

Skills utilisation in the workplace: the other side of the coin

Tabatha Griffin

Kristen Osborne

Patrick Lim

National Centre for Vocational Education Research

Jan Kabátek

University of Melbourne



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Level 5, 60 Light Square, Adelaide SA 5000

PO Box 8288 Station Arcade, Adelaide SA 5000, Australia

Phone +61 8 8230 8400 Email ncver@ncver.edu.au

Web <<https://www.ncver.edu.au>> <<https://www.lsay.edu.au>>

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About the research

Skills utilisation in the workplace: the other side of the coin

Tabatha Griffin, Kristen Osborne and Patrick Lim, NCVET
Jan Kabátek, University of Melbourne

While skills development has long been a focus of policy-makers, ensuring the use of those skills has received much less attention. Skills utilisation, however, is a key component of workforce development, leading to increased productivity, higher levels of staff satisfaction and retention, and maximising the return on investment in skills development.

Through an analysis of the Household, Income and Labour Dynamics in Australia (HILDA) Survey, this research examined patterns of skill underutilisation across all Australian workers, with a focus on two industry sectors: manufacturing, and early childhood education and care. Interviews with employers from these two industry sectors further explored what high performing organisations are doing to understand the skills of their workers and what, if any, mechanisms are in place to maximise skills utilisation.

Key messages

- Around 19% of Australian workers report that they are not using all of their skills at work. About 35% of workers are overqualified, potentially contributing to this level of skill underutilisation.
- The likelihood and perceived importance of skills utilisation appears dependent on the type of job held. High-skilled, complex jobs provide more opportunity for workers to draw on a broader range of their skills than low-skilled jobs.
 - Employers in the early childhood education and care sector believed that all employees were using their skills. Analysis of HILDA data, however, showed that around 16% of workers in selected occupations from that sector reported they were not using all of their skills.
 - Employers in the manufacturing sector were less confident that employees were using all of their skills, depending on the specific occupations considered. The HILDA Survey shows that around 14% of workers in selected manufacturing occupations report that they are not using all of their skills, with the highest level being metal engineering process workers (31.3%).
- Employers believe that skills utilisation is important for staff satisfaction and retention, but there were very few formal mechanisms in place in the case study organisations for understanding workers' skills and ensuring their optimal usage. Where mechanisms were used, they tended to be aimed at understanding skills needs, rather than ensuring skills utilisation.
- Employers were unsure whether support from government (or other bodies) would help them to be more active in utilising the skills of their employees. There was no sense that the lack of such support was the reason why these organisations were not addressing skills utilisation more actively. Instead, most turned the conversation towards skills development, including interest in financial support for training, which they see as higher priority.

Simon Walker
Managing Director, NCVET

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Executive summary

As a complementary concept to ‘skills development’, ‘skills utilisation’¹ is important in maximising the return on investment in training and increasing productivity in businesses and the economy. Most policy attention has traditionally focused on skills development, with an emphasis on developing the skills most needed in the workforce, both at national and local levels. While skills utilisation has seen increased attention from policy-makers and researchers in relatively recent times, the fact that employee skills use is mostly the purview of individual businesses means it is difficult to influence at the policy level.

The focus of public policy on skills development over the past several decades has seen increasing levels of participation in vocational education and training (VET) and higher education (HE), and the attainment of increasingly higher-level qualifications (O’Dwyer & White 2019). While the share of young adults holding a university degree has increased dramatically over the past 35 years (Norton & Cherastidtham 2018), the 2012 shift to a demand-driven market in HE further fuelled levels of university participation (Kemp & Norton 2014). At the same time, although the composition of the Australian labour market has also changed, the level of skills commensurate with the change in the mix of occupations in the labour market (O’Dwyer & White 2019) has been outstripped by the expansion in the proportion of people with higher-level qualifications and skills. While it is more desirable for the workforce to be overeducated than undereducated since such a situation provides opportunity for higher-level skills to be used in the workplace, it is not unreasonable to suggest that skills development policy has potentially resulted in a surplus of skills in the workplace and therefore increased levels of skill underutilisation.

Skills utilisation valued by employers, but there are other priorities

Interviews with a small sample of employers at high-performing² organisations from two industry sectors – manufacturing and early childhood education and care – revealed that, while ensuring high levels of skills use among their workers was generally considered important, very few formal mechanisms for understanding the skills of workers or for enabling optimal skills utilisation were in place. Any understanding was assumed to have emerged from existing processes such as performance reviews (both sectors) or informal interpersonal contact, especially in small team environments (commonly reported among the early childhood education and care organisations interviewed). Where formal mechanisms existed (reported in some manufacturing case studies), these were geared towards understanding skills needs, rather than ensuring skills utilisation.

Formal processes to understand workers’ skills and to ensure skills utilisation tended to be deemed unnecessary, particularly where organisations felt their informal processes sufficed, or represented a lower priority than other activities requiring resources. In the case study organisations, skills development appeared to be of higher priority than skills utilisation. Indeed, interviewees often turned discussions back to skills development, demonstrating that filling skills gaps through training and/or recruitment is a more significant issue than skills utilisation.

1 There is no broad agreement on a definition of ‘skills utilisation’. Following Skills Australia (2012), this report adopts a broad definition of skills utilisation: the ways in which the skills, abilities and aptitudes of employees can be harnessed to benefit business outcomes and, by extension, those of individual workers.

2 See appendix A for a full description of the methodology, including how organisations were selected for inclusion in the study.

Despite no formal processes to ensure skills utilisation, most of the interviewed manufacturing businesses and early childhood education and care organisations generally considered that it was beneficial for workers to use all of their skills, although this varied by type of role, especially in manufacturing, where it was thought less important for task-based operational roles. The reasons for this were mostly related to worker satisfaction (feeling valued in the workplace, for example) and worker retention. Notably, all of the reasons given were focused on benefits to workers, rather than productivity gains for the organisations, although this issue, along with the flow-on increases to productivity in the economy, is where government interest is more likely to lie.

Employer understanding about skills utilisation depends on the sector and type of job

There were some differences in how employers from the two sectors viewed the skills utilisation of their employees. Employers in the early childhood education and care sector were confident that all employees were either using, or had the opportunity to use, all of their skills, even if they were technically overqualified for their role. The nature of the roles in this sector seems to provide employees with the freedom to draw on their full complement of skills, including those arising from personal passions and hobbies.

Employers in manufacturing were less certain about whether employees were using all of their skills. This is likely to be due to a combination of factors, including:

- limited formal processes for determining the skills of employees (although the same was true in the childcare organisations). Where processes were in place, they tended to be focused on identifying skills needs for development or recruitment
- larger staff sizes within the manufacturing companies (by comparison with the childcare organisations). Large numbers of staff make it more difficult for individual interviewees to have knowledge of how all workers are using their skills, particularly in the absence of formal mechanisms
- broad arrays of job types in these organisations, ranging from relatively low-skilled production roles to high-skilled engineering roles. Workers in low-skilled production roles have less scope to use additional skills, whereas workers in high-skilled roles such as engineering have more opportunity to draw on a broader range of skills.

Some employees report they are not using all of their skills in their jobs

While the early childhood education and care employers interviewed believed all employees were using their skills, the analysis of the HILDA data showed that around 16% of workers in selected occupations³ from that sector report they are not using all of their skills.⁴ Child carers (18.9% overskilled) and childcare centre managers (11.3%) were more likely to report this than early childhood teachers (4.2%). The disparity between these data and the employer views presented above could be due to a disconnect between employers and employees in their understanding of what skills workers have and use, or it could be that high-quality childcare providers (such as those selected as case studies in this project) are more effective at ensuring a high degree of skills use.

3 The early childhood education and care occupations selected for analysis were child carers, early childhood teachers (pre-primary school) and childcare centre managers.

4 These HILDA Survey respondents disagreed with the statement 'I use many of my skills and abilities in my current job'.

The analysis of the HILDA data showed that 14% of respondents working in selected manufacturing occupations⁵ reported that they were not using all of their skills in their jobs. Of the six selected occupations, those who reported the highest levels of overskilling were metal engineering process workers (31.3%), science technicians (25.6%) and plastics and rubber workers (23.9%). Interestingly, these occupations have a broad range of educational requirements, with modal qualification levels ranging from Year 11 (that is, no formal qualification) for the workers in both metal engineering and plastics and rubber, to bachelor degree for the science technicians.

When looking at all 4-digit ANZSCO occupations across the HILDA dataset, around 19% of workers are considered overskilled.

Pathways into ‘overskilled’ or ‘overqualified’ jobs

Being overeducated is one way by which a worker can be overskilled in their job, although this does not always hold true. With increasing credentialism occurring across Australia (O’Dwyer & White 2019), it might be assumed that increasing numbers of workers are overqualified in their roles and potentially not using the skills and knowledge they have gained through their qualifications. In a complex role, however, it may be possible for a worker to draw on the full complement of their skills despite being overqualified for their job.

Employers in the early childhood education and care sector provided several examples where they had appointed job applicants who were overqualified for the available role. These employers were confident that any additional skills held by these workers would be used in their roles, including in a mentoring capacity. In the manufacturing sector, however, employers were more likely to hire underskilled or underqualified workers and train them in house rather than appoint applicants who are overqualified. This was often due to concerns about staff loss after short periods in the role.

The analysis of the HILDA data shows that workers across all occupations who report they are overskilled in their current job are more likely to have been overskilled in their previous job. Of currently overskilled workers, 44% were overskilled in their previous jobs, compared with 21% of workers who are not currently overskilled but were overskilled previously. This pattern holds true for most of the selected occupations in both case study sectors. This finding supports previous research describing the persistent nature of overskilling (Mavromaras et al. 2012).

Looking at all 4-digit ANZSCO occupations in HILDA, around 35% of workers are overeducated (based on the modal qualification level for their occupation).

The potential for government or other supports to increase skills utilisation

A review of the Australian and international literature reveals examples of programs established for the purpose of increasing skills utilisation. The types of initiatives include:

- financial or practical support to review and improve existing business practices or implement new ones

5 The manufacturing occupations selected for analysis were production managers, plastics and rubber workers, science technicians, aircraft maintenance engineers, metal engineering process workers and metal fitters and machinists.

- the creation of skills ecosystems or the facilitation of partnerships to enable skills issues to be addressed in a more integrated fashion
- efforts to promote skills utilisation as a strategy to improve business performance.

Very few employers from either of the case study sectors were able to offer suggestions for how government (or other bodies) could support skills utilisation. While some were supportive of the ideas presented, there was no sense that the lack of these opportunities was the reason why these organisations were not addressing skills utilisation more actively. Instead, most were more likely to turn the conversation towards skills development, including an interest in financial support for training.



Context

Skills development and skills utilisation: two sides of the same coin

Due to their importance in contributing to productivity and economic growth, skills have long been a focus of policy-makers. The changing nature of the workforce and the resultant job skill requirements have also ensured that skills remain an important policy issue. Historically, much of the policy focus on skills in workforce development, both in Australia and internationally, has been on skills supply. This has traditionally been addressed by boosting the number of people with vocational or academic qualifications. However, it has been argued that skills formation alone is not sufficient for economic growth (Russo 2015). Another piece of the puzzle is ensuring that these skills are used in the workplace.

