Mining and Automotive Skills Alliance

March 2025 Research Bulletin

How has gender representation shifted in response to various economic and global pressures?

Mining and Automotive Skills Alliance

Mining and automotive on an occupation and gender level

The mining and automotive industries are important contributors to Australia's economic prosperity and have an evolving landscape. Both industries have seen changes in female representation and occupation employment levels within the industries over the last decade. In this research bulletin, we explore some of the changes in employment trends related to gender representation and on the occupation level.

What is going on at the industry level?

The mining industry has seen a gradual increase in female participation over the last decade (Figure 1a). This shift is driven by various factors, including diversity and inclusion initiatives, government policies encouraging gender balance, and changes in the nature of everyday work, which attract a more diverse cohort into the workforce. Additionally, educational programs and scholarships for women in STEM fields have contributed to a growing female workforce.[1] Organisations like the Australian Academy of Technological Sciences & Engineering (ATSE) aim to support women in STEM through programs like Elevate, which offers scholarships, mentorship, and leadership training.[2] These initiatives aim to close gender gaps and pave the way for a more diverse workforce. Organisation-level initiatives, such as greater parental leave and flexible work options, also attract a more diverse working cohort.[3]

The gender ratio in the automotive industry has remained relatively stable over the decade except for noticeable spikes in the May 2018 and August 2020 quarters (Figure 1b). Between 2016 and 2021, Australia's automotive industry shrank by 4.9% annually due to the closure of local car manufacturing plants (Holden, Ford, Toyota) and the COVID-19 pandemic, which disrupted sales, supply chains, and employment.[4] While both male and female workers were affected by the COVID lockdown, women were particularly impacted in administrative and support roles.[5] Since the May 2022 quarter, the male-to-female employment ratio has gradually decreased, indicating a shift towards a greater gender balance in the workforce.

[1] Department of Industry, Science and Resources, "The state of STEM gender equity in 2023", 21 July 2023.
[2] Department of Industry, Science and Resources, "256 STEM scholarships for women and non-binary people in STEM", 15 November 2024.
[3] WGEA, "Workplace gender equality: the business case", 12 November 2018.
[4] Department of Industry, Innovation and Science, "Transition following the end of Australian motor vehicle production", January 2020.
[5] Grattan Institute, "Women's work: The impact of the COVID crisis on Australian women", March 2021.

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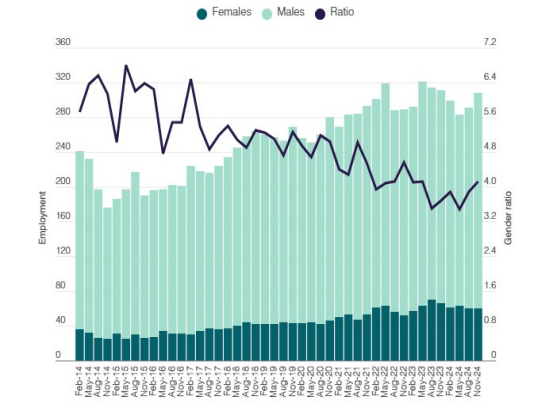
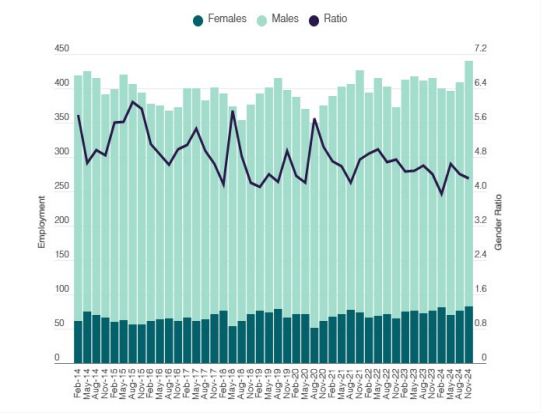
Figure 1a: Gender Ratio in Mining Industry



Source: Australian Bureau of Statistics, "Labour Force Estimates, Customised Table, November 2024", 2025.

