Talent in transit: Occupation and industry mobility in Australia

Conference paper

ABS-RBA Conference, 11–12 June, Sydney

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Summary

Discussion of labour mobility involves two conflicting narratives: on the one hand, there is a popular consensus that careers are dynamic and becoming more so, with multiple careers per lifetime and dwindling job security. On the other hand, evidence suggests that job mobility has been declining consistently across OECD countries, with 9.5% of Australians employed in 2023 changing jobs, down from 17.4% in 1972 (Chart 3a, ABS 2024).

The academic literature has focused on job mobility rather than occupational mobility, in part because it has been difficult to find reliable measures of occupation changes. This paper draws on the relatively new Participation, Job Search and Mobility module of the Longitudinal Labour Force Survey to measure occupational and cross-industry mobility from 2015-16 to 2022-23. The findings suggest that there is some truth to the popular perception of high occupational and cross-industry mobility.

While the majority of workers tend to stay put, a stable proportion of the workforce continue to make switches of industry and occupation. These are not small movements: the majority of occupation or industry changes are changes at the 1-digit ANZSCO or ANZSIC level, in other words large changes. And among those that change either industry or occupation, a large change in occupation and/or industry is the most common choice. Interestingly, large changes dominate small changes even when we exclude those who have recently completed an educational qualification. We conclude that the likelihood of large occupational or industry changes is not driven by the movement from transitory work during one's studies to a more 'permanent' career.

We also find that highly educated workers are the most likely to change occupation or industry, suggesting that we are not likely to see a decline in occupational mobility as education levels in the population rise. Indeed, we find no decline in occupational mobility over time, in contrast to other researchers. While the time period that we consider is short, it offers no evidence that careers have become less dynamic over the past decade.

The findings of high occupational mobility echo earlier findings from the US (Kambourov and Manovskii 2008); however, the finding that workers with higher education are more mobile is noteworthy. Those earlier insights on occupational mobility may have been overlooked in the recent debate on declining job mobility. Many of the theories advanced to explain declining job mobility are difficult to reconcile with the evidence on occupational mobility. Declining job mobility has been attributed to (among other explanations) better matching between workers and firms, higher levels of education that imply greater occupational specificity of human capital, and increased risk aversion since the Global Financial Crisis. We explore these explanations in more detail below, but the identified features of occupational mobility call them all into question.

1. Literature

Occupation and industry mobility and their importance to human capital

The literature on occupational mobility in Australia is rather thin. For the decade from 2002 to 2012 D'Arcy et al. (2012) used HILDA data to show that around half of workers who changed jobs also changed industry which in turn made them more likely to change occupation. This finding of large changes contrasts somewhat with a Canadian study where movements between similar occupations were more common (Robinson 2018). That finding may reflect that the occupation categories used in Canada reflect the skills

involved rather than the traditional job categories used by statistical agencies. More recently, Hambur (2023) presented data from linked tax records of firms and workers, showing that measured occupational mobility was declining over time in Australia, in line with declines in job mobility. Jobs and Skills Australia (2024) have shown that occupations and industries experience different rates of labour mobility – both as the origin or destination for transitioning workers.

The most influential papers on occupational mobility are from Kambourov and Manovskii (2008, 2009). They identified several important trends in occupational mobility from 1968 to 1997, using longitudinal data on male workers from the United States. They showed that occupational mobility was high and increasing, despite the fall in job switching over this period. They found that occupational mobility declined in age and education, so mobility would be even higher if it were not for the gradual ageing of the population and increases in average education. They also reached the surprising conclusion that large changes in occupation were more likely than small changes.

Kambourov and Manovskii (2009) find that workers who are in an occupation longer earn a higher wage; in other words, there is a substantial wage premium for tenure in an occupation. This presents a puzzle, as it implies that those who change occupation are paying a high cost, in lost wage gains. It could be that there is a selection effect at work: the workers who stay are those most likely to be successful, while the workers who go are searching for an occupation where they can be more successful.

The premium on tenure in an occupation suggests that there is a loss of human capital when people change fields. However, there are also potential gains, because workers create knowledge spillovers when they move from one occupation or industry to another. They bring different experiences, skills and knowledge. The contribution of worker movements across firms to greater diffusion of innovation through 'knowledge spillovers' has been highlighted in studies of Silicon Valley (PC 2023b; Saxenian 1996), and in firm-level studies in different countries (Braunerhjelm, Ding and Thulin 2020).

Occupational mobility may also be a necessity in many circumstances. It is all but certain that the Australian economy will experience some forms of structural adjustment in the coming years, due to population ageing, decarbonisation, and technological progress. Changes will have uneven impacts across occupations and industries. Workers will need to be able to move from one job to another, and from one industry to another (BCA 2018).

2. Data

This paper provides new insights on occupation and industry switching by exploring the Participation, Job Search and Mobility (PJSM) module of the Longitudinal Labour Force Survey (LLFS).[1] It is a useful dataset to consider occupational mobility, because of the large size of the sample (approximately 42,000 persons per year) and the measurement of occupation and industry changes, which is more reliable than in other datasets. In particular, the PJSM directly asks people if they changed occupations as opposed to trying to impute an occupation change from a change in listed occupation on some administrative form or survey. At the same time, there is less information with which to identify push and pull factors that may be driving workers from an occupation or attracting them to a new occupation. A number of international studies explore the decisions behind labour mobility, based on small-sample surveys, testing the influences on workers' *willingness* to move (Otto, Dette-Hagenmeyer and Dalbert 2009) or employers' *willingness* to hire (Piopiunik et al. 2020; Stewart,

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[1] All numbers quoted in this paper without a reference have been sourced from the PJSM using either the Tablebuilder or Datalab products.

Wall and Marciniec 2016). This paper could be followed up usefully with detailed analysis of the factors affecting willingness to move and to hire from other fields in the Australian context.

The PJSM module contains 9 years of data, covering approximately 380,000 people from February 2015 to February 2023, and includes questions about a person's current main job and main job 12 months ago. This allows for the analysis of transitions that occurred within a year of each survey response. The PJSM is an annual survey which provides cross-sectional data for a subset of respondents to the LLFS who each complete the survey once.

The PJSM is well-suited to the analysis of mobility between occupations and industries, in part because at each point in time, respondents provide information about both their current and previous occupation or industry. By contrast, the core LLFS does not contain questions directed at an employed respondent's previous job[2] – as such, any observable transitions must occur within the 8 months of their participation in the survey.[3] Moreover, the surveying method in the PJSM ensures that respondents' descriptions of their own occupations and industries are internally consistent, and minimises scope for differences in interpretation between survey points (which could lead to differences in classification of occupations or industries and result in false observations of mobility). In contrast, other analyses of occupational mobility have relied on changes in self-reported occupation and as with other studies that rely on imputing change in occupation from changes in reported occupation/industry, this can lead to erroneous results as the listed occupation/industry may change (or fail to change) for reasons other than actual switches taking place (for example, having different survey questioners at different points). Respondents to the PJSM describe their current and previous occupation in the same survey sitting, and responses to both questions are interpreted and coded by the same interpreter. This methodology eliminates the risk that a respondent describes the same occupation in a different way, and secondly, the risk different surveyors interpret the same response differently. The PJSM also does not provide respondents with a default response to their occupation, which minimises the risk respondents fail to declare switches between periods. This risk was identified in the context of Australian tax data by Hathorne & Breunig (2022). We initially undertook some analysis of the core LLFS, looking at occupational changes that took place during the 8 months that respondents are part of the sample, before concluding that many of the recorded occupation changes were simply recording errors.

A drawback of the PJSM is that it has a much shorter time-period than the core LLFS (which includes data from 1982 to 2023). However, focusing on the period 2015 to 2023 also avoids issues caused by updates to ANZSCO and ANZSIC over the decades.

Measuring mobility between occupations and industries

We use the definitions of occupations and industries as they appear in the ANZSCO and ANZSIC classifications systems (figure 1). We analyse transitions between occupations and industries at different levels, to assess whether people move between broad categories – 'major groups' and 'divisions' of occupation or industry (i.e. at the 1-digit level of ANZSCO or ANZSIC) or whether the movements are

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[2] Those who are unemployed are asked about the industry and occupation of their previous job but those who are either out of the labour force or currently employed are not.

[3] The LLFS uses the Census of Population and Housing as its sample frame, from which the survey draws a sample. The sample taken can be thought of as comprising eight sub-samples (rotation groups), with each sub-sample remaining in the survey for eight months, and one group "rotating out" each month and being replaced by a new group "rotating in". As seven-eighths of the sample are common from one month to the next, changes in the estimates reflect real changes in the labour market, rather than changes in the sample. The replacement sample is generally selected from the same geographic areas as the outgoing one, as part of a representative sampling approach.

between occupations and industries that are grouped under the same overarching classification (i.e. at the two-digit, three-digit, and four-digit level).

Both classification systems are hierarchical in nature, so a change in a one-digit occupation (from Labourer to Manager for example) automatically requires a change to each level of classification below. So if someone goes from being a sportsperson to an MP, their occupation changes from Sportsperson (4524) to Legislator (1113) meaning each of the four layers of the ANZSCO classification changes for them. From 4 to 1 at the one-digit, from 45 to 11 at the two-digit classification and so on. We treat industry changes the same way and figure 1 illustrates this for ANZSCO and ANZSIC.

Figure 1 – Movements in occupation or industry can occur at different levels
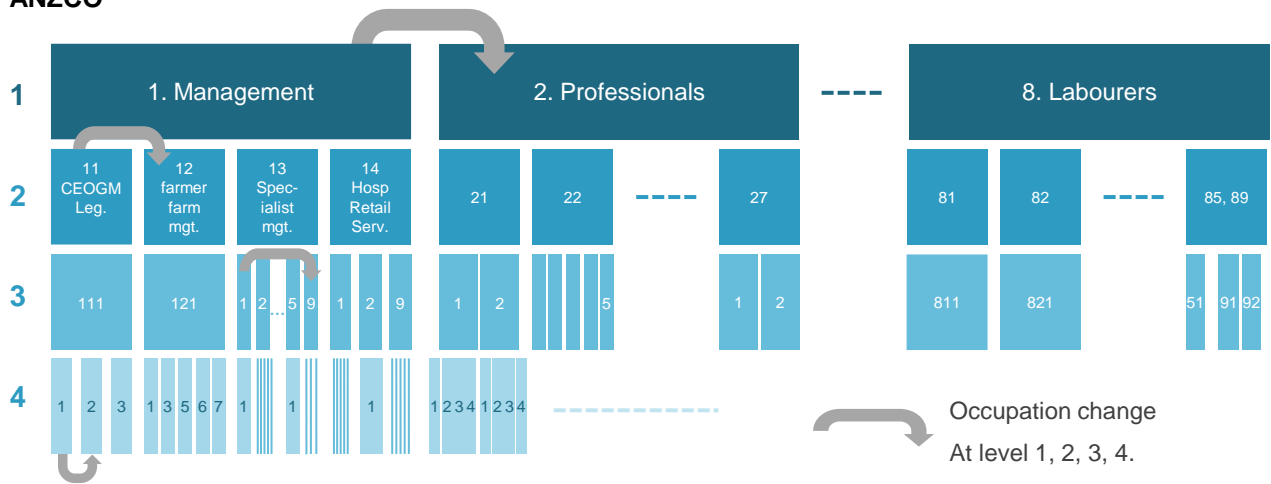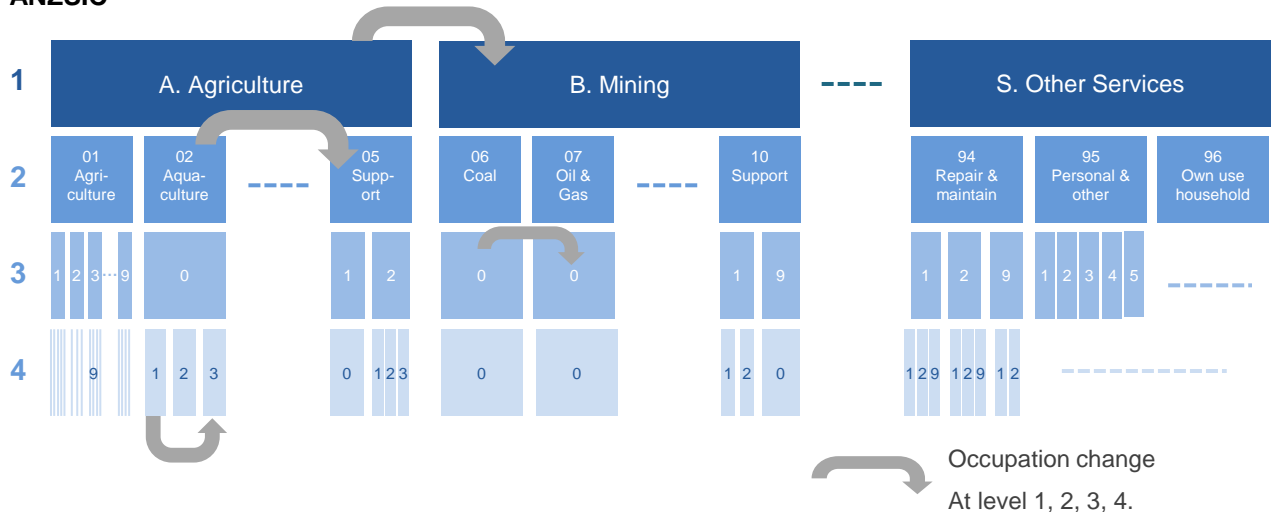
3. Results

