NATIONAL VOCATIONAL EDUCATION
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RESEARCH **REPORT**

Training and its impact on the casual employment experience

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MELBOURNE INSTITUTE OF APPLIED
ECONOMIC AND SOCIAL RESEARCH

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About the research

Training and its impact on the casual employment experience

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About one in five adult Australians is employed on a casual rather than an ongoing or permanent basis. From the point of view of skills acquisition, casual workers tend to participate less in work-related training than their permanently employed counterparts.

The focus of this research is whether the lower rate of participation in work-related training is an issue. Does undertaking training help those who are casually employed to move into permanent or fixed-term work? Further, does training have any impact on the level of satisfaction casually employed people have with their jobs, employment opportunities and life in general? These issues are investigated using data from the Household, Income and Labour Dynamics in Australia (HILDA) Survey.

Key messages

- Casual workers are less likely to participate in work-related training than those in permanent or fixed-term employment.
- There is little evidence that receiving work-related training affects the probability of moving into permanent or fixed-term employment.
  - The apparent finding that casual workers who undertake work-related training are more likely to move into permanent or fixed-term work than those who do not becomes invalid when the panel nature of the data is exploited to account for unobserved differences between those receiving and those not receiving training.
- There is also little evidence of any strong impacts of work-related training on the level of satisfaction reported by casual workers with their job or life.
  - The exception to this is satisfaction with employment opportunities among casually employed women.

The apparent lack of benefits from training is not surprising, given that casual workers are generally employed on short tenures, thus limiting the value of training to both the employees and employers.

Tom Karmel
Managing Director, NCVER

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Executive summary

This study uses data from the Household, Income and Labour Dynamics in Australia (HILDA) Survey to examine outcomes for a key group of non-standard workers — those employed in casual jobs. The outcomes considered are: transitions from casual work into other types of employment and other labour force states, and reported levels of job satisfaction; satisfaction with employment opportunities; and overall life satisfaction (wellbeing). In particular, we examine whether these outcomes differ between casual workers who have participated in work-related training over the last 12 months and those who have not done so.

We summarise the report's key findings below.

First, in the context of the prevalence of casual employment, the characteristics of casual workers, and the prevalence of work-related training among casual workers:

- 11.5% of working-age men and 16% of working-age women occupy casual jobs (as their main job).
- Young people are more likely than those in older age groups to be casual workers.
- Around 22% of male casuals and 24% of female casuals have received work-related training in the last 12 months. This is around half the corresponding proportions of those in fixed-term or permanent jobs.

Second, in relation to transitions from casual employment to other forms of employment and factors associated with the probability of such transitions:

- On average, around 21% of casual workers in any one year are in permanent employment the following year. A further 9% are in either fixed-term or other forms of employment the following year.
- Casual workers who receive work-related training are more likely to move into permanent or fixed-term employment over the following 12 months than casuals who do not receive work-related training. The gap is bigger for men (6.4 percentage points) than for women (1.6 percentage points).
- It is more likely that these gaps reflect differences in other characteristics of workers who do and do not receive work-related training, rather than being a causal impact of training on transitions per se.
- Transition rates from casual to permanent employment are lower for those with a work-limiting disability and higher for those with higher levels of education.

Third, in relation to satisfaction with employment opportunities and satisfaction with life overall, how each satisfaction measure is associated with different types of employment, and how each satisfaction measure is associated with participation in work-related training:

- On average, people say they are reasonably happy with their jobs, their employment opportunities, and their life overall.
- Casual employees report lower levels of job satisfaction and lower levels of satisfaction with employment opportunities than workers in permanent jobs, although there is no difference in overall wellbeing.

- For men, these associations remain, even after controlling for a host of other factors that might influence reported satisfaction levels. For women, only the association between reported satisfaction with employment opportunities and casual employment remains after controlling for other factors.
- Reported levels of job satisfaction and satisfaction with employment opportunities among casual workers are higher for those who have participated in work-related training in the last 12 months compared with those who have not. There is no difference in reported overall wellbeing.
- These gaps largely disappear when we control for other factors that may influence reported satisfaction levels. Only a small gap in reported satisfaction with employment opportunities remains, and only for women.

The report briefly discusses some of the possible implications of these findings for casual workers themselves and for training providers. The key implications are:

- For casual workers there is little evidence that receiving work-related training affects the probability of moving into permanent or fixed-term work; nor does receiving work-related training affect reported levels of job satisfaction or overall life satisfaction.
- The gap between participation rates in work-related training for casuals and other types of workers suggests there may be room for growth in the market for work-related training for casual workers. On average, however, casual jobs are shorter in duration and may require lower skill levels than other types of jobs, so the demand for training from workers and their employers may always be relatively low.
- The fact that such training appears to have little impact on both rates of transition into non-casual forms of employment and on reported job satisfaction seems likely to reinforce this.

Introduction

Recent decades have seen increased concern in Australia about the rising incidence of casual employment, usually assumed to be associated with less stable working arrangements, lower levels of job satisfaction and limited opportunities for skills development and career progression. The Australian Council of Trade Unions (ACTU 2011, p.6), for example, states that 'millions of Australians are engaged in insecure work' and that insecure work is closely linked to non-standard forms of employment and especially casual employment. Although recent research (for example, Buddelmeyer & Wooden 2011) shows it does not necessarily follow that workers in casual employment are precluded from accessing more traditional and permanent forms of employment, or that casual workers report markedly lower levels of job satisfaction than other workers (for example, Wooden & Warren 2004), it is less clear what conditions facilitate greater (or lesser) progression, whether non-standard employment poses greater (or lesser) risks for people from different socioeconomic groups or with different characteristics, and what role is played by work-related training.

The project reported on here uses data from the Household, Income and Labour Dynamics in Australia (HILDA) Survey to address the following specific research questions:

- How do those workers who progress from casual to non-casual employment differ from those who do not? What is the role of work-related education and training in facilitating this progression? How does membership of disadvantaged groups (for example, low socioeconomic status, disabled) affect the probability of progression to non-casual employment?
- How does casual employment affect reported levels of job satisfaction and overall satisfaction with life? How does accessing work-related training impact on reported levels of job and life satisfaction for casual employees?

Longitudinal data tracking workers over time is required to answer the first question, yet few existing studies of the casual employment experience in Australia have exploited such data. And no existing studies have used longitudinal data to explicitly examine the link between work-related training and transitions out of casual employment.

We present evidence of a strong positive association between training and progression to permanent or fixed-term employment the following year, at least for men. One potential reason for this association is that engaging in work-related training influences the probability of moving into permanent or fixed-term employment (that is, there is a causal effect of work-related training on the probability of transition). Alternatively, workers who engage in work-related training in casual jobs may be more likely to progress to other forms of employment for other reasons (that is, what economists call a selection effect). We use a number of methods to explore which of these possible explanations for the observed statistical association between work-related training and transition rates is the most likely. The evidence is more suggestive of selection effects rather than causal effects of work-related training.

We also show how the probability of transitioning from casual to permanent or fixed-term employment is associated with other factors such as other individual characteristics or job characteristics. In particular, we show that the chances of moving to permanent or fixed-term employment are lower for disabled men (and to a lesser extent for disabled women) and higher for those with higher levels of education for both genders.

Longitudinal data are also advantageous in answering the second question. Until 2010, however, the key Australian study was Wooden and Warren (2004), which relied solely on data from wave 1 of the HILDA Survey (that is, cross-sectional data). More recently researchers have begun to exploit the longitudinal nature of the survey (Green, Kler & Leeves 2010; Richardson, Lester & Zhang 2011), which is the approach we take here. We go further than these existing studies in seeking to identify the causal relationship between casual employment and satisfaction/wellbeing measures. We also report on three measures of satisfaction/wellbeing: overall job satisfaction, satisfaction with employment opportunities, and overall wellbeing. No previous studies have examined the second of these three measures and how it relates to employment type. Further, ours is the first study to use the HILDA Survey to examine the impact of participation in work-related training on these three satisfaction measures.

Being in casual employment is shown to reduce job satisfaction (for men) and satisfaction with employment opportunities (for both men and women) relative to being in permanent employment, although these impacts are quite small in magnitude. Being in casual employment as opposed to permanent employment has no impact on overall life satisfaction. Participation in work-related training, given employment type, is positively associated with satisfaction with employment opportunities for female casuals, although again the magnitude of this effect is small.

The remainder of this report is set out as follows. The next section briefly reviews relevant existing studies. This is followed by a section presenting details of the data and a brief non-technical discussion of methods used in the study (with a more technical discussion in the appendix). The next section presents and discusses the results of our analyses. The final section draws conclusions, including on the potential implications of the research for casual workers and training providers. The appendix presents additional details on the methods used and some additional data details.

Existing research

The main discussion here focuses on studies that have specifically examined the role of work-related training in employment transitions and differences in transition patterns across disadvantaged groups. We are aware of no previous study having examined the association between participation in work-related training and job satisfaction or overall wellbeing for casual workers.

Worker wellbeing and casual employment

Casual employment (along with other forms of non-standard employment) in Australia is typically equated to low-quality jobs, as reflected in job insecurity, low and unpredictable labour incomes, unsatisfactory working hours, a lack of access to opportunities for training and career progression and a lack of control (for example, see Burgess 1996; Watson et al. 2003; Pocock, Buchanan & Campbell 2004; Campbell, Whitehouse & Baxter 2009; Australian Council of Trade Unions 2011). But a closer look at quantitative evidence from large-scale representative surveys suggests a more mixed picture, whereby casual employment is reported to have both positive and negative attributes (for example, Hall, Harley & Whitehouse 1998; Hall & Harley 2000; Wooden 2001), in which it is recognised that casual workers are not a homogenous group (for example, Hall & Harley 2000), and where overall differences in reported job satisfaction between casuals and other workers appear to be small (for example, Wooden & Warren 2004; Green, Kler & Leeves 2010). Studies of the links between non-standard employment and more general measures of health and wellbeing also suggest a mixed picture, with no clear non-standard employment 'penalty'. (For a review of the international literature see Virtanen et al. 2005; for a recent Australian study see Richardson, Lester & Zhang 2011.)

The transition from casual employment

The conventional wisdom in Australia also appears to be that many casual jobs are not only low-quality jobs, but are 'dead-end jobs' which marginalise workers, effectively impeding their ability to move into permanent full-time positions, where internal labour markets and career ladders are more widespread. Analysing the extent to which this is the case requires longitudinal data that track individuals over time. The first set of studies using longitudinal data for this purpose focused on data that tracked young people over time from the Australian Longitudinal Study (Sloan, Carson & Doube 1992) and its successor the Australian Youth Survey (Gaston & Timke 1999). Both studies found evidence of a high rate of progression out of casual jobs into non-casual employment within a few years, together with a lower but still sizeable rate of transition from casual jobs into non-employment. A second set of studies exploited data from the Australian Bureau of Statistics (ABS) Survey of Employment and Unemployment Patterns (SEUP) data for the period 1994 to 1997, which was similarly not limited to young people (see Burgess & Campbell 1998; Chalmers & Kalb 2001; Dunlop 2001; Green & Leeves 2004). These studies drew mixed conclusions, and although they generally pointed to less progression into permanent employment than in the earlier youth-focused studies, they also found evidence that taking casual employment as opposed to remaining unemployed improved the chances of subsequently gaining permanent employment (see, in particular, Chalmers & Kalb 2001).

More recent studies of transitions from casual employment have exploited data from the HILDA Survey (see Productivity Commission 2006; Buddelmeyer & Wooden 2011; Watson 2011). Again these studies point to substantial progression from casual to non-casual employment. These studies have also estimated multivariate regression models to explore how individual and job-related characteristics are associated with transition probabilities, finding significant associations with hours worked, English language proficiency, occupation and industry, among other things.

The role of work-related training

Empirical studies into the characteristics of workers receiving different forms of work-related training, typically using individual-level cross-sectional data collected by the ABS, have consistently demonstrated that casual employees in Australia are much less likely than non-casual employees to participate in most forms of job-related training (for example, Baker & Wooden 1992; Miller 1994; Wooden 1996a, 1996b; Vandenheuvel & Wooden 1999; Draca & Green 2004). Such results are mostly explained by reference to human capital theory, which predicts that investments by both firms and workers in firm-specific training will depend on the length of time over which those investments can be recouped (Becker 1962). Since casual employment is typically associated with relatively short job tenure on average, it follows that casual employees will be both less attractive training propositions to employers and will be more reluctant to participate in training.

But some casual workers do engage in training. Richardson and Law (2009), for example, used data from the 2001 ABS Survey of Education and Training Experience to show that between 18% and 22% of casual employees undertook some form of formal in-house training program in the previous year, between 14% and 17% undertook an externally delivered training course; and between 70% and 75% participated in some form of on-the-job training (broadly defined, and including both occupational health and safety training and informal training).

Does training make a difference to the future job prospects of these workers? A basic assumption of economic models of training decisions is that training increases worker productivity and, in turn, leads to higher earnings for the trained worker in the future. Empirical work conducted overseas tends to

support this prediction (for example, Booth 1993; Parent 1999; Frazis & Loewenstein 2005), although arguably the magnitude of these effects is not as large as might have been expected, especially once the endogeneity of the training decision is accounted for (for example, Leuven & Oosterbeek 2008; Albert, Garcia-Serrano & Hernanz 2010).[1]

There is also a much smaller international literature on whether training affects different types of workers differently. Arulampalam, Booth and Bryan (2010), for example, examined the effects of training on the conditional male wage distribution in ten European countries. They found that the positive effects of training on earnings are reasonably stable across the conditional wage distribution, suggesting that training is equally beneficial to low earners and high earners. Very differently, Blázquez, Cuesta and Salverda (2009), using data from the European Community Household Panel, found evidence that receipt of employer-provided education or training increases the probability of escaping from low-paid jobs into high-paid jobs, although our interpretation of their results is that the magnitude of this effect is relatively modest. The same issue is tackled by Pavlopoulos, Muffels and Vermunt (2009), but using different data (for the UK and the Netherlands) and different estimation techniques. They too report evidence that training increases the likelihood of moving from low-paid jobs to high-paid jobs. However, they also find in their UK data (from the British Household Panel Survey), the only one of their datasets that enables firm-specific training to be distinguished from more general forms of training, that the pay-off from firm-specific training is conditional on worker skills. Low-educated workers are not found to benefit from firm-specific training.