Note: The employment count is in thousands over 10 years.

Figure 1b: Gender Ratio in Automotive Industry



Source: Australian Bureau of Statistics, "Labour Force Estimates, Customised Table, November 2024", 2025.

Note: The employment count is in thousands over 10 years.

Going down to the subdivision level

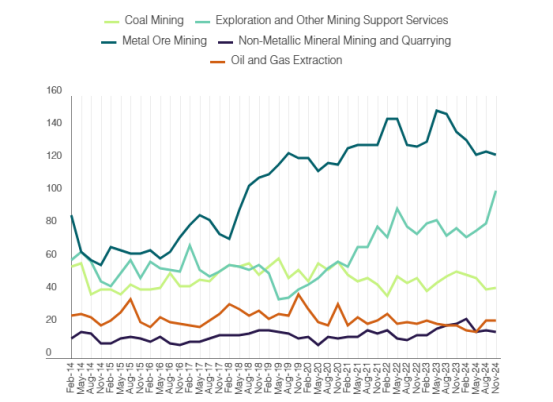
Around 127,000 people were employed within the metal ore mining industry in 2024 reflecting the demand for a clean energy transition among various industries (Figure 2a). [6] There was a slight 'flatline' or decrease in employment in the first quarters of 2023 for metal ore mining due to the BHP Yandi mine slowing down production in preparation for closure in 2024. This mine accounted for 4.9% of total iron ore production in Australia in 2022, and the effects of the closure can be attributed to the decline of employment in 2024.[7] Exploration and other mining support services are seen to begin rising in employment, with decade-high employment of around 83,000 in 2024 from 57,000 in 2014. Government support for exploration targeting critical minerals such as lithium, cobalt, and nickel is on the rise, as is global demand, which has driven exploration activity.[8] Over the past decade, employment in coal mining and oil and gas extraction has remained relatively stable, while non-metallic mineral mining and quarrying continues to have the lowest workforce with 18,300 employees.

The automotive industry's employment follows a steady trend throughout the decade. The repair and maintenance sector has a far larger workforce than other automotive subdivisions, with around 250,000 workers throughout 2024 (Figure 2b). Despite slight declines in employment within the repair and maintenance sector, other occupations also seem to follow the same trend, indicating that the same external influences are impacting the automobile industry at the same time. Repair and maintenance, the most significant employer, saw a dip in 2017, followed by a decline in 2020, which could be due to COVID-19 restrictions. Motor vehicle and motor vehicle parts wholesaling has the smallest workforce with 27,000 workers in 2024, meaning the workforce only grew by 1,900 workers over the decade (Figure 2b). Such constant employment rates for the automotive industry reflect how

[6] World Economic Forum. Mining and Metals: Trends, Challenges and the Way Forward, 2023.
[7] Mine. "Iron Ore Mining in Australia: An Outlook to 2030, 2024.
[8] IBISWorld. Mineral Exploration in Australia, 2024.

the industry maintains a stable demand for the workforce, balancing workforce needs with market conditions despite economic fluctuations, technological advancements, and industry shifts.

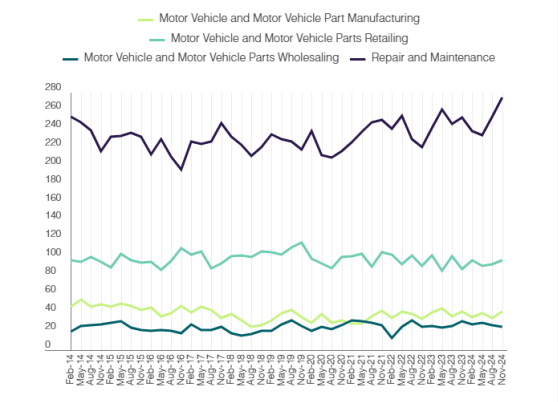
Figure 2a: Mining Industry Employment '000 Trend 2014-2024



Source: Australian Bureau of Statistics, "Labour Force Estimates, Customised Table, November 2024", 2025.