3.1 Those who move often take a leap

It seems likely that most people who change occupations would switch to occupations similar to their present one, to minimise the loss of human capital and any retraining costs. And when looking at the most *common* choice of granular (four-digit) occupation, the destination is similar. For instance, if Registered Nurses (2544) change occupation at the four-digit level of ANZSCO, their most popular destination a Nurse Manager (254*3*) a single digit away at the fourth, and more detailed, digit of the classification.

That said, people who change occupations are much more likely to do so at the one-digit level and the same holds for movements between industries (figure 2). In each year from 2015 to 2023, about 70% of occupation transitions and 80% of industry transitions occurred at the one-digit level. (It seems difficult at first glance to reconcile these two facts: that a very similar 4-digit occupation is the most common destination, and that 1-digit changes are much more likely. It means that those who make a 1-digit change in occupation go to a very wide range of different occupations. (A similar intuition holds for industry changes.)

Figure 2 – Workers often move to very different industries and occupations
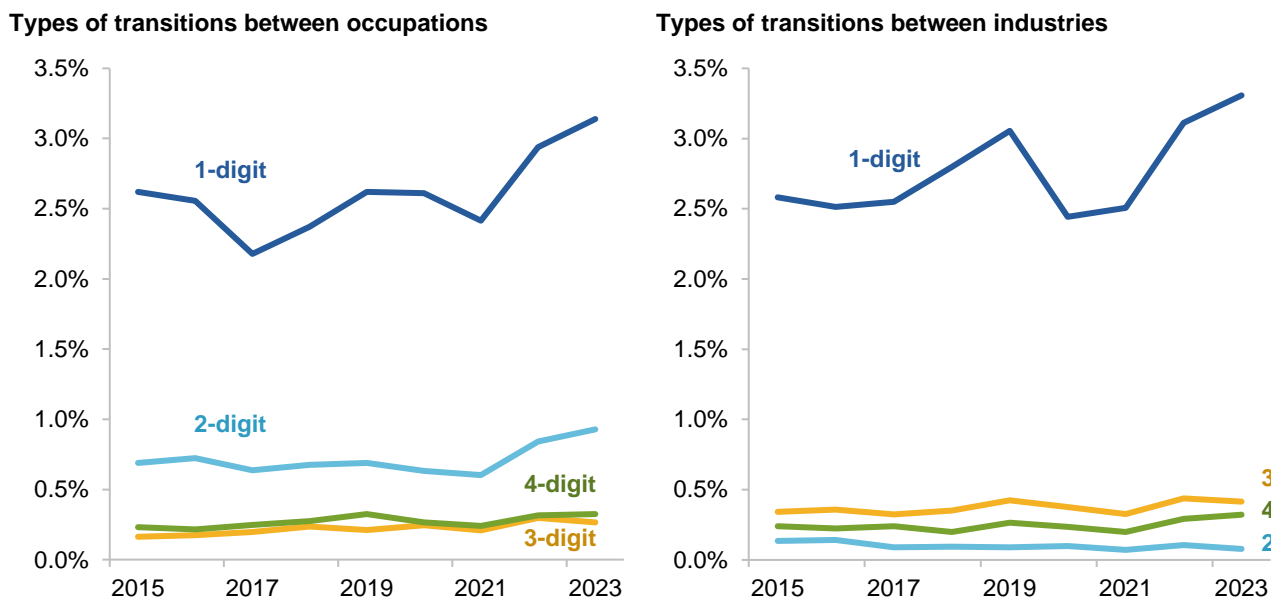
Types of transitions between occupations   **Types of transitions between industries**

Source: Productivity Commission estimates based on Australian Bureau of Statistics Microdata: *Participation, Job Search, and Mobility, Australia 2015-2023*, ABS DataLab, accessed May 2024.

This suggests that, on the surface at least, labour mobility in Australia is associated with a relatively drastic career change, not adjacent professional moves. To understand this result we need to test what is driving this observation. Descriptive analysis allows us to rule out some hypotheses as the cause of big switches outnumbering small ones.

One hypothesis is that these findings are capturing promotions into management. Some one-digit changes in occupation will reflect a move to or from the 'Manager' level (at the one-digit – or highest – classification of ANZSCO) which likely involves a similar 'line of work', albeit a significantly different job description. One might expect moves to manager to be an important explanatory factor in why big switches appear so common, but empirically this is not the case. Manager is the most popular destination only for workers leaving the 'Professionals' and 'Sales Workers' groups, but only 38% of Professionals and 25% of Sales

Workers leaving their respective groups for another role become Managers. For the 'Labourers' group, which has the second highest rate of any group for workers leaving for a new one-digit occupation, Manager is only the fifth most popular destination (9.4% of moves). In all, 77% of the moves to a new occupation group from out of non-Manager positions are to other non-Manager roles.

Another plausible hypothesis to explain both occupation and industry switches would be that students and recent graduates are moving from their temporary jobs during university or vocational training into their more permanent post-graduate career. When we exclude job categories that are likely to be temporary university jobs from the data the basic pattern of big occupation switches outnumbering smaller ones remains basically unchanged (discussed below).

A third hypothesis is that a big movement across industries could reflect a person applying the same skills but in a very different context. For example, a bookkeeper moving from in-house bookkeeping at a mining firm to a similar role for a construction firm; likewise IT workers move across industries quite frequently. There is however a strong correlation between big occupation changes and big industry changes: as outlined in table 1, 47% of one-digit occupation changes are accompanied by a one-digit change in industry, and 43% of one-digit industry changes are accompanied by a 1-digit change in occupation. Which rules out the idea that the driver of these results is somehow separate and driven by similar jobs in different industries.

Movements where individuals stay in the same occupation but change industries, or they change occupation without changing industry also occur. In fact, they make up the majority of the rest of the changes in the data (table 1).

Table 1 – When workers move, they make big shifts

Percentage of employed people who changed occupation and/or industry (2015–23), excluding those transitioning in or out of employment

	Change in Industry classification				
	1-digit	**2-digit**	**3-digit**	**4-digit**	**No change**
Change 1-digit occupation	22%	1%	2%	1%	22%
Change 2-digit occupation	5%	0%	1%	0%	7%
Change 3-digit occupation	1%	0%	0%	0%	2%
Change 4-digit occupation	1%	0%	0%	0%	4%
No change in occupation	22%	1%	4%	3%	-

Source: Productivity Commission estimates based on Australian Bureau of Statistics Microdata: *Participation, Job Search, and Mobility, Australia 2015-2023*, ABS DataLab, accessed May 2024.

These findings confirm the earlier results of D'Arcy et al (2012), who used HILDA data to show that, in the decade to 2012, around half of workers who changed jobs also changed industry. In addition, when a worker changed employers and moved to a new industry, they were also more likely to change occupation (D'Arcy et al. 2012).

3.2 Mobility between occupations and industries has not declined over the last eight years

In the eight years to 2023, the proportion of employed people who *changed* occupation or industry increased slightly (figure 2). This is too short a time period to be certain that this is a longer-term trend. It likely reflects significant strengthening of the labour market in 2022 and 2023. When employers source labour from outside those currently employed in the same industry, they typically source it from the pool of unemployed: 64-68% of new starters in jobs came from unemployment in any given year, with the remainder transitioning from another job. But the unemployment rate fell rapidly during the COVID-19 recovery, forcing employers to look to other industries and occupations. Only in 2022 and 2023 were employed people more likely to change occupation or industry than to leave employment.

In contrast, Hambur (2023) documents a decline in two-digit occupation switching, and the trends in his data suggest that occupational mobility would continue to decline. However, Hambur is only considering occupation changes that involve a change of employer; thus occupational changes within the same firm are not included, and the trend may be somewhat different. (Across 2015-2023, between 58-64% of occupational changes at the 1-digit level also involve a change of employer.) Moreover, his analysis is based on self-reported occupation from tax returns. As discussed in Section 2, tax data is prone to inaccuracies in occupation changes, including under-reporting (Hathorne and Breunig 2022).

Logistic regressions help us further explore what influences transitions between occupations, and industries. We examine the probability of changing occupation, and the probability of changing industry, and how this correlates with a number of demographic variables and industry and time dummies. The full specifications and results of these regressions are included in appendix A. We also examine the probability of changing job, for completeness. The regression results (models 1-3) confirm that the *year* variable was only significant for 2022 and 2023, suggesting that the uptick is more likely due to rapid changes in labour market conditions following the COVID-19 pandemic.

3.3 Demographic characteristics and mobility

By exploring the influence of economic conditions and job characteristics through formal regression analysis, we control for a range of personal characteristics of individual workers: demographic factors, migrant status, and geographic location. Broadly, each of these factors was found to be statistically significant.

Similar to the literature on job mobility, our analysis finds that younger cohorts are consistently more mobile between occupations and industries (figure 3). All cohorts are shown to increase their mobility from 2018 onward, likely due to changing labour market conditions during the pandemic and post-pandemic (2022 and 2023).

Our regression analysis confirms that age is strongly correlated with occupation and cross-industry mobility, as older cohorts were less likely to change occupation or industry after accounting for other variables.

