of those who returned to waged or salaried employment (of 5–8 percent or 2–3 hours a week). The average weekly earnings of those who returned to waged or salaried employment were approximately 20 percent lower. Many of these adverse impacts persisted out to the third interview after the displacement, the end of our follow-up period.

Conclusion

This study examined the incidence of involuntary job loss and its impact on workers' subsequent employment and earnings. It focussed on employees who were working in their job for at least one year before their job loss, and uses data from Statistics New Zealand's longitudinal household survey (SoFIE) for 2002–09.

The annual rate of displacement for employees with one year of job tenure was fairly constant during 2003–07, at around 1.5 percent a year, but it increased to 3.3 percent in the seventh wave of the survey, which coincided with the 2008–2009 recession. Fifty-four percent of the displaced workers in the sample received redundancy pay. The median redundancy pay amount was just over $15,000 and the mean was just over $28,000.

The impact of displacement on employment rates and hourly earnings was estimated using a propensity score matching approach to select 'similar' non-displaced workers and compare their outcomes. Our impact estimates show that the employment rate of displaced workers compared with the matched group was on average 27 percent lower 0–1 years after displacement, 14 percent lower 1–2 years after, and 8 percent lower 23 years after.

For displaced workers who received redundancy pay, the employment impacts were initially larger: 3–4 percent lower than expected 0–1 years after displacement. They were similar in size to the overall results after 1–2 years (15 percent lower) and 2–3 years (6 percent lower).

The average wage of re-employed displaced workers was 12 percent lower than that of the matched comparison group 0–1 years after displacement, 11 percent lower 1–2 years after, and 7 percent lower 2–3 years after. For displaced workers who received redundancy pay, the effects on average wages were slightly larger: 17 percent lower 0–1 years after displacement, 14 percent lower 1–2 years after, and 8 percent lower 2–3 years after.

Patterns apparent in the results suggest that in the first year after displacement, the adverse employment impacts are larger for older employees and high job-tenure employees. These groups were slower to regain employment.

When re-employed in waged or salaried jobs, both younger and older employees experienced larger reductions in their wages than employees aged 35–49. Workers with low educational attainment experienced larger wage reductions than those with average or higher educational attainment. Employees with higher job tenure experienced substantially larger and more persistent wage reductions than those with lower job tenure.

Other measures of labour market outcomes also showed significant changes. Unemployment rates rose sharply in the year immediately after the job loss. During the three years after the job loss, the average hours of those who returned to waged or salaried jobs were 5–8 percent lower than those of the matched comparison group, and average weekly earnings were around 20 percent lower.

Displaced workers were more likely to be self-employed after their job loss. Their annual wage and salary earnings and incomes were also significantly reduced. Though the unemployment impacts were relatively short-lived, the impacts on hours, wages, and weekly and annual earnings were much more sustained.

In future, the findings of the study could be extended in two ways. First, data from the final wave of SoFIE could be incorporated, providing information on outcomes 3–4 years after displacement, and possibly some additional insights into the effects of the 2008-09 recession. Second, the scope for linking SoFIE to administrative measures of individuals' employment and earnings could be considered. If linked, the administrative measures could be used to estimate the impacts of involuntary job loss on workers' employment and earnings over a longer follow-up period.

Notes

1. Access to the data used in this study was provided by Statistics New Zealand under conditions designed to give effect to the security and confidentiality provisions of the Statistics Act 1975. The results in this paper are the work of the authors not Statistics New Zealand.
2. In this paper, the unemployment rate is calculated as the number of non-employed job seekers divided by the total population, rather than the total labour force. This means it differs from an official unemployment rate. Another difference is that a person does not need to have searched for work actively in every week of their unemployment spell to be classified as unemployed. In SoFIE, they were only asked to specify their search methods once for each spell of job search. We classify a respondent as unemployed if they reported using at least one active search method during the entire spell.
3. For example, at 0–1 years after displacement, weekly hours declined by 7.8 percent while wages declined by 12.3 percent. This implies a decline in weekly earnings of approximately 12.3+7.8=20.1 percent, which is the actual percentage impact estimated (after taking the antilog and substracting 1).