It has been suggested that, for improved innovation, enterprises need not only to identify, build and mix the skills and capabilities in their organisations, but they also need to think about how these skills are united within the organisations, industries and innovation ‘ecosystems’ (Cunningham et al. 2016). This requires the creation and design of jobs that make the most of workers’ skills. Hence, along with skills development, skills utilisation is a key component of workforce development.

There is no broad agreement on a definition of ‘skills utilisation’. Following the report of Skills Australia (2012), this report adopts a broad definition of skills utilisation: the ways in which the skills, abilities and aptitudes of employees can be harnessed to benefit business outcomes and, by extension, those of individual workers.

This research is focused on skills utilisation in the workplace. While skills utilisation has received much less attention in policy development in the past, there has been some increased interest, in both Australia and internationally, in broadening policy – from purely increasing the supply of skills to also enabling increased utilisation (Skills Australia 2012). In Australia, strong competition for skills, challenges with recruitment and skills shortages (particularly in tight labour markets) have all been drivers of skills utilisation efforts (Skills Australia 2012). More recently, the impact of the COVID-19 pandemic on businesses, such as reduced staffing levels or the diversification of products or services provided, may also necessitate an increase in efforts to improve skills utilisation.

Impacts of skills utilisation (or underutilisation)

What it means for workers

A considerable volume of research has considered the implications of skills utilisation for the individual worker. In particular, from the workers’ perspective the negative impacts of skills underutilisation that have been identified include:

- wage penalties (Mavromaras et al. 2011; Keep 2016; Chartered Institute of Personnel and Development 2018)
- lack of engagement by workers, meaning they are unable to reach their full potential (Keep 2016)

Key points

- Skills utilisation describes the degree to which employees use their skills, and how they are used
- Skills utilisation is complementary to skills development
- Low levels of skills utilisation can have negative impacts on workers, businesses and the economy

- lower job satisfaction (Mavromaras et al. 2011; van der Velden & Verhaest 2015; Chartered Institute of Personnel and Development 2018)
- higher stress and physical and mental health risks due to limited opportunities for decision-making and creativity (Keep 2016)
- higher likelihood of wanting to leave their job (Chartered Institutes of Personnel and Development 2018)
- poorer prospects for career advancement, training and skills development (Chandler Macleod 2014; Chartered Institutes of Personnel and Development 2018; Boxall & Huo 2019)
- skill atrophy (Chandler Macleod 2014; OECD 2015).

These negative impacts of skills underutilisation demonstrate the varied benefits that workers may experience if given the opportunity to utilise their skills more fully in their jobs. Additionally, while it has been acknowledged that employers may not see skills underutilisation as a business problem (Keep 2016), improvements in most of the elements given above are also likely to benefit workplaces.

What it means for employers

The UK Commission for Employment and Skills (2014) reported that effective skills utilisation is beneficial to employers through increased productivity and improved ability to move up the value chain. Research has described a range of benefits that can be experienced by enterprises that utilise the skills of their employees:

- increased worker productivity (Romero & del Mar Salinas Jimenez 2018)
- improvements to innovation, productivity, profitability, staff retention and safety (Warhurst & Findlay 2012; Skills Australia 2012; OECD & ILO 2017)
- decreased skills shortages and gaps and eased recruitment difficulties (Warhurst & Findlay 2012).

Using skills that are a result of employer-funded training also ensures a return on that investment.

It is difficult to directly attribute these benefits to the utilisation of employee skills, as the benefits listed above could be attributable to, at least partly, a variety of different business practices, including high-performance working practices, which may or may not have been implemented with the goal of increasing skills utilisation.

What it means for government

The literature highlights two main areas of interest in how skills utilisation is considered at the level of the economy:

- the increase in productivity resulting from increased skills utilisation
- the public cost of training if qualifications and/or skills are not used in the workplace.

It is not a simple exercise to determine the potential impact that skills underutilisation has on the economy, although some indirect observations have been made. Exploring the link between skills utilisation, engagement and productivity, Chandler Macleod (2014) reported that 85% of workers believe they could be 21% more productive every day, representing \$305 billion in untapped productivity. They also report that lack of engagement by workers is estimated to be costing Australian businesses up to \$54.9 billion per year in lost productivity (Chandler Macleod 2014). The broad consensus is that effective

skills utilisation is beneficial to the productivity of the economy as a whole (UK Commission for Employment and Skills 2014).

In addition to this, the unused skills held by those individuals who are either mismatched to their jobs or are not working are a waste of the initial investment in them (Organisation for Economic Co-operation and Development [OECD] 2015). This is particularly salient at the level of the economy where much of the investment in skills, especially for initial training, is subsidised or funded by public monies. There is a need for government to see a return on its investment in skills.

This project

This research investigates skill underutilisation in Australian workers by examining patterns of skill underutilisation and investigating the pathways of people into jobs where they are overskilled. It does this across all ANZSCO 4-digit occupation codes, followed by a focus on two industry sectors: early childhood education and care, and manufacturing.

Through interviews with employers in the two case study sectors, the project also explores what businesses or organisations are doing to understand the skills of their workers and the mechanisms, if any, in place to maximise skills usage.

A full literature review is available as a support document to this report.



Skill underutilisation in Australian workers

This chapter explores the incidence of skill underutilisation and the pathways into jobs where workers are overskilled across all occupation groups.⁶ The analysis for the two case study industry sectors is presented in the two subsequent chapters.

Incidence of skill underutilisation

Levels of skill underutilisation in Australian workers were investigated using data from the Household, Income, and Labour Dynamics in Australia (HILDA) Survey, which is a representative household panel of the Australian population that follows its respondents for up to 18 years.

In the absence of objective data containing information on workers' skill levels, a subjective measure in the HILDA Survey is used as a proxy. Workers are identified as being overskilled⁷ in their jobs if they disagree with the statement *I use many of my skills and abilities in my current job* when answering this question in the HILDA Survey. (This measure has been used previously; see Mavromaras et al. 2011). See appendix A for further details of the project methodology.

When looking at all 4-digit ANZSCO occupations across the HILDA dataset, around 19% of workers are considered overskilled using this measure.

Figure 1 shows the distribution of overskilled workers across occupations, based on the modal (most common) qualification level of those occupations. The highest incidence of overskilled workers (that is, those who report that they are not using many of their skills and abilities) are in low-skilled jobs, where the modal qualification level is Year 11 or Year 12. Occupations with higher modal qualifications (certificate III/IV and higher) have lower levels of overskilling (from around 6% to 15%). This pattern of skills usage might seem counter-intuitive, but it is likely that occupations with higher modal qualifications are more complex and therefore provide more opportunity for workers to use their skills and abilities. Conversely, lower-skilled jobs are more likely to be narrower in their scope, meaning that workers are using fewer skills.

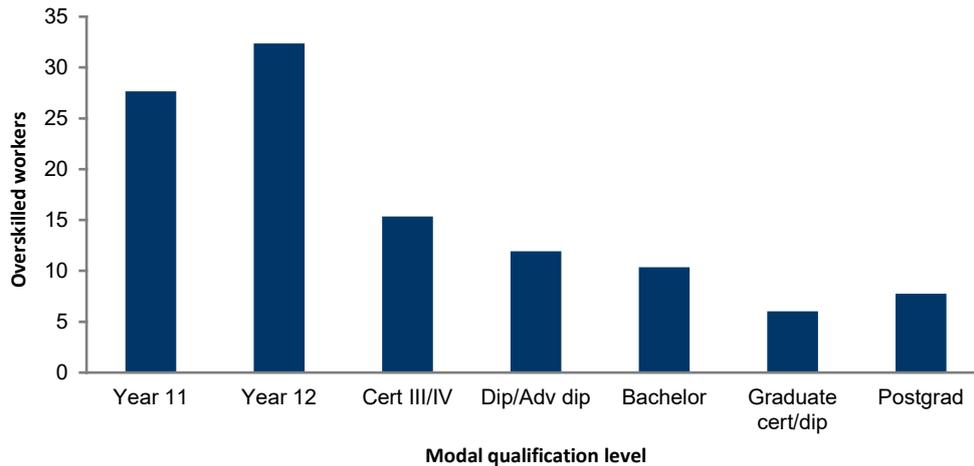
Key points

- Around 19% of Australian workers are not using all of their skills
- About 35% of workers are overqualified for their role, potentially leading to skills underutilisation
- Overskilled workers are more likely to be working in a field that is different from that of their highest qualification

6 HILDA respondents who work in the same occupations were grouped using the 4-digit ANZSCO occupation codes. In total, the data contain 430 4-digit ANZSCO occupation groups, with at least 100 worker-year observations in 290 of those groups.

7 In this report, the term 'overskilled' is used to describe a worker who is experiencing skill underutilisation in the workplace.

Figure 1 Overskilled workers within 4-digit ANZSCO occupations groups for each modal qualification level (%)



Source: HILDA Survey, waves 1–18.

The characteristics of Australian workers who are overskilled in their current job are presented in table B1 in appendix B. The data show that overskilled workers tend to be younger, more likely to be female, less likely to have children and more likely to work part-time. They also have lower education attainment than the workers who do not consider themselves to be overskilled.

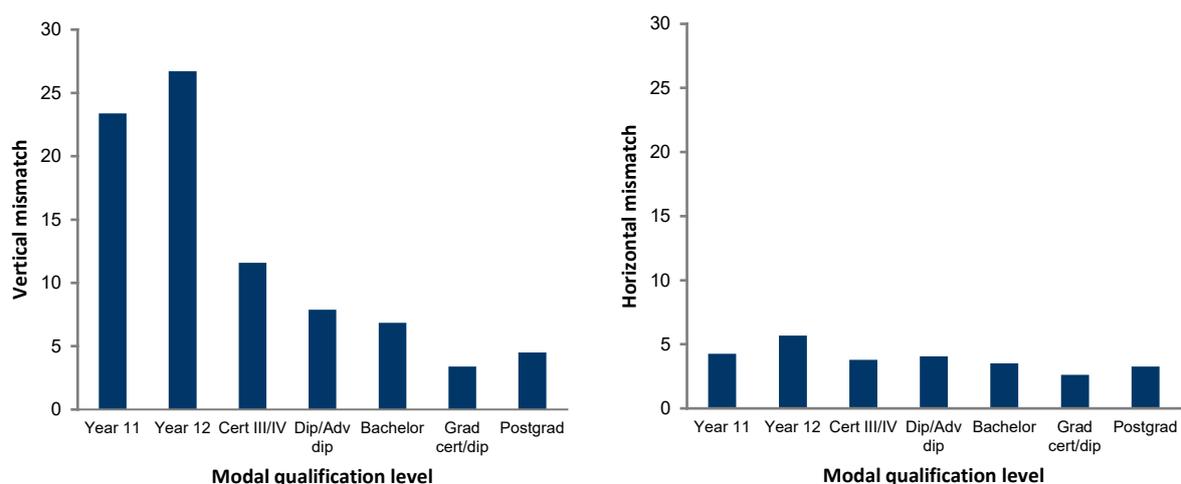
The data analysis given above does not tell us much about the characteristics of the skills held by those workers who are deemed overskilled. For example, it does not tell us whether they have *higher-level* skills they are not using, or if they have *different* skills, perhaps unrelated to their current job (but possibly of a similar level).

To explore this, a further analysis of those who are deemed overskilled was conducted using responses to the HILDA question *My job often requires me to learn new skills*. This allows two types of skills mismatch to be defined:

- vertical mismatch: not using current skills AND not learning new skills
- horizontal mismatch: not using current skills BUT learning new skills.