Figure 3 – Age and labour mobility

Mobility between occupations by age group
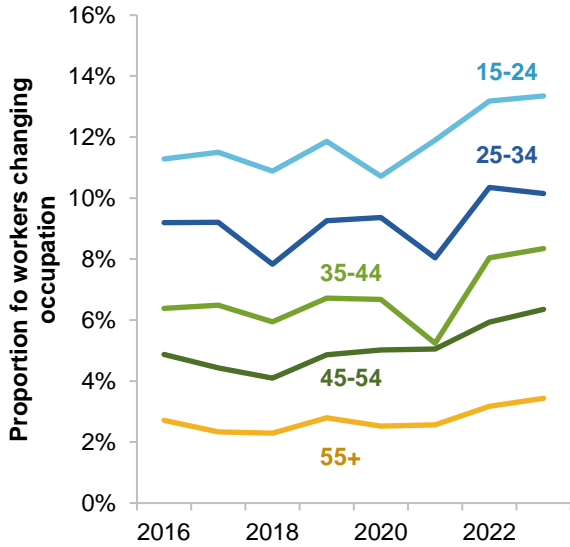
Mobility between industries by age group
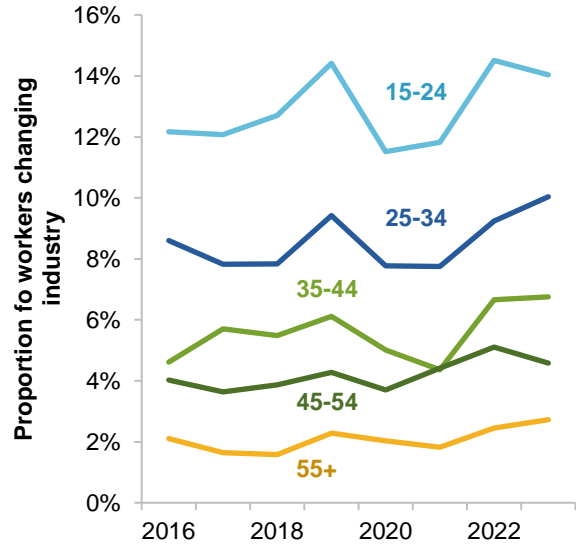
Source: Productivity Commission estimates based on Australian Bureau of Statistics Microdata: *Participation, Job Search, and Mobility, Australia 2015-2023*, ABS DataLab, accessed May 2024.

Immigrants are more mobile

The regression analysis of the PJSM (models 1-3) show that other personal characteristics were strongly associated with mobility. For instance, place of birth had some influence on tendencies to change jobs, occupations, and industries. Specifically, people were more likely to change jobs, occupations, and industries within the first 5 years of their arrival in Australia. The likelihood of changing industries was over 30% greater for the most recent migrants than for non-migrants (figure 4). By contrast, those who had arrived in Australia 10 or more years ago were marginally less likely to change jobs, occupations or industries. This would suggest that mobility is often related to the act of migration and settling into a new labour market.

Figure 4 – Migrant status and labour mobility

Migrant status and odds of changing occupation or industry, relative to born in Australia

Source: Productivity Commission estimates based on Australian Bureau of Statistics Microdata: *Participation, Job Search, and Mobility, Australia 2015-2023*, ABS DataLab, accessed May 2024.

Geographic location was also a statistically significant influence, with labour mobility in each state and territory being less than that of the ACT. However, mobility was not necessarily higher or lower in more populous jurisdictions. For example, people in S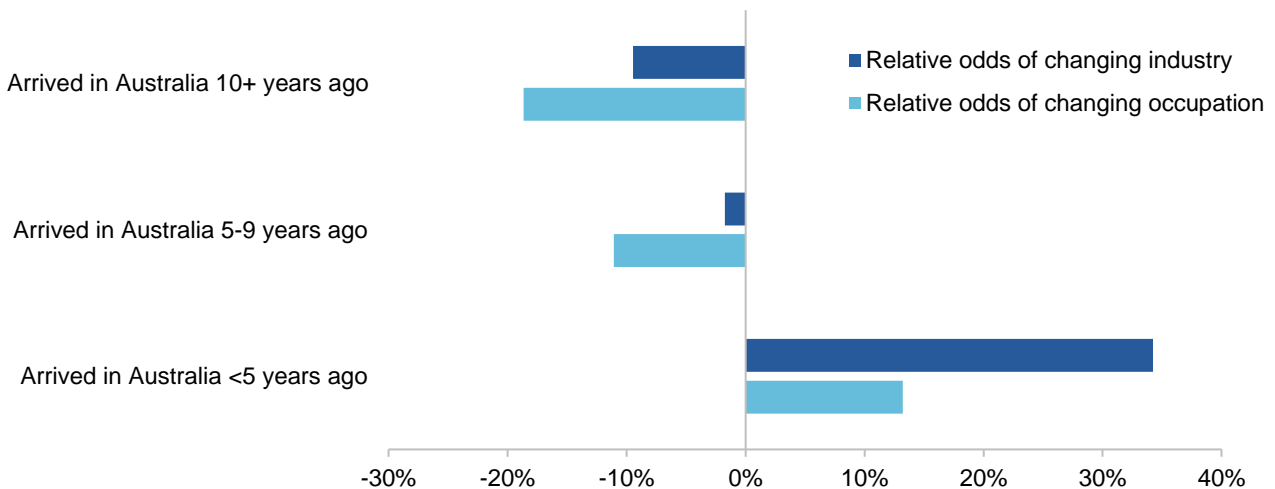outh Australia and NSW were more likely to change employer, occupation, or industry. This suggests that the jurisdiction-specific factors other than the size of the labour market are likely to be influential. Surprisingly, there was no statistically significant difference between urban and regional locations (after including state and territory dummies).

Higher educated, and the more recently educated, are more mobile

After accounting for demographics and other factors, our regression analysis (models 1-3) found that higher levels of education tend to be associated with more mobility between jobs, occupations and industries. This is a surprising result that contrasts with the findings of Kambourov and Manovskii (2008) for the United States.

The logistic regressions in appendix A show that higher education is strongly associated with a higher likelihood of changing occupation and industry. As outlined in figure 5, those with university degrees and post-graduate degrees are 35% to 60% more likely than Year 12 education alone to change occupation when they change jobs. This result may suggest that higher qualifications are associated with a higher degree of generalist, transferrable human capital. However, note that we have not controlled for selection in our logistic regression; so it is possible that this result is driven by the characteristics of the people who pursue more education, rather than the treatment effect of obtaining more education.

As well, cross-tabulations show that qualifications are more strongly associated with mobility for those who completed their studies more recently. Those who completed their highest qualification within the past year were more likely to change occupation (12%) or industry (14%), compared to those who had completed studies more than one year ago (7% and 6% respectively) or those with no education (7% and 5% respectively). This accords with the use of formal qualifications as a means of changing occupation or industry, and for that use to be strongest while the qualification is most up to date.

Figure 5 – Career paths and qualifications

Highest qualification and odds of changing occupation or industry, relative to Year 12 graduates
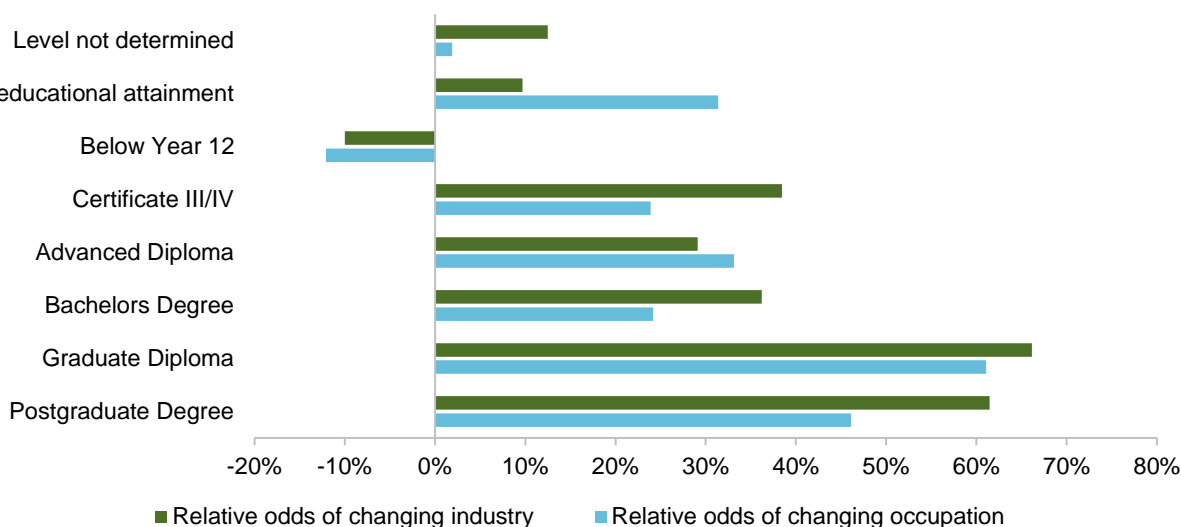
■ Relative odds of changing industry ■ Relative odds of changing occupation

Source: Productivity Commission estimates based on Australian Bureau of Statistics Microdata: *Participation, Job Search, and Mobility, Australia 2015-2023*, ABS DataLab, accessed May 2024.

3.4 Occupational mobility by origin and by destination

Movements from part time to full time and vice versa

Changes in occupation and industry are related to the characteristics of both the *origin* and *destination* jobs.

Descriptive statistics show that people who changed their working hours were more likely to also change occupation or industry (see table 2). Of those moving from full time to part time hours, 24% changed occupation. Of those changing from part-time to full-time hours, fully 32% changed occupation. This compares to less than 10% of people who changed occupations while maintaining similar working hours (figure 6). This association is unsurprising but it is unclear whether the decision to change hours precedes the decision to change occupation or vice-versa. Transitions between occupations were likely to occur between very different occupations (at the 1-digit level), regardless of whether or not the workers changed working hours (see table 3).

Figure 6 – Workers who change working hours are more likely to change occupation

Proportion of workforce changing occupation
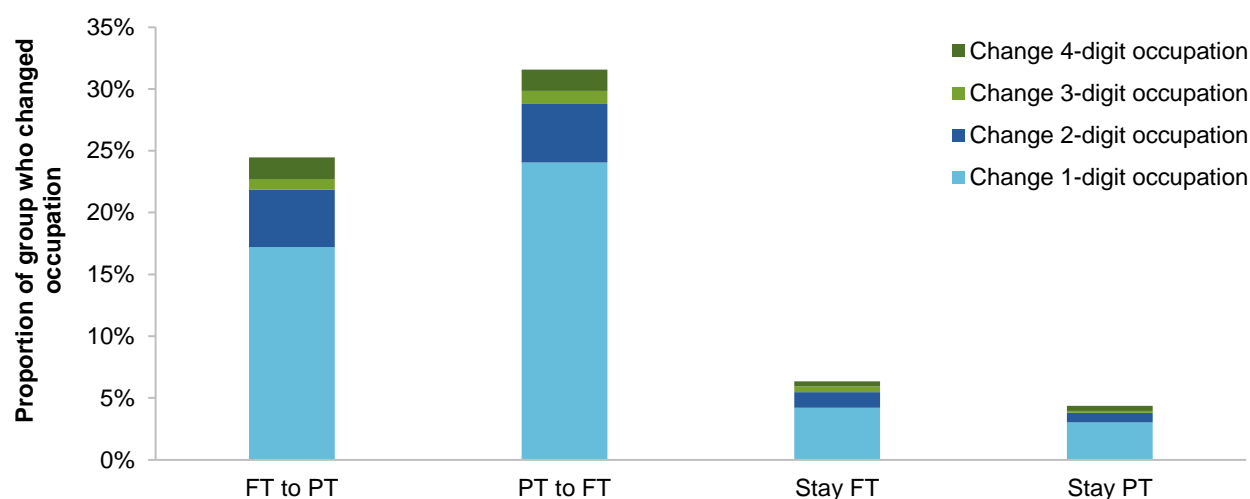
Source: Productivity Commission estimates based on Australian Bureau of Statistics Microdata: *Participation, Job Search, and Mobility, Australia 2015-2023*, ABS DataLab, accessed May 2024.