Note: The employment count is in thousands over 10 years.

Figure 2b: Automotive Industry Employment '000 Trend 2014-2024



Source: Australian Bureau of Statistics, "Labour Force Estimates, Customised Table, November 2024", 2025.

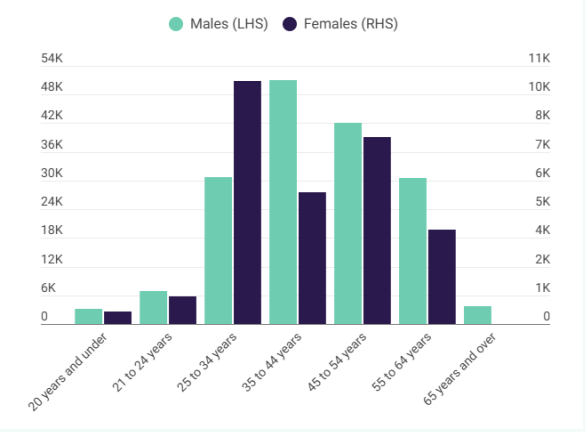
Note: The employment count is in thousands over 10 years.

Age distribution at the industry level by gender

The graph for the mining industry highlights key differences in employment trends between men and women (Figure 3a). In 2023, the highest employment for males falls within the 35 to 44-year age range, while for females, it is highest in the 25 to 34-year age range (Figure 3a). This trend is likely a function of the fact that female representation has recently increased in the automotive sector, mostly driven by the repair and maintenance subdivision (Figure 2b).

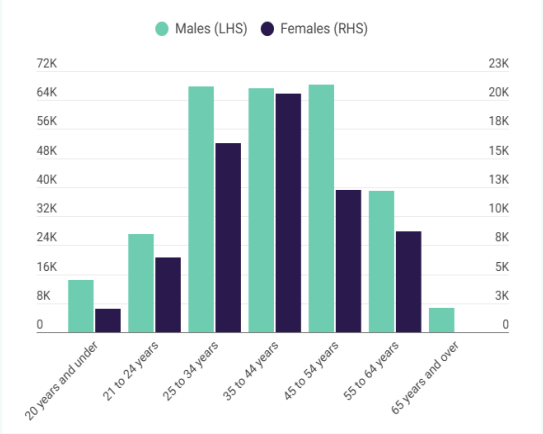
In the automotive industry, the 2023 employment trends by gender and age range show distinct patterns. For males, employment in 2023 is stable across the 25 to 34, 35 to 44, and 45 to 54 age groups, indicating a balanced distribution of male workers across these age ranges, indicating that male employees tend to stay in the field, perhaps continuing as business owners. For females, the highest employment is in the 35 to 44 age group, indicating that women in the automotive industry tend to be more concentrated in middle-aged subsets (Figure 3b). This is partly a function of recent entrants to the workforce that have not aged into the upper age brackets.

Figure 3a: Mining Industry Employment by Gender by Age in 2023



Source: Australian Bureau of Statistics, "Employee Earnings and Hours, 2023, TableBuilder", 2024.

Figure 3b: Automotive Industry Employment by Gender by Age in 2023



Source: Australian Bureau of Statistics, "Employee Earnings and Hours, 2023, TableBuilder", 2024.

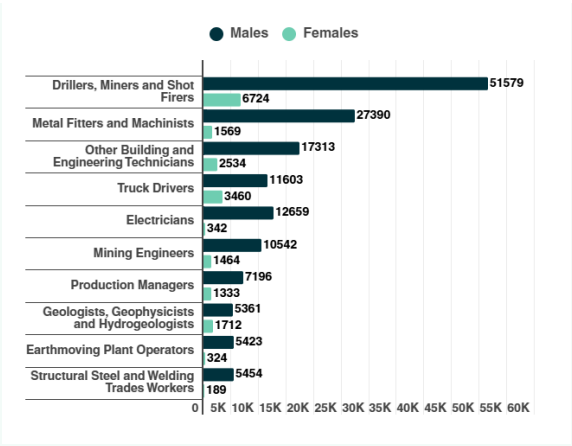
At the occupation level9

The gender distribution at the occupation level reflects a larger male presence across all key occupations in the Mining industry (Figure 4a). Drillers, Miners and Shot Firers are the largest occupations, with 51,579 males compared to 6,724 females. Metal Fitters and Machinists follow a similar trend, with 27,390 males and 1,569 females. Other Building and Engineering Technicians in mining also show a male majority, with 17,313 males and 2,534 females.