But in none of this research is any serious consideration given to the role played by the nature of the employment contract. Similarly, in Australia, and despite the pervasiveness of casual employment, there has also been relatively little research into both how the nature of the training experience differs with contractual employment arrangements and how different types of workers might be affected differently by training. Evidence has been found on how the amount or intensity of training received differs with employment status, but the findings are contradictory. Vandenheuvel and Wooden (1999) briefly reported on data from the 1997 ABS Survey of Education and Training, finding that among those who did participate in various forms of formal structured work-related training, the number of hours undertaken differed very little between casual and permanent workers. In contrast, Draca and Green (2004), despite using the same data source, reached the opposite conclusion, reporting that employer-funded training was between 50% and 80% less intense among casual employees than among permanent employees. Part of the difference here lies in the definition of training used, with Vandenheuvel and Wooden (1999) including both in-house training and all forms of external training courses, whereas Draca and Green (2004) most likely excluded any external training courses that were not employer-supported. Further, Vandenheuvel and Wooden also suggest that among in-house training course participants, much of the difference in favour of permanent workers is really a function of differences in hours worked rather than casualness per se (see also Wooden 1996b).

The nature of the training experience, and how it differs with employment arrangements, is thus clearly a topic in need of much more research. But even more important is the question of the extent to which the future benefits from training (in terms of improved employment prospects, career progression and earnings) differ with employment type. To the best of our knowledge, with one exception this has not been the subject of any research in Australia, and nor are we aware of any relevant empirical work undertaken overseas with respect to temporary employment contracts. The

[1] Training participation and earnings might be associated because training leads to higher earnings (a causal effect) or because training and earnings are both correlated with some unobserved third factor such as an individual's motivation (endogeneity). We return to this point later.

exception is the analysis of employment transitions by Watson (2011). As discussed earlier, Watson used longitudinal data from the Household, Income and Labour Dynamics in Australia Survey to examine the labour market destinations of casual workers and the worker and job characteristics associated with those transitions. He did not examine the influence of training per se, but did include as an explanatory variable a self-reported measure of the extent of opportunities for learning new skills at work. The responses are expected to be correlated with the extent of on-the-job training. The results indicated that learning opportunities in the workplace are associated with a greater likelihood of a casual worker transitioning into a permanent job during the following year. Less clear is whether the magnitude of this effect is sizeable.

Data and methods

The HILDA survey

This report is based on analysis of the first ten waves of the Household, Income and Labour Dynamics in Australia Survey, covering the period 2001—10, with around 13 000 individuals interviewed in each wave.[2] The HILDA Survey collects extensive information on jobs held at each interview date, including on the nature of the employment contract, which allows us to classify workers into different employment types. It also collects information on individual and household socioeconomic circumstances and characteristics and whether individuals have undertaken any work-related training (defined below) in the previous 12 months, with some limited additional information on the nature of the training for those who have. It also contains self-reported measures for job satisfaction, satisfaction with employment opportunities and overall wellbeing (life satisfaction). All these aspects are crucial for our analysis. Also crucial is the panel nature of the HILDA Survey, which allows us to track individuals over time.

These advantages must be set against the main disadvantages of the HILDA Survey for our purposes, which is that we do not observe individuals between (roughly annual) interviews. Information on jobs held between interviews, for example, is at best patchy. Further, where a job transition and work-related training both occur between two given waves, we generally do not know whether the training precedes the transition or vice versa. As a consequence, where we examine relationships between engaging in work-related training and transitions, our focus is on work-related training undertaken in the previous 12 months (that is, the year before the transition). Despite these drawbacks, however, the HILDA Survey is by far the best available source of Australian data for addressing our research questions. Further, what we learn using the HILDA Survey, one of the world's leading household panel studies, can also help inform research and policy internationally.

We use various sub-samples of the data, depending on the particular question being analysed and the particular method being applied. In some cases we analyse all respondents who are of working age (defined, as is conventional, as between aged 15 and 64 years) at any time over the first ten waves of the HILDA Survey (for example, when describing labour market status in table 2). In some cases we focus on working-age respondents in any wave from wave 1 to wave 9 who are also respondents in the following wave (for example, when describing transitions between labour market states in table 5). In some cases we focus only on those in employment (for example, when modelling job satisfaction in table 13). Finally, in some cases we focus only on those in casual employment in one or more of the first nine waves, who are then also observed in the following wave (for example, when modelling transitions from casual employment in tables 7 and 8). In each case we make clear which particular sample is being considered.

Definitions and key concepts

The sub-sections below discuss key definitions, starting with labour force and employment status, and then move on to define work-related training. We finally define our three satisfaction measures. In each case we provide some simple descriptive statistics, with analysis of the research questions left

[2] See Summerfield et al. (2011) for more details.

until the following section. Details concerning the construction of other variables used in the analysis can be found in the appendix.

Labour force and employment status

For much of our analysis we classify current labour force status into one of three mutually exclusive and exhaustive states following the standard International Labour Organisation convention: not in the labour force (NILF), unemployed, and employed. We then subdivide the latter category into one of four states — casual, fixed-term, permanent, and a catch-all 'other employed' category — according to interviewees' responses about their employment status (employee, self-employed with employees, self-employed without employees, and unpaid family helper) and, among employees, the nature of their employment contract (permanent or ongoing, casual, fixed-term, or some other employment arrangement that was unable to be classified).[3] In doing so, we follow the approach of Buddelmeyer and Wooden (2011). An alternative, and much more common approach in the past, has been to use self-reports of entitlement to paid annual leave or paid sick leave to split employees into casual and non-casual categories. The relative merits of these different approaches are discussed elsewhere (for example, see Campbell & Burgess 2001; Buddelmeyer, Wooden & Ghantous 2006). A key reason for the approach adopted here is that it provides a richer breakdown, with fixed-term contract workers separately identified.

Table 1 shows the proportion of the HILDA Survey sample in each category in each wave, weighted to reflect the population.[4] This table shows that over the period 2001 to 2010 around 36% of the adult population was in permanent employment. Further, for much of this period (until wave 8, or 2008) this share had been trending upwards. This is mirrored in slight downwards trends in the proportions unemployed and not in the labour force up to 2008, before small increases occurred in 2009 and 2010. The proportion in fixed-term employment rises slowly over the ten years, with an overall average of 4.8%, and the proportion in other employment falls slowly over the ten years, with an overall average of 10.4%.

Table 1 Labour market status, 2001—10 (%), all persons aged 15 years or over

	Wave										
	1	2	3	4	5	6	7	8	9	10	Total
Fixed-term contract	4.4	4.7	4.5	4.2	5.0	4.8	4.8	4.7	5.2	5.5	4.8
Casual employee	12.2	12.8	12.4	12.3	11.7	12.1	11.5	11.6	11.4	11.4	11.9
Permanent employee	32.6	32.4	34.0	34.7	35.6	36.0	37.9	38.5	36.8	37.3	35.7
Other employed	11.2	11.0	10.4	10.8	10.5	10.5	9.9	9.8	10.2	9.8	10.4
Unemployed	4.4	3.9	3.6	3.3	3.2	2.9	2.8	2.8	3.6	3.3	3.4
NILF	35.2	35.1	35.2	34.7	34.1	33.7	33.1	32.6	32.9	32.7	33.9
Unweighted sample size	13 966	13 040	12 726	12 404	12 752	12 904	12 789	12 774	13 298	13 521	130 174

Notes: Entries are weighted column percentages (using cross-sectional weights). 'Other employed' includes 'Employee of own business', 'Employer/self-employed', 'Unpaid family worker', and 'Employee not elsewhere classified'.

Casual employees make up around one-eighth of the population in each wave, a proportion which is generally stable over the ten years. This corresponds to over 1500 casual employees in each wave —

[3] Note that the questions on the employment contract refer to the 'main job'. This is likely to understate the volume of casual employment, given that many second jobs are likely to involve casual employment conditions.

[4] See Summerfield et al. (2011) for more details on the population weights available in HILDA Survey data. Using weights for analyses such as in table 1 enables us to make inferences about the wider population.

and almost two million casual workers in the wider population — meaning we can generally provide estimates of transition rates out of casual employment with a high degree of statistical precision.[5]

The relative size of each of the above categories varies across gender and broad age groups, as shown in table 2.[6] First consider gender. Males are more likely to be in permanent employment or in other employment (that is, mostly self-employment) than females. They are also marginally more likely to be unemployed or in fixed-term contract employment than females. But they are less likely to be in casual employment or not in the labour force than females, which in part reflects the fact that women are more likely to take time out of the labour market to bring up children, and then subsequently re-enter the labour market via casual employment. The 'raw' gender gap in casual employment (that is, without conditioning on any other information) is 16.0% minus 11.5%, or 4.5 percentage points. If we restrict this to only those working, the raw gender gap in casual employment is 25% minus 14.6%, or 10.4 percentage points.

Table 2 Labour market status, average of 2001—10 (%), by gender and age group

	Men				Women			
	15–24 years	25–54 years	55–64 years	**15–64 years**	15–24 years	25–54 years	55–64 years	**15–64 years**
Fixed-term contract	6.3	6.2	3.4	**5.8**	4.7	6.2	2.9	**5.4**
Casual employee	27.3	7.3	6.6	**11.5**	33.1	12.6	7.4	**16.0**
Permanent employee	29.7	56.2	29.9	**46.4**	25.8	43.8	25.3	**37.2**
Other employed	3.0	18.1	21.0	**15.3**	1.4	9.1	9.5	**7.6**
Unemployed	9.0	3.2	2.3	**4.3**	7.5	2.9	1.3	**3.6**
NILF	24.7	8.9	36.7	**16.7**	27.5	25.4	53.8	**30.3**
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
Unweighted sample size	11 665	32 875	8 073	**52 613**	12 073	36 650	8 693	**57 416**

Note: Entries are weighted column percentages (using cross-sectional weights).

We next consider differences across age groups.[7] The proportion in casual employment falls dramatically with age, with one-third of women (and almost as many men) aged 15—24 classified as being in casual employment. Again this is likely to reflect the role of casual employment as a labour market entry portal for some, and as a secondary economic activity for others (for example, those still in full-time education or training). Also note that: the proportion in permanent employment is higher for those in prime age (25—54 years) than for those at either end of the age range; the proportion in other employment rises with age, most dramatically for men but also for women; the proportion unemployed falls with age; and the proportion not in the labour force is higher at either end of the age range compared with those of prime age, particularly for men. This latter point is likely to reflect full-time study in the 15—24 age range and retirement in the 55—64 age range. Finally, the proportion of men in fixed-term employment falls with age but peaks in the prime-age years for women. These patterns, not surprisingly, given the common data source, are consistent with those found by Buddelmeyer and Wooden (2011).

[5] The proportion in casual employment is slightly higher, at around 14%, if we use the definition based on leave entitlements.

[6] For conciseness we present information only on overall averages across waves, rather than for each wave separately. In any case, these patterns do not vary much across waves.

[7] Current age, as recorded at each interview date.

Work-related training

Work-related training is defined as any structured education or training (which means formal courses and programs and not informal on-the-job training) undertaken as part of the individual's employment. This reflects the relevant question asked in the HILDA Survey: *During the past 12 months, have you taken part in any education or training schemes, as part of your employment?*[8] This definition thus covers any employment undertaken over the previous 12 months and is not limited to employment in the current or main job.[9] Note that this question was only asked from wave 3 onwards, so we lose the first two waves of data in all subsequent analyses of this issue. Also note that in waves 3 to 6 the work-related training question was not asked of the self-employed (who make up a large proportion of our other employed category). In waves 7 to 9 the question was asked of all those in any form of employment. On average, around 40% of employees undertake some work-related training over a 12-month period.

The HILDA Survey does not routinely ask about apprenticeships or traineeships, so we cannot know for sure whether apprentices and trainees are answering 'yes' to this question. (Wave 1 included a question for those currently studying on whether they were studying as part of an apprenticeship, but this question was not repeated in subsequent waves.) Our intuition, however, is that most apprentices and trainees will describe themselves as currently employed, they will therefore be asked the work-related training question from wave 3 onwards and are likely to answer in the affirmative. Apprenticeships and traineeships are particular forms of fixed-term employment contracts, and the relatively high proportion of fixed-term contract workers in the 15—24 year age group who answer yes to the work-related training question is consistent with this intuition.

Table 3 shows the proportion of those in each employment category who have participated in work-related training in the previous 12 months, separately by gender and age group, averaged over waves 3 to 10 of the HILDA Survey. The first thing to notice is that casual workers are considerably less likely (just over *half* as likely) to engage in work-related training than fixed-term or permanent workers, across both genders and across all age groups. The rate of participation in training among casual employees is 21.7% for men and 23.7% for women. This compares with participation rates for permanent employees of 41.8% and 44.3%, respectively. Nevertheless, and despite this relatively low share, almost one-quarter of workers in casual jobs do receive work-related training each year. Note that from the work-related training perspective, fixed-term contract employment looks very similar to permanent employment. 'Other employed' are less likely even than casuals to engage in work-related training, which is hardly surprising, given that these are mostly self-employed workers.

Training rates are slightly higher for women than for men, across all employment types including casual employment. The exceptions are those in the youngest age group in fixed-term and permanent employment, where male training rates are higher (or at least no lower) than female training rates. For women but not for men, participation in work-related training is higher for the prime-age group (25—54 years) than for the 15 to 24-year-olds and 55 to 64-year-olds.

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[8] The question comes with the following note to interviewers: *We are only interested in structured training courses the respondent has received*. Do not include training they may have participated in as a trainer.

[9] There is no exact correspondence between the HILDA Survey definition and training definitions used by the ABS. For example, the closest category in 1990s Surveys of Training and Education Experience is 'in-house (structured) training'. More recent Surveys of Education and Training have used a revised classification, with the closest category being 'non-formal work-related courses'.