Our regression analysis (models 1-3) also found that casual workers – identified as not having paid leave entitlements – were more likely to change employer, occupation or industry. The quantum of this effect is relatively large compared to most other variables in each of the regressions.

Table 3 – Change in occupation by full-time, part-time status

Percentage of working hours group by occupational change in the past 12 months

	Full-time to part-time	Remain full-time	Part-time to full-time	Remain part-time
No change in occupation	76%	94%	68%	96%
Changed occupation	24%	6%	32%	4%

Source: Productivity Commission estimates based on Australian Bureau of Statistics Microdata: *Participation, Job Search, and Mobility, Australia 2015-2023*, ABS DataLab, accessed May 2024.

Table 2 – Change in occupation and hours, by different ANZSCO levels and full-time, part-time status

Percentage of working hours group by occupational change in the past 12 months

	Full-time to part-time	Remain full-time	Part-time to full-time	Remain part-time
Change 1DO	70%	66%	76%	66%
Change 2DO	19%	20%	15%	18%
Change 3DO	3%	7%	3%	4%
Change 4DO	7%	7%	5%	10%
Changed occupation	**100%**	**100%**	**100%**	**100%**

Source: Productivity Commission estimates based on Australian Bureau of Statistics Microdata: *Participation, Job Search, and Mobility, Australia 2015-2023*, ABS DataLab, accessed May 2024.

Mobility is not just due to people beginning their careers

One might expect that relatively high rates of big switches compared to small switches of occupation and industry switching could be driven by students moving out of a temporary job into their chosen field after completing tertiary education. To test this, we run our industry and occupation switching models, and exclude people younger than 26 years old that had completed a qualification in the last two years and were employed in occupations likely to be transitory (such as hospitality staff). The results are very similar. We find that the only significant change is that people aged 20–29 are now less likely to switch than those aged 15–19, compared with more likely to switch in our original models. We also ran the logistic regressions excluding all individuals in occupations likely to be transitory, as individuals that have been retrenched or looking for a career change could be in a temporary job. And we find the same results as when we only excluded recent graduates in those occupations.

3.5 Occupations and industries differ

Data shows that workers in some industries are less likely to move to other industries. The industries with the least mobility to other industries are: *Agriculture, Fishing and Forestry; Health Care and Social Assistance; Education and Training; and Financial and Insurance Services*. The tendency to remain in these industries could be due to the degree of specific human capital involved. Several other factors are likely to be important in explaining the patterns in mobility – for instance, barriers to geographic mobility may be relevant to agriculture or mining.

Many observed transitions between industries were from *Accommodation and Food Services*; *Administrative and Support Services*; *Retail Trade*; *Arts and Recreation Services*. Many people seek temporary employment in these industries as opposed to a career, given many jobs in these industries would not require significant investments in specific human capital (although some higher-skilled roles would). This may help to explain workers' willingness to move from these industries.

There are also examples of two-way patterns of movement between industries. *Education and Training* is the most popular landing destination for workers from *Healthcare and Social Assistance*, and vice-versa, in most years of the sample. Such patterns are suggestive of some form of commonality between the industries, although further research would be needed to determine whether this is due to transferrable forms of human capital, common job characteristics, or to other factors.

People in higher-skilled occupations – that tend to require higher levels of formal education – appear more likely to stay in their occupations. For instance, Managers and Professionals, Technicians and Trade Workers

were the least likely to move to other occupations, whereas Sales Workers and Labourers were the most likely to change occupations. It appears that people working in occupations requiring smaller investments into specific human capital more often change occupations. However, this conflicts with the finding that people with higher levels of education are more likely to change occupation. It could be that many people with higher levels of education move up the jobs ladder until they attain a higher-skill occupation.

The ease with which people can move to other industries or occupations has implications for how likely they are to, instead, move out of employment. Differences in re-employability can be stark between industries. In 2015, 74% of people who separated from employment in the Electricity, Gas, Water and Waste Service industry were re-employed, compared to only 22% of Agriculture, Forestry and Fishing workers. Labourers were the most mobile occupation in every year observed, with only 83-86% of labourers remaining labourers in the following year. Labourers have the highest rates of flows out of employment: between 9-11% each year, the highest of any occupation in every observed year.

To better understand the mobility trends for more specific occupations within broad occupation groups, we investigated mobility at the 4-digit level of ANZSCO and ANZSIC. For workers who worked in a given occupation 12 months ago, we noted how many different occupations they had moved to. In some cases, an occupation led to more than 150 different new occupations in the following year, while in other cases, fewer than 25.

- Occupations that led to the most diverse career pathways included: Sales Assistants (General); General Clerks; Contract, Program and Project Administrators; Bar Attendants and Baristas; Office Managers; Storepersons; or Waiters.
- Occupations with relatively few observed pathways to other occupations included different types of Technicians and Trade Workers, as well as Labourers. Even more specialised occupations such as Anaesthetists, Psychiatrists, Electronics Engineers, Surgeons and Barristers have 2 or fewer destinations for occupational change.

In practice, some career movements are likely to be much more common than others. As such, we calculated how concentrated workers' movements were among the observed career movements for that group (for each 4-digit occupation or industry) rated on a scale from 0 to 10,000. The lower the score, the more even the distribution of workers departing that occupation is across the labour market; a higher score suggests that movements are concentrated into relatively few destinations. The score is calculated for each individual 4-digit occupation, and the below box-plot shows the distribution of the scores for each of the 1-digit occupation groups. It shows that most occupations in the categories of Managers, Clerical and Administrative Workers, or Sales Workers, have relatively broad set of career paths compared to Professionals, Technicians and Trade Workers (figure 8).

Figure 7 – Odds of transitioning between industries differ by industry[a]

Change in odds where statistically significant

Mobility between industries
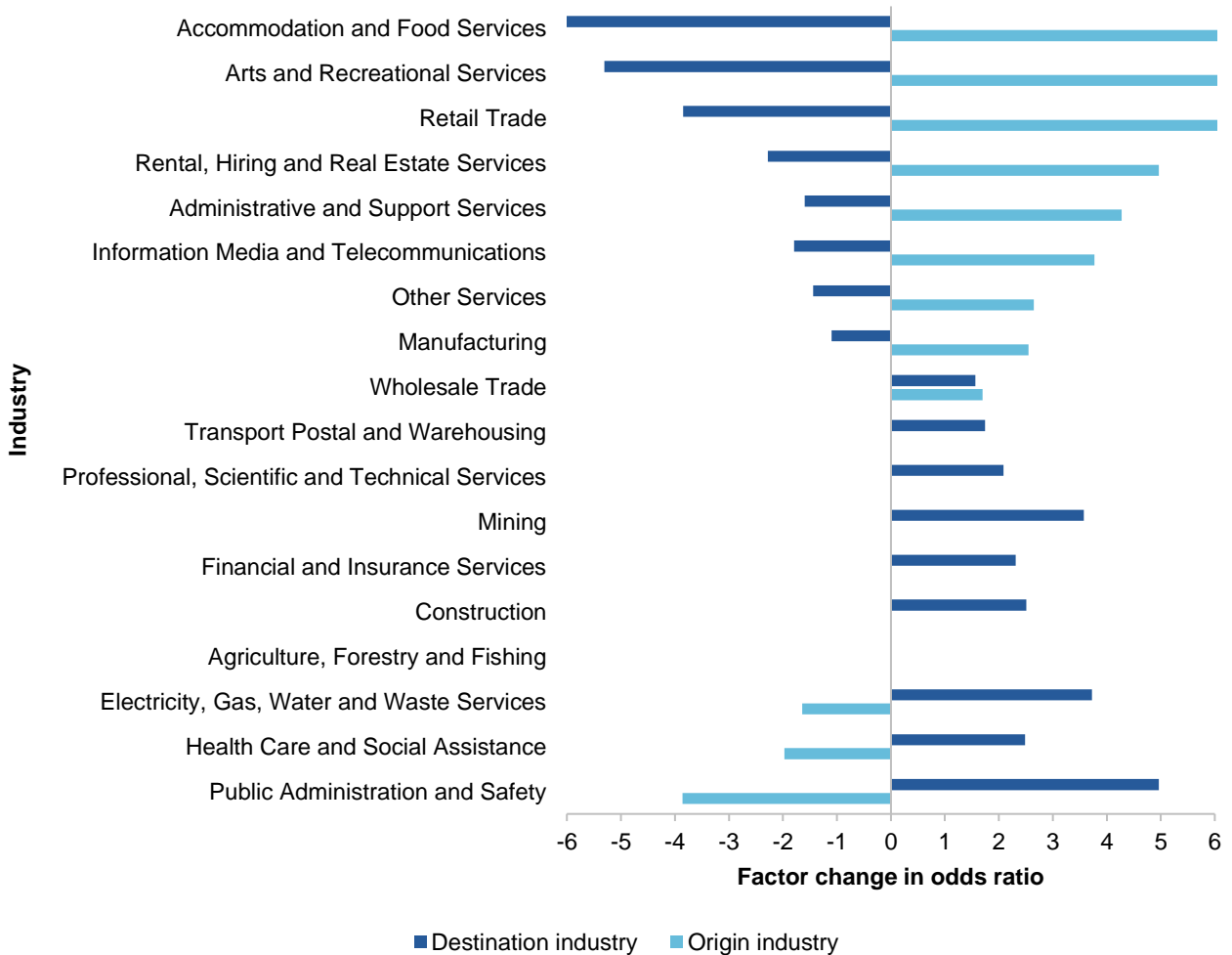
a. Where the change in odds is not statistically significantly different from the base group (Education and Training), values are not reported. A negative factor change represents a decrease in the odds of transitioning: the more negative the factor, the less likely a transition was to occur. For example, a factor change of -2 corresponds to a 50% reduction in the odds of transitioning, where a factor change of -4 corresponds to a 75% reduction. Fold changes greater than 6 (or less than -6) are represented by a value of 6 (or a minimum of -6). On the origin side, the true fold increase of Retail Trade is 6.8, Arts and Recreational Services is 8.5, and Accommodation and Food Services is 23.0. On the destination side, the true fold decrease for Accommodation and Food Services is -15.9. All other values are as presented.

Source: Productivity Commission estimates based on Australian Bureau of Statistics Microdata: *Participation, Job Search, and Mobility, Australia 2015-2023*, ABS DataLab, accessed May 2024.

Figure 8 – Mobility patterns by occupation

Distribution of Herfindahl-Hirschman index scores by occupation group

Source: Productivity Commission estimates based on Australian Bureau of Statistics Microdata: *Participation, Job Search, and Mobility, Australia 2015-2023*, ABS DataLab, accessed May 2024.

Within each 1-digit group, there is a range of isolated and connected occupations. For example, within the Machinery Operator and Driver group, the most connected occupation is 'Truck Driver', with a score of 292, whilst the most isolated is Clay, Concrete, Glass and Stone Processing Machine Operators, with a score of 3,761. Equally within the Professionals group, whilst the majority of occupations are more isolated, Management and Organisation Analysts score 336 and rank among the most connected individual occupations, whilst the Nutrition Professional (score of 6,001) is one of the most isolated roles in the labour market.

These results can potentially be explained by the distinction between generic and specific human capital: workers who build up considerable occupation-specific human capital by working in technical roles are more likely to flow into well-trodden, concentrated paths to a new occupation. On the other hand, workers in roles which build generic human capital roam more freely through the labour market. It can generally be seen that higher skill level occupations are concentrated (indicating more specific human capital) with the notable exception of management which is fairly well connected to the rest of the labour market.

Individual occupations also display similar patterns: 38% of departures from Advertising and Marketing Professionals land as Advertising, Public Relations and Sales Managers- a recognition of the specific human capital accumulated in the former. On the other hand, generalist skills developed in roles including Receptionists, Office Managers and Waiters have dispersed flows, with no singular destination accommodating more than 15% of departures.