Figure 2 shows that vertical mismatch, where workers are not learning new skills, is more common than horizontal mismatch, where workers are learning new skills. This is especially true for occupations with the lowest modal education levels (Years 11 and 12). This supports the idea, previously expressed, that jobs with the lowest modal education levels are likely to be narrower in the skills used and therefore do not require many new skills to be learned. At the higher modal education levels, the split between vertical and horizontal mismatch was more even.

Figure 2 Vertical and horizontal mismatch in overskilled workers within 4-digit ANZSCO occupations groups for each modal qualification level (%)



Source: HILDA Survey, waves 1–18.

How workers end up in overeducated or overskilled jobs

Incidence of overeducation

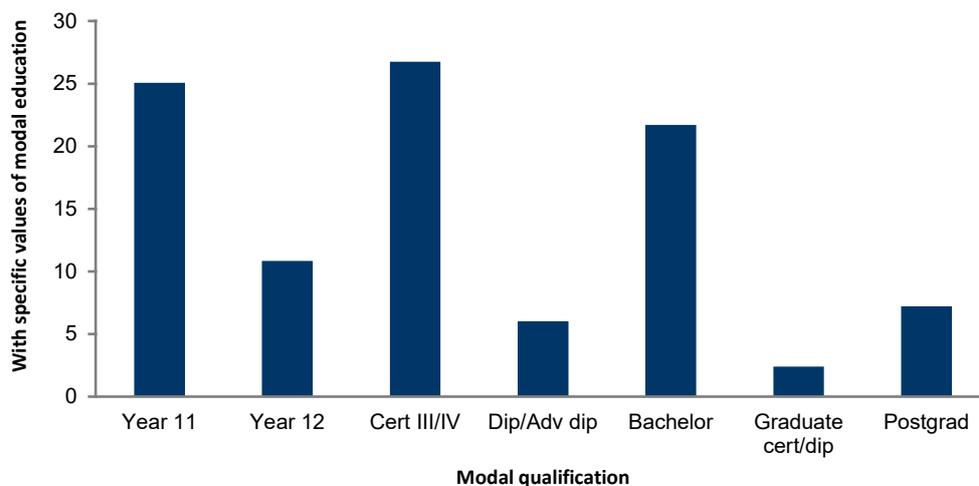
Being overeducated is one way to end up overskilled in a job. Increasing qualification levels in jobseekers, paired with the potential for employers to choose job candidates with the highest qualifications, is one way skills underutilisation can occur. Corresponding with the supply-side focus of policy over the last decade, the overall workforce has become more educated, with the proportion of workers having VET or HE qualifications increasing by 33.5% between 2006 and 2016 (O’Dwyer & White 2019). This has occurred at a faster rate than jobs have changed, with analyses of the occupational composition of the labour market over the same time showing that professionals increased by around 11% (O’Dwyer & White 2019). Many workers hold qualifications that ‘exceed’ the required qualification (and potentially, the required skills) of their occupation.

In this analysis, overeducation is defined as having attained an education level that is higher than the most common (modal) education level observed in the given 4-digit ANZSCO occupation group.⁸ Applying the modal education level to determine who is overeducated and/or undereducated has been used elsewhere, for example, by Mavromaras et al. (2011) and the International Labour Organization (Gammarano 2020). Firstly, the modal education level is identified for all 430 observed occupation groups.⁹ The data show that in around 27% of occupation groups the modal education is a certificate III/IV and in 22% it is a bachelor’s degree (figure 3). For around a quarter of the occupation groups, the modal qualification level is Year 11, suggesting that no formal qualifications are required in those jobs. These three peaks are unsurprising and largely represent the most common job entry-level VET and HE qualifications (certificate III/IV and bachelor’s degree, respectively) and those low-skilled jobs where no formal qualifications are necessary.

⁸ See appendix A for more detailed methodology.

⁹ Certificate I and certificate II qualifications are bundled with Years 11 and 12 in the data. There is no one-to-one matching, meaning that some certificate I qualifications are classified as Year 11 and some as Year 12 (same for certificate II).

Figure 3 4-digit ANZSCO occupation groups with specific values of modal education among their respective workforces (%)



Source: HILDA Survey, waves 1–18.

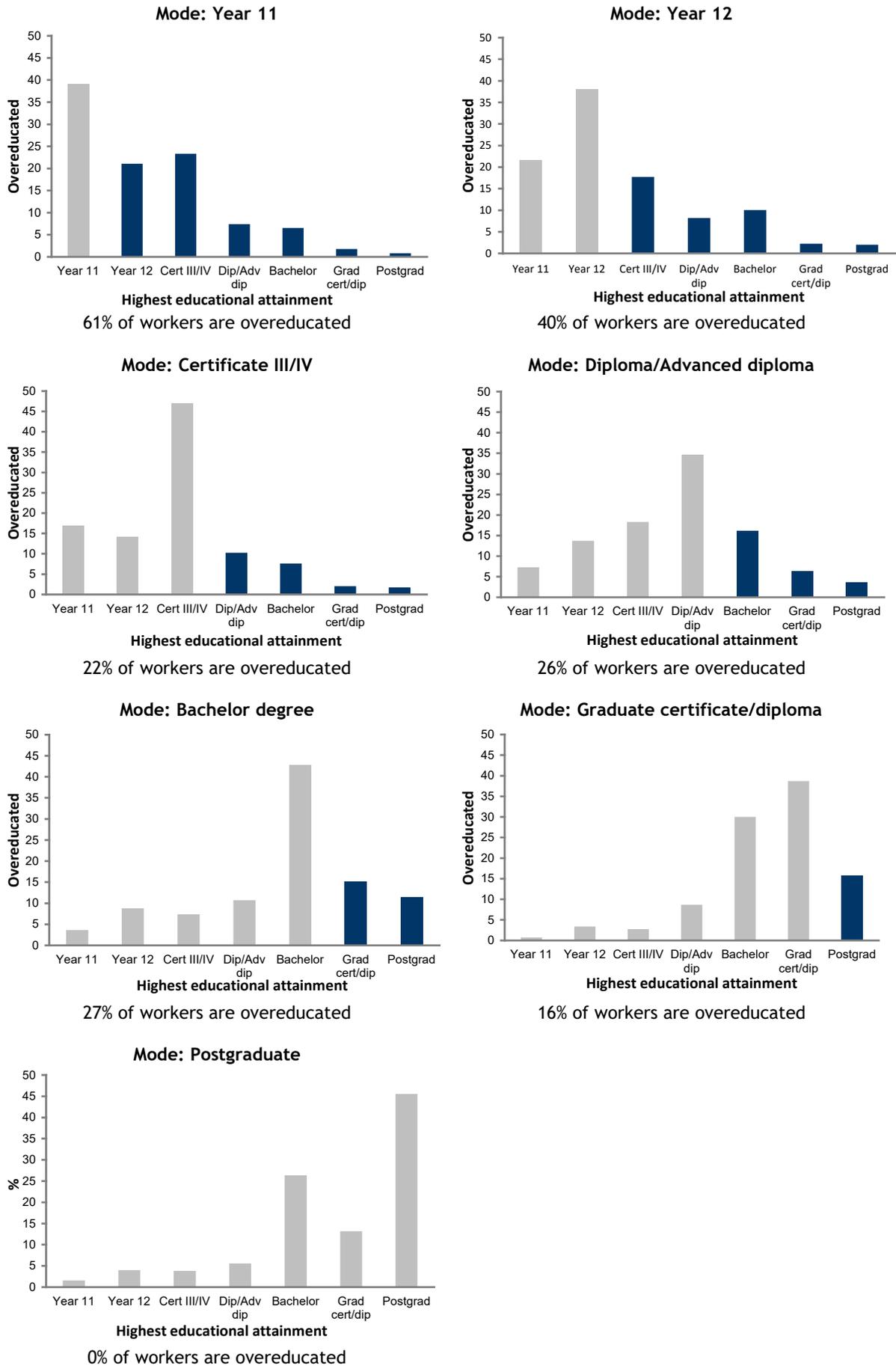
Secondly, to explore levels of overeducation, the distribution of workers’ highest attained education levels against the modal education level in their occupation group is examined (figure 4).

The highest proportion of overeducated workers are in those low-skilled jobs where the modal education level is Year 11 (61% overeducated) or Year 12 (40% overeducated). This is unsurprising, as any post-school qualification will deem the worker as overeducated in these occupations. The converse is also true: the lowest proportions of overeducated workers are seen in those occupations where the modal education level is high (graduate, 16% overeducated; postgraduate, 0% overeducated). For those occupations with mid-range modal qualifications, the proportion of overeducated workers ranges from 22% (median qualification certificate III/IV) to 27% (bachelor’s degree).

Across all 4-digit ANZSCO occupations in HILDA, around 35% of workers are deemed overeducated (based on the modal qualification level for their occupation). Figures from previous research show that these types of estimates can be variable and depend on the data and definitions used. Mavromaras et al. (2011), also using HILDA data, reported that 20% of Australian workers were overeducated (noting that their analysis was limited to data from 2001 to 2008). The OECD reported that overqualification is higher in Australia compared with the OECD average (20% versus 17%), with VET graduates better matched to their jobs than graduates from HE (OECD 2018). On a global scale, the International Labour Organization reported that 28% of workers in the world are overeducated for their jobs (Gammarano 2020). Further, it confirmed the pattern reported above for low-skilled jobs, showing that, in high-income countries, almost all workers in low-skilled jobs are overeducated.

The characteristics of Australian workers who are overeducated in their current job are shown in table B2 in appendix B. Overeducated workers are largely similar to those who are not overeducated on a large range of observable characteristics. Of note, however, is that the overeducated group of workers contains more women and those born overseas.

Figure 4 Distributions of workers' highest attained education levels within 4-digit ANZSCO occupation groups for each modal level of education (%)



Source: HILDA Survey, waves 1–18.

Entries and exits into overeducated or overskilled jobs

The characteristics and circumstances of workers entering jobs where they are overskilled or overeducated were explored for all ANZSCO occupation groups in the HILDA dataset (table 1).

Overskilled workers are more likely to be working in a field that is different from that of their highest qualification (see table B1 in appendix B). They are also more likely to have come from a job where they experienced a field of study mismatch (table 1). It makes sense that workers who are working in a field that is different from that of their qualification may report that they have additional skills that are not being used. Field-of-study mismatches are not uncommon in Australia, reported to be around 33% by the OECD (2018) and as high as almost 60% when considering VET only (Wibrow 2014).

Workers who consider themselves currently overskilled are more likely to have considered themselves overskilled in their previous job (44% compared with 21%). Similarly, workers who are overeducated in their current job are much more likely to have been overeducated in their previous occupation (69% compared with 21%; table 1). These findings confirm the persistent nature of overskilling previously identified by Mavromaras et al. (2012).

Having a child aged 0–5 years does not have a large bearing on whether workers are overeducated or overskilled in their current job. This variable appears to be more important in sectors dominated by women and is discussed further in relation to the case study sectors.