Table 3 Participation in work-related training in past 12 months for those in work, by employment type, gender and age group, %

	Men				Women			
	15–24 years	25–54 years	55–64 years	**15–64 years**	15–24 years	25–54 years	55–64 years	**15–64 years**
Fixed-term	50.5	37.4	39.8	**40.7**	43.9	47.3	34.4	**45.5**
	(640)	(1 642)	(247)	**(2 529)**	(444)	(1 942)	(217)	**(2 603)**
Casual	20.5	22.9	23.3	**21.7**	22.4	24.9	23.7	**23.7**
	(2 608)	(1 816)	(473)	**(4 897)**	(3 269)	(3 718)	(589)	**(7 576)**
Permanent	40.8	42.8	35.5	**41.8**	39.2	45.7	41.7	**44.3**
	(3 000)	(14 667)	(1 927)	**(19 594)**	(2 632)	(12 746)	(1 920)	**(17 298)**
Other employed	18.6	18.1	18.3	**18.2**	28.5	21.5	23.3	**22.1**
	(180)	(2 345)	(775)	**(3 300)**	(83)	(1 310)	(352)	**(1 745)**

Notes: Figures are averaged over waves 3 to 10, except figures for 'other employed', which are averaged over waves 7 to 10. Weighted (using cross-sectional weights). Unweighted sample sizes in parentheses.

Job satisfaction

We report on three measures of satisfaction: one related to the current job; one related to employment opportunities more generally; and one related to life overall (wellbeing). The relevant questions in the HILDA Survey are as follows. First, on job satisfaction: *All things considered, how satisfied are you with your job?* This is asked only of those currently employed (including 'other employed'). Second, on satisfaction with employment opportunities: *How satisfied are you with your employment opportunities?* This is asked of all individuals. Third, on overall life satisfaction: *All things considered, how satisfied are you with your life?* Again this is asked of all individuals. For each of these questions respondents are asked to provide an answer on a 0 to 10 scale, with 0 labelled 'totally dissatisfied' and 10 labelled 'totally satisfied'. A visual representation of the scale is used by interviewers to assist responses. All three questions have been asked in every wave.

The following section of this report presents an analysis of how reported satisfaction varies across different employment types. But here we provide some general descriptive statistics on our three satisfaction measures by way of introduction. Table 4 reports averages for each of the three satisfaction indices over the ten waves, disaggregated by both gender and broad age group.

Table 4 Job satisfaction, satisfaction with employment opportunities, and overall life satisfaction, by gender and age group, 2001–10 average

	Men				Women				All
	15–24 years	25–54 years	55–64 years	**15–64 years**	15–24 years	25–54 years	55–64 years	**15–64 years**	15–64 years
Job satisfaction	7.5	7.5	7.9	**7.5**	7.6	7.7	8.0	**7.7**	7.6
	(7 934)	(29 332)	(5 083)	**(42 349)**	(7 873)	(26 780)	(4 075)	**(38 728)**	(81 077)
Satisfaction with employment opportunities	7.2	7.2	6.5	**7.1**	7.1	7.0	6.5	**6.9**	7.0
	(11 189)	(31 697)	(5 890)	**(48 776)**	(11 469)	(33 639)	(5 096)	**(50 204)**	(98 980)
Overall life satisfaction	8.1	7.6	8.0	**7.8**	8.0	7.7	8.0	**7.8**	7.8
	(11 665)	(32 865)	(8 071)	**(52 601)**	(12 071)	(36 647)	(8 686)	**(57 404)**	(110 005)

Notes: Each index is recorded on an 11-point scale, with higher numbers indicating higher levels of satisfaction. Job satisfaction is reported only by those currently in employment. The other two satisfaction measures are reported by all. Weighted (using cross-sectional weights). Unweighted sample size given in parentheses.

The first thing to notice is that the mean reported satisfaction level across all three measures is quite high; on average people say they are reasonably happy with their jobs, with their employment opportunities and with their overall life. Second, older workers who are in employment tend to be happier with their jobs than younger workers (perhaps reflecting the fact that older workers unhappy

with their jobs retire earlier) but less happy with their employment opportunities (perhaps reflecting age as a barrier to employment). Third, for both men and women the unhappiest times in terms of overall life satisfaction are the 'middle years', from age 25—54 years.

Methods

A combination of descriptive statistics and multivariate regression is used to address the research questions. In terms of descriptive statistics, in addition to the sample proportions and sample means presented above, we report transition tables describing the extent to which individuals move between different labour market states and employment types between HILDA Survey waves, both overall (table 5) and separately by participation in work-related training over the past 12 months (table 6), along with cross-tabulations between labour market state/employment type, participation in work-related training, and the three satisfaction measures (tables 11 and 12). In each case we use the appropriate sample weights (pair-wise longitudinal weights for transitions tables and cross-sectional weights for the satisfaction cross-tabulations), so the resulting statistics can be interpreted as indicating transition patterns and patterns of reported job and life satisfaction for the wider population.[10] These tables therefore provide us with our first pass at answering most parts of the two research questions.

Multivariate regression analyses allow us to quantify the association between a particular factor and a particular outcome — say, work-related training and the probability of transitioning from casual employment — while controlling for other factors that may also affect the outcome in question.[11] In some cases, for example, where we can plausibly control for all other factors that might impact on the outcome in question, regression analysis may help us to identify causal relationships between two variables. In the absence of data from randomised control trials, however, the distinction is rarely clear-cut, and this is the case here. As a result, much of the discussion of the multivariate regression results is couched in terms of statistical associations rather than impacts. A variety of extensions to our main regression models, however, allows us to say at least something about the degree to which the statistical associations we estimate may indicate causal relationships between receiving work-related training and transitions from casual employment, or between being in casual employment and reported levels of wellbeing. Only a brief non-technical summary is given here, with further details relegated to the appendix.

We first report results from a multinomial logit (MNL) model, separately for men and women, which shows how a range of observable factors (including age, education level, family background, disability status, industry, occupation, and engagement in work-related training) are associated with the probabilities of moving from casual employment at time t into other forms of employment and non-employment at time t+1 (one year later). The MNL model is the most widely used regression model in which the outcome being modelled (in this case employment type) takes the form of multiple unordered alternatives. For example, this is the approach taken by the Productivity Commission (2006). Here we specify five alternatives: (remaining in) casual employment; moving to fixed-term contract employment; moving to permanent employment; moving to 'other employment'; and moving

[10] In practice the weighted statistics we report are very similar to the corresponding unweighted statistics.

[11] Note that we do not weight the data for our regression analyses, primarily on the grounds that the factors underlying the weights are in any case controlled for in the regression models.

to non-employment.[12] In principle, this model allows us to answer all parts of the first research question, subject to the caveats above regarding causality.

We explore two extensions to the MNL model in order to examine the extent to which the estimated associations between receiving work-related training and the probability of transitions out of casual employment might reasonably be interpretable as indicating a causal impact of training. Both extensions are designed to try to separate unobservable differences between those who receive training and those who do not — what economists refer to as selection on unobservables — from the impact of training on transitions. In both cases we initially simplify from the multiple unordered states of the MNL model to a binary outcome for whether the individual transitions from casual to permanent or fixed-term employment or not. First, using a method first proposed by Altonji et al. (2005), we explore how 'strong' selection on unobservables would need to explain all of the statistical associations found between training and the probability of transition. Second, we estimate a quasi fixed-effects version of the model — specifically, a random-effects probit model with Mundlak (1978) corrections — in order to control for confounding time-invariant unobserved differences at the individual level. The results from these extended models enable us to draw tentative conclusions about the existence of a causal relationship between work-related training and transitions out of casual employment.

To address the second research question, we first pool the data across waves for those in employment and estimate a linear regression for job satisfaction, separately for men and women, with employment type included in the set of explanatory variables alongside the other observable characteristics. We follow a similar approach to modelling the two remaining satisfaction/wellbeing indices (satisfaction with employment opportunities and overall wellbeing), although these models are estimated using all available observations, and not just those in employment. In an extended version of the model, we again attempt to control for the unobserved differences between individuals that influence both employment type and the satisfaction measures (selection on unobservables), by including individual fixed effects, similar to the extended version of the transitions model discussed above. The resulting coefficients on the employment type dummies can then be more credibly interpreted as capturing causal relationships than is the case in the standard (pooled data) model.

[12] Note that we have pooled the unemployment and NILF categories for ease of estimation and presentation of results. We also estimate the MNL model with sample attrition treated as an alternative labour market state, which changes none of the key conclusions (results are available on request).

Results and discussion

Transitions from casual employment and the role of training

Descriptive statistics

Table 5 presents a transition table (sometimes called a transition matrix) showing the proportions of individuals in each labour market state at a particular time (say, casual employment in wave 1) who are either still in the same labour market state the next year, or who have moved to one of the other labour market states by the next year. Buddelmeyer and Wooden (2011) present similar transition tables based on earlier waves of the HILDA Survey. Specifically, table 5 shows transitions from one year to the next, averaged over the first ten waves of the HILDA Survey. The first row of this table shows the proportions of respondents in fixed-term contract employment in year *t* that are in each of the other labour market states in year *t+1*, with the rows summing to 100. The second row does the same for casual employment, and so on. For ease of interpretation we follow Buddelmeyer and Wooden (2011) and focus only on those individuals observed in both waves (*t* and *t+1*).

Our primary focus is on the transition patterns for those in casual employment, reported in the second row of table 5. On average, over the ten waves of the HILDA Survey, 54.4% of those in casual employment in any one year are still in casual employment the following year. Buddelmeyer and Wooden (2011) report a figure of 55% based on the first four waves of the HILDA Survey. More than one in every five (21.3%) casual employees are in permanent employment the following year; 5% are in fixed-term employment the following year; and a further 3.6% are in 'other employment' (mostly self-employed). Taken together, 29.9% of casuals are in non-casual employment the following year.[13] Of the remaining casual employees, 4.2% are unemployed and 11.5% are not in the labour force in the following year. In other words, a total of 15.7% of casual employees in one year are no longer employed come the next year.[14]

Table 5 Averaged year-to-year labour market transitions (%), working age

Labour market status, wave t	Labour market status, t+1					
	Fixed-term contract	Casual employee	Permanent employee	Other employed	Unemployed	NILF
	Row %	*Row %*	*Row %*	*Row %*	*Row %*	*Row %*
Fixed-term contract	36.4	7.0	45.7	3.9	2.0	5.0
Casual employee	5.0	54.4	21.3	3.6	4.2	11.5
Permanent employee	5.5	4.7	82.7	2.4	1.2	3.5
Other employed	1.7	3.8	6.7	79.9	1.1	7.0
Unemployed	5.0	23.7	16.5	2.6	25.4	26.8
NILF	0.9	5.5	3.2	1.8	3.5	85.1
Total	**4.9**	**11.6**	**36.6**	**10.5**	**3.2**	**33.3**

Notes: Entries are calculated over all ten waves for those observed in two consecutive waves. Where individuals are observed in more than two consecutive waves, each pair of waves contributes to the transition rates presented. Weighted (using longitudinal weights). Aged 15−64 only.

Individuals also move into casual employment from other labour market states. For example, casual employment is the second most common 'destination' (after not in the labour force) for those

[13] The corresponding figure in Buddelmeyer and Wooden (2011) is 30%.
[14] The corresponding figure in Buddelmeyer and Wooden (2011) is 15%.

unemployed in a given year who do not remain in this state. Casual employment is also the most common destination for those previously not in the labour force who do not remain in this state. As argued by Buddelmeyer and Wooden (2011), casual employment is a common port of entry into the labour market. But casuals also come from permanent employment, fixed-term employment and other employment.

Table 6 shows whether transition patterns for those in casual employment, fixed-term employment or permanent employment vary between those who have and have not engaged in work-related training over the previous 12 months, separately by gender. For men, 33.4% of casuals who participated in work-related training during the previous year move into either fixed-term or permanent employment at some time during the following year. For male casual workers who did not engage in work-related training, the equivalent figure is only 27% (that is, a gap of 6.4 percentage points). The corresponding figures for women are 25.9% and 24.3% respectively (that is, a gap of 1.6 percentage points).

So transition rates are higher for those casual workers who undertake training than for those who do not, although the gap is small for women.[15] In other words, transition rates from casual to permanent and fixed-term employment are positively associated with receipt of work-related training. This could reflect a causal impact of work-related training on transition probabilities, but it might also reflect observable and unobservable differences between casual workers who do and do not undertake work-related training (that is, selection bias). To try to unpick these two potential explanations of the positive association, we need further analysis.

Table 6 Averaged year-to-year employment transitions: employed persons with and without training in past 12 months

Labour market status, wave t	Labour market status, wave t+1					
	Fixed-term contract	Casual employee	Permanent employee	Other employed	Unemployed	NILF
Men with training						
Fixed-term contract	40.4	5.2	46.5	3.9	1.1*	2.8
Casual employee	7.9	50.9	25.5	4.3	4.3	7.2
Permanent employee	5.5	2.7	86.9	2.0	1.1	1.8
Men without training						
Fixed-term contract	34.5	6.7	47.3	5.1	2.3*	4.2
Casual employee	5.2	51.4	21.8	4.7	5.3	11.5
Permanent employee	5.1	4.7	82.9	3.4	1.4	2.5
Women with training						
Fixed-term contract	37.6	8.0	45.2	1.9	1.5*	5.9
Casual employee	5.2	60.4	20.7	2.4	2.6*	8.8
Permanent employee	5.5	4.2	84.0	1.4	0.9	4.0
Women without training						
Fixed-term contract	33.2	7.8	44.4	4.1	2.6*	7.8
Casual employee	4.5	55.6	19.8	3.1	3.4	13.6
Permanent employee	5.9	7.0	78.0	2.2	1.2	5.7

Notes: Excludes other employed. Waves 3 to 10: entries are calculated over all seven waves for those observed in two consecutive waves, and where individuals are observed in more than two consecutive waves each pair of waves contributes to the transition rates presented. Weighted using longitudinal weights. Aged 15−64 only. * indicates the denominator (cell size) is < 20.