3.6 Qualifications are influential

The field of study is also likely to affect labour mobility. We appropriate the index used to measure the dispersion of occupation flows to measure the dispersion of particular educational qualifications through the labour market. We found considerable variation in the number of career pathways associated with a particular qualification.

Figure 9 – Field of study and mobility to different occupations

Distribution of Herfindahl-Hirschman index scores by field of study
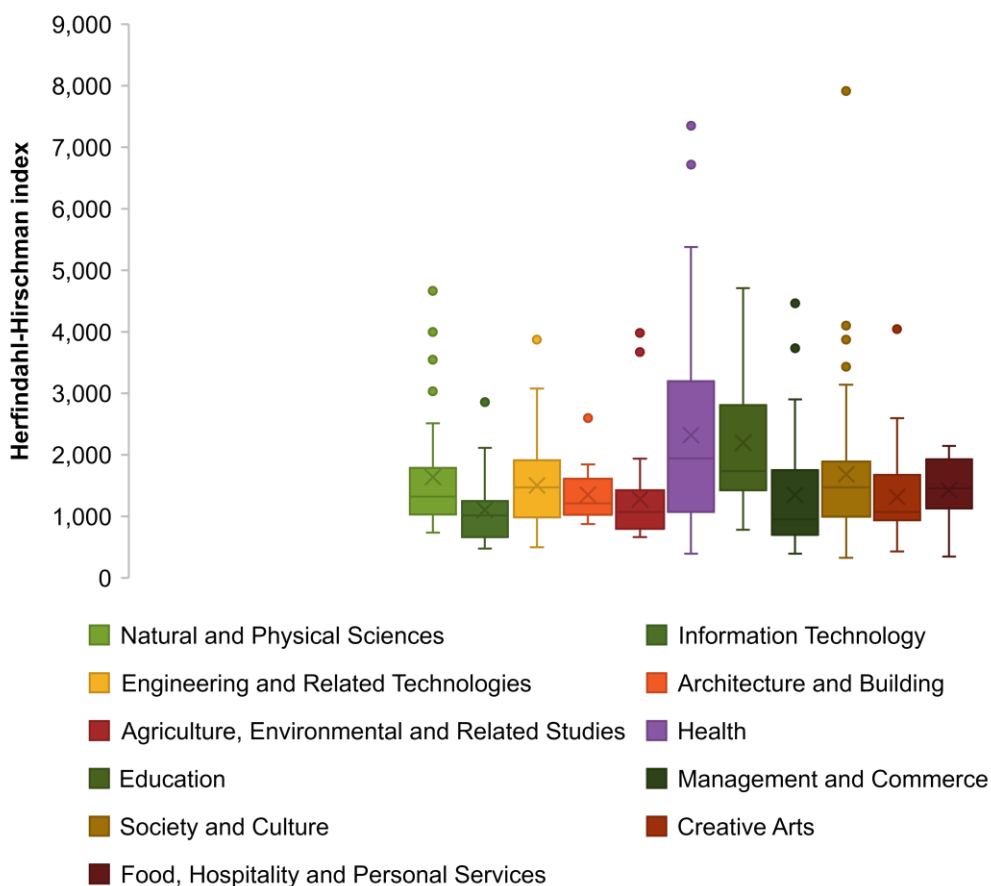
Source: Productivity Commission estimates based on Australian Bureau of Statistics Microdata: *Participation, Job Search, and Mobility, Australia 2015-2023*, ABS DataLab, accessed May 2024.

On the whole, Information Technology, Creative Arts and Management and Commerce are the fields of study that are the most dispersed across occupations; while Health, Education, Engineering and Related Technologies, and Society and Culture (encompassing law, philosophy and literature) are the most isolated to a narrow set of occupations. Within all fields of study, there are specific qualifications that range from relatively specialised (leading to only a few destinations) to more generally applicable.

Some qualifications were connected to a relatively wide range of career destinations. For example, a Bachelor's Degree in Business and Management (index 423) leads to 279 different occupations, and whilst a Bachelor of Information Systems leads to only 65 occupations, an index of 476 suggests a relatively even dispersion among them. In almost all cases, the more connected qualifications are at least of the Bachelor's

level, the only notable exception is in Architecture and Building, where a Certificate III and IV provides considerable occupational flexibility.

Qualifications appear to be especially concentrated for one of two reasons: either they are highly specialised and technical (for example, the Graduate Diploma of Optical Science, leading to only 2 occupations), or they are of the lowest available level (for example, the Certificate I/II in Philosophy and Religious Studies, with only 3 destinations, or a Certificate I/II in Performing Arts).

4. Implications of the occupation and industry mobility trends

Clearly a great deal more research is needed before many policy conclusions can be drawn. We need to understand whether workers are primarily "pushed" from an industry that is shrinking or has poor working conditions, or whether they are "pulled" toward new opportunities. (Or, as a third possibility, the motivation could be entirely about personal circumstances.) We need to understand the consequences of these large occupation and industry changes for the individuals involved: their wages, their wellbeing, the optimal use of their skills. More work is needed to understand whether employers are favourably inclined toward these workers making large changes, or whether their experience and skills are undervalued and underused in the receiving industry.

Future research could usefully assess whether it is likely that the receiving industry will make use of a worker's skills from their previous job. While our analysis relied on ANZSCO and ANZSIC to assess whether people moved to similar or different occupations, there are ways to identify similarity in skills. One approach could be to compare the similarity of task characteristics of the common occupations that that people switch between when moving between these two industries. Comparing the 'core competencies' listed for 'registered nurses' and 'primary school teachers' in the Australian Skills Classification shows some similarities, such as both occupations scoring 9 out of 10 for 'teamwork' and 8 on 'initiative and innovation'. There is no core competency measure that the two occupations differ in by more than a single point. Future studies could test if jobs with similar ASC core competencies correlates with high degrees of concentration of mobility between industries and occupations.

But the large size of the group who are changing occupations does suggest that lifelong learning may have an important role to play in the economy. Whether workers are "pushed" or "pulled", they will require new skills in a new role, and in most cases they could benefit from lifelong learning opportunities. Australia is well positioned for lifelong learning, in that its vocational and university systems do not discriminate based on age; and indeed the distribution of vocational and university students skews older than in many other OECD countries (Karmel 2004). Making further improvements to the flexibility of vocational education offerings, and to the tax deductibility of lifelong learning, can be valuable in encouraging optimal lifelong learning (PC 2023a).

Implications for the job mobility literature

That said, even these simple findings have implications for the literature on job mobility. Declining job mobility has been a concern for some time. Declining job mobility is a concern because the slower reallocation of workers to better jobs with better wages is potentially harmful to productivity and growth. But some of the reasons that have been put forward for declining job mobility seem highly unlikely, given these results on occupational mobility.

One explanation for declining job mobility is that risk aversion has increased, particularly since the GFC (Ellis 2021). Certainly there are other signs that risk aversion, or people's perceptions of risk, have increased

(Evans et al. 2024 forthcoming). However, increased risk aversion is unlikely to be the main explanation for declining job switching if a large and increasing (post-COVID) number of those job switches are to new industries and new occupations.

Another explanation is that initial matches are more successful, thanks to better information technology and matching technologies; and as a result, fewer worker-firm matches are dissolved (Mercan 2017). But this hypothesis is also difficult to reconcile with the fact that when workers switch occupation or industry they tend to make big (1-digit) changes; individuals who make good matches would seem unlikely to then drastically change career direction by switching occupation or industry. Looking further afield does not suggest that the initial match was perfect.

One compelling explanation for declining job mobility has to do with education. As individuals invest more in education, they have more specific human capital (such as an electrical engineering degree) that is most appropriately used in their specific field. We would expect to see declines in mobility as the population becomes more educated (as found in the United States in an earlier period by (Kambourov and Manovskii 2008). Yet, surprisingly, occupational mobility is higher in absolute terms among workers who have more years of education! If specific human capital does not prevent them from changing occupations, then it is very unlikely to prevent them from changing jobs.

5. Conclusion

Occupational mobility has been very difficult to measure from existing sources, such as self-reports in tax data and self-reports in multiple waves of a survey. The potential for mismeasurement of occupational change is high. The PJSM presents a useful and much more reliable source of data on occupational changes, in that it asks respondents about their current and previous occupations.

We echo some of the seminal findings on occupational mobility from the United States: the majority of occupational changes are large changes. The majority of industry changes are large changes, and frequently individuals are making large changes to both industry and occupation. Occupational mobility is not noticeably declining.

That said, we also uncover some surprising results relative to the United States. Occupational mobility is higher for more educated workers. This seems to contrast with the specificity of their human capital investment into a particular field. More work is needed to understand why these workers are more mobile. More generally, we need to understand the push and pull factors that generate high occupational mobility.

One explanation could be that much of the workforce have a very generalised skillset that is applicable across a variety of industries and occupations. Further studies looking at the change of wages following a shift in 1-digit occupation – which is not possible in PJSM – could indicate whether employees human capital appears to transfer with minimal loss of productivity. An increase or maintenance of wage income would likely indicate a high degree of transferability of skills.

Another explanation could be that structural shifts that make it harder for individuals to find work in a particular industry also make it hard to find work in a similar industry. For example, intensified overseas competition in one type of manufacturing that makes a particular person unemployed may also reduce the available roles she could move into in similar manufacturing industries.

In any case, occupational mobility provides a rich source of data that challenges some of our existing theories of mobility, and encourages us to ask new questions.

Appendix A – Methodology

Regression analysis using PJSM data

The first part of our analysis involves cross-tabulation and graphical representation of the data. In some cases this involves computing simple indices – for instance, in demonstrating how career pathways are used in practice, we calculate the concentration of movements among different pathways from a given origin, based on the Herfindahl–Hirschman index (HHI).

Logistic regressions help to further explore what influences transitions between employers, occupations, and industries – the latter two forms of mobility being our primary focus. The full specifications and results of these regressions are included below. Our analysis includes separate logit models on the probability of:

- changing employer as opposed to remaining with the same employer (model 1)
- changing occupation as opposed to remaining in the same occupation (model 2)
- changing industry as opposed to remaining in the same industry (model 3).

Logit models were also run on the probability of:

- changing occupation at the 2-digit, 3-digit, or 4-digit ANZSCO code (model 4)
- changing industry at the 2-digit, 3-digit, or 4-digit ANZSIC code (model 5).

Each regression tests the influence of a common range of factors such as:

- highest qualification (accounting for years since qualification)
- personal characteristics: age, location
- time: year (to account for changes over time)
- job characteristics: current and previous occupation and industry, casual status.

