Response to the Productivity Commission Discussion Paper: Increasing Australia's future prosperity 5 year productivity review

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This submission provides a brief overview of skill utilisation and labour market participation in Australia which forms part of a broader body of research currently being undertaken by Lisa Denny as part of her Doctoral Thesis at the University of Tasmania, entitled "Skill Utilisation in Australia: a response to the proposed 3Ps solution to the challenges of population ageing". This submission concludes with some considerations for policy reform. The broader research project includes further analysis of skill utilisation by sex, age, level of labour force attachment, presence of a partner and presence of a child in addition to the overview provided below. The broader research is currently a work in progress and provides a more granular insight into skill utilisation.

Introduction

Productivity growth is considered to be the primary contributor to long term economic growth and improved standards of living in Australia, particularly labour productivity or labour market efficiency. Policy intervention in the past has focused on factors which contribute to improving labour productivity, largely through investment in the skills of workers through education and training and increasing their participation in the labour market.

Labour productivity is influenced by the composition of the workforce, age-specific participation rates, the age distribution of the population and the hours worked (labour utilisation). Furthermore, labour productivity is dependent upon the supply and use of human and physical capital and the state of technology; capital intensity. It is argued that aggregate economic performance is underpinned by the ability to raise output per worker through the deployment of skills in the workplace.

An emerging solution to improving labour productivity is that of skill utilisation; improvements in the way human capital (the stock of skills, knowledge from education, experience and health) are used in the labour force as well as capital deepening. However, while there is evidence which links education to employment, there is little understanding of the transmission process to achieve improved labour productivity from education and human capital formulation. In fact, the underutilisation of skills is also linked to the deterioration of productivity performance. As human capital is the driving force of productivity, the appropriate matching and utilisation of the supply and demand for job-specific skills is critical in maximising labour productivity.

Measuring Skill Utilisation

While raising the skill level of a population has become a primary objective of national economic policies to increase productivity, current understandings of skill utilisation are based on a relatively weak knowledge base. As a result, empirical measurement of skill and its use are relatively under-developed and hinders policy advice and development.

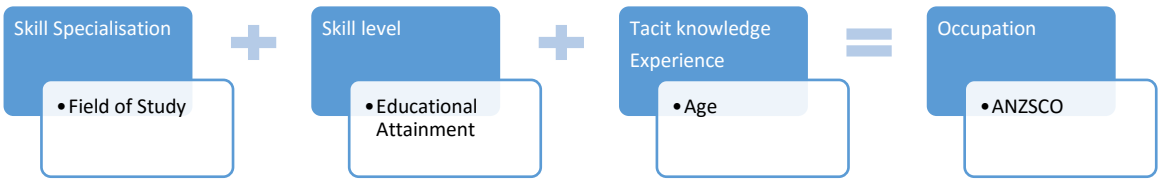
Historical focus has centred on formal qualifications as a proxy for skills with the concept of overeducation being used as an indicator of underutilisation of skills, assuming there is an equivalence between workers' capabilities and their level of education. In many instances, the terminology of over/under education is used synonymously and interchangeably with over/under utilisation of skills and skill mismatch.

There is growing awareness and evidence that the use of formal qualifications as an indicator of skill is not sufficient and that education alone is a poor indicator of the stock of human capital and the skills required in the workplace. While educational attainment provides a one-dimensional and convenient measure with data readily available to enable comparative analysis, education measures assume a homogenous stock of human capital and are insensitive to the heterogeneity of worker's skills. In addition, empirical research has found the relationship between overeducation and skill utilisation to be weak and therefore measures of overeducation lack content validity as measures of skill utilisation. Other studies have found that over-qualification could either hide real skill underutilisation (both over-qualified and over-skilled) or skill heterogeneity (overqualified but with appropriate skills for the job).

The measurement challenges associated with overeducation can be overcome by focusing on skills rather than education, arguing that the comparison between an individual's level of skill with the skill requirements of a job will enable identification of skill utilisation. This argument is supported by a growing body of research which suggests that the basis for measuring skill and identifying any mismatch should seek to combine education with market, institution and socio-demographic forces, using all available information.

The measure of skill and its utilisation used in this study focuses on job-specific skills. In order to identify the extent of skill utilisation at a population level as well as to account for those not participating in the labour force (i.e. not employed and therefore not utilising their education or skills in the paid workforce), the ABS Census of Population and Housing is used to develop the indicator of skill utilisation. In addition, 'skill' is defined by the ABS as a product of skill level (determined by highest level of educational attainment) and skill specialisation (determined by field of knowledge) in the Australia New Zealand Standard Classification of Occupations (ANZSCO).

The utilisation of a person's complement of skills is determined by whether they are employed in an occupation which is appropriately matched with their level of skill (educational attainment) and specialisation (field of study) as well as their accumulated knowledge and experience over the life course (determined by their age). The below diagram illustrates how skill utilisation is operationalised. The combination of skill specialisation and level, and age will indicate an occupation, or range of occupations, that would appropriately utilise the complement of skills in the workplace. This model enables field of study mismatch and over-qualification or under-qualification, or a combination of two, to be identified.