[15] Recall that our definition of work-related training is likely to include many apprentices and trainees. But it is unlikely that apprentices and trainees are employed on casual contracts, so when we analyse transitions from casual employment by work-related training status in the previous 12 months we are unlikely to be picking up apprentices and trainees. They are more likely to be found in the fixed-term employment category, particularly in the 15—24 age group.

Multivariate regression analysis of transitions from casual employment

By estimating a MNL model, as described in the section on 'Data and methods' (with further details in the appendix), we can quantify the associations between a number of observed factors (for example, work-related training, disability, family background) and the probability of transitioning from casual employment, while controlling for other observable factors that may also affect transition probabilities. In particular, in this way we can control for selection into training status that is driven by observables (age, education etc.), which may help us get closer to identifying a causal relationship between the receipt of work-related training and transition probabilities. We cannot be sure that we identify causal relationships, however, because selection on *unobservables* may remain. Tables 7 and 8 show the relevant estimates separately for men and women.

Results are presented in the form of *marginal effects*, which show the association of a change in one of the observable explanatory factors with the probability of transition into each of the different employment categories. Where explanatory variables are binary dummies, the marginal effects show the difference in the transition probability between the binary dummy taking the value '1' and when it takes '0' (for example, having participated in work-related training as opposed to not having participated in work-related training). Where explanatory variables are continuous, the marginal effects show the difference in the transition probability associated with a one-unit increase in the variable under consideration (for example, a one-dollar increase in household income net of own labour market income).

First consider the association between having engaged in work-related training in the previous year and transition probabilities in the current year. For men, those who engage in work-related training are 1.8 percentage points more likely to transition from casual employment into fixed-term employment than those who do not engage in work-related training, other (observable) things being equal. There is a larger association with the probability of transition to permanent employment of 3.5 percentage points. Both are statistically significant at conventional levels, and taken together they suggest a gap of 5.3 percentage points in the probability of casual workers transitioning to either fixed-term or permanent employment between those who do and those who do not participate in work-related training. Bearing in mind that the overall transition rate (across both genders) from casual employment to fixed-term or permanent employment is only 26.3% (see table 5), this training effect is relatively large in magnitude.

For women there is no statistically significant association between work-related training and transition to fixed-term employment, but there is a positive association between training and the probability of transition to permanent employment of 2.8 percentage points. The fact that this association between training and transitions to permanent and fixed-term employment is smaller in magnitude than that for men is consistent with the notion that men and women may expect different things from casual employment. Male casuals are perhaps more likely to undertake training to escape casual employment. Female casuals, many of whom may be secondary earners and may therefore be more content to remain in casual employment for longer spells, may be more likely to undertake training to improve performance in their current job or for other reasons. Also note the negative association between work-related training and the probability of moving into non-employment (five percentage points less likely for women who participated in training).

For both men and women the gap in transition rates between those with and without training is broadly similar here, where we have controlled for a host of other observed individual and job characteristics, as it is in table 6, where we do not control for such differences. For men, for whom we see the biggest training-related gap in transition rates, the differences in observables between

those with and without training only account for around one-sixth of the overall gap of 6.4 percentage points in transition rates to fixed-term and permanent employment shown in table 6. For women, if anything, those who receive training have other observable characteristics that make them slightly *less* likely to transition to permanent or fixed-term employment.

Next consider the association between transition probabilities and our measures of disability (reporting a long-term health condition that limits everyday activity). Here we distinguish between those with disabilities that are work-limiting and those with disabilities that are not work-limiting (unlike Productivity Commission 2006). For men, having a work-limiting disability is associated with a lower probability of transition to permanent employment by 9.1 percentage points. The equivalent figure for women is 3.1 percentage points. Having a work-limiting disability is also associated with a slightly higher probability of transition to other employment (although this is only statistically significant for men). This is consistent with previous research that has argued that self-employment, the largest component of the other employed category, may have accommodating features, such as the ability to choose hours, location and duties, that facilitate access to work for those with work-limiting disabilities (see Jones & Latreille 2011). As we would expect, transitions to non-employment are also more likely for men reporting a disability (whether work-limiting or not) than for those reporting no disability. For women, having a disability that is not work-limiting is associated with a higher probability of remaining in casual employment, but having a work-limiting disability is associated with a lower likelihood of remaining casual, although the latter effect is not statistically significant. Those with a work-limiting disability also have a higher probability of transition into non-employment, while those with a non-work-limiting disability have a lower probability of such transitions.[16]

Next consider socioeconomic status (SES). Rather than specifying a single measure, we examine the associations between transition probabilities and a number of underlying socioeconomic variables relating to family background (mother's education level, father's occupational status using the AUSEI06 scale[17]) and the individual's own education level, occupational status, and household income (less own earnings). For men, the probabilities of transitioning from casual employment appear largely unrelated to either maternal education level or paternal occupation. For women, however, both appear to play a role. The probability of transition to permanent employment is lower for those whose fathers had higher-status occupations, while the probability of transition to fixed-term or other employment is higher. There are also statistically significant associations between having a mother with Year 11/12 schooling and the probability of remaining casual (positive) and the probability of moving into non-employment (negative).

In terms of own education, those with higher qualification levels are generally more likely to transition out of casual employment into non-casual employment, for both men and women (for example, there is an estimated gap of 11.1 [9.8] percentage points for men [women] with university degrees relative to those with less than Year 12, the base category). Also note the six-percentage-point gap in transition rates to permanent or fixed-term employment for those with certificates, diplomas or advanced diplomas (vocational education and training qualifications) compared with those without and with less than Year 12, for both men and women. These are broadly in line with the

[16] In an alternative version of the model we include interactive terms between training and reporting a disability to examine whether training has a differential association with transition probabilities for those reporting a disability. The interactive term is nowhere statistically significant for men but is (marginally) statistically significant in one case for women, with training having a larger positive association with the probability of transition to permanent employment for women with a disability.

[17] For more details, see McMillan, Beavis and Jones (2009).

findings by the Productivity Commission (2006). For both men and women, there are also some statistically significant associations between own occupational status and transition rates, with higher occupational status associated with higher probabilities of transition into fixed-term or other employment (but not permanent employment), although all are small in magnitude. The only statistically significant association between transitions and household income (less own earnings) is a slightly lower probability of transition to permanent employment for casual women with a higher household income.

Taken together, these results suggest a rather mixed picture concerning the associations between transitions from casual employment and socioeconomic-related factors. For both genders, the positive associations between the transitions probabilities into non-casual employment and own education level, and to a lesser extent own occupational status, suggest that higher-SES individuals either find it easier to move out of casual employment into other forms of employment or have stronger preferences for doing so than lower-SES individuals. For women, however, there are apparently contradictory associations with family background and household income. Once we control for own education and occupational status, women with higher-SES family backgrounds appear less likely to transition into permanent employment and more likely to remain in casual employment. It may be that these family background variables are proxying for preferences over employment types for women, while own education and occupational status are proxying for opportunities for progression out of casual employment. The small negative household income association may similarly be picking up weaker preferences for transitions out of casual employment into permanent employment for women who are secondary earners.

Other individual characteristics associated with transition probabilities include age; being a migrant from an English speaking background; being a migrant from a non-English-speaking background; being in full-time employment at time *t*; being in full-time education at time *t*; job tenure; and having dependent children aged 0—4 years.

Finally, the MNL models underlying tables 7 and 8 include a series of industry, time (HILDA Survey wave) and geographical dummy variables to control for differences in transition probabilities across these dimensions. We do not separately report the marginal effects for these industry, time and location dummies, but there are statistically significant differences in transition probabilities across the board by year for both men and women (that is, the set of time dummies are jointly statistically significant for each of the outcomes). In general, neither industry nor location dummies is jointly statistically significant for men. There are however some individual exceptions to this pattern; for example, manufacturing and communications services workers have higher probabilities of transition to other employment, and living in Sydney is associated with a lower probability of transition to fixed-term employment. The location and industry dummies are more often jointly statistically significant for women. Notable individual results include a lower (higher) probability of transition from casual to permanent (fixed-term) employment for those working in government administration and defence, and lower probabilities of transition to permanent employment for those working in wholesale trade and accommodation/cafes/restaurants.

Table 7 Factors that influence the probability of transitions from casual employment, pooled data, men, marginal effects (clustered standard errors)

	Impact on probability of labour market state at time t+1				
	Casual employment	Fixed-term employment	Permanent employment	Other employment	Non-employed
Work-related training between t-1 and t	**-.013**	**.018***	**.035***	**-.015**	**-.025**
	(.023)	**(.010)**	**(.018)**	**(.011)**	**(.017)**
LLSI	-.013	.019	-.032	-.028	.055**
	(.037)	(.018)	(.032)	(.020)	(.023)
LLSI is work limiting	.018	.012	-.091***	.018*	.043**
	(.031)	(.014)	(.027)	(.009)	(.020)
Father's occupational status	-.0002	.00004	-.0004	.0003*	.0002
	(.0004)	(.0002)	(.0004)	(.0002)	(.0003)
Mother has Year 11/12 schooling	.046	.002	-.008	-.014	-.026
	(.033)	(.015)	(.026)	(.014)	(.023)
Mother has post-school qualification	.016	-.013	-.015	-.008	.021
	(.026)	(.012)	(.021)	(.010)	(.018)
15−24 years	-.054	.003	.059	-.024	.015
	(.047)	(.022)	(.037)	(.016)	(.031)
25−34 years	-.019	.001	.024	-.001	-.005
	(.041)	(.019)	(.031)	(.013)	(.029)
45−54 years	.036	-.040**	.001	-.004	.007
	(.050)	(.019)	(.033)	(.012)	(.034)
55−64 years	.110**	-.039*	-.137***	-.002	.068*
	(.054)	(.022)	(.041)	(.014)	(.037)
Dependent children aged 0−4	-.031	.011	.002	.002	.017
	(.030)	(.013)	(.024)	(.011)	(.021)
Dependent children aged 5−9	-.057**	.003	.057**	.009	-.012
	(.028)	(.013)	(.022)	(.011)	(.021)
Dependent children aged 10−14	.044**	-.003	-.036*	-.027***	.022
	(.022)	(.011)	(.019)	(.010)	(.015)
University degree	-.091**	.050**	.055*	.006	-.020
	(.038)	(.016)	(.030)	(.016)	(.028)
Advanced diploma or diploma	-.079*	.040**	.018	.029*	-.008
	(.043)	(.017)	(.034)	(.015)	(.033)
Certificate	-.089***	.014	.048**	.027***	.002
	(.029)	(.013)	(.021)	(.009)	(.019)
Year 12	-.000	.017	.014	.003	-.034**
	(.025)	(.012)	(.019)	(.012)	(.017)
Years in paid employment, 3−10	-.028	-.010	.056**	.011	-.028
	(.030)	(.013)	(.024)	(.016)	(.020)
Years in paid employment, 10−20	-.008	-.014	.065*	.032*	-.076**
	(.046)	(.020)	(.035)	(.017)	(.033)
Years in paid employment, 20+	.013	-.020	.050	.033*	-.076**
	(.061)	(.025)	(.044)	(.019)	(.038)
Tenure	.015***	.002	-.004	-.003	-.011***
	(.006)	(.002)	(.004)	(.002)	(.004)
Tenure^2	-.0005***	-.000008	.0001	.00005	.0004***
	(.0002)	(.00005)	(.0001)	(.00006)	(.0001)
English speaking background migrant	-.059	-.017	.049*	.010	.016
	(.041)	(.018)	(.030)	(.011)	(.029)
Non-English speaking background migrant	.001	-.006	-.015	-.001	.021
	(.034)	(.015)	(.025)	(.013)	(.026)

	Impact on probability of labour market state at time t+1				
	Casual employment	Fixed-term employment	Permanent employment	Other employment	Non-employed
Has partner	-.002	-.015	-.008	.012	.018
	(.031)	(.015)	(.026)	(.011)	(.022)
Partner employed	.028	.024*	-.002	.004	-.054**
	(.031)	(.014)	(.025)	(.009)	(.021)
Household income (less own earnings), $1000s	.00006	.00008	-.0001	.00001	-.00004
	(.0002)	(.00006)	(.0001)	(.00005)	(.0001)
Own occupational status	-.001**	.001**	.00003	.0004*	.0002
	(.0006)	(.0003)	(.0005)	(.0002)	(.0004)
In full-time employment at time t	-.022	.025**	.086***	-.004	-.085***
	(.022)	(.010)	(.017)	(.008)	(.016)
In full-time education at time t	.063**	.008	-.050**	.007	-.026
	(.027)	(.012)	(.023)	(.014)	(.019)
Firm size, 20−199	.046**	-.003	.011	-.036***	-.018
	(.018)	(.009)	(.015)	(.009)	(.013)
Firm size, 200+	.017	.012	.021	-.034**	-.016
	(.032)	(.013)	(.026)	(.014)	(.022)
Pseudo R^2			.086		
Number of observations			3744		

Notes: Estimated on all persons in casual employment in any wave between waves 3 and 9 who are also observed in the following wave. Standard errors are clustered by individual. ***, **, * denote statistical significance at 99%, 95%, and 90% respectively. Age effects, education effects, firm-size effects, and years in paid-work effects are expressed relative to the omitted categories in each case (35−44 years, less than Year 12, 0−19 workers, 0−3 years, respectively). Other control variables included in the model but not reported are as follows: partner employed missing (binary), father's occupational status missing (binary), mother's education missing (binary), years in paid employment missing (binary), industry dummies, location dummies, and time dummies. LLSI = limiting long-standing illness.