Table A.1 – Model 1 – changing employer

Intercept	-3.626924176***
Year (base group 2016)	
2017	-0.062990054*
2018	0.015715563
2019	0.054471641
2020	0.027679864
2021	-0.048747885
2022	0.253162028***
2023	0.237315881***
Age (base group 15 - 19)	
age20_29	0.22418467***
age30_39	-0.157646855***
age40_49	-0.415017197***
age50_59	-0.740468852***
age60_64	-0.983785487***
age65+	--2.018907278***
Years in Australia (base group born in Australia)	
< 5 years	0.396020793***
10 + years	-0.096579281***
5 to 9 years	0.032875541
Highest qualification completed (base group Year 12)	
Postgraduate Degree	0.455700016***
Grad Diploma	0.443004483***
Below Year 12	-0.040213018
Bachelors Degree	0.288467276***
Diploma	0.263660792***
Certificate III/IV	0.357307307***
No educational attainment	0.108162301
Level not determined	0.149199993**
Jurisdiction (base group ACT)	
NSW	-0.361655714***
NT	-0.246366446***
QLD	-0.275527915***
SA	-0.397907876***
TAS	-0.238766303***
VIC	-0.259266988***
WA	-0.245651519***
Locality (base group metropolitan area)	
Regional	-0.007586358
Previous occupation (base group Manager)	
Clerical and Administrative Workers	-0.235977908***
Community and Personal Service Workers	-0.130119413
Labourers	0.041225531
Machinery Operators and Drivers	-0.540562647***
Professionals	-0.386179862***
Sales Workers	0.584081464***
Technicians and Trades Workers	-0.125830113
Previous industry (base group Education and Training)	
Accommodation and Food Services	2.615617205***
Administrative and Support Services	1.067010143***
Agriculture, Forestry and Fishing	0.024831892
Arts and Recreational Services	1.357848883***
Construction	-0.25568997*
Electricity, Gas, Water and Waste Services	-0.727519348***
Financial and Insurance Services	-0.484770762***
Health Care and Social Assistance	-0.706355316***
Information Media and Telecommunications	0.805713898***
Manufacturing	0.511652651***
Mining	-0.336320401*
Other Services	0.597766091***
Professional, Scientific and Technical Services	-0.219534657*

Public Administration and Safety	-1.38834743***
Rental, Hiring and Real Estate Services	1.256283223***
Retail Trade	1.386621263***
Transport, Postal and Warehousing	-0.046305741
Wholesale Trade	0.156248982
Current occupation (base group Manager)	
Clerical and Administrative Workers	0.270517418***
Community and Personal Service Workers	0.109003586
Labourers	-0.166743303*
Machinery Operators and Drivers	0.681059633***
Professionals	0.421223213***
Sales Workers	-0.788213531***
Technicians and Trades Workers	0.118118695
Current industry (base group Education and Training)	
Accommodation and Food Services	-1.952302362***
Administrative and Support Services	-0.156432321
Agriculture, Forestry and Fishing	0.478468966**
Arts and Recreational Services	-1.050270093***
Construction	1.08093944***

Electricity, Gas, Water and Waste Services	1.254921456***
Financial and Insurance Services	1.013048236***
Health Care and Social Assistance	1.032353832***
Information Media and Telecommunications	-0.271388097
Manufacturing	0.043749137
Mining	1.175539772***
Other Services	0.014868723
Professional, Scientific and Technical Services	0.948952592***
Public Administration and Safety	1.57124333***
Rental, Hiring and Real Estate Services	-0.383805235**
Retail Trade	-0.974629803***
Transport, Postal and Warehousing	0.731191764***
Wholesale Trade	0.533253248***
Paid leave entitlements (base group not an employee)	
With leave entitlements	0.889953192***
Without leave entitlements	1.619805376***

*** 1% significance ** 5% significance * 10% significance. N = 189,241.

Source: Productivity Commission estimates based on Australian Bureau of Statistics Microdata: *Participation, Job Search, and Mobility, Australia 2015-2023*, ABS DataLab, accessed May 2024.

Table A.2 – Model 2 – changing occupation

Intercept	-3.514037299***
Year (base group 2016)	
2017	-0.114088818***
2018	-0.015727308
2019	0.043368802
2020	0.028686028
2021	-0.043667849
2022	0.212181003***
2023	0.24865103***
Age (base group 15 - 19)	
age20_29	0.206729116***
age30_39	-0.120169799**
age40_49	-0.34452262***
age50_59	-0.611704135***
age60_64	-0.983785487***
age65+	-1.644198596***
Years in Australia (base group born in Australia)	
< 5 years	0.124021602**
10 + years	-0.206517217***
5 to 9 years	-0.117470798***
Highest qualification completed (base group Year 12)	
Postgraduate Degree	0.379285941***
Grad Diploma	0.476789258***
Below Year 12	-0.128851535***
Bachelors Degree	0.216572175***
Diploma	0.286240035***
Certificate III/IV	0.21427364***
No educational attainment	0.272819809
Level not determined	0.018869407
Jurisdiction (base group ACT)	
NSW	-0.357316515***
NT	-0.126508403**
QLD	-0.275506322***
SA	-0.280349928***
TAS	-0.171843676***
VIC	-0.233376117***
WA	-0.189456196***
Locality (base group metropolitan area)	
Regional	0.05997413**
Previous occupation (base group Manager)	
Clerical and Administrative Workers	1.587843468***
Community and Personal Service Workers	1.488916591***
Labourers	2.659265674***
Machinery Operators and Drivers	1.591220866***
Professionals	-0.035619184
Sales Workers	2.491341074***
Technicians and Trades Workers	1.320855256***
Previous industry (base group Education and Training)	
Accommodation and Food Services	1.067106731***
Administrative and Support Services	0.253283683*
Agriculture, Forestry and Fishing	-0.868020833***
Arts and Recreational Services	0.341174645*
Construction	-1.040232307***
Electricity, Gas, Water and Waste Services	-1.164226484***
Financial and Insurance Services	-1.029296791***
Health Care and Social Assistance	-1.338627777***
Information Media and Telecommunications	0.077501925
Manufacturing	-0.210561328
Mining	-0.775853553***
Other Services	-0.487183952***
Professional, Scientific and Technical Services	-0.903518943***

Public Administration and Safety	-1.473283217***
Rental, Hiring and Real Estate Services	-0.150764064
Retail Trade	0.157641742
Transport, Postal and Warehousing	-0.842174587***
Wholesale Trade	-0.57729073***
Current occupation (base group Manager)	
Clerical and Administrative Workers	-1.57892004***
Community and Personal Service Workers	-1.996639388***
Labourers	-2.904578095***
Machinery Operators and Drivers	-1.917482771***
Professionals	-0.557262498***
Sales Workers	-2.807704737***
Technicians and Trades Workers	-2.121969296***
Current industry (base group Education and Training)	
Accommodation and Food Services	-0.845901579***
Administrative and Support Services	0.162814043
Agriculture, Forestry and Fishing	0.859247489***
Arts and Recreational Services	-0.182130068
Construction	1.104674317***

Electricity, Gas, Water and Waste Services	1.503272096***
Financial and Insurance Services	1.341641351***
Health Care and Social Assistance	1.209242996***
Information Media and Telecommunications	0.382103296*
Manufacturing	0.445819368***
Mining	1.175442425***
Other Services	0.555073636***
Professional, Scientific and Technical Services	1.087734024***
Public Administration and Safety	1.664384406***
Rental, Hiring and Real Estate Services	0.358131478*
Retail Trade	-0.08056397
Transport, Postal and Warehousing	1.029847801***
Wholesale Trade	0.824729946***
Paid leave entitlements (base group not an employee)	
With leave entitlements	1.40155263***
Without leave entitlements	1.635299204***

*** 1% significance ** 5% significance * 10% significance.
N = 190,816.

Source: Productivity Commission estimates based on Australian Bureau of Statistics Microdata: *Participation, Job Search, and Mobility, Australia 2015-2023*, ABS DataLab, accessed May 2024.

Table A.3 – Model 3 – changing occupation at 2-, 3- or 4-digit level

Intercept	-4.902087289***
Year (base group 2016)	
2017	-0.00445187
2018	0.105115391
2019	0.100526123
2020	0.053710528
2021	-0.024455953
2022	0.27732953***
2023	0.334591361***
Age (base group 15 - 19)	
age20_29	0.270838522***
age30_39	0.006063437
age40_49	-0.175753646*
age50_59	-0.405767552***
age60_64	-0.728447796***
age65+	-1.409136034***
Years in Australia (base group born in Australia)	
< 5 years	0.139197757*
10 + years	-0.139636823***
5 to 9 years	-0.04293463
Highest qualification completed (base group Year 12)	
Postgraduate Degree	0.320168189***
Grad Diploma	0.358583884***
Below Year 12	-0.006162311
Bachelors Degree	0.094068041*
Diploma	0.240336783***
Certificate III/IV	0.224143901***
No educational attainment	0.898373577**
Level not determined	0.093253247
Jurisdiction (base group ACT)	
NSW	-0.403719248***
NT	-0.245208213**
QLD	-0.255585256***
SA	-0.281830936***
TAS	-0.122957944
VIC	-0.303026914***
WA	-0.354179627***
Locality (base group metropolitan area)	
Regional	0.027472405
Previous occupation (base group Manager)	
Clerical and Administrative Workers	0.12738844
Community and Personal Service Workers	-0.616033708***
Labourers	-0.507292391***
Machinery Operators and Drivers	-0.274485826
Professionals	-0.043593576
Sales Workers	-0.489242513***
Technicians and Trades Workers	-0.589756976***
Previous industry (base group Education and Training)	
Accommodation and Food Services	-0.304480256
Administrative and Support Services	0.092475928
Agriculture, Forestry and Fishing	-0.302703193
Arts and Recreational Services	-0.214371668
Construction	-1.212445752***
Electricity, Gas, Water and Waste Services	-1.613948228***
Financial and Insurance Services	-0.802768368***
Health Care and Social Assistance	-1.332003358***
Information Media and Telecommunications	0.235027865
Manufacturing	-1.059913427***
Mining	-0.828253647***
Other Services	-1.247656045***

Professional, Scientific and Technical Services	-0.851809177***
Public Administration and Safety	-1.602687876***
Rental, Hiring and Real Estate Services	-1.235671656***
Retail Trade	-0.857414464***
Transport, Postal and Warehousing	-1.594368082***
Wholesale Trade	-0.36904647
Current occupation (base group Manager)	
Clerical and Administrative Workers	0.219798428*
Community and Personal Service Workers	-0.084030863
Labourers	0.301970389
Machinery Operators and Drivers	-0.109724757
Professionals	-0.075977141
Sales Workers	0.255645673
Technicians and Trades Workers	-0.321075075
Current industry (base group Education and Training)	
Accommodation and Food Services	0.172897799
Administrative and Support Services	0.149591699
Agriculture, Forestry and Fishing	0.236188376
Arts and Recreational Services	0.146050113

Construction	1.222089543***
Electricity, Gas, Water and Waste Services	1.643853896***
Financial and Insurance Services	0.921390921***
Health Care and Social Assistance	1.134111616***
Information Media and Telecommunications	-0.122910515
Manufacturing	1.041029682***
Mining	1.176903702***
Other Services	1.228871423***
Professional, Scientific and Technical Services	0.912276564***
Public Administration and Safety	1.523748096***
Rental, Hiring and Real Estate Services	1.022339904***
Retail Trade	0.604479993***
Transport, Postal and Warehousing	1.457594797***
Wholesale Trade	0.384426759
Paid leave entitlements (base group not an employee)	
With leave entitlements	1.591544988***
Without leave entitlements	1.78120005***

*** 1% significance ** 5% significance * 10% significance. N = 190,816.

Source: Productivity Commission estimates based on Australian Bureau of Statistics Microdata: *Participation, Job Search, and Mobility, Australia 2015-2023*, ABS DataLab, accessed May 2024.