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Figure 1: Estimated impacts of displacement on various labour market outcomes

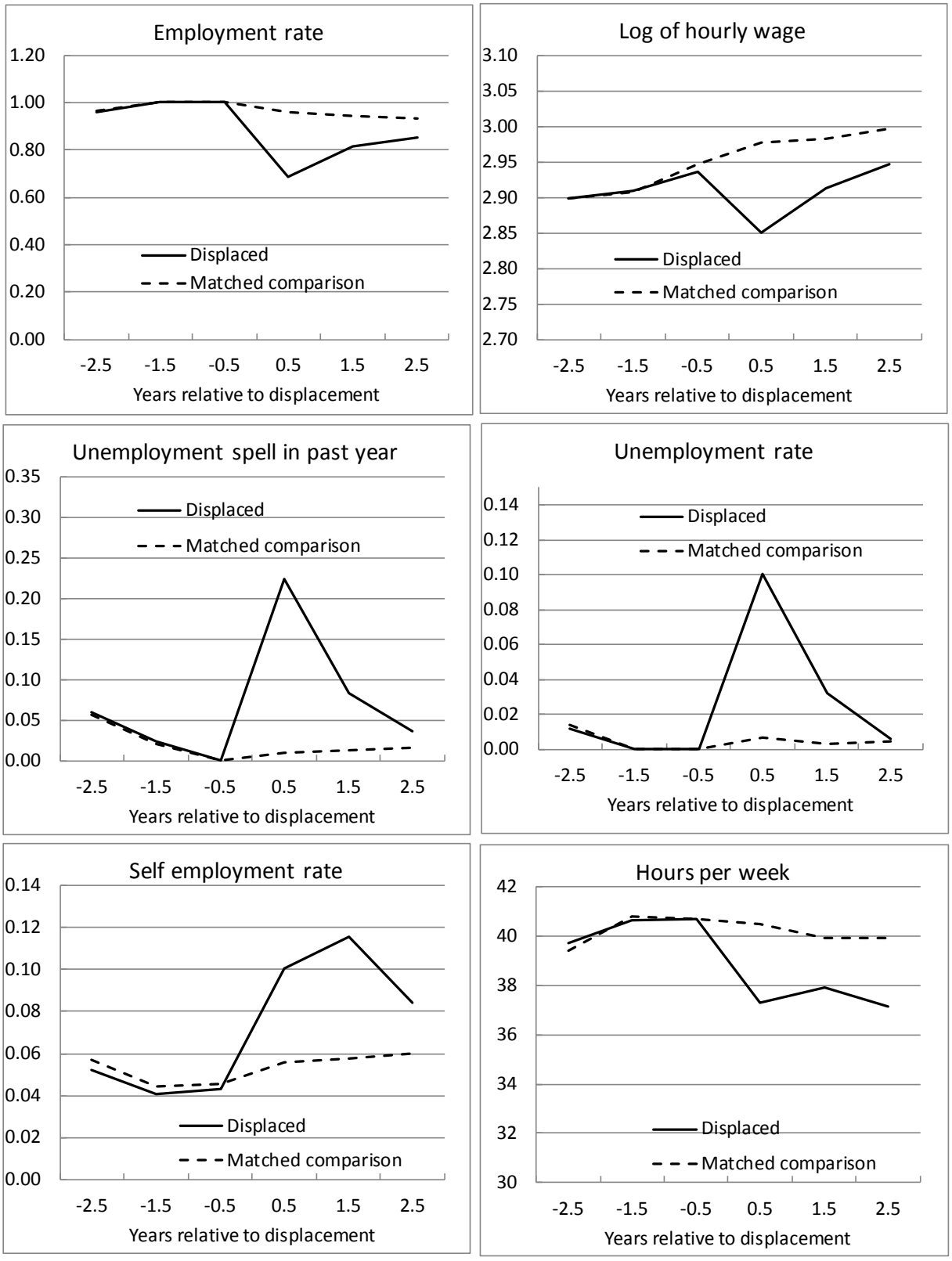

Figure 1 continued: Estimated impacts of displacement on various labour market outcomes

Notes: The results shown are for all employees in the study population. Earnings and incomes are expressed in March 2007 dollar values. The measures of hours per week and weekly earnings are restricted to people with waged or salaried employment and positive earnings. In contrast, the measures of annual earnings, annual income and annual transfer income include people with zero incomes.

Table 1: The incidence of displacement for employees with at least one year of job tenure