Table 1 Circumstances of workers entering their occupation (across all ANZSCO occupation groups), by over-education and over-skilling

	Overskilled		Not overskilled		Overeducated		Not overeducated	
	%	n	%	n	%	n	%	n
Characteristics of the previous occupation								
Overskilled in the previous occupation	44	2 289	21	4 020	27	2 660	25	3 649
Overeducated in the previous occupation	40	5 232	40	7 765	69	6 809	21	3 071
Study field mismatched in the previous occupation	65	2 187	56	7 617	59	4 516	57	5 288
Family characteristics								
At least one child aged 0–5 when entering the sector	15	973	17	3 843	18	1 963	16	2 853

Note: n is the number of people who fall into the specified category. Sample sizes vary depending on the question asked.
Source: HILDA Survey, waves 1–18.



Case study 1: early childhood education and care

Early childhood education and care (ECEC) is a sub-sector of the children’s education and care sector and a component of the community services industry. The sector is large, with strong growth expected over the next five years, especially in early childhood (pre-primary) teachers’ roles, child carers and childcare centre managers (Australian Industry and Skills Committee [AISC] 2020a).

Three occupations formed the basis of analysis for this case study:

- child carers
- early childhood (pre-primary school) teachers
- childcare centre managers.

Key points

- Employers in ECEC believed all workers were using their skills, while around 16% of workers report they are not
- Very few formal mechanisms are in place to understand the skills of workers in this sector
- Employers were open to appointing overqualified workers, stating the skills would be utilised

Overskilling in early childhood education and care

According to our measure of overskilling, 15.7% of early childhood education and care workers consider themselves overskilled in their current jobs (see table B3 in appendix B). Table 2 shows the percentages of workers who consider themselves to be overskilled in the selected early childhood education and care occupations, including whether they are vertically or horizontally mismatched. The figures indicate that child carers and childcare centre managers (modal qualifications certificate III and diploma respectively) are more likely to report that they are not using many of their skills than early childhood (pre-primary school) teachers (modal qualification bachelor degree). These two groups are also more likely to report that they are not learning new skills in their current roles (that is, they are vertically mismatched).

Table 2 Overskilled workers in select 4-digit ANZSCO occupation groups in the early childhood education and care sector

ANZSCO occupation	N	Overskilled	Vertically skill mismatched ^a	Horizontally skill mismatched ^b
		%	%	%
Child carers	626	18.9	15.3	3.6
Early childhood (pre-primary school) teachers	148	4.2	2.6	1.6
Childcare centre managers	93	11.3	10.9	0.4

Notes: a overskilled but not learning any new skills.

b overskilled but learning new skills.

Source: HILDA Survey, waves 1–18.

Interviews in the early childhood education and care sector suggest that employers/managers may have a different understanding of the extent to which workers are using their skills. There was a strong consensus that all team members, irrespective of their education or experience, are either already using, or have the opportunity to use, all of their skills. This includes using non-professional skills, such as those from personal hobbies and passions, an example raised by most interviewees.

There is some potential for differing views if employees are overstating a lack of skills utilisation or if managers are unaware of their employees’ skills. The high-performing nature of the case study centres may also mean that these employees are using their skills more optimally than might be occurring in other centres. In the case study examples, employers suggested that skills use is very much driven by the

employees themselves and the communicative relationships in these, often small, teams. These collaborative environments enabled employees to share information about the skills they have and to be proactive in finding ways to incorporate them into their roles.

Overeducation in early childhood education and care

Using the same definition of overeducation as applied in the previous section, 36.1% of workers in the early childhood education and care sector (across the selected occupations) are overeducated (see table B3 in appendix B). Table 3 shows the modal education levels and percentage of overeducated workers in the selected occupations from the early childhood education and care sector. The data show that the highest levels of overeducation (46.5%) are in childcare centre managers, where the modal education level is a diploma, followed by child carers (34.4%), where the modal education level is a certificate III/IV.

Table 3 Modal education levels and shares of overeducated workers in select 4-digit ANZSCO occupation codes from the early childhood education and care sector

ANZSCO occupation	N	Modal education	Overeducated (%)
Child carers	626	Certificate III/IV	34.4
Early childhood teachers (pre-primary school)	148	Bachelor	16.7
Childcare centre managers	93	Diploma	46.5

Source: HILDA Survey, waves 1–18.

These findings provide an opportunity to explain that there are sometimes very legitimate reasons why a worker may be deemed overeducated according to this definition. The minimum qualification requirements for centre-based services with children of preschool age or under are established by the Education and Care Services National Regulations (Australian Children’s Education and Care Quality Authority [ACECQA] 2021). These regulations stipulate that at least 50% of educators¹⁰ must be qualified to diploma level or higher, while all other educators must be certificate III level-qualified (ACECQA 2021).¹¹ While the roles and responsibilities of diploma-level educators and certificate III-level educators may differ (ACECQA 2021), the notional occupational outcome for both the Diploma and Certificate III in Early Childhood Education and Care is child carer (Korbel 2018). There is, therefore, no differentiation of these roles in the HILDA data, meaning that those diploma-qualified child carers¹² are deemed overeducated in this analysis.

Interviews with managers of high-performing early childhood education and care centres also uncovered examples of how workers have ended up in jobs where they are overqualified. Situations were described where job applicants were knowingly and/or deliberately appointed to roles for which they are overeducated (either in terms of the legislated requirements for centres or compared with the modal education level derived above). Several reasons were given for this:

- manager preference for higher levels of education (for example, HE qualifications rather than VET) and/or work/life experience, including the ability to use them in mentoring roles
- applicants applying for and accepting lower-level roles to ‘get a foot in the door’

¹⁰ In centre-based services, such as long day care, as well as preschools and kindergartens in some states and territories.

¹¹ An individual *may* be counted at the appropriate level if they are actively working towards an approved qualification if they meet certain requirements (ACECQA 2021).

¹² These workers are deemed ‘child carers’ in the HILDA Survey but fall under the requirement for educators as stipulated by ACECQA.

- applicants' desire to shift from primary school teaching to childcare.

There was no sense from the interviewees that these employees feel overqualified. Many would be used in mentoring roles (over and above the role in which they were employed) and interviewees were confident that all skills would be used, despite the overqualification. As some of the interviewees explained:

In a 'legal' [technical] sense, yes [overqualified], but not in my mind. These are the qualifications they need.

We pay for the person's qualification ... we pay people because we think they should be paid at the level they've trained for. People still have influence across other rooms, can be a mentor to other staff – so we're happy to be paying for these skills because we know they'll be using them. We tell them that at the interview – we set high expectations.

Movement into early childhood education and care

The characteristics of the movement into the three selected occupations in the early childhood education and care sector are shown in tables 4 and 5 (for currently overskilled and overeducated workers respectively) and discussed below. It is important to note that the data for early childhood teachers and centre managers need to be considered cautiously due to lower numbers of survey respondents from those occupations.

Child carers

There is some indication that those child carers who are overskilled are more likely to be new to the sector (but not new to the workforce) compared with those who are not overskilled (table 4). This could indicate that overskilled child carers, who were most commonly employed as sales assistants in their previous roles, may be referring to skills they brought from their previous jobs, skills now not being used. It is unknown how consistently survey respondents consider these types of non-related skills when answering the HILDA Survey question on whether they are using many of their skills or abilities in their job, highlighting the difficulties with the subjective nature of this measure. Overskilled child carers are also more likely to have considered themselves overskilled in their previous roles and were more likely to be overeducated. (Note that the data do not distinguish between previous jobs inside or outside the current sector.)

The data show that child carers who are considered overeducated in their current role are not new to the sector or the workforce and were also more likely to be overeducated in their previous roles (table 5). This is likely to reflect the regulatory requirements for diploma-qualified child carers, as discussed above. The findings also indicate, however, that those who are overeducated in their child carer role are more likely to have young children when they entered the sector, suggesting that the educational route might be different for some workers. It is possible that these are women who are transferring into childcare occupations from other fields while they have their own school-aged children at home, although they are not more likely to consider themselves overskilled (only true for the children aged <13 group).

Early childhood teachers and centre managers

Tables 2 and 3 demonstrated that a relatively smaller percentage of early childhood teachers are considered overskilled or overeducated. The same tables show that around one-tenth of centre managers consider themselves overskilled, although almost half are overeducated according to the definition used.

Unfortunately, the modest numbers of individuals in these occupations who consider themselves overskilled *and* who answered the HILDA questions relevant to assessing their pathways into their jobs was very small, often fewer than 10 individuals. This means we are unable to analyse the pathways into overskilled jobs for these two occupations.

Table 4 Characteristics of entry into the child carer occupation, for overskilled and not overskilled workers

	Child carers	
	%	n (N)
Overskilled in current job		
Entered the sector within the obs. period	57	114 (199)
Had previous employment	63	72 (114)
Overskilled in their previous job	43	31 (72)
Overeducated in their previous job	40	29 (72)
Had children aged 0–5 when entering the sector	18	21 (114)
Had children aged < 13 when entering the sector	39	44 (114)
Modal previous employment	Sales assistants	
Not overskilled in current job		
Entered the sector within the obs. period	49	159 (326)
Had previous employment	70	112 (159)
Overskilled in their previous job	24	27 (112)
Overeducated in their previous job	32	36 (112)
Had children aged 0–5 when entering the sector	21	34 (159)
Had children aged < 13 when entering the sector	29	46 (159)
Modal previous employment	Sales assistants	

Notes: n = the number of people falling into the specified category.
N = the number of people answering the relevant survey question.

Source: HILDA Survey, waves 1–18.

Table 5 Characteristics of entry into the child carer occupation, for overeducated and not overeducated workers

	Child carers	
	%	n (N)
Overeducated in current job		
Entered the sector within the obs. period	50	97 (194)
Had previous employment	66	64 (97)
Overskilled in their previous job	22	14 (64)
Overeducated in their previous job	50	32 (64)
Had children aged 0–5 when entering the sector	29	28 (97)
Had children aged < 13 when entering the sector	44	43 (97)
Modal previous employment	Sales assistants	
Not overeducated in current job		
Entered the sector within the obs. period	53	176 (331)
Had previous employment	68	120 (176)
Overskilled in their previous job	37	44 (120)
Overeducated in their previous job	28	33 (120)
Had children aged 0–5 when entering the sector	15	27 (176)
Had children aged < 13 when entering the sector	27	47 (176)
Modal previous employment for control group	Sales assistants	

Notes: n = the number of people falling into the specified category.
N = the number of people answering the relevant survey question.
Source: HILDA Survey, waves 1–18.

Recruitment

Employers/directors were asked to comment on the importance of qualifications and skills in the recruitment process. It was suggested that, while the necessary qualifications were required to secure an interview for available positions (because of the legislated requirements), it was the cultural fit, enthusiasm and having a philosophy that aligns with that of the workplace that were the highest priorities when recruiting. It was generally assumed that an applicant would have the necessary skills for the position if they held the appropriate qualification, but there was an appreciation in this sector for skills related to hobbies and passions. These skills, unrelated to early childhood education and care, were seen as valuable in the workplace and were important additions to the roles.

Strategies to understand workers' skills and maximise their usage

Very few formal mechanisms were used in the early childhood education and care case study organisations to understand the skills of staff. Knowledge of skills was mostly gained through:

- interviews when recruited
- annual appraisals
- formal and informal conversations.

The small-team nature of the organisations interviewed meant that skills understanding most commonly came from direct interpersonal communication. Some of this was through formal team meetings, but much was transmitted through informal communication. Several of the organisations described the staff as being like a family, where everyone knew each other well and understood the types of skills that everyone had.