Table A.4 – Model 4 – changing industry

Intercept	-3.82777477***
Year (base group 2016)	
2017	-0.018260736
2018	0.05594358
2019	0.146238077***
2020	-0.027634317
2021	-0.04520812
2022	0.233041285***
2023	0.266137668***
Age (base group 15 - 19)	
age20_29	0.059925206
age30_39	-0.366666051***
age40_49	-0.564554843***
age50_59	-0.90953938***
age60_64	-1.341559185***
age65+	-2.192041507***
Years in Australia (base group born in Australia)	
< 5 years	0.294497509***
10 + years	-0.09930644***
5 to 9 years	-0.017716059
Highest qualification completed (base group Year 12)	
Postgraduate Degree	0.479198844***
Grad Diploma	0.507624266***
Below Year 12	-0.105201399***
Bachelors Degree	0.30894734***
Diploma	0.255355685***
Certificate III/IV	0.325284341***
No educational attainment	0.09255972
Level not determined	0.117670043*
Jurisdiction (base group ACT)	
NSW	-0.317239856***
NT	-0.110266114*
QLD	-0.249820018***
SA	-0.331440181***
TAS	-0.153272599**
VIC	-0.244336007***
WA	-0.187521108***
Locality (base group metropolitan area)	
Regional	0.031350943
Previous occupation (base group Manager)	
Clerical and Administrative Workers	-0.428260703***
Community and Personal Service Workers	-0.216627274**
Labourers	0.076383393
Machinery Operators and Drivers	-0.61368005***
Professionals	-0.532065882***
Sales Workers	0.386999353***
Technicians and Trades Workers	-0.408529254***
Previous industry (base group Education and Training)	
Accommodation and Food Services	3.132000897***
Administrative and Support Services	1.45232118***
Agriculture, Forestry and Fishing	0.144286572
Arts and Recreational Services	2.135929952***
Construction	-0.128721873
Electricity, Gas, Water and Waste Services	-0.49480486**
Financial and Insurance Services	-0.226749959
Health Care and Social Assistance	-0.679376213***
Information Media and Telecommunications	1.327170549***
Manufacturing	0.936827205***
Mining	-0.324926756*
Other Services	0.973658681***
Professional, Scientific and Technical Services	-0.07434333

Public Administration and Safety	-1.351327325***
Rental, Hiring and Real Estate Services	1.602589898***
Retail Trade	1.914748904***
Transport, Postal and Warehousing	0.152676465
Wholesale Trade	0.529789207***
Current occupation (base group Manager)	
Clerical and Administrative Workers	0.601749449***
Community and Personal Service Workers	0.128061532
Labourers	-0.136951827
Machinery Operators and Drivers	0.735873905***
Professionals	0.462742325***
Sales Workers	-0.586325151***
Technicians and Trades Workers	0.219956706**
Current industry (base group Education and Training)	
Accommodation and Food Services	-2.763303376***
Administrative and Support Services	-0.466425324***
Agriculture, Forestry and Fishing	0.399793176*
Arts and Recreational Services	-1.668869752***
Construction	0.919932236***

Electricity, Gas, Water and Waste Services	1.314499743***
Financial and Insurance Services	0.838513228***
Health Care and Social Assistance	0.909389613***
Information Media and Telecommunications	-0.585425151***
Manufacturing	-0.092553458
Mining	1.273204268***
Other Services	-0.364512001**
Professional, Scientific and Technical Services	0.735530506***
Public Administration and Safety	1.60251765***
Rental, Hiring and Real Estate Services	-0.824790157***
Retail Trade	-1.347731355***
Transport, Postal and Warehousing	0.557709785***
Wholesale Trade	0.448128469***
Paid leave entitlements (base group not an employee)	
With leave entitlements	0.792575661***
Without leave entitlements	1.566726526***

*** 1% significance ** 5% significance * 10% significance.
N = 190,800.

Source: Productivity Commission estimates based on Australian Bureau of Statistics Microdata: *Participation, Job Search, and Mobility, Australia 2015-2023*, ABS DataLab, accessed May 2024.

Table A.5 – Model 5 – changing industry at 2-, 3- or 4-digit level

Intercept	-5.80640037***
Year (base group 2016)	
2017	-0.100758529
2018	-0.066468778
2019	0.058353061
2020	-0.034774116
2021	-0.161177992*
2022	0.128075917
2023	0.119214657
Age (base group 15 - 19)	
age20_29	0.344249552***
age30_39	0.088075375
age40_49	-0.108443153
age50_59	-0.516347971***
age60_64	-0.996046734***
age65+	-2.053244385***
Years in Australia (base group born in Australia)	
< 5 years	0.330874829
10 + years	-0.004240331
5 to 9 years	0.07748064
Highest qualification completed (base group Year 12)	
Postgraduate Degree	0.550358993***
Grad Diploma	0.458222673***
Below Year 12	-0.117973904
Bachelors Degree	0.296641217***
Diploma	0.19594479**
Certificate III/IV	0.29632678***
No educational attainment	0.521080867
Level not determined	0.293682157**
Jurisdiction (base group ACT)	
NSW	-0.40003734***
NT	-0.167340915
QLD	-0.35643754***
SA	-0.279124879**
TAS	-0.18342092
VIC	-0.269677197***
WA	-0.286098449***
Locality (base group metropolitan area)	
Regional	0.133770404***
Previous occupation (base group Manager)	
Clerical and Administrative Workers	0.2644037
Community and Personal Service Workers	0.778256344***
Labourers	1.048486399***
Machinery Operators and Drivers	0.784791676***
Professionals	-0.110960519
Sales Workers	1.439717179***
Technicians and Trades Workers	0.331906429
Previous industry (base group Education and Training)	
Accommodation and Food Services	-0.335179855
Administrative and Support Services	-0.666206478
Agriculture, Forestry and Fishing	-0.271476011
Arts and Recreational Services	-1.095162045*
Construction	0.582374667
Electricity, Gas, Water and Waste Services	0.103968148
Financial and Insurance Services	0.540733042
Health Care and Social Assistance	0.450633571
Information Media and Telecommunications	-0.276713963
Manufacturing	0.16273524
Mining	0.576102763
Other Services	-0.738609688

Professional, Scientific and Technical Services	0.130956364
Public Administration and Safety	0.272906991
Rental, Hiring and Real Estate Services	-0.940633119
Retail Trade	-0.343463969
Transport, Postal and Warehousing	0.213878567
Wholesale Trade	-0.271774111
Current occupation (base group Manager)	
Clerical and Administrative Workers	-0.321294553*
Community and Personal Service Workers	-0.893747837***
Labourers	-1.087037869***
Machinery Operators and Drivers	-0.590524043**
Professionals	0.244330104
Sales Workers	-1.601659654***
Technicians and Trades Workers	-0.373757606*
Current industry (base group Education and Training)	
Accommodation and Food Services	1.265989002***
Administrative and Support Services	-0.046008575
Agriculture, Forestry and Fishing	0.494088797
Arts and Recreational Services	-0.122124105
Construction	0.895478136**
Electricity, Gas, Water and Waste Services	0.038695281
Financial and Insurance Services	0.448570838
Health Care and Social Assistance	0.519088425
Information Media and Telecommunications	0.248516128

Manufacturing	0.791327797**
Mining	0.629625013
Other Services	-0.1742258
Professional, Scientific and Technical Services	0.163621823
Public Administration and Safety	0.132083804
Rental, Hiring and Real Estate Services	0.116391696
Retail Trade	1.223952968***
Transport, Postal and Warehousing	0.518423803
Wholesale Trade	0.3780256
Paid leave entitlements (base group not an employee)	
With leave entitlements	0.775867906***
Without leave entitlements	1.419074533***

*** 1% significance ** 5% significance * 10% significance.
N = 190,800.

Source: Productivity Commission estimates based on Australian Bureau of Statistics Microdata: *Participation, Job Search, and Mobility, Australia 2015-2023*, ABS DataLab, accessed May 2024.

Analysis excluding people in non-career jobs

Table A.6 – Model 6 – changing industry

Intercept	-4.018266177***
Year (base group 2016)	
2017	0.007364406
2018	0.033516904
2019	0.127481338***
2020	-0.038686352
2021	-0.103943718**
2022	0.192234722***
2023	0.219658913***
Age (base group 15 - 19)	
age20_29	-0.354673151***
age30_39	-0.594722026***
age40_49	-1.050914654***
age50_59	-1.823272012***
age60_64	-2.600019075***
age65+	-12.55250093
Years in Australia (base group born in Australia)	
< 5 years	0.22171091***
10 + years	-0.107925363***
5 to 9 years	-0.014036059
Highest qualification completed (base group Year 12)	
Postgraduate Degree	0.550133869***
Grad Diploma	0.545045397***
Below Year 12	-0.071161148
Bachelors Degree	0.349913357***
Diploma	0.265144594***
Certificate III/IV	0.349507516***
No educational attainment	0.111893267
Level not determined	0.159879778*
Jurisdiction (base group ACT)	
NSW	-0.410636465***
NT	-0.129717783*
QLD	-0.044993506***

SA	-0.751075024***
TAS	-0.371746104***
VIC	0.747027312***
WA	-0.170223924***
Locality (base group metropolitan area)	
Regional	-0.017424759
Previous occupation (base group Manager)	
Clerical and Administrative Workers	-0.410636465***
Community and Personal Service Workers	-0.129717783
Labourers	-0.044993506
Machinery Operators and Drivers	-0.751075024***
Professionals	-0.371746104***
Sales Workers	0.747027312***
Technicians and Trades Workers	-0.170223924
Previous industry (base group Education and Training)	
Accommodation and Food Services	3.402523118***
Administrative and Support Services	1.807584739***
Agriculture, Forestry and Fishing	0.462655321*
Arts and Recreational Services	2.509599593***
Construction	0.415620195**
Electricity, Gas, Water and Waste Services	0.097042688
Financial and Insurance Services	0.253413503
Health Care and Social Assistance	-0.310710501*
Information Media and Telecommunications	2.010197264***
Manufacturing	1.157241511***

Mining	0.019267604
Other Services	1.223380166***
Professional, Scientific and Technical Services	0.183792787
Public Administration and Safety	-0.917848592***
Rental, Hiring and Real Estate Services	1.898765318***
Retail Trade	3.171335499***
Transport, Postal and Warehousing	0.505156761**
Wholesale Trade	0.921778997***
Current occupation (base group Manager)	
Clerical and Administrative Workers	0.473296777***
Community and Personal Service Workers	-0.098831824
Labourers	0.039705697
Machinery Operators and Drivers	0.813118273***
Professionals	0.308288583***
Sales Workers	-0.735948553***
Technicians and Trades Workers	-0.004715336
Current industry (base group Education and Training)	
Accommodation and Food Services	-2.863482547***
Administrative and Support Services	-0.958343335***
Agriculture, Forestry and Fishing	0.059097233
Arts and Recreational Services	-2.000428112***

Construction	0.40858747**
Electricity, Gas, Water and Waste Services	0.785967755***
Financial and Insurance Services	0.418051771**
Health Care and Social Assistance	0.560613667***
Information Media and Telecommunications	-1.31422299***
Manufacturing	-0.331578106*
Mining	0.956194965***
Other Services	-0.673964128***
Professional, Scientific and Technical Services	0.469637254***
Public Administration and Safety	1.224267834***
Rental, Hiring and Real Estate Services	-1.349542759***
Retail Trade	-2.554516726***
Transport, Postal and Warehousing	0.21418033
Wholesale Trade	0.053804015
Paid leave entitlements (base group not an employee)	
With leave entitlements	0.867018681***
Without leave entitlements	1.699336241***

*** 1% significance ** 5% significance * 10% significance. N = 157,591.

Source: Productivity Commission estimates based on Australian Bureau of Statistics Microdata: *Participation, Job Search, and Mobility, Australia 2015-2023*, ABS DataLab, accessed May 2024.