Table 8 Factors that influence the probability of transitions from casual employment, pooled data, women, marginal effects (clustered standard errors)

	Impact on probability of labour market state at time t+1				
	Casual employment	Fixed-term employment	Permanent employment	Other employment	Non-employed
Work-related training between t-1 and t	**.032***	**-.003**	**.028****	**-.008**	**-.050*****
	(.019)	**(.008)**	**(.014)**	**(.007)**	**(.015)**
LLSI	.078***	-.013	-.035	.007	-.037*
	(.030)	(.014)	(.025)	(.009)	(.022)
LLSI is work limiting	-.030	.005	-.031*	.010	.046***
	(.022)	(.009)	(.018)	(.007)	(.016)
Father's occupational status	.0002	.0002*	-.0007***	.0002**	-.00004
	(.0002)	(.0001)	(.0002)	(.0001)	(.0002)
Mother has Year 11/12 schooling	.044**	-.011	-.003	.002	-.032*
	(.022)	(.011)	(.018)	(.008)	(.018)
Mother has post-school qualification	.011	-.011	-.003	.000	.003
	(.018)	(.008)	(.015)	(.007)	(.013)
15−24 years	-.111***	.007	.049**	-.019*	.074***
	(.032)	(.014)	(.025)	(.011)	(.024)
25−34 years	-.073***	.000	.038*	-.018**	.053***
	(.026)	(.011)	(.020)	(.008)	(.020)
45−54 years	.003	.005	-.039**	-.008	.040**
	(.025)	(.010)	(.020)	(.007)	(.020)
55−64 years	-.021	-.022	-.069**	-.019*	.131***
	(.035)	(.016)	(.027)	(.011)	(.024)

	Impact on probability of labour market state at time t+1				
	Casual employment	Fixed-term employment	Permanent employment	Other employment	Non-employed
Dependent children aged 0−4	-.040*	-.014	-.029*	.014**	.069***
	(.022)	(.011)	(.017)	(.007)	(.015)
Dependent children aged 5−9	.013	-.006	-.008	.001	-.001
	(.019)	(.008)	(.015)	(.006)	(.014)
Dependent children aged 10−14	.000	.008	-.006	.003	-.004
	(.016)	(.007)	(.013)	(.005)	(.012)
University degree	-.081***	.044***	.042**	.012	-.016
	(.025)	(.010)	(.021)	(.008)	(.020)
Advanced diploma or diploma	-.031	.030**	.026	.018*	-.043*
	(.030)	(.012)	(.024)	(.009)	(.024)
Certificate	-.040*	.028***	.035**	.008	-.031**
	(.022)	(.010)	(.017)	(.007)	(.015)
Year 12	-.031*	.018**	.044***	.004	-.035**
	(.018)	(.009)	(.015)	(.007)	(.014)
Years in paid employment, 3−10	-.038	.004	.035*	.004	-.005
	(.026)	(.011)	(.019)	(.010)	(.018)
Years in paid employment, 10−20	-.012	-.004	.043*	.000	-.027
	(.032)	(.014)	(.025)	(.011)	(.022)
Years in paid employment, 20+	.025	-.003	.017	.008	-.048*
	(.036)	(.015)	(.029)	(.012)	(.025)
Tenure	.020***	-.004**	.000	-.001	-.015***
	(.004)	(.002)	(.003)	(.001)	(.003)
Tenure^2	-.0005***	.0001*	.000	.000	.0004***
	(.000)	(.000)	(.000)	(.000)	(.000)
English speaking background migrant	-.010	-.018	.027	.003	-.002
	(.033)	(.014)	(.024)	(.008)	(.023)
Non-English speaking background migrant	-.048**	-.016	-.016	.014*	.065***
	(.023)	(.012)	(.019)	(.008)	(.016)
Has partner	-.043	-.007	.026	.009	.015
	(.026)	(.012)	(.020)	(.008)	(.020)
Partner employed	.007	.004	-.025	.006	.008
	(.025)	(.012)	(.019)	(.007)	(.018)
Household income (less own earnings),	.000	.000	-.0002**	.000	.000
$1000s	(.000)	(.000)	(.000)	(.000)	(.000)
Own occupational status	-.001**	.0005***	.0004	.0004**	-.0001
	(.0005)	(.0002)	(.0004)	(.0002)	(.0004)
In full-time employment at time t	-.032	.007	.067***	.011*	-.053***
	(.020)	(.008)	(.014)	(.006)	(.016)
In full-time education at time t	.071***	.019**	-.027	-.010	-.053***
	(.022)	(.009)	(.018)	(.012)	(.016)
Firm size, 20−199	.006	.005	.027**	-.019***	-.019*
	(.014)	(.006)	(.011)	(.006)	(.010)
Firm size, 200+	.016	.007	.004	-.017*	-.010
	(.022)	(.009)	(.018)	(.009)	(.017)
Pseudo R^2			.087		
Number of observations			5960		

Notes: Estimated on all persons in casual employment in any wave between waves 3 and 9 who are also observed in the following wave. Standard errors are clustered by individual. ***, **, * denote statistical significance at 99%, 95%, and 90% respectively. See notes to table 7. LLSI = limiting long-standing illness.

Extensions to explore causality

We have already seen that casual workers who receive work-related training are more likely to transition to permanent or fixed-term employment than those who do not receive work-related training, even after controlling for a host of observable factors related to the individual, their family, and their job, particularly for men. But to what extent can this positive association be interpreted as indicating a *causal* impact of work-related training on transition probabilities? The answer depends on whether there are unobserved differences between those receiving training and those not receiving training that are also correlated with transition probabilities (for example, motivation or ability).[18] This is what economists call *endogeneity*, and if such unobserved differences exist, then if we want to say something about causality we need a method that explicitly treats the training variable as *endogenous* in our model of transitions.

Another way of thinking about this is that the marginal effects of training reported in tables 7 and 8 may be biased estimates of the causal effect because they combine the 'true causal' effect (if there is one) with a bias due to selection on unobservables.[19]

One way a getting a handle on this is to first simplify the MNL model to focus on the probability of transitioning to permanent or fixed-term employment (now treated as a single category) and then use the approach of Altonji et al. (2005) to address the endogeneity of training. Essentially this method is a way of exploring how large the bias due to selection would have to be to explain all of the positive association between receiving work-related training and the probability of transitioning to permanent or fixed-term employment. (Further details on the method are given in the appendix.) The answer, as set out in table 9, turns out to be 'not very large'. Even a quite small amount of selection bias (a correlation of 0.1 between the unobservables driving training receipt and the unobservables driving transitions to permanent or fixed-term employment) renders the marginal effect of training statistically insignificant for men (already the case for women). This does not *prove* that the association is not causal, but it does show that it is quite plausible that the positive association between work-related training and transitions to permanent and fixed-term employment may be entirely explained by unobservable differences between those who receive training and those who do not.

A second way to explore this question is by further exploiting the panel structure of the data to estimate a quasi fixed-effects model of transitions from casual employment to permanent or fixed-term employment. Again details are provided in the appendix, but essentially this approach seeks to control for time-invariant unobserved differences between individuals that might be correlated with both training receipt and transitions by focusing on multiple transitions for given individuals over time. Once again, if we find no association in this extended model, then it does not prove there is no causal relationship, but it does suggest that the associations reported in tables 7 and 8 may have been driven, at least in part, by unobserved time-invariant differences between those receiving training and those not receiving training. And indeed this is what we find. As shown in table 10, the estimates from this extended model suggest no statistically significant association between training and transitions to permanent or fixed-term employment for men, once you control for unobserved time-invariant differences between individuals (already the case for women).

[18] It is also possible, in principle, for causality to run in the opposite direction, that is, from employment transitions to training. In other words, those making transitions may receive training as a result of their transition. By looking at the association between transitions this year and training last year, however, such reverse causality is effectively ruled out.

[19] The true effect and the bias need not be of the same sign, and if the selection on unobservables is strong enough relative to the true effect it is even possible for training to have a negative impact on transitions and for us still to find a positive association in tables 7 and 8.

Table 9 Effect of training on the probability of transition to permanent or fixed-term employment under different degrees of selection on unobservables

Marginal effect of receiving work-related training on probability of transition (clustered standard error)	ρ = 0 (no selection)	ρ = 0.1 (low selection)	ρ = 0.2 (moderate selection)
Men	.055**	-.001	-.055***
	(.021)	(.020)	(.019)
Women	.026	-.024	-.071***
	(.016)	(.015)	(.014)

Notes: Estimated on all persons in casual employment in any wave between waves 3 and 9 who are also observed in the following wave. Standard errors are clustered by individual. ***, **, * denote statistical significance at 99%, 95%, and 90% respectively. Control variables are as for the MNL models reported in tables 7 and 8.

Table 10 Effect of training on the probability of transition to permanent or fixed-term employment, pooled probit and random-effects probit model with Mundlak corrections

	Pooled probit		Random-effects probit with Mundlak corrections	
	Men	Women	Men	Women
Marginal effect of receiving work-related training on probability of transition (clustered standard error)	.055**	.021	.009	-.026
	(.021)	(.016)	(.025)	(.019)

Notes: Estimated on all persons in casual employment in any wave between waves 3 and 9 who are also observed in the following wave. Standard errors are clustered by individual. ***, **, * denote statistical significance at 99%, 95%, and 90% respectively. Control variables are as for the MNL models reported in tables 7 and 8.

Taken together, these extensions both suggest a similar conclusion: that training is positively associated with transitions out of casual employment into permanent or fixed-term employment, particularly for men, but for reasons other than that training itself increases the probability of such transitions.

Job satisfaction, satisfaction with employment opportunities, and life satisfaction

Descriptive statistics

Here we take a first descriptive pass at the second research question: *How does casual employment affect reported levels of job satisfaction and overall satisfaction with life? How does accessing work-related training impact on reported levels of job and life satisfaction for casual employees?* Our main focus will be on the second of these two research questions. We begin, however, by showing how our three measures of satisfaction, as defined in the data section, vary across labour force status.

First consider table 11, which shows the means and standard deviations of the three satisfaction measures by employment type. Clearly, differences by employment type in mean levels of satisfaction across all three measures are small. We see the most contrast between casual and permanent workers in satisfaction with employment opportunities, which could reflect higher perceived chances of job separation, lower perceived chances of re-employment, should separation occur, and lower perceived levels of career progression for casuals than for others. But even here the difference in mean satisfaction levels is less than half of one point on the satisfaction scale (less than one-quarter of one standard deviation).

Table 11 Job satisfaction, satisfaction with employment opportunities, and overall life satisfaction, by employment type (means and standard deviations)

	Job satisfaction		Satisfaction with employment opportunities		Overall life satisfaction	
	Mean	Std. dev.	Mean	Std. dev.	Mean	Std. dev.
Fixed-term	7.61	1.72	7.54	1.85	7.84	1.30
Casual	7.51	1.89	7.13	2.09	7.88	1.46
Permanent	7.60	1.69	7.54	1.85	7.84	1.31
Other employed	7.70	1.75	7.58	2.09	7.84	1.40
Unemployed			4.87	2.61	7.41	1.91
NILF			5.32	2.95	7.72	1.84
Total	**7.60**	**1.74**	**7.02**	**2.34**	**7.80**	**1.51**

Notes: Employed persons only. Satisfaction measures are reported on a scale from 0 (least satisfied) to 10 (most satisfied). Weighted (using cross-sectional weights). Ages 15−64.

Standard deviations, however, are larger for casuals than for workers in other types of employment — there appears to be more *dispersion* in the reported satisfaction measures among casuals — which indicates both that more casuals are (very) happy with their jobs (employment opportunities, life) and more are unhappy with their jobs (employment opportunities, life), relative to permanent workers. Our conjecture is that this reflects two groups of workers: those who prefer casual employment to other forms of employment (for example, because of its flexibility, perhaps including women with childcare responsibilities); and those who would prefer other forms of employment but who are yet to obtain such employment (perhaps including young or unskilled workers). It may also reflect greater variation in job characteristics among casual jobs.[20]

Note that unemployed workers and those not in the labour force report the lowest levels of satisfaction with employment opportunities and overall life satisfaction. Indeed, casual employees look much closer to other types of workers than they do to the unemployed or the economically inactive on both measures. Also note that fixed-term contract workers look very much like permanent workers on all three measures.

Next we consider whether there is any association between participation in work-related training and reported levels of satisfaction and wellbeing for casual and other workers. Table 12 reports the mean satisfaction levels of those reporting and not reporting participation in work-related training in the last 12 months, by employment type. Again the first thing to notice is the similarity in means within employment types for those who do and do not report training. But where there is a gap in reported satisfaction levels by training status, it tends to be training participants who report slightly higher satisfaction levels, most notably in terms of satisfaction with employment opportunities. For example, the gaps in reported job satisfaction, satisfaction with employment opportunities, and overall life satisfaction between casuals who report training and those who do not are .17 points, .25 points, and .01 points respectively. Only the first two of these gaps are statistically significant at conventional levels.

[20] Wooden and Warren (2004) also demonstrate the similarity in mean job satisfaction between casual and other workers, although they use only wave 1 data from the HILDA Survey. Wooden and Warren (2004), however, do not discuss the apparent differences in dispersion.

Table 12 Mean levels of job satisfaction, satisfaction with employment opportunities, and overall life satisfaction, by training and employment type

	Job satisfaction		Satisfaction with employment opportunities		Overall life satisfaction	
	With training	Without training	With training	Without training	With training	Without training
Fixed-term	7.67	7.53	7.73	7.43	7.87	7.82
Casual	7.64	7.47	7.38	7.13	7.89	7.88
Permanent	7.65	7.57	7.73	7.46	7.85	7.82
Other employed	7.71	7.69	7.80	7.59	7.74	7.84
Overall	7.65	7.56	7.69	7.39	7.85	7.84

Notes: Employed persons only. Satisfaction measures are reported on a scale from 0 (least satisfied) to 10 (most satisfied). Weighted (using cross-sectional weights). Ages 15−64.

Multivariate regression analysis of casual workers' satisfaction and the role of training

By estimating an ordinary least squares (OLS) regression model using the pooled data, as described in the 'Data and methods' section (with further details in the appendix), we can quantify the associations of particular variables (for example, labour market status, work-related training) with reported levels of satisfaction across each of the three satisfaction measures, controlling for other factors that also affect reported satisfaction. Tables 13 to 15 present the relevant estimates, separately for men and women, for each of three satisfaction measures.