The gender distribution at the occupation level reflects a larger male presence across all key occupations in the Automotive industry (Figure 4b). Motor Mechanics make up the largest group and largest gender employment disparity, with 81,772 males compared to 2,683 females. Metal Fitters and Machinists follow, showing 26,788 males and 1,020 females, suggesting that this occupation remains almost entirely male-dominated. Motor Vehicle and Vehicle Parts Salespersons also has gendered disparity with 20,125 males and 3,122 females, indicating slightly higher female representation but still a stronger male presence.

[9] We have only included the count of individuals working in an occupation where their industry of occupation was identified as relevant to automotive or mining in the Census and the number of individuals working in an occupation may be greater if we also include individuals who have a different industry assigned to their employment record in ABS Census data.

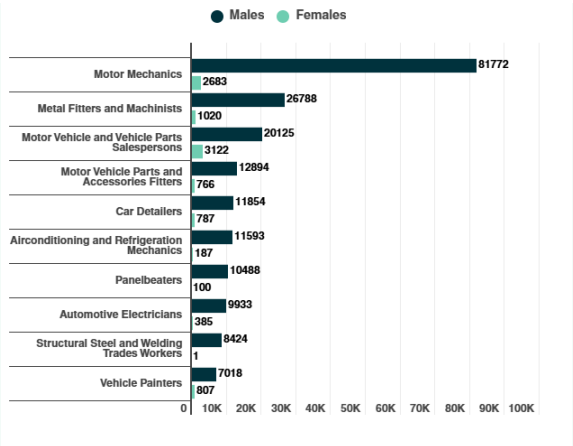
Figure 4a: Top 10 Mining Occupations by Gender Count '000



Source: Australian Bureau of Statistics, "Labour Force Estimates, Customised Table, November 2024", 2025.

Note: The employment count is calculated by averaging the quarterly data for more accurate records.

Figure 4b: Top 10 Automotive Occupations by Gender Count '000



Source: Australian Bureau of Statistics, "Labour Force Estimates, Customised Table, November 2024", 2025.

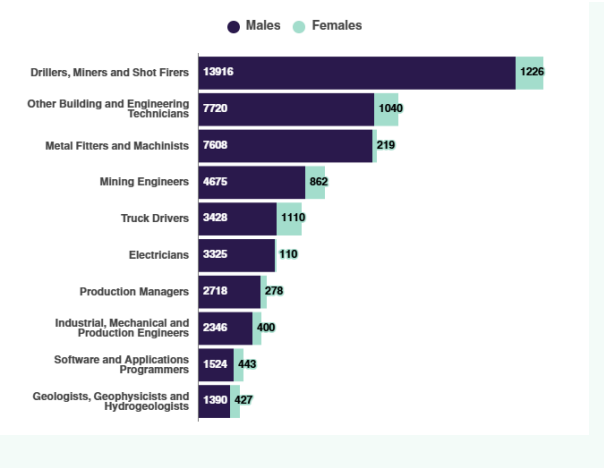
Note: The employment count is calculated by averaging the quarterly data for more accurate records.

In the mining industry, the drillers, miners, and shot firers occupations, with an increase of 15,142 since 2014, is the fastest-growing occupation category, followed by other building and engineering technicians (Figure 5a). A total of 1,226 females have joined the drillers, miners and shot firers occupations and 1,040 in other building and engineering technicians. Metal fitters and machinists also experience significant growth, driven by the continued demand for skills in the extraction, processing, and fabrication of metals used in mining operations. A growing number of female-only positions are being introduced to promote greater gender balance and expand employment opportunities, reflected in the rise of skilled role employment and the most equitable gender distribution among all ten occupations.[10]

[10] Mining World, "Gender Diversity in Mining: Progress and Challenges", 2025.