It is important to note from this analysis that the Census only allows respondents to provide one (1) highest level of educational attainment, and associated field of study, and does not account for additional or multiple post school qualifications undertaken by individuals. As a result, matching field of study and educational attainment to occupation using the indicator of skill utilisation is limited to the nominated highest level of educational attainment and one field of study rather than the most recent or applicable qualifications to the current occupation. In reality, many people achieve more

than one post-school qualification and may undertake additional education pathways at various times throughout their life course.

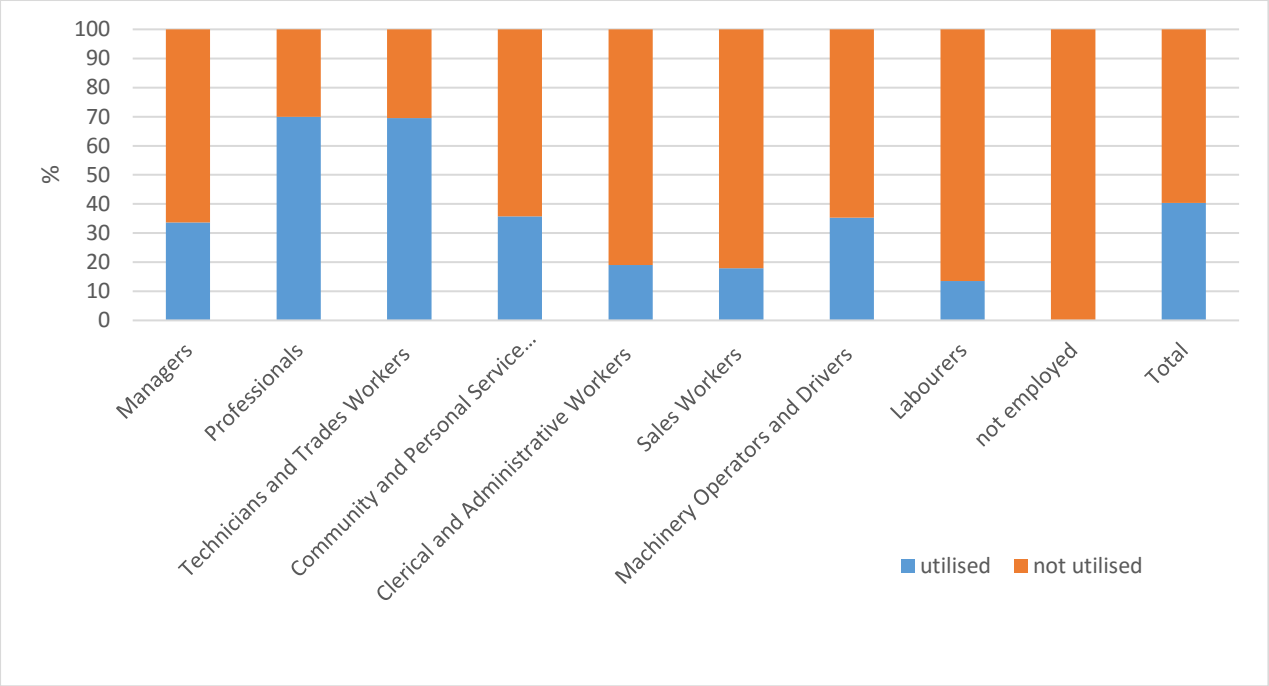
Skill Utilisation in Australia

Lisa Denny's research analyses the skill utilisation and demographic characteristics of 6,010,364 Australians aged between 25 and 64 who completed the questions in the ABS 2011 Census of Population and Housing which determine the status of skill utilisation; field of study, highest level of post-school educational attainment and occupation. This represents 58 per cent of the 10,407,515 Australians aged 25 to 64 years.

Of the over 6 million Australians aged 25 to 64 years of age with post school qualifications, 40.4 per cent are employed in an occupation which is appropriate for their complement of skills; their level of educational attainment and field of study. The remaining 59.6 per cent are not working in an occupation which is appropriate for their complement of skills. These 3,582,511 people are working in an occupation which they either have a field of study mismatch, are overqualified or underqualified for, or are experiencing a combination of field of study and education mismatch.

The level of skill utilisation differs by occupation, level of education and field of study. The greatest level of skill utilisation is experienced by those in professional occupations (69.9 per cent) and technicians and trade workers (69.5 per cent). In terms of underutilisation of skills, labourers (86.4 per cent) and sales workers (82.0 per cent) have the highest proportion who are not effectively utilised in the labour market. All people who are not employed are considered to be not utilised in the labour market. 1,029,631 (17.1 per cent) of people aged 25 to 64 with post school qualifications are not utilised in the labour market at all as they are not employed.