As in the transitions case, however, there may also be unobservable differences between individuals that influence both employment type and reported satisfaction (and, as before, work-related training and reported satisfaction), which means we cannot necessarily interpret OLS estimates of associations as indicating causal relationships. We therefore also estimate fixed-effects versions of these models (again see the 'Data and methods' section and the appendix for technical details), which control for such unobservable differences, at least to the extent that they are constant over time.[21] The resulting coefficients on the employment type dummies can then be more credibly interpreted as capturing causal relationships than is the case in the standard (pooled) model, although such an interpretation should still be regarded as tentative, given that we cannot entirely rule out reverse causality (from reported satisfaction to labour market status) and time-varying omitted factors. Results from these fixed-effects models are also presented in tables 13 to 15 and the discussion that follows concentrates primarily on them. We sometimes use the language of impacts rather than associations here — interpretable as the impact of a change in the relevant factor on the reported level of job satisfaction — although the above caveat should be kept in mind.

[21] Note that when we include fixed effects we drop time-invariant observable factors from the model, with any impact of these factors 'absorbed' by the fixed effects.

Table 13 OLS and fixed-effects models of job satisfaction, by gender, coefficients (clustered standard errors)

	Pooled OLS		Fixed effects	
	Men	Women	Men	Women
Fixed-term	-.027	-.121*	-.003	-.047
	(.057)	(.062)	(.057)	(.057)
Casual	-.235***	-.109**	-.168***	-.044
	(.056)	(.047)	(.055)	(.050)
Other employed	-.104*	.004	.076	-.043
	(.057)	(.075)	(.066)	(.088)
Work-related training between t-1 and t	.087***	.020	.041	.084***
	(.030)	(.033)	(.026)	(.030)
Training * fixed-term	-.002	.091	-.002	-.036
	(.081)	(.078)	(.076)	(.073)
Training * casual	-.011	.115*	.066	.054
	(.075)	(.064)	(.072)	(.063)
Training * other employed	-.038	-.080	-.009	-.006
	(.090)	(.136)	(.079)	(.111)
LLSI not work limiting	-.136***	-.106**	-.028	-.048
	(.045)	(.049)	(.037)	(.048)
LLSI is work limiting	-.434***	-.386***	-.229***	-.182**
	(.056)	(.056)	(.049)	(.059)
Father's occupational status	-.002**	-.001		
	(.001)	(.001)		
Mother has Year 11/12 schooling	.055	.005		
	(.048)	(.050)		
Mother has post-school qualification	-.018	-.013		
	(.041)	(.040)		
15−24 years	.105	-.124*	-.060	-.022
	(.074)	(.067)	(.091)	(.098)
25−34 years	-.007	-.045	-.027	-.012
	(.051)	(.049)	(.057)	(.065)
45−54 years	.086*	-.023	.106*	-.103*
	(.049)	(.048)	(.055)	(.057)
55−64 years	.449***	.244***	.247***	-.082
	(.064)	(.070)	(.090)	(.095)
Dependent children aged 0−4	-.025	.023	.025	.044
	(.040)	(.043)	(.040)	(.047)
Dependent children aged 5−9	.037	-.033	.057	-.054
	(.037)	(.041)	(.038)	(.049)
Dependent children aged 10−14	-.022	-.006	.065*	.021
	(.035)	(.036)	(.039)	(.041)
University degree	-.312***	-.536***	-.152	-.099
	(.061)	(.057)	(.169)	(.144)
Advanced diploma or diploma	-.269***	-.336***	-.115	-.033
	(.069)	(.062)	(.165)	(.178)
Certificate	-.084*	-.221***	-.321***	-.021
	(.048)	(.051)	(.117)	(.107)
Year 12	-.084*	-.204***	-.037	-.037
	(.052)	(.050)	(.105)	(.098)
Years in paid employment, 3−10	-.090	.032	-.081	-.107*
	(.055)	(.054)	(.060)	(.063)
Years in paid employment, 10−20	-.034	.017	-.029	-.131
	(.074)	(.067)	(.087)	(.090)
Years in paid employment, 20+	-.090	.007	-.168	-.095
	(.086)	(.078)	(.104)	(.115)

	Pooled OLS		Fixed effects	
	Men	Women	Men	Women
Tenure	.002	.005	-.058***	-.067***
	(.005)	(.006)	(.006)	(.007)
Tenure^2	-.0001	-.0001	.001***	.002***
	(.0002)	(.0002)	(.0002)	(.0002)
English speaking background Migrant	-.141**	.044		
	(.057)	(.061)		
Non-English speaking background Migrant	-.064	-.086		
	(.061)	(.055)		
Partner	.148***	.041	-.027	-.031
	(.049)	(.055)	(.054)	(.066)
Partner employed	-.133***	.007	-.047	-.020
	(.038)	(.050)	(.035)	(.054)
Household income (less own earnings), $1000s	.001***	.0007***	.0006***	.0001
	(.0002)	(.0002)	(.0002)	(.0002)
Own occupational status	.005***	.003***	.005***	.006***
	(.001)	(.001)	(.001)	(.001)
In full-time employment at time t	-.039	-.170***	.019	-.049
	(.050)	(.035)	(.049)	(.037)
In full-time education	.186***	.021	.139**	.124*
	(.063)	(.057)	(.066)	(.068)
Firm size, 20−199	-.155***	-.156***	-.079**	-.098**
	(.034)	(.034)	(.035)	(.038)
Firm size, 200+	-.120***	-.187***	.007	-.076
	(.042)	(.045)	(.047)	(.051)
Variation explained by observable factors (R^2)	.035	.038	.022	.019
Variation explained by fixed effects (ρ)			.560	.541
Number of observations (individuals)	29 084	26 770	29 084	26 770
			(6 669)	(6 448)

Notes: The models above are estimated on all persons in employment in any wave between waves 3 and 10. Standard errors are clustered by individual. ***, **, * denote statistical significance at 99%, 95%, and 90% respectively. Age effects, education effects, firm-size effects, and years in paid work effects are expressed relative to the omitted categories in each case (35−44 years, less than Year 12, 0−19 workers, 0−3 years, respectively). Employment type effects are expressed relative to the omitted category of permanent employment. Other control variables included but not reported are as follows: partner employed missing (binary), father's occupational status missing (binary, OLS only), mother's education missing (binary, OLS only), years in paid employment missing (binary), industry dummies, location dummies, and time dummies. The R-squared reported for the fixed-effects models is the 'within R-squared', and is not directly comparable with the R-squared reported for the pooled models. Also note that time-invariant right-hand side variables drop out of the fixed-effects models. (They are 'absorbed' by the fixed effects.) LLSI = limiting long-standing illness.

First consider the impact of having a casual job as opposed to a permanent job (the base category of worker in table 13). The fixed-effects estimate for men in table 13 shows that casual workers report lower levels of job satisfaction than permanent workers, other things being equal. The effect is small in magnitude, with permanent jobs less than one-fifth of one point 'better' on an 11-point scale of job satisfaction, although only three variables have effects of a larger magnitude (work-limiting disability, being in the 55−64 years age group, and highest qualification being a certificate). For women, the fixed-effects estimate of the impact of casual employment on job satisfaction is also negative, but is smaller still in magnitude, and statistically insignificant. For women, on average, the perceived disadvantages of casual employment appear to be offset by perceived advantages, with casual employment not seen as an inferior state.

Second, consider the impact of participation in work-related training on reported job satisfaction. Note that we have included interactive terms between employment type and training, in addition to a 'stand-alone' dummy for training participation. These interactive variables capture any additional

effect of work-related training on our satisfaction measures that is specific to each type of employment. Extra care must be taken in interpreting the impacts of factors that are interacted in this way, however, because the estimated coefficients on the stand-alone dummy and the interactive variables both need to be taken into account.[22] In this case, all the interactive terms are statistically insignificant and small in magnitude for both men and women, suggesting that the impact of work-related training on job satisfaction does not significantly differ across employment types. But there is a small overall training effect: the fixed-effects estimates suggest that workers, including casual employees, who participate in work-related training report slightly higher levels of job satisfaction, although the effect is only statistically significant for women. Women appear to value such training, or jobs that feature such training, slightly more than men.

Third, note that men whose highest educational qualification is a certificate (usually a trade qualification) are significantly less satisfied with their current job than those with less than Year 12. Men (and to a lesser extent women) with higher levels of education are also less satisfied with their jobs than those with below Year 12, as previously found using cross-section data (for example, Wooden & Warren 2004), perhaps reflecting differing levels of expectation, although these differences are not statistically significant. But the fact that the 'certificates effect' is the single strongest observable factor associated with reported job satisfaction for men in the fixed-effects model remains somewhat surprising. It may be that completing a certificate raises expectations above and beyond completion of other qualifications (although this seems unlikely). Or it may be that expectations are raised without an accompanying change in perceived job quality. Or it may be that this effect is a proxy for something else not otherwise controlled for in the model (for example, working in a particular group of trades-related occupations).[23]

A word of warning, however: note the low R-squareds for these models. This suggests that little of the overall variation in reported job satisfaction is being driven by differences in the observable factors included in table 13, despite the handful of statistically significant coefficients. The fixed-effects models do better in this respect because the fixed effects themselves 'explain' over half of the variation in reported job satisfaction in addition to that part explained by the observable factors.

Next consider the estimated impacts on reported satisfaction with employment opportunities, as presented in table 14. Note that the R-squareds for these models are higher, so the observed factors included in the model are doing a better job of explaining the variation in reported satisfaction than in the case of job satisfaction. But note again that the fixed effects 'explain' over half of the variation in reported satisfaction in addition to the observed factors.

As before, the base category is permanent workers, but we now add variables for being unemployed and not in the labour force because the model for satisfaction with employment opportunities is estimated on all individuals (not just those in employment). These dummies, along with the stand-alone employment type dummies, therefore capture the impact of being unemployed, not in the labour force, or having a job of that type, relative to having a permanent job. The interactive variables between employment type and training show any additional impact of receiving work-related training for each job type.

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[22] For example, the OLS estimates for men suggest that the impact of training on the job satisfaction of fixed-term workers is the sum of .087 and -.002 (the OLS coefficient on the stand-alone dummy and the OLS coefficient on the relevant interactive term).

[23] We control for occupational status, so such an effect would have to be over and above the effect of occupational status. In an alternative version of the model we replace the occupational status variable with occupational dummies, but the 'certificate effect' remains.

The first thing to note for both genders is that those without jobs are considerably less satisfied with their employment opportunities than those with jobs, whatever the kind of job, with unemployed men the least satisfied of all.

Table 14 OLS and fixed-effects model of satisfaction with employment opportunities, by gender, coefficients (clustered standard errors)

	Pooled OLS		Fixed effects	
	Men	Women	Men	Women
Fixed-term	-.071	-.186***	-.128**	-.025
	(.069)	(.065)	(.053)	(.057)
Casual	-.562***	-.445***	-.315***	-.177***
	(.058)	(.048)	(.053)	(.045)
Other employed	.230***	-.047	-.116**	-.139*
	(.054)	(.070)	(.055)	(.073)
Unemployed	-2.34***	-2.31***	-1.65***	-1.45***
	(.078)	(.078)	(.083)	(.078)
NILF	-2.21***	-1.78***	-1.42***	-1.12***
	(.075)	(.056)	(.077)	(.054)
Training * permanent	.177***	.214***	.016	.136***
	(.033)	(.036)	(.026)	(.030)
Training * fixed-term	.346***	.199**	.152**	.081
	(.083)	(.082)	(.067)	(.072)
Training * casual	.176**	.223***	.082	.114**
	(.077)	(.060)	(.066)	(.054)
Training * other employed	.156*	.064	.130*	.032
	(.091)	(.138)	(.076)	(.115)
LLSI not work limiting	-.205***	-.215***	.032	-.138***
	(.051)	(.056)	(.043)	(.047)
LLSI is work limiting	-1.20***	-1.03***	-.367***	-.411***
	(.062)	(.060)	(.056)	(.056)
Father's occupational status	.002**	.001		
	(.001)	(.001)		
Mother has Year 11/12 schooling	.028	.019		
	(.054)	(.056)		
Mother has post-school qualification	.026	.045		
	(.046)	(.045)		
15−24 years	.466***	.368***	.107	-.055
	(.078)	(.069)	(.092)	(.101)
25−34 years	.260***	.221***	.050	-.035
	(.057)	(.053)	(.059)	(.065)
45−54 years	-.255***	-.242***	.040	-.077
	(.054)	(.055)	(.058)	(.058)
55−64 years	-.304***	-.266***	.261***	.075
	(.079)	(.083)	(.100)	(.103)
Dependent children aged 0−4	-.052	.021	-.040	-.055
	(.043)	(.044)	(.043)	(.046)
Dependent children aged 5−9	.043	-.165***	.043	-.041
	(.042)	(.041)	(.043)	(.044)
Dependent children aged 10−14	-.022	-.015	-.038	.051
	(.040)	(.038)	(.041)	(.040)
University degree	.285***	.473***	-.215*	.232*
	(.062)	(.057)	(.130)	(.139)
Advanced diploma or diploma	-.038	.285***	-.158	.287*
	(.083)	(.072)	(.162)	(.158)

	Pooled OLS		Fixed effects	
	Men	Women	Men	Women
Certificate	.139**	.130**	-.068	.199*
	(.054)	(.056)	(.105)	(.106)
Year 12	.045	.232***	-.127	.056
	(.056)	(.054)	(.086)	(.089)
Years in paid employment, 3−10	.036	.257***	.068	.078
	(.060)	(.059)	(.059)	(.060)
Years in paid employment, 10−20	.179**	.405***	.167**	.109
	(.078)	(.071)	(.083)	(.089)
Years in paid employment, 20+	.221**	.548***	.071	.115
	(.091)	(.082)	(.104)	(.115)
In full-time education	.527***	.568***	.069	.201***
	(.060)	(.057)	(.062)	(.060)
English speaking background	-.074	-.111		
Migrant	(.066)	(.072)		
Non-English speaking background	-.134**	-.264***		
Migrant	(.065)	(.063)		
Partner	.104*	.149***	.020	.062
	(.056)	(.059)	(.059)	(.062)
Partner employed	-.004	.102*	-.047	.026
	(.045)	(.055)	(.038)	(.052)
Household income (less own earnings),	.002***	.002***	.0003	.0004*
$1000s	(.0003)	(.0003)	(.0002)	(.0002)
Variation explained by observable factors (R^2)	.216	.216	.060	.057
Variation explained by fixed effects (ρ)			.616	.576
Number of observations (individuals)	33 399	34 452	33 399	34 452
			(7 505)	(7 701)

Notes: The models above are estimated on all persons in any wave between waves 3 and 10. Standard errors are clustered by individual. ***, **, * denote statistical significance at 99%, 95%, and 90% respectively. Age effects, education effects, and years in paid work effects are expressed relative to the omitted categories in each case (35−44 years, less than Year 12, 0−3 years, respectively). Employment/labour market state effects are expressed relative to the omitted category of permanent employment. Other control variables included in the model but not reported are as follows: partner employed missing (binary), father's occupational status missing (binary, OLS only), mother's education missing (binary, OLS only), years in paid employment missing (binary), location dummies, and time dummies. The R-squared reported for the fixed-effects models is the 'within R-squared', and is not directly comparable with the R-squared reported for the pooled models. Also note that time-invariant right-hand side variables drop out of the fixed-effects models (they are 'absorbed' by the fixed effects). LLSI = limiting long-standing illness.