The employers and directors who were interviewed agreed that it was beneficial to the organisation for employees to be using all of their skills. The benefits were overwhelmingly couched in terms of staff feeling valued and fulfilled in their roles. They also believed it enriched the program for children, especially when considering skills related to the hobbies and passions of the staff, an issue raised by several of the interviewees.

Employers/directors were asked to describe any practices used in the organisation that might enable skills utilisation among the employees. To help guide the discussion, they were prompted with a list of business practices, drawn from the literature, which have been suggested as enabling skills utilisation. Most of the practices did not resonate strongly with the interviewees. Table B4 in appendix B lists these business practices and summarises the responses received from interviewees.

The interviews demonstrated that these employers and directors are not thinking about skills utilisation per se. While they are not implementing formal practices to ensure skills utilisation, the overall view is that their employees are already able to use all of their skills in their roles. The team-planning approaches used and the discretion that employees have to shape their own roles were emphasised by interviewees as enabling workers to draw on their skills, including those related to personal hobbies and passions.

Overall, the interviewees from these organisations did not see a need to improve or introduce practices that aimed to measure or increase skills usage. As one interviewee summarised:

No, we do that in performance reviews. It can be done in less formal ways ... the formality of that just doesn't fit. Maybe in an office setting, but it just doesn't work for us.



Case study 2: manufacturing

The manufacturing and related services industry is very diverse, covering multiple sectors. It forms a large part of the Australian economy and is one of Australia's largest employing industries (AISC 2020b). While large, it has declined in size as a result of factors such as the increasing availability of manufactured products from lower-cost economies. Despite an overall decline, 'advanced manufacturing' is a priority industry for the Australian and state/territory governments (AISC 2020b).

Advanced manufacturing is not an easily defined sector, nor is it identifiable in the HILDA Survey data used in this project. The Advanced Manufacturing Growth Centre Ltd (AMGC; 2017) argues that, while the discussion of advanced manufacturing companies has previously been defined by the products being manufactured,¹³ a broader view focuses on the sophistication of businesses rather than the products they make. The AMGC (2017, p.4) further suggests that successful manufacturers share a range of advanced characteristics: advanced knowledge; advanced processes; and advanced business models. The development of these characteristics may be influenced by the ability of companies to harness the skills of their employees. Manufacturing (and advanced manufacturing more specifically) was therefore included as a case study sector in this project.

Key points

- Around 14% of manufacturing workers report not using all their skills, although this was highly dependent on their specific occupation
- Business practices tended to aim at understanding skills needs and career progression rather than enabling skills utilisation.
- Skills development is a higher priority than skills utilisation

Overskilling in manufacturing

Using our definition of overskilling, 13.6% of workers in the manufacturing sector (across the selected occupations) report that they do not use all of their skills in their current jobs (see table B3 in appendix B). Table 7 shows that the percentage of overskilled workers in the selected manufacturing occupations range from 5.4% in aircraft maintenance engineers (certificate III/IV modal qualifications), to 31.3% in metal engineering process workers (no formal post-school qualifications). Almost a quarter of this latter group also report that they are not learning new skills and are, hence, vertically mismatched. Relatively high levels of overskilling and vertical skill mismatch are also seen in plastics and rubber workers (modal qualification level Year 11) and science technicians (modal qualification bachelor degree). The range of modal education levels in these occupations suggests that, in manufacturing, skills underutilisation may not be limited to low-skilled jobs.

When manufacturing employers were interviewed, there was much less certainty that workers are using all of their skills (compared with the confidence shown by employers in the early childhood education and care sector). Employers remarked:

I wouldn't know ... there's no formal way of determining skills.

Maybe yes [have skills not being used], if they've brought skills from another job.

I'm not aware ... the managers might know.

13 The AMGC (2017) states that the Australian Government considers advanced manufacturing to include: chemical and medicinal manufacturing; vehicle and transport; professional and scientific equipment; computer and electronic; and specialised machinery and equipment manufacturing.

Table 7 Shares of overskilled workers in select 4-digit ANZSCO occupation groups in the manufacturing sector

ANZSCO occupation	N	Overskilled	Vertically skill mismatched	Horizontally skill mismatched
		%	%	%
Production managers	388	11.6	9.2	2.4
Plastics and rubber workers ^a	96	23.9	20.0	3.9
Science technicians	132	25.6	17.1	8.4
Aircraft maintenance engineers	50	5.4	4.2	1.3
Metal engineering process workers	115	31.3	23.8	7.5
Metal fitters and machinists	403	11.9	8.4	3.5

Notes: a includes 2 ANZSCO occupation groups – plastics and rubber factory workers and plastics and rubber production machine operators.

Source: HILDA Survey, waves 1–18.

This uncertainty was sometimes attributed to limited mechanisms for capturing information about workers' skills but it may also be due to the large diversity of roles in these organisations, which range from very low-skilled production jobs to very technical and high-skilled engineering and specialist positions. There was also an underlying assumption that people in low-skilled jobs – those that required no formal qualifications – were unlikely to possess additional relevant unused skills, unless they came with them from a previous job or if workers had a related hobby. Even where workers had these skills, employers thought it unlikely they would be used, especially in occupations that were routine in nature.

Overeducation in manufacturing

According to the measure of overeducation, 18.8% of manufacturing workers (across the selected occupations) are overeducated (see table B3 in appendix B). Table 8 shows the modal education levels and percentage of overeducated workers in selected occupations from the manufacturing industry. It is clear from the data that the two occupations (plastics and rubber workers, metal engineering process workers) that require no formal education (Year 11 modal qualification) are more likely to have high levels of overeducation, as any qualification from Year 12 upwards will be defined as overeducated. This is a consequence of the definition used for this project. Of note, however, is that over a third of production managers (modal qualification certificate III/IV) are overeducated, as are around 11% of science technicians (modal qualification bachelor degree).

Table 8 Modal education levels and shares of overeducated workers in select 4-digit ANZSCO occupation codes from the manufacturing sector

ANZSCO occupation	N	Modal education	Overeducated (%)
Production managers	388	Certificate III/IV	34.5
Plastics and rubber workers ^a	96	Year 11	54.4
Science technicians	132	Bachelor	10.9
Aircraft maintenance engineers	50	Certificate III/IV	9.2
Metal engineering process workers	115	Year 11	59.3
Metal fitters and machinists	403	Certificate III/IV	5.4

Notes: a includes 2 ANZSCO occupation groups – plastics and rubber factory workers and plastics and rubber production machine operators.

Source: HILDA Survey, waves 1–18.

Employers in the manufacturing sector suggested that they generally avoid employing someone who is overqualified for the available position due to concerns they would be dissatisfied with the role and/or the salary. As one employer explained:

We've had people apply that are too highly qualified – we respectfully turn them away unless there's another role in the company that is suitable. They may have 5 or 10 years of experience ... probably wouldn't be satisfied with the role, or the salary, to be frank.

Another employer described their approach:

I come back to that career fit. We are often looking along that S-curve of career fit – trying to match a certain part of that curve ... either someone at the bottom of that curve, at the start of their career, that we're trying to target ... or we are looking to find skill sets at the other end of the curve, either because we are looking for leadership or mentoring ... a bit more maturity or experience, not really higher skills. So no, we've never employed a brain surgeon to try and do a maintenance role. Always fit for purpose but with different levels of experience.

Given that the data show quite high levels of overeducation in some manufacturing occupations, this suggests that employers may be unaware of the qualifications held (over and above that required for the job) by some of their workers, or that they are deemed irrelevant to the position.

For occupations with high-level qualification requirements, any skill underutilisation experienced is not likely to be due to overeducation. Indeed, one employer, from a company specialising in the manufacture of medical devices, suggested overeducated applicants would be rare in their industry because of the high levels of education expected or required.

Movement into manufacturing occupations

The characteristics of the movement into the selected occupations in the manufacturing sector are shown in tables 9 and 10 (for currently overskilled and overeducated workers respectively) and discussed below. Some caution is required in interpreting these data due to lower numbers of survey respondents from some occupations. Aircraft maintenance engineers have been omitted from this analysis because of a very small sample, while plastics and rubber workers and science technicians are omitted from the overeducation analysis for the same reason.

Production managers

As previously shown, around 12% of production managers report that they are not using all of their skills in their jobs (table 7), although this is not as high as in some other selected manufacturing occupations. The HILDA analysis suggests that these currently overskilled production managers are slightly more likely to be new to the sector compared with those who are not currently overskilled (table 9). They are not more likely to be new to the workforce, however, with a high proportion having had previous employment. The most common previous occupations for those production managers are chemists, engineering production workers and packers. These previous occupations are likely to have required higher qualification levels than the previous occupations for workers who are not currently overskilled (advertising, metal fitters and product assembly workers). This may help to explain why just over a third of production managers are overeducated for their role (table 8). Indeed, one of the most common previous occupations for currently overeducated production managers was chemist, although it is interesting that those who are currently overeducated are more likely to have been overeducated in their previous roles also (63% compared with 25% for those who are not currently overeducated, table 10).

There is some evidence that production managers who consider themselves overskilled in their current jobs are more likely to have considered themselves overskilled in their previous occupations (33%) by comparison with those who are not currently overskilled (9%). The currently overskilled were not more likely to be overeducated in their previous roles (33% compared with 39%, table 9), however, perhaps reflecting the higher qualification levels required for those previous occupations.

These findings demonstrate that it is very difficult to determine the pathway for the 11.6% of production managers whose skills are currently underutilised in their jobs. This could be due to the more general nature of 'manager' positions (compared with technical occupations, where very specific qualifications are required). In any case, the relatively low proportion of overskilled workers (and the subjective nature of the measure) raises the question of how much of a problem this is likely to be.

Plastics and rubber workers

The earlier findings indicate that just over half of plastics and rubber workers are defined as overeducated (likely due to the fact that the modal qualification level for this occupation is Year 11, table 8). Just under a quarter report that they are not using all of their skills (table 7). A further analysis shows that those workers who report they are overskilled are not more likely to be new to the sector (table 9), suggesting they are not bringing skills in from a different industry. Those who are currently overskilled are more likely to have worked previously (that is, had a previous job) compared with those who are not currently overskilled (table 9), suggesting that previous work experience may have provided them with skills they are not currently using (although caution is required due to the relatively small sample for this group).

The analysis suggests, although cautiously due to small samples, that those who are currently overskilled are not more likely to have been overskilled in their previous jobs, although they are more likely to have been overeducated (33% compared with 17% for those not currently overskilled; table 9).

Science technicians

Around a quarter of science technicians report that they do not use all of their skills, and about one-tenth are overeducated (tables 7 and 8). A further analysis shows that science technicians who are currently overskilled are slightly less likely to be new to the sector than those who are not overskilled and also slightly less likely to have had previous employment (table 9). Currently overskilled science technicians are more likely to have been overskilled in their previous jobs (56%) compared with those workers who are not currently overskilled (19% overskilled in previous job). There is no modal previous occupation for those science technicians who are currently overskilled, suggesting that they come from a broad spread of previous roles. Those science technicians who are not currently overskilled most commonly worked as waiters and sales assistants in their previous jobs and were more likely to be overeducated in these previous roles (44%) compared with those currently overskilled (38%).

Metal engineering process workers

In this low-skilled occupation (modal education level Year 11), almost 60% of workers are overeducated (table 8) and around a third report that they are not using all of their skills (table 7). Those currently overskilled workers are more likely to have been overskilled in their previous jobs (17% compared with 11% for those not currently overskilled) and overeducated (58% compared with 39%, table 9).