Fig 1. Skill Utilisation by occupation

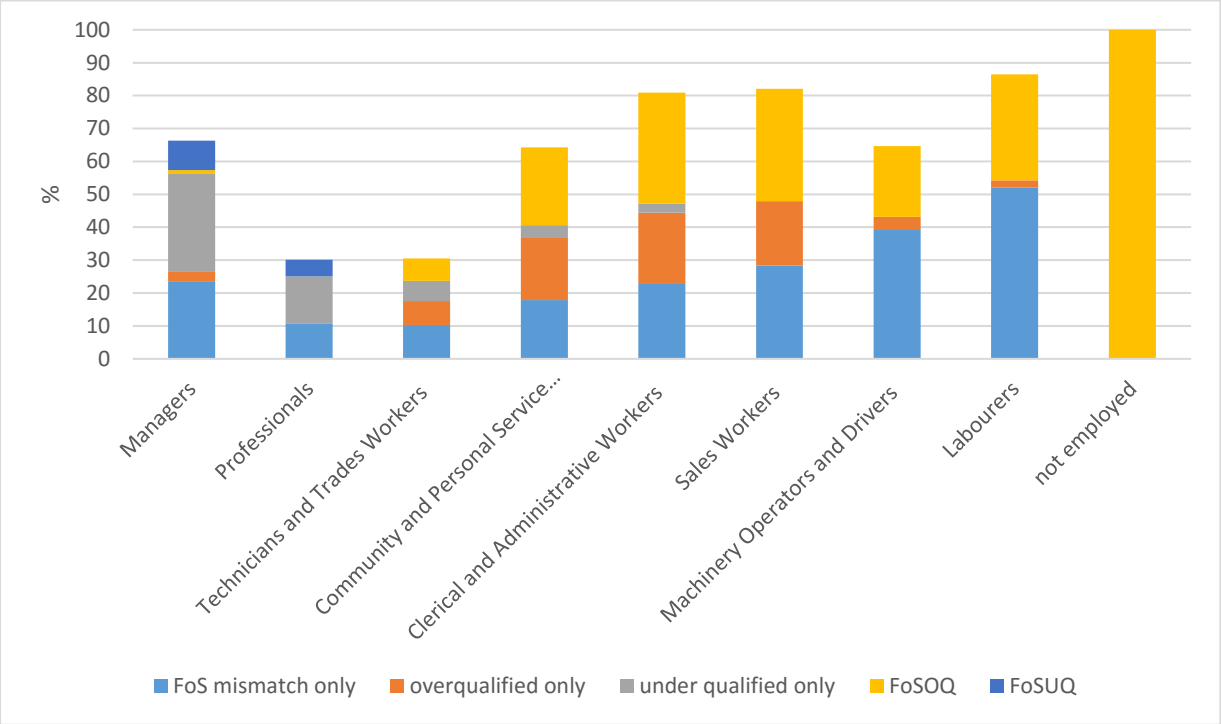


Source: ABS Census of Population and Housing (2011), customised dataset, author calculations

Field of study mismatch is the greatest contributor to the underutilisation of skills in Australia, particularly for lower skilled occupations; labourers (52 per cent), machinery operators and drivers (39 per cent). For those higher skilled occupations with job-specific skill requirements, the field of study mismatch is considerably lower; professionals (10.6 per cent) and technicians and trade

workers (10.2 per cent). A considerable proportion of the employed workforce experience a field of study mismatch and overqualification. Sales workers (34.1 per cent), clerical and administrative workers (33.8 per cent) and labourers (32.2 per cent) experience the highest level of field of study mismatch and overqualification. Managers experience both field of study mismatch (23.6 per cent) and underqualification (29.8 per cent). Community and personal services workers predominately experience field of study mismatch (17.8 per cent), overqualification (18.9 per cent) and a combination of the two (23.6 per cent).

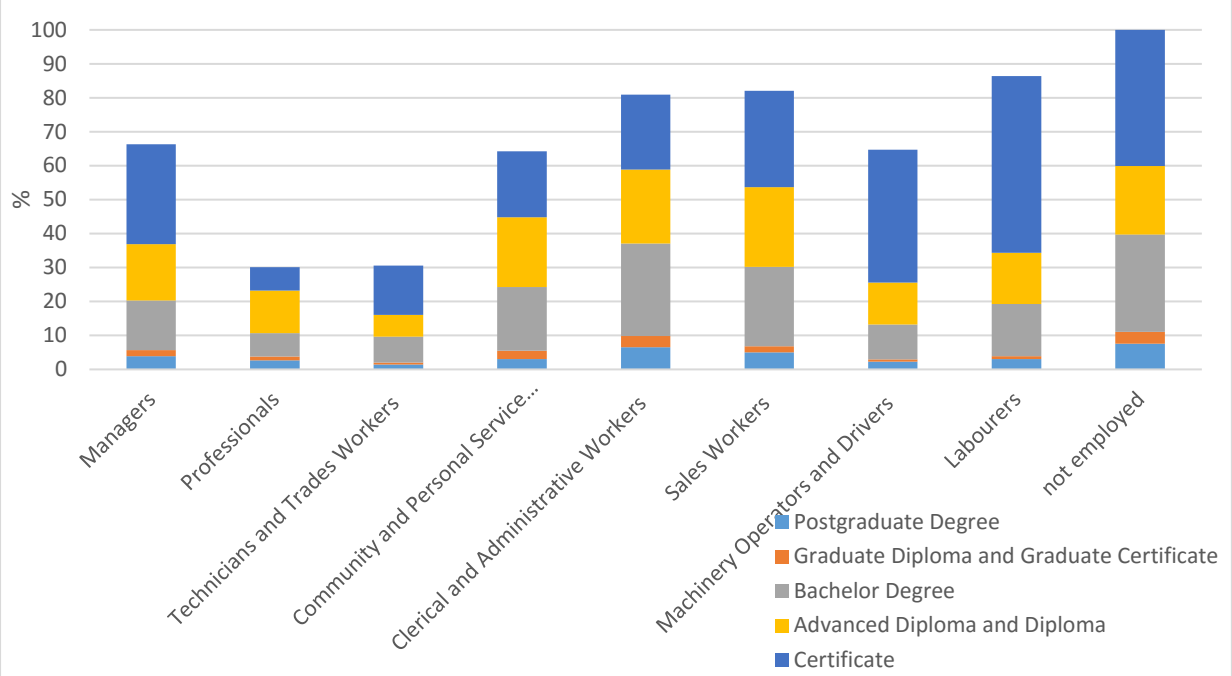
Fig 2. Proportion not utilised by type of underutilisation for each occupation