Second, those in fixed-term, casual, and other employment are less satisfied than those in permanent employment (the base category), with casual workers the least satisfied. The differences are quite small, at least once individual specific fixed effects are controlled for, with casually employed men (women) just under one-third (one-fifth) of one point less satisfied than otherwise similar permanently employed men (women). So although casual workers are less satisfied with their employment opportunities than permanent workers, they are much closer to permanent workers in terms of reported satisfaction levels than they are to unemployed workers or those not in the labour force. On the other hand these are quite large effects relative to those for other variables, particularly for men, with only unemployment, not in the labour force, and having a work-limiting disability having larger effects.

Third, participation in work-related training increases reported satisfaction with employment opportunities in all cases, but these effects are relatively small and not always statistically significant. Casual workers, for example, are around one-tenth of one point more satisfied if they have received work-related training than if they have not, with the difference being statistically

significant for women but not for men. Note the similarity of this result, both in terms of magnitude and the gender pattern of statistical significance, with the result for job satisfaction.[24]

Now consider estimated impacts on reported overall life satisfaction (wellbeing), as presented in table 15. The R-squareds for these models are again rather low, suggesting that the observed factors included in the model are only explaining a small part of the variation in reported satisfaction, although as for tables 13 and 14 the fixed effects themselves 'explain' a good part of the variation.

Table 15 OLS and fixed-effects model of overall life satisfaction, by gender, coefficients (clustered standard errors)

	Pooled OLS		Fixed effects	
	Men	Women	Men	Women
Fixed-term	-.011	-.020	-.006	.051
	(.042)	(.044)	(.033)	(.035)
Casual	-.106***	-.007	-.036	-.001
	(.038)	(.033)	(.032)	(.027)
Other employed	-.108***	.029	.001	-.023
	(.037)	(.045)	(.038)	(.041)
Unemployed	-.413***	-.282***	-.233***	-.165***
	(.060)	(.058)	(.049)	(.048)
NILF	-.245***	.055	-.169***	.017
	(.047)	(.034)	(.042)	(.030)
Training * permanent	.046*	.011	-.010	.005
	(.024)	(.026)	(.018)	(.019)
Training * fixed-term	.046	-.016	-.027	-.078*
	(.058)	(.056)	(.047)	(.043)
Training * casual	.006	-.014	-.022	.032
	(.055)	(.043)	(.044)	(.035)
Training * other employed	-.029	-.099	.017	.014
	(.067)	(.087)	(.054)	(.071)
LLSI not work limiting	-.212***	-.270***	-.036	-.092***
	(.036)	(.036)	(.027)	(.028)
LLSI is work limiting	-.646***	-.830***	-.242***	-.270***
	(.043)	(.040)	(.036)	(.032)
Father's occupational status	-.0002	-.0003		
	(.001)	(.001)		
Mother has Year 11/12 schooling	.044	-.004		
	(.041)	(.041)		
Mother has post-school qualification	.023	-.001		
	(.035)	(.032)		
15−24 years	.550***	.255***	.036	.126**
	(.061)	(.053)	(.061)	(.058)
25−34 years	.180***	.095**	-.007	.047
	(.045)	(.038)	(.040)	(.037)
45−54 years	.095**	.049	.068*	.049
	(.040)	(.040)	(.038)	(.037)
55−64 years	.571**	.416***	.264***	.092
	(.051)	(.050)	(.058)	(.061)
Dependent children aged 0−4	.066**	-.090***	.030	-.088***
	(.033)	(.030)	(.029)	(.029)

[24] Note that the stand-alone training dummy of table 13 is replaced here by a training dummy specifically for those in permanent employment. The two variables can be interpreted in the same way, however.

	Pooled OLS		Fixed effects	
	Men	Women	Men	Women
Dependent children aged 5−9	-.011	-.087***	.017	.024
	(.031)	(.029)	(.028)	(.027)
Dependent children aged 10−14	.048*	-.049*	.069***	.008
	(.029)	(.027)	(.027)	(.026)
University degree	-.154***	-.098**	-.197**	-.104
	(.046)	(.039)	(.083)	(.077)
Advanced diploma or diploma	-.130**	-.092*	-.244**	-.142
	(.057)	(.049)	(.101)	(.099)
Certificate	-.105**	-.137***	-.106	-.130**
	(.041)	(.040)	(.073)	(.058)
Year 12	-.116***	-.112***	-.206***	-.132**
	(.044)	(.039)	(.055)	(.053)
Years in paid employment, 3−10	-.114**	-.029	-.092**	.009
	(.048)	(.045)	(.041)	(.040)
Years in paid employment, 10−20	.012	-.049	-.062	-.012
	(.061)	(.054)	(.060)	(.060)
Years in paid employment, 20+	.005	-.042	-.079	-.030
	(.070)	(.059)	(.073)	(.077)
In full-time education	.366***	.230***	.079**	.022
	(.046)	(.041)	(.037)	(.033)
English speaking background	-.043	.059		
Migrant	(.047)	(.047)		
Non-English speaking background	-.154***	-.216***		
Migrant	(.051)	(.044)		
Partner	.410***	.386***	.386***	.350***
	(.042)	(.041)	(.041)	(.043)
Partner employed	.001	.085**	-.039	.043
	(.031)	(.035)	(.024)	(.031)
Household income (less own earnings),	.002***	.002***	.001***	.0005***
$1000s	(.0002)	(.0002)	(.0001)	(.0001)
Variation explained by observable factors (R^2)	.087	.087	.017	.016
Variation explained by fixed effects (ρ)			.628	.587
Number of observations (individuals)	36 030	39 458	36 030	39 458
			(7 774)	(8 179)

Notes: The models above are estimated on all persons in any wave between waves 3 and 10. Standard errors are clustered by individual. ***, **, * denote statistical significance at 99%, 95%, and 90% respectively. Age effects, education effects, and years in paid work effects are expressed relative to the omitted categories in each case (35−44 years, less than Year 12, 0−3 years, respectively). Employment/labour market state effects are expressed relative to the omitted category of permanent employment. Other control variables included in the model but not reported are as follows: partner employed missing (binary), father's occupational status missing (binary, OLS only), mother's education missing (binary, OLS only), years in paid employment missing (binary), location dummies, and time dummies. The R-squared reported for the fixed-effects models is the 'within R-squared', and is not directly comparable with the R-squared reported for the pooled models. Also note that time-invariant right-hand side variables drop out of the fixed-effects models (they are 'absorbed' by the fixed effects). LLSI = limiting long-standing illness.

As for table 14, the model is estimated on workers and the non-employed combined, with permanent workers again treated as the base category, and the estimates can be interpreted in the same way. Differences in overall life satisfaction by labour market status are small, with no significant differences between those in permanent employment and those in other forms of employment, including casual employment for either gender. In other words, there is no casual 'penalty' in terms of overall life satisfaction. The unemployed and those not in the labour force do report slightly lower levels of life satisfaction, although the difference is not statistically significant in the case of not in the labour force for women.

With one partial exception, the training variables are statistically insignificant, and all the relevant coefficients are small in magnitude. The implication is that participation in work-related training neither increases nor decreases overall life satisfaction. (The partial exception is training for female fixed-term workers, which is weakly associated with a slightly lower level of reported life satisfaction.)

Conclusions

This study uses data from the Household, Income and Labour Dynamics in Australia Survey to examine outcomes for a key group of non-standard workers — those employed in casual jobs. The outcomes considered are transitions from casual work into other types of employment and other labour force states, and reported levels of job satisfaction; satisfaction with employment opportunities; and overall life satisfaction (wellbeing). In particular, we examine whether these outcomes differ between casual workers who have participated in work-related training over the last 12 months and those who have not. The short answer, at least as far as casual workers covered by the HILDA Survey goes, is yes.

Casual employees are less likely to participate in work-related training than those in fixed-term or permanent jobs (around half as likely). Casual workers who participate in work-related training, however, are more likely to move into permanent or fixed-term employment over the following 12 months than casuals who do not participate in work-related training (33.4% compared with 27% for men (a gap of 6.4 percentage points) and 25.9% compared with 24.3% for women (a gap of 1.6 percentage points). For men, this estimated 'transition gap' shrinks to 5.3 percentage points when we control for other observable differences between those who participate in training and those who do not. For women, the estimated transition gap *grows* to 2.8 percentage points when we control for other observable differences between those who participate in training and those who do not.

It may be that these remaining gaps are indicative of a causal relationship between receiving work-related training and transitions to permanent or fixed-term employment. We present evidence, however, that suggests it is more likely that the gaps are explained by other differences in characteristics between casual workers who receive training and casual workers who do not, which are unobserved and which we cannot therefore fully control for in a multivariate regression framework. In other words, receiving work-related training may not itself have any impact on the probability of transition from casual to permanent or fixed-term work, even though those casual workers who receive training are more likely to make such transitions than observationally equivalent workers who do not receive training. If this is the case, then the gender differences we find in the association between training and transitions reflect gender differences in selection into training rather than gender differences in the impact of training. In other words, male casuals who undertake training are more likely to be the workers who most want or who are best placed to transition into other forms of employment. This is not the case, or at least not the case to the same degree, for females.

Turning now to reported levels of satisfaction, we show that casual employees report slightly lower levels of job satisfaction, lower levels of satisfaction with employment opportunities, but very similar levels of overall life satisfaction, compared with workers in permanent jobs. The size of the gap varies depending on the extent to which we control for other differences between casual workers and those in other forms of employment. Our preferred estimates — those that control as far as possible for other differences, including some unobserved differences — suggest a job satisfaction gap of around one-sixth of one point for men (on a scale of 0 to 10) but no statistically significant gap for women. The equivalent gaps in satisfaction with employment opportunities are around one-third of a point for men and one-sixth of a point for women, both of which are statistically significant. There is no statistically significant gap in overall life satisfaction between casuals and permanents for either gender. Because our preferred model controls for so many other observed factors and also, by exploiting the longitudinal nature of the HILDA Survey data, arguably controls for most unobserved differences between casuals

and other workers, these 'gaps' can be plausibly interpreted as indicating causal effects of being in casual employment relative to permanent employment (or strictly speaking, the causal effects on reported levels of satisfaction of moving from permanent to casual employment).

Workers who received training in the last 12 months report slightly higher satisfaction levels, most notably in terms of satisfaction with employment opportunities, than workers who did not receive training. For example, the gaps in reported job satisfaction, satisfaction with employment opportunities, and overall life satisfaction between casuals who report training and those who do not are .17 points, .25 points, and .01 points respectively. (Only the first two gaps are statistically significant.) When we control for other differences between those who participate in training and those who do not, these gaps generally get smaller: the only gap that remains statistically significant is in reported satisfaction with employment opportunities among women (receiving training increases reported satisfaction by around one-ninth of one point). Taken together, there is little evidence here for strong impacts of work-related training on reported levels of satisfaction.

What do these findings imply for casual workers and training providers?

For casual workers there is little evidence that participation in work-related training affects the probability of moving into permanent or fixed-term work; nor does participation in work-related training affect reported levels of job satisfaction or overall life satisfaction. The exception to this pattern of no training effects is that participation in work-related training increases reported levels of satisfaction with employment opportunities, at least for women, although the impact is small in magnitude.

For training providers, at first glance the gap between participation rates in work-related training for casuals and other types of workers suggests room for growth in this market. It is unclear, however, just how much scope there is for boosting training participation rates among casual workers. After all, casual jobs are of much shorter duration than other types of jobs (on average) and, as a result, casual workers and their employers will be less willing to invest in training. Further, the apparent lack of large work-related training impacts on either transitions out of casual employment or reported levels of satisfaction might be expected to reinforce these pressures acting against wider training participation among casual workers.

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Appendix: Further details on methods and data

Further details on methods

We report results from a variety of multivariate regression models. We briefly set out each model below.

Multinomial logit models of transitions

First we report results from a MNL model for transitions from casual employment. The MNL model we estimate is given by (1a) and (1b):

$$\Pr(Y_i = 1 \mid T_i, X_i) = \frac{1}{1 + \sum_{j=2}^{J} \exp(\gamma_j T_i + X_i' \beta_j)}, \quad \text{(1a)}$$

$$\Pr(Y_i = j \mid T_i, X_i) = \frac{\exp(\gamma_j T_i + X_i' \beta_j)}{1 + \sum_{j=2}^{J} \exp(\gamma_j T_i + X_i' \beta_j)}, \quad \text{(1b)}$$

where 'Pr' denotes probability, Y_i denotes the employment type for individual i (with employment type denoted by $j=1,\ldots, J$ for the five alternatives outlined in the main text (staying in casual employment, fixed-term employment, permanent employment, other employment, non-employment), T_i denotes having received work-related training, X_i denotes a vector of variables capturing all other observable individual and job characteristics, and 'exp' denotes the exponential operator. For further details on the MNL model in general see Greene (2008).