Table A.7 – Model 7 – changing occupation

Intercept	-3.627608498***
Year (base group 2016)	
2017	-0.120131393**
2018	-0.014310001
2019	0.049420029
2020	0.001827437
2021	-0.08918927*
2022	0.224006487***
2023	0.228830094***
Age (base group 15 - 19)	
age20_29	-0.304334652***
age30_39	-0.510522155***
age40_49	-0.870585036***
age50_59	-1.479158091***
age60_64	-2.367714349***
age65+	-12.22523061
Years in Australia (base group born in Australia)	
< 5 years	0.061106321
10 + years	-0.211782409***
5 to 9 years	-0.073452358
Highest qualification completed (base group Year 12)	
Postgraduate Degree	0.459514921***
Grad Diploma	0.541498822***
Below Year 12	-0.132657421**
Bachelors Degree	0.290858306***
Diploma	0.376116496***
Certificate III/IV	0.270202212***
No educational attainment	0.511354779
Level not determined	0.044015737
Jurisdiction (base group ACT)	
NSW	-0.393060737***
NT	-0.149152295**
QLD	-0.30658707***
SA	-0.331381502***

TAS	-0.236808755***
VIC	-0.272808453***
WA	-0.249412291***
Locality (base group metropolitan area)	
Regional	0.051991036*
Previous occupation (base group Manager)	
Clerical and Administrative Workers	1.686924527***
Community and Personal Service Workers	1.449461954***
Labourers	2.502021395***
Machinery Operators and Drivers	1.596143866***
Professionals	0.122081325
Sales Workers	3.030234214***
Technicians and Trades Workers	1.677461968***
Previous industry (base group Education and Training)	
Accommodation and Food Services	0.65649008***
Administrative and Support Services	0.555398377***
Agriculture, Forestry and Fishing	-0.521774555**
Arts and Recreational Services	0.291685167
Construction	-0.709015089***
Electricity, Gas, Water and Waste Services	-0.976611373***
Financial and Insurance Services	-1.136489567***
Health Care and Social Assistance	-1.094244839***
Information Media and Telecommunications	0.467845146**
Manufacturing	-0.23102138
Mining	-0.515778455**
Other Services	-0.410521028**

Professional, Scientific and Technical Services	-0.913108108***
Public Administration and Safety	-1.299797424***
Rental, Hiring and Real Estate Services	-0.266548385
Retail Trade	0.456159872***
Transport, Postal and Warehousing	-0.847489733***
Wholesale Trade	-0.322548011
Current occupation (base group Manager)	
Clerical and Administrative Workers	-1.806809307***
Community and Personal Service Workers	-2.168621116***
Labourers	-2.740999991***
Machinery Operators and Drivers	-2.069993551***
Professionals	-0.719502471***
Sales Workers	-3.214590718***
Technicians and Trades Workers	-2.507013467***
Current industry (base group Education and Training)	
Accommodation and Food Services	-0.625565292***
Administrative and Support Services	-0.269229977
Agriculture, Forestry and Fishing	0.51617952*
Arts and Recreational Services	-0.188653791

Construction	0.822002858***
Electricity, Gas, Water and Waste Services	1.428162389***
Financial and Insurance Services	1.456208857***
Health Care and Social Assistance	1.012278319***
Information Media and Telecommunications	0.010223585
Manufacturing	0.461849857**
Mining	1.044164167***
Other Services	0.446861933**
Professional, Scientific and Technical Services	1.142779665***
Public Administration and Safety	1.58731108***
Rental, Hiring and Real Estate Services	0.224216802
Retail Trade	-0.468758701***
Transport, Postal and Warehousing	1.046884722***
Wholesale Trade	0.523980111**
Paid leave entitlements (base group not an employee)	
With leave entitlements	1.485937376***
Without leave entitlements	1.761074697***

*** 1% significance ** 5% significance * 10% significance. N = 157,591.

Source: Productivity Commission estimates based on Australian Bureau of Statistics Microdata: *Participation, Job Search, and Mobility, Australia 2015-2023*, ABS DataLab, accessed May 2024.

Analysis excluding young people (less than 25) that finished their most recent qualification in the last two years that are in a non-career job

Table A.8 – Model 8 – changing industry

Intercept	-3.867979913***
Year (base group 2016)	
2017	-0.008060268
2018	0.059532941
2019	0.143229338***
2020	-0.029473537
2021	-0.047985798
2022	0.23536702***
2023	0.270255963***
Age (base group 15 - 19)	
age20_29	-0.408160274***
age30_39	-0.639594484***
age40_49	-1.095872407***
age50_59	-1.866585812***
age60_64	-2.917933078***
age65+	-3.451291142***
Years in Australia (base group born in Australia)	
< 5 years	0.269992318***
10 + years	-0.108092865***
5 to 9 years	-0.064780264
Highest qualification completed (base group Year 12)	
Postgraduate Degree	0.45881041***
Grad Diploma	0.488540011***
Below Year 12	-0.065770687*
Bachelors Degree	0.295274305***
Diploma	0.24543743***
Certificate III/IV	0.319953089***
No educational attainment	0.074935587
Level not determined	0.118383344*
Jurisdiction (base group ACT)	
NSW	-0.320153241***
NT	-0.121939728*
QLD	-0.253356859***
SA	-0.343995082***
TAS	-0.17383494***
VIC	-0.244278132***
WA	-0.194906166***
Locality (base group metropolitan area)	
Regional	0.027695765
Previous occupation (base group Manager)	
Clerical and Administrative Workers	-0.418307969***
Community and Personal Service Workers	-0.180709601*
Labourers	-0.020916365
Machinery Operators and Drivers	-0.708394483***
Professionals	-0.467027931***
Sales Workers	0.31567407***
Technicians and Trades Workers	-0.342076511***
Previous industry (base group Education and Training)	
Accommodation and Food Services	2.925876623***
Administrative and Support Services	1.403977672***
Agriculture, Forestry and Fishing	0.108141349
Arts and Recreational Services	2.044624482***
Construction	-0.177669599
Electricity, Gas, Water and Waste Services	-0.503448361**
Financial and Insurance Services	-0.302714715*
Health Care and Social Assistance	-0.784070059***

Information Media and Telecommunications	14.75091413
Manufacturing	1.287630165***
Mining	0.821957411**
Other Services	-0.391727966***
Professional, Scientific and Technical Services	0.902908958
Public Administration and Safety	-0.112518378***
Rental, Hiring and Real Estate Services	-1.423324757***
Retail Trade	1.591192032***
Transport, Postal and Warehousing	1.93446777
Wholesale Trade	0.019324233**
Current occupation (base group Manager)	
Clerical and Administrative Workers	0.586260705***
Community and Personal Service Workers	0.068651911
Labourers	-0.02586099
Machinery Operators and Drivers	0.804943267***
Professionals	0.397418334***
Sales Workers	-0.425822876***
Technicians and Trades Workers	0.144818744
Current industry (base group Education and Training)	
Accommodation and Food Services	-2.462402289**
Administrative and Support Services	-0.44527234***
Agriculture, Forestry and Fishing	0.426929333**

Arts and Recreational Services	-1.562719079***
Construction	0.962101045***
Electricity, Gas, Water and Waste Services	1.326113917***
Financial and Insurance Services	0.905113533***
Health Care and Social Assistance	1.017054351***
Information Media and Telecommunications	-0.549611045***
Manufacturing	0.014922237
Mining	1.340059678***
Other Services	-0.307555683*
Professional, Scientific and Technical Services	0.772865493***
Public Administration and Safety	1.673027431***
Rental, Hiring and Real Estate Services	-0.863463488***
Retail Trade	-1.370855434***
Transport, Postal and Warehousing	0.673418279***
Wholesale Trade	0.522788275***
Paid leave entitlements (base group not an employee)	
With leave entitlements	0.800091507***
Without leave entitlements	1.616853085***

*** 1% significance ** 5% significance * 10% significance. N = 187,657.

Source: Productivity Commission estimates based on Australian Bureau of Statistics Microdata: *Participation, Job Search, and Mobility, Australia 2015-2023*, ABS DataLab, accessed May 2024.

Table A.9 – Model 9 – changing occupation

Intercept	-3.414261567***
Year (base group 2016)	
2017	-0.112884032***
2018	-0.010279536
2019	0.044912233
2020	0.02109408
2021	-0.044825435
2022	0.216206969***
2023	0.25079276***
Age (base group 15 - 19)	
age20_29	-0.342481625***
age30_39	-0.543803939***
age40_49	-0.907737539***
age50_59	-1.569569123***
age60_64	-2.182417877***
age65+	-3.218212508***
Years in Australia (base group born in Australia)	
< 5 years	0.120168808***
10 + years	-0.207984582**
5 to 9 years	-0.13350078***
Highest qualification completed (base group Year 12)	
Postgraduate Degree	0.36891473***
Grad Diploma	0.466317756***
Below Year 12	-0.11789279***
Bachelors Degree	0.210274352***
Diploma	0.28884112***
Certificate III/IV	0.212789259***
No educational attainment	0.26593881
Level not determined	0.002343497
Jurisdiction (base group ACT)	
NSW	-0.349818582***
NT	-0.130485848**
QLD	-0.268856563***
SA	-0.2740583***
TAS	-0.173491981***
VIC	-0.222007003***
WA	-0.186099897***
Locality (base group metropolitan area)	
Regional	0.059127452**
Previous occupation (base group Manager)	
Clerical and Administrative Workers	1.577105727***
Community and Personal Service Workers	1.494430018***
Labourers	2.617877672***
Machinery Operators and Drivers	1.580491559***
Professionals	0.011704274
Sales Workers	2.434574228***
Technicians and Trades Workers	1.41514246***
Previous industry (base group Education and Training)	
Accommodation and Food Services	0.901749738***
Administrative and Support Services	0.221433918
Agriculture, Forestry and Fishing	-0.900778063***
Arts and Recreational Services	0.299956274*
Construction	-1.056716556***
Electricity, Gas, Water and Waste Services	-1.179474752***
Financial and Insurance Services	-1.139866957***
Health Care and Social Assistance	-1.414189574***
Information Media and Telecommunications	0.055395238
Manufacturing	-0.274389375*
Mining	-0.836061534***
Other Services	-0.493312823***
Professional, Scientific and Technical Services	-0.942073957***

Public Administration and Safety	-1.556812871***
Rental, Hiring and Real Estate Services	-0.134373287
Retail Trade	0.059347372
Transport, Postal and Warehousing	-0.969571025***
Wholesale Trade	-0.656248096***
Current occupation (base group Manager)	
Clerical and Administrative Workers	-1.570671882***
Community and Personal Service Workers	-2.028035358***
Labourers	-2.857766822***
Machinery Operators and Drivers	-1.92274725***
Professionals	-0.603724597***
Sales Workers	-2.691585148***
Technicians and Trades Workers	-2.232980419***
Current industry (base group Education and Training)	
Accommodation and Food Services	-0.674279082***
Administrative and Support Services	0.1778022
Agriculture, Forestry and Fishing	0.894179682***
Arts and Recreational Services	-0.158329057
Construction	1.124198104***

Electricity, Gas, Water and Waste Services	1.521349967***
Financial and Insurance Services	1.446049085***
Health Care and Social Assistance	1.288691601***
Information Media and Telecommunications	0.405499631**
Manufacturing	0.503572667***
Mining	1.244612071***
Other Services	0.559509837***
Professional, Scientific and Technical Services	1.129218112***
Public Administration and Safety	1.755410176***
Rental, Hiring and Real Estate Services	0.308361488
Retail Trade	0.025981039
Transport, Postal and Warehousing	1.148741983***
Wholesale Trade	0.90226628***
Paid leave entitlements (base group not an employee)	
With leave entitlements	1.411852158
Without leave entitlements	1.673209855

*** 1% significance ** 5% significance * 10% significance. N = 187,657.

Source: Productivity Commission estimates based on Australian Bureau of Statistics Microdata: *Participation, Job Search, and Mobility, Australia 2015-2023*, ABS DataLab, accessed May 2024.

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