Source: ABS Census of Population and Housing (2011), customised dataset, author calculations
*FoSOQ is a combination of field of study mismatch and overqualification; FoSUQ is a combination of field of study mismatch and underqualification

Of the population who are not effectively utilised in the labour market, it is those with certificate level post school qualifications who experience the highest level of underutilisation by occupational category; either through a field of study mismatch or being underqualified, or combination, for the occupation.

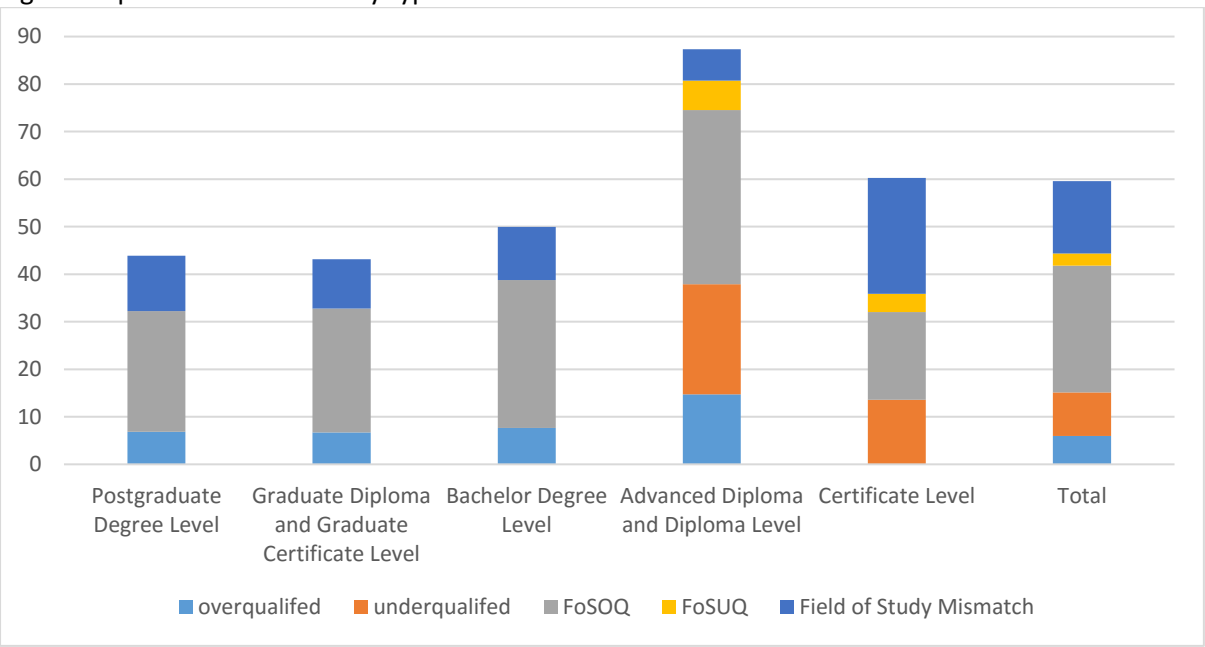
Fig 3. Proportion not utilised by level of post school qualification for each occupation



Source: ABS Census of Population and Housing (2011), customised dataset, author calculations

When the level of education is considered, it is those with advanced diploma and diploma level qualifications who experience the highest level of skill underutilisation at 87.4 per cent. The greatest contributor to underutilisation of skill for all levels of post school qualifications is field of study mismatch combined with overqualification.

Fig 4. Proportion not utilised by type of underutilisation for each level of educational attainment