	Proportion of employees who were displaced	Proportion who were displaced and received redundancy pay	Personal and job profile of employees who were displaced	Percent of the displaced who received redundancy pay
	%	%	%	%
All employees	1.8	1.0	100.0	53.5
Year of displacement				
2002-04	1.7	1.1	14.9	61.2
2003-05	1.4	0.7	12.3	48.6
2004-06	1.3	0.6	11.2	50.8
2005-07	1.6	0.9	15.2	53.8
2006-08	1.6	0.8	14.8	53.3
2007-09	3.3	1.7	31.6	52.5
Gender				
Male	2.1	1.1	60.1	52.0
Female	1.5	0.8	39.9	55.6
Age group				
20-24	2.0	0.8	8.5	41.2
25-34	1.7	0.7	20.4	42.2
35-44	1.7	0.9	26.2	51.3
45-54	1.8	1.1	26.7	58.9
55-64	2.1	1.4	18.2	67.6
Ethnic group				
European	1.9	1.0	76.6	54.2
Maori	1.8	0.9	11.7	48.1
Pacifika	1.7	1.0	4.7	63.0
Other ethnic group	1.6	0.8	6.8	48.7
Highest qualification				
No qualification	2.2	1.0	17.4	47.5
Lower secondary school qualification	2.6	1.2	13.7	47.4
Upper secondary school qualification	2.0	1.1	13.6	56.1
Basic vocational qualification	1.8	0.8	10.6	44.6
Vocational qualification	1.6	0.8	23.4	51.1
Degree-level qualification	1.5	1.0	17.6	67.0
Educational level not classified	1.5	1.0	3.8	67.4

Table 1 continued: The incidence of displacement for employees with at least one year of job tenure

	Proportion of employees who were displaced	Proportion who were displaced and received redundancy pay	Personal and job profile of employees who were displaced	Percent of the displaced who received redundancy pay
	%	%	%	%
Job tenure				
1-<2 years	2.1	0.7	25.1	33.6
2-<3 years	1.9	1.0	16.5	50.5
3-<5 years	1.9	0.9	20.5	49.1
5-<10 years	1.8	1.1	21.2	62.0
10+ years	1.5	1.2	16.7	81.1
Occupational group				
Managerial	2.0	1.3	18.6	67.5
Professional	1.1	0.8	11.2	70.3
Associate professional and technical	1.9	1.2	14.0	63.1
Clerical	2.3	1.2	16.6	52.4
Service and sales	1.4	0.5	9.7	32.7
Agricultural	1.3	0.5	2.8	40.6
Trades	2.5	0.9	9.6	34.9
Machine operators and assemblers	2.3	1.1	10.7	49.2
Elementary	2.4	0.9	6.7	35.5
Industry				
Agriculture, forestry, fishing, mining	1.9	0.9	4.9	46.4
Manufacturing	2.8	1.8	22.7	63.7
Utilities, construction	2.7	0.5	9.4	17.8
Wholesale trade	2.8	2.0	9.9	71.7
Retail trade	1.8	0.5	10.0	30.7
Hospitality	1.2	S	1.7	S
Transport, storage	2.9	1.5	6.8	51.3
Communications	2.4	2.4	2.1	100.0
Finance, insurance	1.2	0.9	2.4	74.1
Business services	2.2	1.0	12.8	46.6
Government, defence	0.9	0.8	2.8	93.8
Education	0.7	0.5	4.4	64.0
Health and community services	0.8	0.5	5.0	54.4
Cultural and recreational services	2.0	1.1	2.3	53.8
Personal and household services	1.1	0.5	2.6	46.7
Mean age of displaced employees	42.1	44.3		
Mean job duration prior to displacement (ye	6.3	8.2		
Sample sizes	636	351	636	636

Notes: S = suppressed for confidentiality reasons. N/A = not applicable.