This occupation appears to be another example of those low-skilled occupations with high levels of overeducation due to the low qualification requirements (that is, no qualification requirements) and high levels of skill underutilisation, a likely consequence of the narrow set of skills required to do the work.

Metal fitters and machinists

Metal fitters and machinists have a certificate III/IV modal qualification level and a relatively low proportion of overskilled workers (11.9%, table 7) and overeducated workers (5.4%, table 8), suggesting that workers are relatively well matched to their jobs in this trade occupation. Those workers who are currently overskilled are not more likely to be new to the sector or to have had previous employment by comparison with those who are not currently overskilled (table 9).

Overskilled metal fitters and machinists appear to follow the trend mentioned previously, whereby they are more likely to have been overskilled in their previous jobs (50% compared with 15% for those who are not currently overskilled, table 9). They are also more likely to have been overeducated in their previous roles (46% compared with 36% for those not currently overskilled, table 9).

The small proportion of metal fitters and machinists who are overeducated were also more likely to be overeducated in their previous roles (89% compared with 33% for those not currently overeducated, table 10).

Table 9 Characteristics of the movement into the selected manufacturing occupations,^a for overskilled and not overskilled workers

	Production managers		Plastics and rubber workers		Science technicians		Metal engineering process workers		Metal fitters and machinists	
	%	n (N)	%	n (N)	%	n (N)	%	n (N)	%	n (N)
Overskilled in current job										
Entered the sector within the obs. period	57	30 (53)	38	10 (26)	56	20 (36)	63	15 (24)	34	27 (79)
Had previous employment	90	27 (30)	90	9 (10)	80	16 (20)	80	12 (15)	89	24 (27)
Overskilled in their previous job	33	9 (27)	33 ^b	<5 (<10)	56	9 (16)	17	2 (12)	50	12 (24)
Overeducated in their previous job	33	9 (27)	33 ^b	<5 (<10)	38	6 (16)	58	7 (12)	46	11 (24)
Had children aged 0–5 when entering the sector	27	8 (30)	0	0 (10)	20	4 (20)	7	1 (15)	11	3 (27)
Had children aged < 13 when entering the sector	27	8 (30)	0	0 (10)	30	6 (20)	13	2 (15)	26	7 (27)
Modal previous employment	Chemists / engineering production / packers		No mode		No mode		Packers / product assemblers		Motor mechanics	
Not overskilled in current job										
Entered the sector within the obs. period	49	67 (137)	34	10 (29)	67	31 (46)	61	23 (38)	38	78 (205)
Had previous employment	96	64 (67)	60	6 (10)	87	27 (31)	78	18 (23)	86	67 (78)
Overskilled in their previous job	9	6 (64)	33 ^b	<5 (<10)	19	5 (27)	11	2 (18)	15	10 (67)
Overeducated in their previous job	39	25 (64)	17 ^b	<5 (<10)	44	12 (27)	39	7 (18)	36	24 (67)
Had children aged 0–5 when entering the sector	34	23 (67)	0	0 (10)	13	4 (31)	9	2 (23)	24	19 (78)
Had children aged < 13 when entering the sector	52	35 (67)	10	1 (10)	19	6 (31)	22	5 (23)	36	28 (78)
Modal previous employment	Advertising / metal fitters/ product assembly		No mode		Waiters / sales assistants		Earthmoving plant operators		Motor mechanics	

Notes: a Figures for aircraft engineers are not presented due to low sample size (<10 for most categories).

b Percentage is based on a low number of cases.

n = the number of people falling into the specified category.

Total N = the number of people answering the relevant survey question.

Source: HILDA Survey, waves 1–18.

Table 10 Characteristics of the movement into the selected manufacturing occupations,^a for overeducated and not overeducated workers

	Production managers		Metal engineering process workers		Metal fitters and machinists	
	%	n (N)	%	n (N)	%	n (N)
Overeducated in current job						
Entered the sector within the obs. period	42	30 (71)	72	26 (36)	44	11 (25)
Had previous employment	100	30 (30)	85	22 (26)	82	9 (11)
Overskilled in their previous job	20	6 (30)	14	3 (22)	33 ^b	<5 (<10)
Overeducated in their previous job	63	19 (30)	64	14 (22)	89 ^b	8 (<10)
Had children aged 0–5 when entering the sector	43	13 (30)	4	1 (26)	27	3 (11)
Had children aged < 13 when entering the sector	50	15 (30)	19	5 (26)	45	5 (11)
Modal previous employment	Chemist, and food and wine scientist		Structural steel and welding		No mode	
Not overeducated in current job						
Entered the sector within the obs. period	56	67 (119)	46	12 (26)	36	94 (259)
Had previous employment	91	61 (67)	67	8 (12)	87	82 (94)
Overskilled in their previous job	15	9 (61)	13 ^b	<5 (<10)	23	19 (82)
Overeducated in their previous job	25	15 (61)	0 ^b	0 (<10)	33	27(82)
Had children aged 0–5 when entering the sector	27	18 (67)	17	2 (12)	20	19 (94)
Had children aged < 13 when entering the sector	42	28 (67)	17	2 (12)	32	30 (94)
Modal previous employment	Advertising		No mode		Motor mechanics	

Notes: a Figures for aircraft engineers, plastics and rubber workers and science technicians are not presented due to low sample size (<10 for most categories, especially for overeducated).

b Percentage is based on a low number of cases.

n = the number of people falling into the specified category.

Total N = the number of people answering the relevant survey question.

Source: HILDA Survey, waves 1–18.

Recruitment

When asked about the importance of qualifications versus skills in interviews, manufacturing employers described a variety of recruitment processes. The recruitment process for several of the case study businesses was very comprehensive, consisting of multiple interviews, which consider skills, technical abilities and experience, cultural fit and personality. For these businesses, qualifications and transcripts are used to shortlist applicants, after which interviews are used to consider a broad range of characteristics. The take-home message is that recruitment is more than qualifications or skills for these companies, it is about finding the right people in a more holistic way.

The same extensive processes did not seem to apply to low-skilled task-based positions. For these, the focus is on operational skills, with on-the-job training provided.

Strategies to understand workers' skills and maximise their usage

The case study manufacturing businesses were mixed in both the usage and types of mechanisms they had in place to understand workers' skills. A couple of the businesses reported that they did not currently have any processes in place. Others reported activities such as:

- performance reviews
- training matrices (complexity of machines being operated, linked to pay rates)
- competency skills matrices.

The purposes of these activities were more closely linked to understanding future skills needs (including the training of current employees) and career progression rather than enabling skills utilisation. Some of the employers indicated their preference for being able to identify existing staff for new roles or skills needs rather than bringing them in externally. For these businesses, an understanding of workers' skills resided mostly at the managerial level and had been developed through formal and informal communication between workers and their managers. As one manager reported:

Employees are continually encouraged to discuss where they want to go in reference to the skills they have and want to develop.

Most of the employees interviewed indicated that they believed it was important for workers to have the opportunity to use all of their skills. While in some cases this was seen as beneficial to the business (for example, workers being able to fault-find as well as do their usual work), this was usually seen as important for staff morale and longer-term staff retention. Recruitment is viewed as an investment and so retaining these workers is of high priority to these manufacturing businesses.

When prompted with a list of business practices that have been shown to enable skills utilisation, many of the employees reported that a selection of these were used in some way (table B5 in appendix B), although the purposes were not often specifically intended to increase skills utilisation.

Some of the employers noted that they would like to do more to understand workers' skills and to enable higher levels of skills utilisation, but it was acknowledged that it was difficult for them to progress these ideas. As one employer noted:

the challenge is SMEs struggle to get the resources and time to put into it. SMEs might like the idea of something, but when can they fit it in?

This was especially true for businesses without a dedicated human resources function.



Supporting skills utilisation in the workplace

Is there a role for government support?

The literature highlights two main areas of interest in how skills utilisation is considered at the level of the economy:

- the increased productivity associated with increased skills utilisation
- the public cost of training if qualifications and/or skills are not used in the workplace.

Key points

- While skills utilisation was generally seen as positive, it was not a priority for manufacturing or ECEC
- Employers would prefer support for skills development rather than for skills utilisation

Underutilised skills in the economy are a lost opportunity to realise higher levels of productivity. In addition to this, the unused skills held by those individuals who are either mismatched to their jobs or who are not working are a waste of the initial investment in them (OECD 2015). This is particularly salient at the level of the economy where much of the investment in skills, especially for initial training, is subsidised or funded by public monies. There is a need for government to see a return on its investment in skills.

What can workplaces do to increase skills utilisation, and does government have any role to play in supporting this? It could be argued that, despite the increase in policy interest in skills utilisation, the use of skills in the workplace through work organisation is ultimately the responsibility of employers rather than government (Skills Australia 2011). Organisations play the largest role in skills utilisation, as they determine the way in which tasks are grouped together into jobs and define the autonomy or discretion workers have in their execution (Russo 2015). Even though levels of skills utilisation rely on practices occurring within the workplace, there has been international commentary calling for the inclusion of skills utilisation in public policy.

Keep (2016) explained that it is difficult to consider potential policy responses to skills underutilisation independently of other issues, those that relate to productivity, investment, the quantity and quality of employment, the structure of the labour market and the nature and management of the relationship between employer and employee. Many of these policy issues are interrelated. Skills utilisation may, therefore, be best tackled in a broad way, as part of wider objectives such as boosting productivity, stimulating innovation or increasing competitiveness (or all three) (Keep 2016).

Given these complexities and that change needs to occur within the workplace, where government has limited reach, Denny (2018) argued that the role of government is therefore to create an environment in which institutions and enterprises can operate at an optimal level, including their effective use of skills. To this end, governments can exert influence through policy development, regulation and legislation to provide macroeconomic stability, microeconomic frameworks and investment in infrastructure (Denny 2018). Skills Australia (2010, p.5) had a similar view:

Improving workplace performance is primarily the responsibility of employers. The role of governments is to support and encourage employers to take the lead and tackle this issue through improvements at the enterprise and industry level.

Following this line of thought, the Chartered Institute of Personnel and Development (2018, p.37) provided the following suggested policy responses:

- raise awareness of the challenge amongst businesses
- make skills utilisation a key priority of industrial strategy (tackled alongside efforts to raise overall demand for skills)
- provide targeted, specialist support to help firms take the ‘high road’ and reshape work (business and competitive strategies, leadership and management capability)
- increase efforts to provide high-quality careers advice and vocational pathways into work, to better align skills provision with employer demand.

Skills Australia’s *Australian workforce futures* (2010, p.9) included recommendations for how Australian governments could use public funding to leverage workforce development at industry and enterprise levels in order to improve skills utilisation. With a special focus on small business, Skills Australia suggested:

- the use of government funding to link skills development with business innovation and growth
- stronger encouragement of tertiary education sector/industry partnerships
- the use of publicly funded programs, such as the now-defunct Productivity Places Program, as leverage to engage enterprises in workforce development
- the establishment of a national program of industry clusters or networks to address the collective skills and workforce challenges faced by enterprises in an industry sub-sector or region.