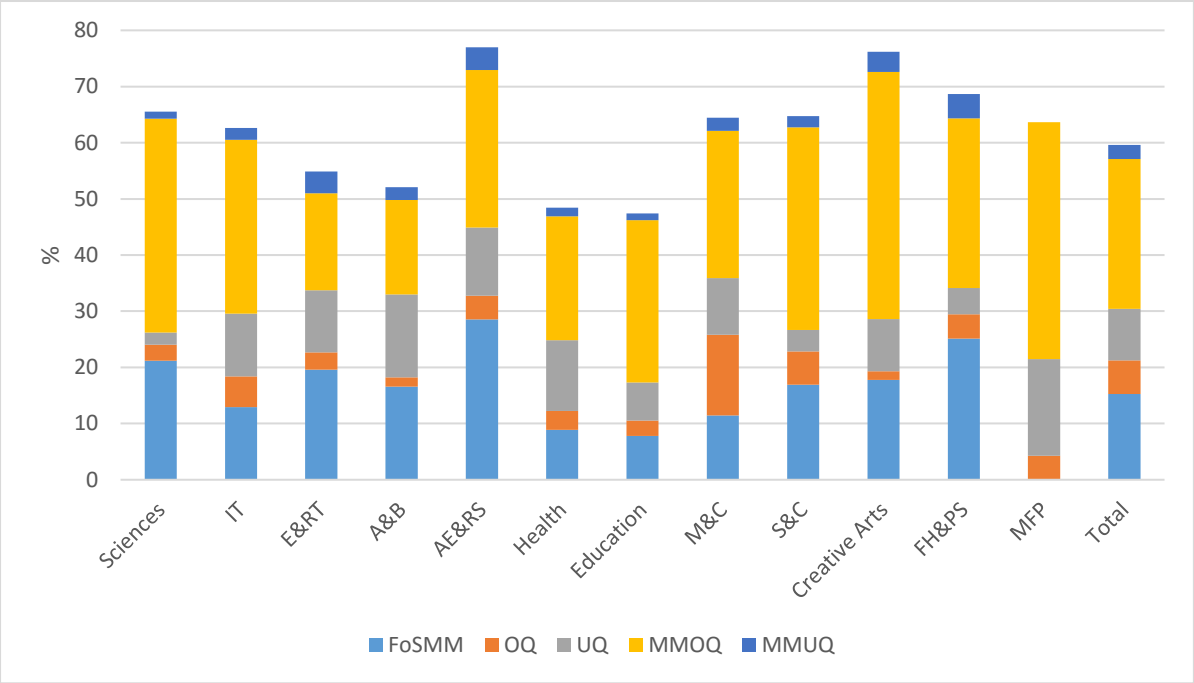


Source: ABS Census of Population and Housing (2011), customised dataset, author calculations
*FoSOQ is a combination of field of study mismatch and overqualification; FoSUQ is a combination of field of study mismatch and underqualification

When the field of study is considered, those who experience the greatest level of underutilisation are those with agriculture, environment and related studies qualifications (77 per cent), creative arts

qualifications (76.2 per cent) and food, hospitality and personal services qualifications (68.7 per cent). The combination of field of study mismatch and overqualification dominate the type of underutilisation for each field of study. The fields of study with the greatest level of utilisation are health, education and architecture and building.

Fig 5. Proportion not utilised by type of under-utilisation for each field of study



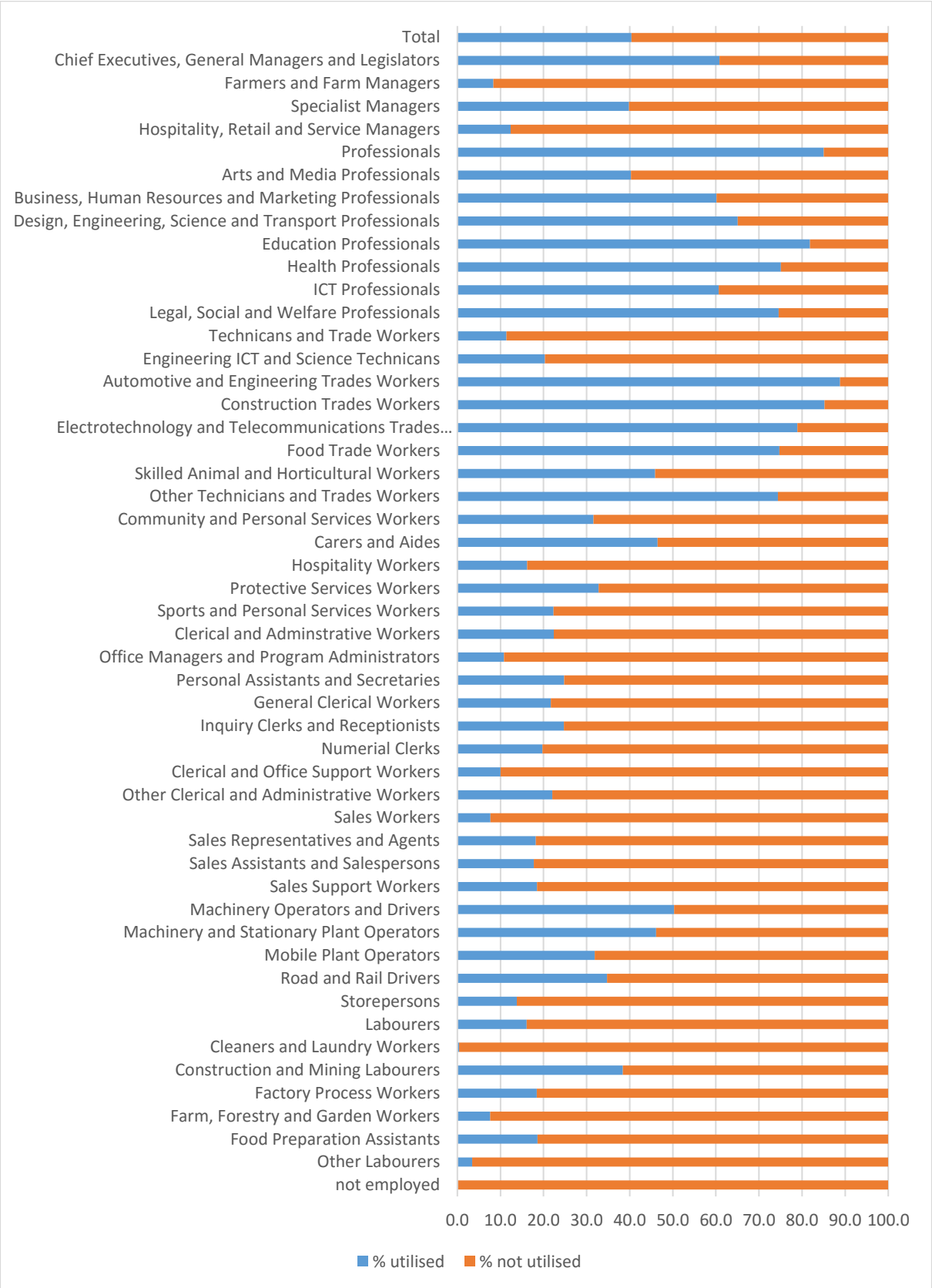
Source: ABS Census of Population and Housing (2011), customised dataset, author calculations