Table 2: Estimated impacts of displacement on employment and earnings

	Employment impacts (percentage points)			Wage impacts (log points)		
	0-1 years after	**1-2 years after**	**2-3 years after**	**0-1 years after**	**1-2 years after**	**2-3 years after**
All employees	**-0.271**	**-0.138**	**-0.082**	**-0.123**	**-0.110**	-0.074
	(0.024)	(0.024)	(0.037)	(0.035)	(0.038)	(0.044)
Received redundancy pay	**-0.337**	**-0.154**	-0.063	**-0.166**	**-0.140**	-0.082
	(0.030)	(0.032)	(0.053)	(0.051)	(0.057)	(0.047)
Male	**-0.257**	**-0.115**	**-0.089**	**-0.146**	**-0.099**	**-0.122**
	(0.032)	(0.036)	(0.033)	(0.039)	(0.049)	(0.061)
Female	**-0.291**	**-0.157**	-0.056	**-0.161**	**-0.163**	-0.015
	(0.036)	(0.041)	(0.051)	(0.059)	(0.061)	(0.078)
Aged 20-34	**-0.205**	**-0.155**	-0.038	**-0.171**	-0.192	-0.105
	(0.047)	(0.074)	(0.071)	(0.075)	(0.106)	(0.108)
Aged 35-49	**-0.264**	**-0.122**	-0.065	**-0.102**	-0.052	-0.044
	(0.034)	(0.037)	(0.037)	(0.049)	(0.057)	(0.054)
Aged 50-64	**-0.322**	**-0.141**	-0.094	**-0.172**	-0.110	-0.046
	(0.040)	(0.042)	(0.062)	(0.068)	(0.062)	(0.072)
No qualification or lower secondary school	**-0.283**	**-0.132**	-0.102	**-0.192**	**-0.173**	**-0.142**
	(0.051)	(0.056)	(0.070)	(0.057)	(0.056)	(0.061)
Upper secondary or post-school qualification	**-0.211**	-0.112	**-0.151**	-0.084	-0.130	0.040
	(0.053)	(0.060)	(0.067)	(0.074)	(0.076)	(0.110)
Bachelor degree or higher	**-0.295**	**-0.146**	-0.014	-0.084	-0.080	-0.042
	(0.040)	(0.041)	(0.045)	(0.051)	(0.056)	(0.068)
Low tenure - less than 5 years in job	**-0.235**	**-0.134**	**-0.077**	**-0.077**	-0.057	-0.026
	(0.028)	(0.035)	(0.031)	(0.039)	(0.052)	(0.059)
High tenure - 5 or more years in job	**-0.324**	**-0.142**	-0.098	**-0.222**	**-0.138**	-0.116
	(0.039)	(0.039)	(0.067)	(0.070)	(0.058)	(0.069)
Pre-displacement wage below median	**-0.284**	**-0.076**	-0.049	**-0.124**	**-0.090**	**-0.103**
	(0.033)	(0.032)	(0.045)	(0.037)	(0.041)	(0.039)
Pre-displacement wage above median	**-0.269**	**-0.216**	**-0.118**	**-0.131**	-0.095	-0.021
	(0.039)	(0.046)	(0.052)	(0.050)	(0.056)	(0.069)

Notes: The numbers in the table represent the difference between the mean outcome of the displaced workers and that of the matched comparison group. The employment impacts represent the percentage point difference in employment rates. The wage impacts represent the difference in log wages, which is an approximation of the percentage difference in the wage rate. Results that are statistically significant at the 5% error level are in bold font. Bootstrap standard errors are shown in brackets below each estimate.

Table 3: Estimated impacts of displacement on other labour market outcomes

	Impacts of displacement		
	0-1 years after	**1-2 years after**	**2-3 years after**
Experienced unemployment since the previous interview			
Estimate	**0.213**	**0.071**	0.019
Standard error	(0.023)	(0.016)	(0.018)
Change relative to comparison group (%)	*2170.6*	*619.6*	*114.3*
Unemployment rate at interview			
Estimate	**0.094**	**0.029**	0.001
Standard error	(0.013)	(0.012)	(0.008)
Change relative to comparison group (%)	*1075.5*	*1393.2*	*23.6*
Self employment rate			
Estimate	**0.044**	**0.058**	0.024
Standard error	(0.017)	(0.021)	(0.031)
Change relative to comparison group (%)	*79.5*	*101.4*	*40.0*
Weekly hours			
Estimate	**-3.16**	**-2.02**	**-2.76**
Standard error	(1.052)	(0.956)	(1.249)
Change relative to comparison group (%)	*-7.8*	*-5.1*	*-6.9*
Log weekly earnings			
Estimate	**-0.226**	**-0.172**	**-0.173**
Standard error	(0.052)	(0.052)	(0.066)
Change relative to comparison group (%)	*-20.2*	*-15.8*	*-15.9*
Annual earnings ($)			
Estimate	**-9402**	**-17858**	**-8378**
Standard error	(1567)	(2492)	(2859)
Change relative to comparison group (%)	*-20.9*	*-40.1*	*-21.0*
Annual personal income ($)			
Estimate	**10193**	-10085	-9253
Standard error	(3067)	(5492)	(4866)
Change relative to comparison group (%)	*20.4*	*-19.6*	*-19.0*
Annual personal income excluding redundancy payments ($)			
Estimate	**-2713**	-10085	-9253
Standard error	(2575)	(5492)	(4866)
Change relative to comparison group (%)	*-5.4*	*-19.6*	*-19.0*
Annual income from government transfers ($)			
Estimate	510	**861**	299
Standard error	(264)	(305)	(446)
Change relative to comparison group (%)	*46.5*	*57.2*	*13.8*

Notes: The results shown are for all employees in the study population. The numbers in the table represent the difference between the mean outcome of the displaced workers and that of the matched comparison group. We also show the impact in *relative* terms, by calculating the reduction in the hours of work, earnings or income experienced by the displaced workers as a proportion of the mean hours, earnings or income of the comparison group at a given time. Impact estimates that are statistically significant at the 5% error level are in bold font. Standard errors are shown in brackets below each estimate.