Essentially (1a) and (1b) are a system of five equations (one for each value of j), which we estimate simultaneously using maximum likelihood. For technical reasons, one of the five alternatives (j = 1) is arbitrarily treated as the base outcome to which other outcomes are compared, hence the difference between (1a) and (1b). Note that the MNL model makes the assumption of independence of irrelevant alternatives (IIA), that is, that the odds ratios between two particular outcomes are unchanged by adding or deleting other outcomes. (They are independent of irrelevant alternatives.) We use a Hausman test to test this assumption for the models presented in tables 7 and 8, and in all cases we fail to reject the hypothesis of IIA, for both men and women. Test statistics for the male and female MNL models respectively are provided in tables A1 and A2.

Table A1 Null hypothesis: odds (outcome-J vs outcome-K) are independent of other alternatives, males

Omitted	chi2	df	P>chi2	evidence
Not_empl	-6.618	130	—	—
Other_em	0.398	130	1.000	for Ho
Fixed	-3.965	66	—	—
Permanent	4.104	65	1.000	for Ho

Table A2 Null hypothesis: odds (outcome-J vs outcome-K) are independent of other alternatives, females

Omitted	chi2	df	P>chi2	evidence
Not_empl	-13.254	129	—	—
Other_em	0.983	130	1.000	for Ho
Fixed	-0.234	66	—	—
Permanent	-8.693	65	—	—

We estimate (1a/1b) for all individuals who are in casual employment at any time during the first nine waves of the HILDA Survey, separately for men and women. So if an individual is in casual employment in more than one wave, then we treat each wave in casual employment as a separate observation (that is, we pool the data across the different waves).[25] The estimated marginal effects for the training variable in (1a/1b) show how participating in work-related training is associated with the probability of transitioning to the relevant labour market state, other (observed) factors being equal.

Note that we do not explicitly model the original selection into casual employment at time *t*, and this must be kept in mind when we interpret the results. In other words, our model shows how observable factors for those in casual employment impact on transition probabilities, but it does not necessarily show how observable factors would impact on transition probabilities from casual employment in a hypothetical scenario if those not currently in casual employment switched to casual employment.

Probit model of transitions using the Altonji et al. (2005) approach

Second, we report results from a number of variants of a simplified probit model of the same transition process, for the same sample, where the multiple destination states are simplified to a binary destination variable, with 1 = permanent/fixed-term, and 0 = otherwise. Each variant extends the probit model in a different way to try to address the likely endogeneity of the training variable.

The first probit variant follows the method developed by Altonji et al. (2005) to assess the sensitivity of the estimated training effects to varying degrees of correlation (that is, varying degrees of endogeneity due to selection on unobservables) between the unobserved determinants of receiving the training experience and the unobserved determinants of the transition to permanent/fixed-term employment (u_i and ε_i in the equations below). In practice this entails estimating the probit model for transition to permanent/fixed-term employment (2a below) simultaneously with a second probit model for receiving work-related training (2b below), and imposing differing degrees of correlation between the error terms in the two equations. A correlation of 0 between the two error terms is equivalent to assuming no selection on unobservables. A correlation of, say, 0.1 between the two error terms is equivalent to assuming a low degree of selection on unobservables. A correlation of 0.2, say, is equivalent to assuming a moderate degree of selection on unobservables, and so on. This kind of analysis shows the threshold of selection on unobservables at which the association between receiving training and transitions can be fully explained by selection, that is, at which there is no causal relationship.

[25] To account for the fact that we have multiple observations for the same individual we cluster the standard errors at the individual level. The Productivity Commission (2006) report takes the same approach.

The relevant equations are as follows:

$$\Pr(Y_i = 1 \mid T_i, X_i) = \Pr(\gamma T_i + X_i'\beta + \varepsilon_i > 0) = \Phi(\gamma T_i + X_i'\beta), \quad (2a)$$

$$\Pr(T_i = 1 \mid X_i) = \Pr(X_i'\alpha + u_i > 0) = \Phi(X_i'\alpha), \quad (2b)$$

where Y_i now denotes transition to permanent/fixed-term employment, u_i and ε_i denote unobserved influences of receiving training and transitioning to permanent/fixed-term employment respectively, and Φ denotes the standard normal cumulative distribution function.

Random-effects probit for transitions with Mundlak corrections

The second probit variant more fully exploits the panel nature of the data to estimate a random-effects version of (2a) above, where we also include time averages of all covariates to control for possible correlation between unobservables (captured by the random effects) and observables, following the approach of Mundlak (1978). Using Mundlak corrections in this way produces estimates that are conceptually similar to fixed-effects estimates, and so in principle control for unobserved differences between individuals who receive training and those who do not, at least to the extent that such differences are time-invariant. The resulting marginal effects can therefore be more plausibly interpreted as capturing the causal effects of receiving work-related training on the probability of transitioning into permanent or fixed-term employment.

The relevant equation is as follows:

$$\begin{aligned}\Pr(Y_{it} = 1 \mid T_{it}, X_{it}, \overline{T}_i, \overline{X}_i, e_i) &= \Pr(\gamma T_{it} + X_{it}'\beta + \gamma^m \overline{T}_i + \overline{X}_i'\beta^m + e_i + \varepsilon_{it} > 0) \\ &= \Phi(\gamma T_i + X_i'\beta + \gamma^m \overline{T}_i + \overline{X}_i'\beta^m + e_i), \end{aligned} \quad (2c)$$

where, because we now treat multiple observations for the same individual explicitly as such, we add the 't' subscript to denote the wave, $\overline{T}_i$ and $\overline{X}_i$ denote the temporal means of the training and other variables for individual *i* and the error term is split into two independent normally distributed parts, with e_i denoting the unobserved individual time-invariant part.

OLS model of job satisfaction

To examine the impact of casual employment on job satisfaction, we first pool the data across waves for those in employment and estimate a linear regression with employment type included in the set of explanatory variables — separate dummies for each type of employment, with permanent employment as the base category — alongside the other observable characteristics in X_i as defined above.

The linear model we estimate is given by (3a):

$$S_i = \delta C_i + \gamma F_i + \phi O_i + X_i'\beta + u_i, \quad (3a)$$

where S_i denotes job satisfaction of individual *i*, C_i denotes casual employment, F_i denotes fixed-term employment, O_i denotes other employment, X_i is defined as before, and u_i is an error term capturing all other influences on job satisfaction omitted from the model. The coefficients on the employment type dummies show the association between job satisfaction and employment type (relative to permanent employment) having controlled for the other observable factors in X_i.

Fixed-effects model of job satisfaction

Although (3a) provides a good starting point, there may be unobservable differences between individuals who influence both employment type and job satisfaction, which if ignored may bias the estimated impact of employment type on job satisfaction in an uncertain direction. This is another example of endogeneity, with the employment type dummies being endogenous in (3a). Fortunately, the longitudinal structure of the HILDA Survey allows us to estimate a fixed-effects version of (3a) to control for such unobservable factors, at least to the extent that they are time-invariant. The resulting coefficients on the employment type dummies can then be more credibly interpreted as capturing causal relationships than is the case in (3a).

The fixed-effects version of (3a) is given by (3b):

$$S_{it} = \delta C_{it} + \gamma F_{it} + \phi O_{it} + X_{it}^{'}\beta + \alpha_i + u_{it}\,, \qquad (3b)$$

where we denote the fixed effect for each individual as α_i.

OLS and fixed-effects models of satisfaction with employment opportunities and overall satisfaction with life

We follow a similar approach to modelling the two remaining satisfaction/wellbeing indices — satisfaction with employment opportunities and overall wellbeing — although these models are estimated on all available observations, not just on those in employment. Specifically, we estimate linear models and fixed-effects models for each index, with an additional dummy P_i added for being in permanent employment (with non-employment treated as the base category).

The two versions of the model are given by (4a) and (4b), where *Y* denotes the outcome of interest (either satisfaction with employment opportunities or wellbeing):

$$Y_i = \delta C_i + \gamma F_i + \phi O_i + \varphi P_i + X_i^{'}\beta + u_i\,, \qquad (4a)$$

$$Y_{it} = \delta C_{it} + \gamma F_{it} + \phi O_{it} + \varphi P_{it} + X_{it}^{'}\beta + \alpha_i + u_{it}\,, \qquad (4b)$$

Further details on data

A large number of variables are used in the various multivariate regression models discussed in this report. A brief summary of their definition and construction is provided in table A3.

Table A3 Details on variables used in the multivariate analysis

Variable	Description
Work-related training between t-1 and t	= 1 if taken part in any work related training in past 12 months = 0 otherwise
LLSI	= 1 if have any long-term health condition, impairment or disability (that restricts the person in his/her everyday activities, and has lasted or is likely to last, for 6 months or more) = 0 otherwise
LLSI is work limiting	= 1 if have any long-term health condition, impairment or disability that limit the type of work or the amount of work the person can do = 0 otherwise
Father's occupational status scale	Based on the Australian Socioeconomic Index 2006 (AUSEI06) for father's occupation when respondent was at age 14; range from 0 to 100
Father's occupational status scale missing	= 1 if father's occupational status scale missing (total 890 missing) = 0 otherwise
Mother has Year 11/12 schooling	= 1 if mother has year 11 or year 12 schooling = 0 otherwise

Variable	Description
Mother has post-school qualification	= 1 if mother has completed any post-school qualification = 0 otherwise
Mother's education less than Year 10 (*Omitted*)	
Mother's education missing	= 1 if mother's education missing (total 1,601 missing) = 0 otherwise
15—24 years	= 1 if aged between 15 and 24; = 0 otherwise
25—34 years	= 1 if aged between 25 and 34; = 0 otherwise
35—44 years (*omitted*)	= 1 if aged between 35 and 44; = 0 otherwise
45—54 years	= 1 if aged between 45 and 54; = 0 otherwise
55—64 years	= 1 if aged between 55 and 64; = 0 otherwise
Dependent children aged 0—4	= 1 if dependent children aged between 0 and 4; = 0 otherwise
Dependent children aged 5—9	= 1 if dependent children aged between 5 and 9; = 0 otherwise
Dependent children aged 10—14	= 1 if dependent children aged between 10 and 14; = 0 otherwise
Post-graduate/bachelor/honours	= 1 if highest educational level attained is a bachelor degree or above = 0 otherwise
Advanced diploma or diploma	= 1 if highest educational level attained is an advanced diploma or diploma = 0 otherwise
Certificate	= 1 if highest educational level attained is a certificate = 0 otherwise
Year 12	= 1 if highest educational level attained is Year 12 = 0 otherwise
Year 11 or below (*omitted*)	
Years in paid employment missing	= 1 if years in paid employment missing (total 2422 missing) = 0 otherwise
Years in paid employment, 3—10	= 1 if years in paid employment at least 3 but less than 10 years = 0 otherwise
Years in paid employment, 10—20	Paid employment including full- and part-time work = 1 if years in paid employment at least 10 but less than 20 years = 0 otherwise
Years in paid employment, 20+	Paid employment including full- and part-time work = 1 if years in paid employment at least 20 years = 0 otherwise
Tenure	Tenure with current employer (years)
Tenure^2	Square of tenure with current employer (years)
English speaking background migrant	=1 if born in United Kingdom, New Zealand, Canada, USA, Ireland, or South Africa
Non-English speaking background migrant	= 0 otherwise = 1 if born overseas and not in one of the Englishing-speaking countries above
Has partner	= 0 otherwise = 1 if married or in a de facto relationship
Partner employed	= 0 otherwise = 1 if has a partner who is employed (full- or part-time)
Household income (less own earnings), $1000s	= 0 otherwise = Net household financial year gross income (excl windfall) – Gross financial year wages and salaries Adjusted for inflation (reindexed to the corresponding financial year); in $1000s
In full-time employment at time t	= 1 if employed full-time at time t = 0 otherwise
In full-time education at time t	= 1 if in full-time education at time t = 0 otherwise
Firm size, <20 (*Omitted*)	
Firm size, 20–199	= 1 if number of persons employed at place of work is between 20 and 199 = 0 otherwise
Firm size, 200+	= 1 if number of persons employed at place of work is more than 200 = 0 otherwise
Individual's occupational status scale	Based on the Australian Socioeconomic Index 2006 (AUSEI06) for the individual's occupation of current main job; range from 0–100

Variable	Description
Time dummies	Wave 3 corresponds to year 2003; wave 4 to 2004; wave 5 to 2005; and so on.
Wave 3	= 1 if interviewed in wave 3; = 0 otherwise
Wave 4	= 1 if interviewed in wave 4; = 0 otherwise
Wave 5	= 1 if interviewed in wave 5; = 0 otherwise
Wave 6	= 1 if interviewed in wave 6; = 0 otherwise
Wave 7	= 1 if interviewed in wave 7; = 0 otherwise
Wave 8	= 1 if interviewed in wave 8; = 0 otherwise
Wave 9 (*omitted*)	= 1 if interviewed in wave 9; = 0 otherwise
Location dummies	Based on remoteness area as derived from the Accessibility/Remoteness Index of Australia (ARIA) scores from the 2001 Census, and major statistical region.
Sydney (*omitted*)	
Melbourne	= 1 if reside in Melbourne; = 0 otherwise
Brisbane	= 1 if reside in Brisbane; = 0 otherwise
Adelaide	= 1 if reside in Adelaide; = 0 otherwise
Perth	= 1 if reside in Perth; = 0 otherwise
Other major cities	= 1 if reside in other major cities; = 0 otherwise
Inner-regional Australia	= 1 if reside in inner-regional Australia; = 0 otherwise
Outer-regional and remote Australia	= 1 if reside in outer-regional and remote Australia; = 0 otherwise
Industry dummies	Current main job industry. ANZSIC 2006 division [1 digit] = 1 if individual's current main job in industry/industries as specified = 0 otherwise
Agriculture, forestry and fishing or	
Mining	
Manufacturing	
Construction	
Wholesale trade	
Retail trade	
Accommodation and food services	
Transport, postal and warehousing	
Information media and telecommunications	
Rental, hiring and real estate Services	
Financial and insurance services or Professional, scientific and technical services	
Administrative and support services	
Electricity, gas, water and waste Services or public administration and safety	
Education and training	
Health care and social assistance	
Arts and recreation services	
Other services	

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