*FoSOQ is a combination of field of study mismatch and overqualification; FoSUQ is a combination of field of study mismatch and underqualification

*Engineering and related technologies (ER&T); architecture and building (A&B); agriculture, environment and related studies (AE&RS); management and commerce (M&C); society and culture (S&C); food, hospitality and personal services (FH&PS); mixed field programmes (MFP).

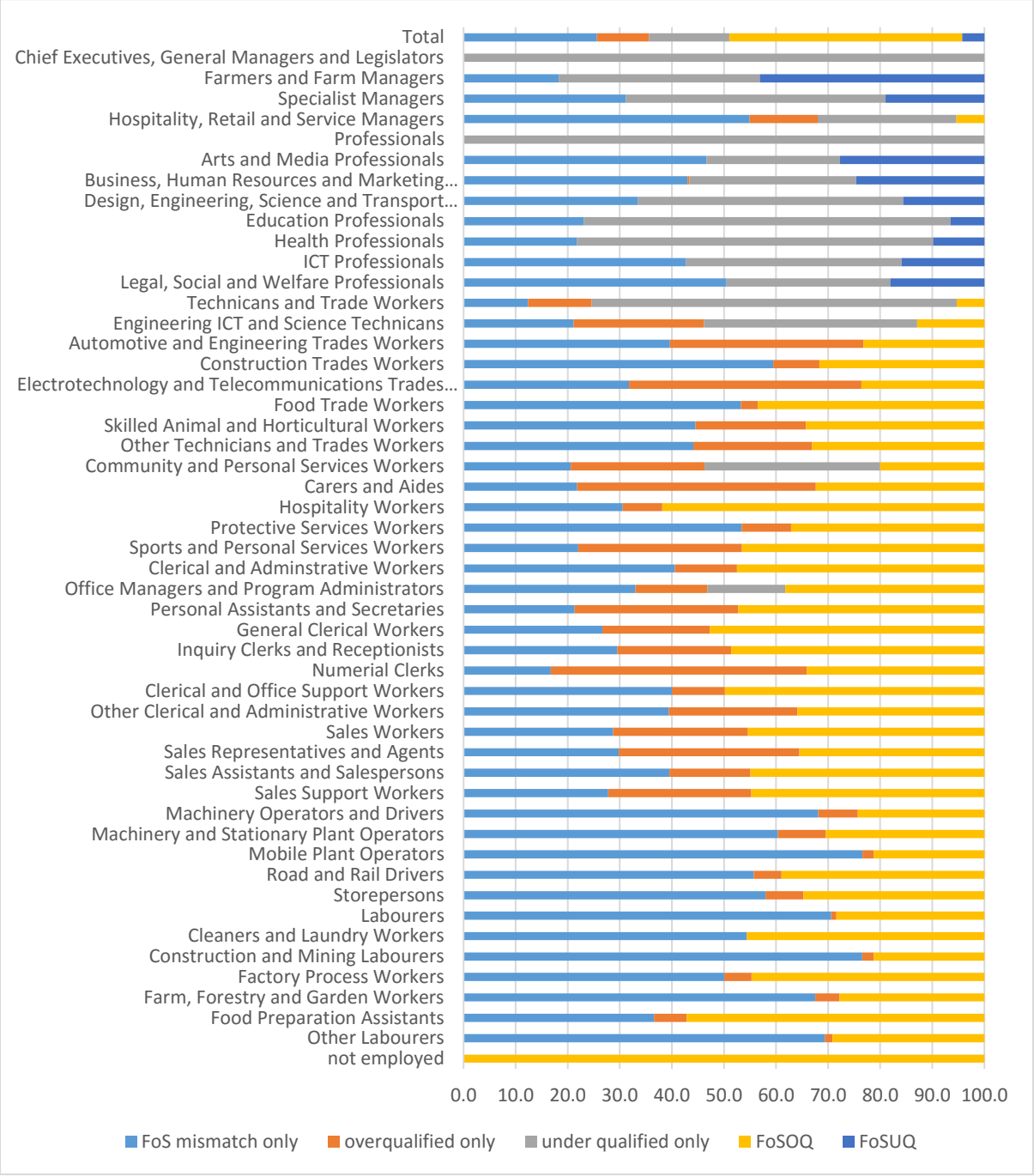
The level of skill utilisation and type of skill utilisation is available for occupations at the two digit and three digit level of ANZSCO. The below two figures illustrate skill utilisation at the two digit level.