The international literature provides examples of initiatives and programs that have resulted in increased skills utilisation (see appendix C and the support document for descriptions). The most common types of initiatives described include:

- support (practical and/or financial) for businesses to review and improve existing, or adopt new, business practices. Examples included implementing high-performance work practices, identifying and addressing barriers to skills utilisation, embracing and embedding innovative workplace practices
- the creation of skills ecosystems or the facilitation of partnerships to break down barriers between education, businesses and other stakeholders to address skills issues in a more integrated fashion
- efforts to promote skills utilisation as a strategy to improve business performance.

As Keep (2016) found in his review of international approaches, many of these initiatives have not made skills utilisation a primary focus, with higher skills utilisation an outcome of interventions with broader aims. The examples given above highlight the potential for many players to be involved, including the businesses themselves, training providers, government and other stakeholders.

In this current project, employers were asked for suggestions of how skills utilisation could be better supported within their organisations. Most interviewees were unable to suggest any ideas. When prompted with some potential approaches, some interviewees showed interest in support for implementing better work practices, particularly in businesses with little or no human resources management.

Some businesses, particularly in manufacturing, reported that industry networks and supports to build partnerships had been helpful in the past. As one employer explained:

You don't know what's good until you see it. It gives you a beacon, 'that's what I got to go to'.

Another employer described how their state government had assisted them to build a partnership with a research organisation around 10 years earlier, helping them to justify the cost and negotiating intellectual property matters.

Interest in these ideas was relatively weak, however, and there was no sense of urgency for support in this area. In the early childhood education and care sector, directors explained that they are time-poor, and that 'if it's non-essential, they won't do it'. One director described their main priority as raising the centre's rating. They suggested that the only incentive to implement change to improve skills utilisation would be if it contributes to raising the standards for the centre.

Manufacturing employers also highlighted the limited resources and time available, especially in small-to-medium enterprises. Other activities are likely to take precedence. As one interviewee from the manufacturing sector suggested:

Government funding would be welcome, but it's not why we aren't doing anything in this space.

Interviewees were more likely to demonstrate interest in support for training and skills development, again reflecting that this is a higher priority for these organisations.



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Appendix

Appendix A: Methodology

This research project used mixed methods and consisted of two separate elements:

- an analysis of data from the Household, Income and Labour Dynamics in Australia (HILDA) Survey
- interviews with employers from two case study industry sectors: manufacturing and early childhood education and care.

HILDA analysis

The HILDA Survey is a household-based panel study, which collects information about economic and personal wellbeing, labour market dynamics and family life. The survey, which began in 2001, is conducted annually and follows the lives of over 17 000 Australians. Data from this survey include information on highest education level, employment, whether interviewees use their skills and abilities in their current job (self-reported) and wages.

Data from the HILDA Survey were used to explore the:

- patterns of overskilling and overeducation in Australian workers
- pathways of workers in jobs where they are overskilled or overeducated.

The restricted version of HILDA contains 4-digit ANZSCO occupation codes for all working respondents. Using the 4-digit ANZSCO occupation codes, HILDA respondents who work in the same occupations within the observation period were grouped, and their outcomes and employment dynamics analysed, using waves 1 to 18 of the survey data (2001–19).

The empirical analysis was split into two parts. In the first part, the full sample of workers across all occupation codes present in the HILDA dataset was used. HILDA respondents who work in the same occupations were grouped using the 4-digit ANZSCO occupation codes. In total, the data contain 430 4-digit ANZSCO occupation groups, with at least 100 worker-year observations in 290 of those groups. ANZSCO-specific indicators of overskilling and overeducation were constructed (as described in the body of the report) and used to determine the incidence of these phenomena across sectors. The characteristics of the workers who are declared overskilled (or not) and overeducated (or not) were determined, and the employment and socioeconomic dynamics that are idiosyncratic to overskilled and overeducated workers explored.

The second part narrowed the focus to the two case study industry sectors, providing more detailed information on overskilling, overeducation and the associated employment and socioeconomic dynamics in these sectors.

As the focus of the analysis was at the job level, several occupations were identified in each of the sectors (in discussion with the project sponsors). Occupations were chosen to span the different types of jobs that occur in those sectors (for example, managers, workers), as well as to cover specific areas of interest (for example, advanced manufacturing).

The selected sectors and occupations are shown in table A1.

Table A1 Selected sectors and occupations

Sector	Occupations
Childcare	4211 Child carers 2411 Early childhood (pre-primary) teachers 1341 Child care managers
Manufacturing	1335 Production managers
Aircraft maintenance	3231 Aircraft maintenance engineers
Laboratory/technical operations	3114 Science technicians
Metal production/fitting	8391 Metal engineering process workers 3232 Metal fitters and machinists
Plastics and rubber	8392 Plastics and rubber factory workers 7115 Plastics and rubber production

The analysis included:

- the characteristics of workers in the selected sectors (including age profiles, field of study for highest qualifications, part-time/full-time status, studying status etc.)
- the incidence of overskilling and overeducation in each of the industry sectors and occupations
- whether overskilled workers are learning new/different skills
- pathways into the industry sectors (for example, previous occupations), and whether they were overskilled or overeducated in their previous jobs.

Interviews with case study organisations

The aim of this stage of the project was to identify ‘high-performing’ organisations to explore:

- how skill use is maximised in the workplace:
 - what strategies do employers use, if any, to maximise skills utilisation (and/or address underutilisation)?
 - what organisational factors influence identification of skill needs and skills utilisation?
- the factors that influence employer recruitment decisions, leading to employees in jobs where they are overskilled and/or overqualified.

High-performing organisations were targeted as these were considered to be more likely to have mechanisms in place to understand skills use in the workplace.

Recruitment of manufacturing companies

Advanced manufacturing was of specific interest to the project sponsors. As described in the body of the report, advanced manufacturing is not a sector in itself and is difficult to identify. It was therefore necessary to identify manufacturing companies that possibly use advanced manufacturing processes and cover the selected occupations. Potential case study organisations were drawn from the AuManufacturing website (<aumanufacturing.com.au>), the Australian Advanced Manufacturing Council website (<<http://www.aamc.org.au/>>) and from other sources where successful Australian manufacturing businesses have been profiled.

A total of 40 manufacturing companies were contacted via email and invited to participate in the research. Of these, five manufacturing companies agreed to participate.

The manufacturing companies were all small or medium enterprises, generally employing between 100 and 200 people, with 220 the maximum number of employees, and came from the following fields:

- medical device manufacturing
- industrial automation
- water and industrial tank manufacturing
- advanced electronic manufacturing
- hygiene product manufacturing.

Identification of early childhood education and care organisations

The Australian Children’s Education and Care Quality Authority (ACECQA) awards ‘excellent’ ratings to Education and Care services, listed here: <<https://www.acecqa.gov.au/assessment/excellent-rating/services>>.

The ‘excellent’ rating is the highest rating a service can achieve under the National Quality Framework for Early Childhood Education and Care. The awarding of the excellent rating indicates that a service is embracing continuous quality improvement and it recognises providers who are champions of quality improvement and who are raising the bar on what quality education and care looks like for Australian children.

The providers on the list (40 at the time) were contacted and invited to participate in the research. Of those, five providers agreed to be involved.

The interview process

Representatives from the five manufacturing case study companies and five early childhood education and care providers were interviewed via telephone or Teams (video), with the interview generally lasting approximately one hour. Interviewees were high-level representatives of these organisations, holding positions such as managing director and manager/owner (in manufacturing) and centre director for early childhood education and care providers.

Interviews were semi-structured and explored topics relevant to skills utilisation in the workplace, such as:

- if/how the organisation understands the skills of employees
- whether the organisation has employees who are overskilled and/or overqualified
- the potential benefits (if any) of ensuring workers have high skills utilisation
- the recruitment processes used
- what, if any, mechanisms are used to increase skills utilisation
- whether there is a role for government or other organisations in supporting skills use in their organisation.

Appendix B: Characteristics of overeducated or overskilled workers

Table B1 Summary statistics of overskilled and not overskilled workers

	Overskilled		Not overskilled	
	Sample mean	Standard dev.	Sample mean	Standard dev.
Age, in years	37.3	13.0	39.8	12.5
Respondent is female, %	51.0		47.3	
Respondent is born overseas, %	20.3		19.9	
Lives with a partner, %	72.7		76.1	
Has children, %	54.9		62.8	
Has children aged 0–5, %	14.1		19.9	
Works part-time, %	42.8		27.1	
Annual gross income, in 1000 AUD	47.3	47.3	64.8	50.0
Average hourly wage	23.2	16.5	26.5	20.4
Years since left education	15.8	14.1	16.9	14.8
Number of qualifications	1.2	1.3	1.6	1.5
Overeducated, %	40.6		33.9	
Field of study mismatch (relative to modal field)	59.3		42.4	
Education				
Not available, %	0.1		0.0	
Year 11, %	24.5		18.0	
Year 12, %	24.8		15.8	
Certificate III/IV, %	21.1		24.5	
Diploma/advanced diploma, %	9.0		10.1	
Bachelor hons, %	13.7		18.2	
Graduate, %	3.7		7.2	
Postgraduate, %	3.1		6.1	
Observations	31 042		129 789	

Source: HILDA Survey, waves 1–18.

Table B2 Summary statistics of overeducated and not overeducated workers

	Overeducated		Not overeducated	
	Sample mean	Standard dev.	Sample mean	Standard dev.
Age, in years	39.3	12.3	39.3	12.8
Respondent is female, %	50.5		46.6	
Respondent is born overseas, %	24.5		17.5	
Lives with a partner, %	76.0		75.1	
Has children, %	60.4		61.7	
Has children aged 0–5, %	17.8		16.1	
Works part-time, %	31.5		29.3	
Annual gross income, in 1000 AUD	61.5	21.2	61.4	52.1
Average hourly wage	25.9	20.2	25.9	19.6
Years since left education	15.0	14.1	17.6	15.0
Number of qualifications	2.0	1.5	1.3	1.4
Overskilled, %	22.2		17.7	
Field of study mismatch (relative to modal field)	53.6		40.6	
Observations	56 593		104 238	

Source: HILDA Survey, waves 1–18.

Table B3 Summary statistics for workers in the two case study sectors: early childhood education and care, and manufacturing

	Childcare		Manufacturing	
	Sample mean	Standard dev.	Sample mean	Standard dev.
Age, in years	35.7	12.5	38.8	12.3
Respondent is female, %	96.1		9.9	
Respondent is born overseas, %	22.8		18.7	
Lives with a partner, %	74.1		77.9	
Has children, %	60.1		64.0	
Has children aged 0–5, %	19.4		19.7	
Works part-time, %	44.1		6.9	
Annual gross income, in 1000 AUD	43.1	75.7	77.2	59.1
Average hourly wage	20.2	12.5	29.5	19.1
Years since left education	9.7	12.9	17.5	14.3
Number of qualifications	1.8	1.5	1.6	1.8
Overskilled, %	15.7		13.6	
Overeducated, %	36.1		18.8	
Field of study mismatch (relative to modal field)	42.5		37.0	
Education	0.3		13.4	
Not available, %	9.7		12.9	
Year 11, %	16.0		55.2	
Year 12, %	24.7		7.2	
Certificate III/IV, %	24.2		6.4	
Diploma/advanced diploma, %	15.7		2.5	
Bachelor honours, %	6.0		2.3	
Graduate, %	0		0	
Postgraduate, %	35.7	12.5	38.8	12.3
Observations	2 465		3 283	

Source: HILDA Survey, waves 1–18.