Fig 6. Skill utilisation at the two digit ANZSCO level



Source: ABS Census of Population and Housing (2011), customised dataset, author calculations

Fig 7. Type of skill underutilisation at the two digit ANZSCO level



Source: ABS Census of Population and Housing (2011), customised dataset, author calculations
*FoSOQ is a combination of field of study mismatch and overqualification; FoSUQ is a combination of field of study mismatch and underqualification

Importantly, there are considerable differences between men and women in terms of skill utilisation stemming from their respective occupational and educational profiles as well as their socio-demographic circumstances. This analysis forms part of the broader research project currently in progress.

Labour Force Participation

Skill utilisation is impacted by the level of attachment to the labour force and further by demographic profile. While the relationship between skill utilisation and labour force attachment is still under investigation, the level of attachment to the labour market differs considerably for men and women depending on the presence or not of children and whether partnered or not.

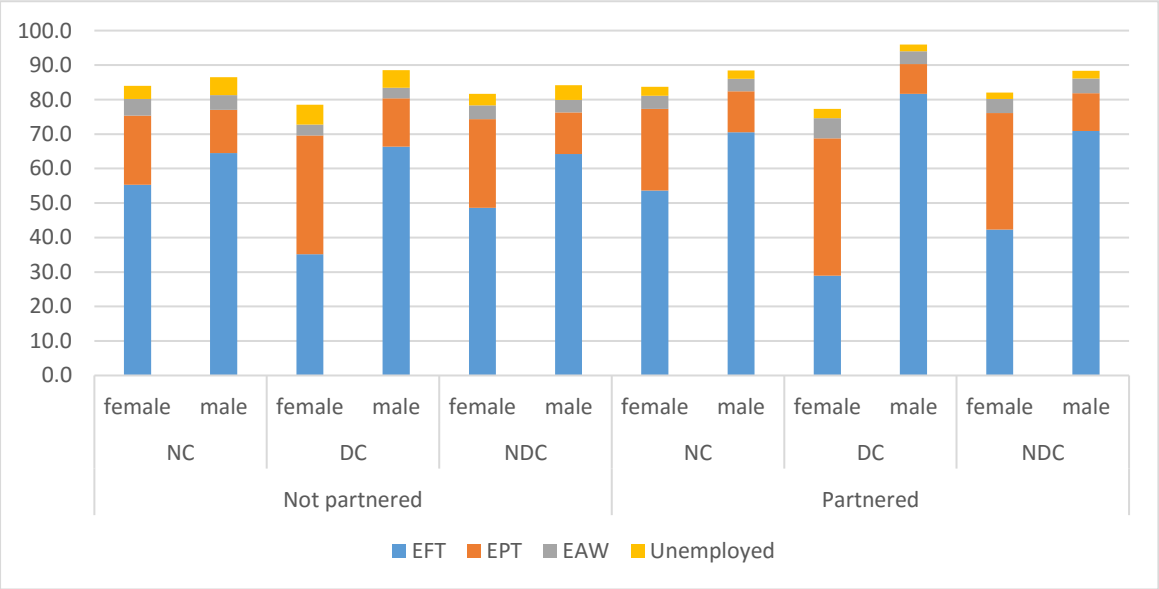
Clearly evident is that men increase their level of attachment to the labour force with the addition of a partner and further with the addition of a child. The converse is true for women; women reduce their level of attachment to the labour force with the presence of a partner and further reduce it with addition of a child. Furthermore, these patterns are consistent for all five-year age groups for those aged 25 to 64 with post school qualifications.

Labour force status is less influenced by the presence of children for men than for women. Even so, a greater proportion of men with dependent children were employed full time than for those without dependent children and were also less likely to not be in the labour force. Conversely, the presence of children considerably influences the type of attachment to the labour force for women. Women with dependent children are more likely to be employed part time or not in the labour force compared with those with no children and non-dependent children.

The patterns of labour force attachment for men differ little with the presence or not of a partner nor the presence or not of a child with the exception of men who are both partnered with a dependent child. In this scenario, full time employment increases and part time employment and not in labour force decreases. A considerably greater proportion of partnered men with dependent children are employed full time (81.7 per cent) than any other demographic profile.

For women, the level and type of attachment to the labour force is impacted by both the presence of a partner and/or the presence of a child. A greater proportion of non-partnered women with dependent and non-dependent children work full time than those who are partnered. Even when women are not partnered and have no dependent children in the household, they have a lower level of attachment to the labour force than men who are not partnered with no dependent children.

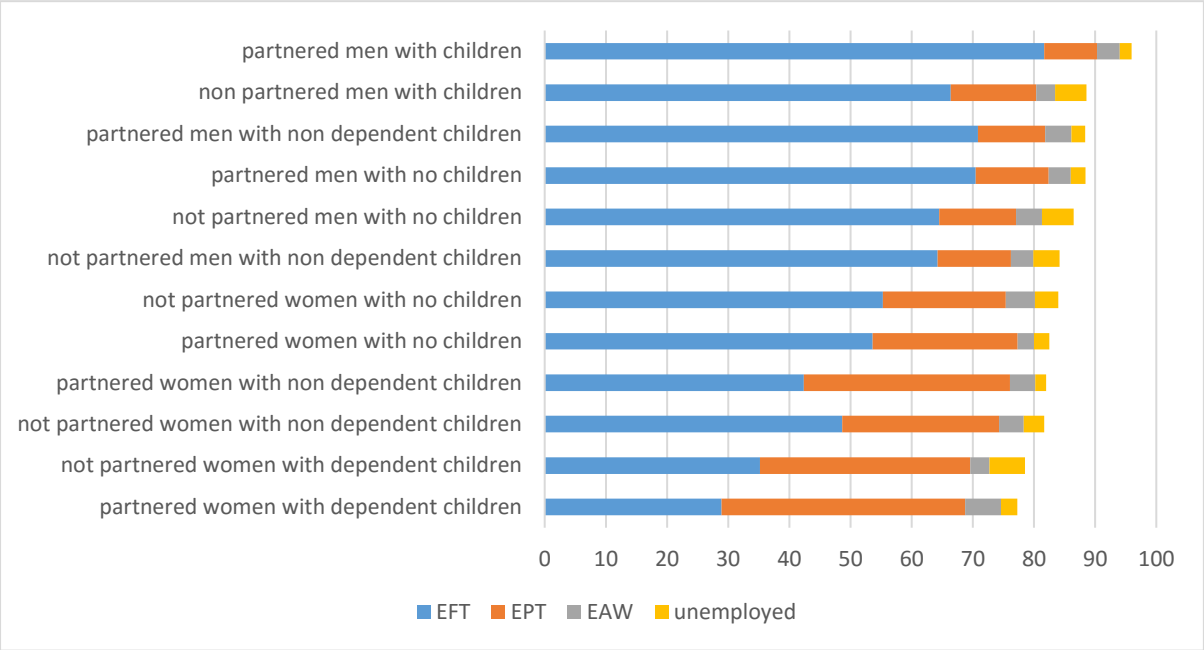
Fig. 8. Labour force attachment for men and women by presence of children and presence of partner



Source: ABS Census of Population and Housing (2011), customised dataset, author calculations
*no children (NC); dependent children (DC); Non-dependent children (NDC)
*Employed, full time (EFT), employed, part time (EPT), employed, away from work (EAW)

For all demographic combinations of presence of a partner and/or presence of a child, women have a lower level of attachment to the labour force than men, regardless of their demographic profile. Of the 12 possible demographic combinations of sex, partner status and child status, men have higher levels of labour force attachment than women. Partnered men with dependent children have the highest level of attachment at 96 per cent and partnered women with dependent children have the lowest at 77.3 per cent.

Figure 9. Level of labour force attachment in descending order by demographic profile



Source: ABS Census of Population and Housing (2011), customised dataset, author calculations
*Employed, full time (EFT), employed, part time (EPT), employed, away from work (EAW)

Summary

The existence of underutilisation of skills has considerable economic and social implications for Australia and Australians. While the actual required educational level for occupations may be greater than the skill level suggested by the ABS, or experience may negate the formal educational attainment level required, there is considerable evidence of field of study mismatch, overqualification and underqualification in the Australian labour market which negatively impacts on labour productivity. A key initial finding of this research is the affirmation that the achievement of post-school qualifications does not automatically translate into increased labour force participation nor productivity and that significant investment in education and training is not always effectively utilised in the labour market. This suggests that an overall intention to increase the educational participation and attainment of Australians could lead to a false economy unless strategically undertaken.

A better understanding of skill utilisation will contribute to informing education and training policy and investment decisions as well as labour force policy. This has the potential to improve efficiency of investment in education and training as well as return on investment for both individuals and the economy.

As such, there is a need to develop metrics to both benchmark and measure skill utilisation which extend across different scales; for example, national and subnational (regional), sectoral and demographic. In addition, the ability to evaluate policy intervention over time would improve efficiency of investment in education and training and labour market policy.

Consideration should also be given to reassessing content and delivery of education and training to achieve competency in core skills and enable transferability of skills in a fast changing economic structure[1].

Greater equality in participation in the labour market by men and women will contribute to improved utilisation of womens' complement of skills.

[1] Extensive research commissioned by NCVER identifies a number of commonalities between industry specific occupations and vocational qualifications which can be linked through vocational streams to achieve a greater skill base and transferrable productivity capability than job-specific qualifications. For more information see Wheelahan, L., Buchanan, J., & Yu, S. (2015) Linking qualifications and the labour market through capabilities and vocational streams. Adelaide: NCVER.