Use of business practices in the case study organisations

Table B4 Business practices that enable skills utilisation and if/how they are used in early childhood education and care

Business practice	Usage in case study organisations
Performance appraisals	Used by all centres; formal cycles plus informal discussions
Mechanisms to capture employee suggestions	Occurs in team meetings; one centre had a 'reflection book' for improvement suggestions; legislative requirement to have a quality-improvement plan
Leadership/management training	Available if requested in some centres, very little opportunity in one
Problem-solving opportunities	Every day in every centre
Job rotation	Difficult in small teams, more like shared roles; can be supported in larger organisations; not possible to rotate to other sites as backfilling would be required
Job autonomy/discretion	Team-planning approach often reported; staff making their own jobs
Skills audits	No
Job analysis (e.g. job design or redesign)	No, position descriptions basic; roles are firm
Partnerships with other organisations where skills are shared (e.g. skills ecosystems)	Some have preferred providers for students; some had partnerships with other services (such as health)
High-performance work practices (HPWP)	Not generally; one reported planning cycles and a few concepts borrowed from private and business sectors

Table B5 Business practices that enable skills utilisation and if/how they are used in manufacturing

Business practice	Usage in case study businesses
Performance appraisals	Yes, for almost all case study businesses
Mechanisms to capture employee suggestions	Mix of formal and informal mechanisms: during appraisals (including a specific question on this), through 'tool box' meetings, informal discussions
Leadership/management training	Mix of opportunity and mechanisms where available: offered as part of training policy; 1:1 mentoring; formal leadership training; not offered in some businesses but desired in at least one of those.
Problem-solving opportunities	Mostly yes, dependent on business and roles (definitely in engineering)
Job rotation	Yes, in some, no in others, but cross-training used to enable covering other workers
Job autonomy/discretion	Dependent on the role. Some flexibility in some businesses/roles, within guidelines, policies and procedures. Some roles more team-based, particularly in production. No autonomy/discretion in some roles.
Skills audits	Not done by all, although some would like to. Some businesses audit skills, for various reasons: to assess skill across the organisation, to assess proficiency of operators.
Job analysis (e.g. job design or redesign)	One organisation reported flow analysis when new equipment comes in. Not done in most case study businesses.
Partnerships with other organisations where skills are shared (e.g. skills ecosystems)	Some reported partnerships with universities and other research bodies, others report no partnerships.
High-performance work practices	Some reported no HPWP, others reported benchmarking, lean manufacturing, and 'jargon cycling through'.

Appendix C: International initiatives

Table C1 International examples of initiatives directly targeting or indirectly influencing skills utilisation

Country	Description/notes	As described in
Australia	Skills ecosystem approach to break down barriers between education, firms and other stakeholders to address skills issues in a more integrated fashion. The system identifies roles for individuals, firms, education and training providers and policy-makers, which, when combined, allow skills utilisation to be realised on a national level, rather than just in individual businesses. A number of projects were funded, with each including an aim to address both supply and demand sides of the skills equation, as well as how they were being used in the workplace and occupational/local labour market. The skills ecosystem projects were not focused specifically on skills utilisation, although this emerged as a theme in some of the projects. Ultimately, however, the projects failed to bring about a fundamental re-orientation in the way in which the Australian skills system defined its role and policy reverted back to the comfort zone of supply-side issues. These projects did not lead to a sustained and widespread policy focus on areas such as skills utilisation.	Centre for Enterprise (Great Britain) (2008) Keep (2016)
Australia	Workforce development initiatives were implemented at the industry and regional level, with a particular a focus on 'skills ecosystems' to promote better use of skills in Queensland and NSW.	Skills Australia (2011)
NZ	In 2011 the New Zealand Government was implementing skills utilisation policy through the High Performance Working Initiative (HPWI). The aim was to support enterprises to improve their business processes through effective employee engagement and workplace practices. The program involved providing practical support, by partially funding specialist business consultants to help organisations implement HPW practices. The program involved industry bodies, trade and union organisations and regional business networks becoming partners in delivering support for this initiative to their members.	Skills Australia (2011)
Singapore	There have been a number of state-led projects in Singapore. One example is the Critical Enabling Skills Training (CREST) Programme. CREST aimed to refocus the skills agenda in Singapore from technical skills to building a foundation in order to develop a number of 'critical' (or core) skills to enable Singapore employees to continually acquire and apply new knowledge and skills. There are seven critical skills in the CREST model: 'learning-to-learn', literacy, listening and oral communication, problem-solving and creativity, personal effectiveness, group effectiveness and organisational effectiveness and leadership. Once the skills have been acquired on the courses, the companies sign an agreement to apply those skills in the workplace. The CREST programme therefore embodies skills utilisation, in that it attempts to move from skills acquisition to skills utilisation. Another example of a project is the Work Redesign Programme, which aims to encourage employers to continuously review their work processes and adopt a total approach to workplace redesign. The government-led project aims to develop 50 work redesign blueprints, which represent the 20 industry clusters identified as crucial to Singapore's future development.	Centre for Enterprise (Great Britain) (2008)
UK	Pilot project in which 10 organisations were offered in-depth support to help them to change working practices and employee engagement in order to increase business performance. Improved skills utilisation was not an explicit focus but was an outcome in a number of cases. One of the main lessons was weakness of the internal management capabilities that were being helped and the level of external support required to make the projects function. Another initiative implemented to improve the use of skills in the workplace is Investors in People, first introduced in 1991 with responsibility passed to the UK Commission in 2010. The initiative specialises in transforming business performance by aligning business planning and goals with people management. Investors in People helps organisations to grow, improve their performance and business impact, and ensure the skills of their employees are fully used.	Keep (2016)
Scotland	Skills utilisation policy in Scotland is part of a broader, comprehensive, policy on employment relations and job quality (e.g. Skills for Scotland: Accelerating the recovery and increasing sustainable economic growth). A Skills Utilisation Leadership Group was established to bring together business, union, government and stakeholder groups to 'champion the better use of skills in the workplace'. Twelve skills utilisation pilot projects were funded with the aim of identifying and addressing a challenge or issue that is preventing the better use of skills in the workplace. The projects were extremely varied: seeking better match between educational offerings and employers need; business development and knowledge transfer focus, rethinking production processes and redesigning work organisation and jobs. Some of the projects were criticised, however, for being focussed on skill matching and course design rather than on efforts to increase skill utilisation through work reorganisation and job redesign. Additionally, the usual issues that arise with small-scale pilot projects were seen: sustainability after funding ceases; difficulties with evaluating impact; uncertainty around how to diffuse learnings; how to scale up.	Payne (2010) Skills Australia (2011) Keep (2016)

Country	Description/notes	As described in
Ireland	<p>The focus in Ireland has been primarily on implementing HPW practices within organisations. There are 42 recommendations in the Working to our Advantage – A National Workplace Strategy, which aim to create a workplace of the future that is: agile (in terms of innovation); customer-centred; knowledge-intensive; networked; highly productive; involved and participatory; continually learning; and proactively diverse.</p> <p>In 2007 Ireland introduced the Workplace Innovation Fund as part of its National Workplace Strategy. Ireland's national skill strategy aimed to transform Ireland's workplaces by promoting greater levels of partnership-led change and innovation in our places of work, regardless of size or sector. The objective of the Workplace Innovation Fund was to help small and medium-sized enterprises boost their productivity and performance by embracing and embedding innovative workplace practices, while developing employee participation and empowerment as enablers of change and creativity. At the level of the enterprise, activities aim to support improved partnerships between management and employees, enhance capacity for change among employees, build employee commitment to a better workplace and introduce new human resources processes to support business. These activities support redesigning work arrangements, providing support to that component of skill utilisation.</p>	Centre for Enterprise (Great Britain) (2008) Buchanan et al. (2010)
Norway	<p>Norway has invested heavily in skills utilisation over the last forty years through a number of national programmes. Skills utilisation in Norway has been characterised by a national drive focused on delivering project activity in the workplace and a strong commitment to employee wellbeing. The main barrier to effective skills utilisation in Norway has been the low level of buy-in from individual organisations. The Norwegian Government has been unable to prove the benefits of skills utilisation to organisations in Norway and has found it difficult to disseminate evidence of good practice.</p> <p>A case study: the cleaning industry becoming professionalised and requiring a necessary set of skills and training (and new work methods) – increasing skills utilisation.</p>	Centre for Enterprise (Great Britain) (2008) Keep (2016)
Finland	<p>Finnish skills utilisation has been driven forward by a government-run program, led by the Ministry of Labour, The Finnish National Workplace Development Programme (TYKE–FWDP), running between 1996 and 2003. During this time, 670 projects were funded, 135 000 employees were involved and 1600 Finnish workplaces participated. The program aimed to improve productivity and the quality of working life by furthering the full use and development of staff know-how and innovative power at Finnish workplaces. The program disseminated research publications, organised seminars, workshops and focus groups, as well as acted as a broker, bringing stakeholders together to build up the national infrastructure in Finland. Enterprise-level projects aimed to address issues such as job design, improving work practices, external networking, developing expertise, and introducing new forms of work organisation and the role of management; high-performance working practices were explicitly encouraged.</p>	Centre for Enterprise (Great Britain) (2008) Buchanan et al. (2010)
Scandinavian and Northern European countries	<p>Workplace innovation approaches (focused broadly, not merely in high-end high-tech companies). Most of these policies and activities are not focused specifically on skills utilisation. In these countries, it tends to be centred on quality of working life and workplace innovation (work organisation, job design, and workplace and organisational development). Innovation on the 'shop floor' relies on staff being able and willing to make incremental adjustments in the quality, specification, design and/or utility of the good or service that is being delivered, to improve productivity or quality. Public subsidy has been used to reconfigure work organisation, job design and production processes and technologies to enhance this capacity for bottom-up innovation (which can work alongside the science, technology and innovation occurring top-down). The link between workplace innovation and skills utilisation is that there is a strong relationship between workplace innovation and workplace learning. The workplaces that possess the characteristics that allow high levels of learning and innovation are likely to be ones in which skill utilisation will also be higher.</p>	Keep (2016)
Italy	<p>In the Riviera del Brenta industrial district in Northern Italy, local employers association (ACRIB) firms have collaborated on a common marketing strategy while also pooling investment in training provision and helping firms to collectively upgrade their product market strategies. The privately run local polytechnic has played an important role, employing firm managers to train local workers and job seekers after hours, while also offering management training, and investing in research, innovation and technology transfer. The polytechnic invests in skills supply while also optimising skills utilisation through new product development and improved human resource management.</p>	OECD (2015)
United States	<p>US invested in the Jobs and Innovation Accelerator Challenge grants, which helped to embed skills policies in a broader set of interventions to stimulate innovation and technology transfer. The AMJIAC grants gave flexibility to regions to determine the best way to support small and medium-sized manufacturers, with each region drawing upon its particular assets and capabilities. For example, in East Tennessee, efforts focused on expanding usage of additive manufacturing technologies. Firms were invited to tour demonstration facilities to better understand the opportunities, and an additive manufacturing certification program was created to equip new and incumbent workers with the necessary skills.</p>	OECD (2015)



National Centre for Vocational Education Research

Level 5, 60 Light Square, Adelaide, SA 5000
PO Box 8288 Station Arcade, Adelaide SA 5000, Australia

Phone +61 8 8230 8400 **Email** ncver@ncver.edu.au

Web <<https://www.ncver.edu.au>> <<https://www.isay.edu.au>>

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