In the automotive industry, the occupation with the highest growth is motor mechanic roles with an increase of 3,361 in employment since 2014, indicating an increase in the demand for specialised workers in vehicle assembly and maintenance (Figure 5b). Following that, air conditioning and refrigeration mechanics also see considerable growth, likely due to the rising need for climate control systems in modern vehicles. Lastly, keyboard operators[11] in the automotive industry are experiencing

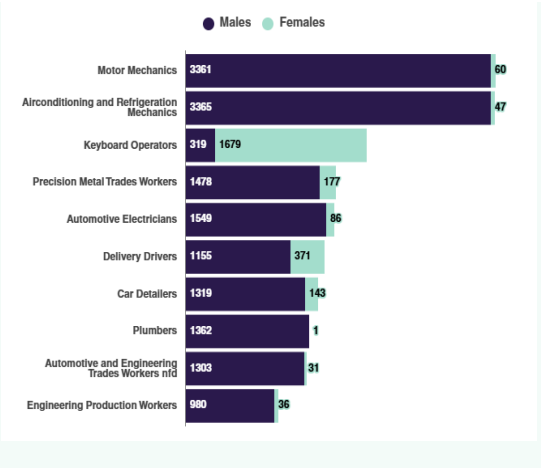
Figure 5a: Top 10 Mining Occupations Growth over 10 years



Source: Australian Bureau of Statistics, "Labour Force Estimates, Customised Table, November 2024", 2025.

Note: The employment count is calculated by averaging the quarterly data for more accurate records.

Figure 5b: Top 10 Automotive Occupations Growth over 10 years



Source: Australian Bureau of Statistics, "Labour Force Estimates, Customised Table, November 2024", 2025.

Note: The employment count is calculated by averaging the quarterly data for more accurate records.

significant growth, reflecting the increasing reliance on data input and computer systems for automotive design, manufacturing, and administration. This role also has a notably higher proportion of female workers, with 1,679 females compared to 319 males, which is likely due to its focus on tasks such as data entry, communication, and administrative support where women have traditionally been more represented in the workforce.[12]

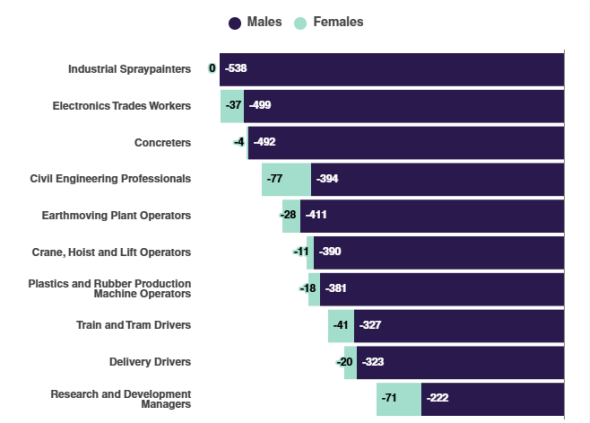
In the mining industry, the largest decline was seen in the role of industrial spray painters, with a decrease of 538 workers. This position is overwhelmingly male, with 100% male workers (Figure 6a). The second largest decline is observed in electronic trade workers, followed by a decline in concrete workers.

In the automotive industry, motor vehicle and vehicle parts salespersons saw the largest employment decline of the decade, closely followed by panel beaters (Figure 6b). Motor vehicle and vehicle parts salespersons lost a total of 6,084 employees from the workforce with panel beaters losing 5,399. Following this, electronics trades workers experienced a similar decline, much like the trend observed

[11] Keyboard operators are responsible for tasks that involve inputting and processing text and data, and preparing, editing, and generating documents for storage, processing, publication, and transmission.
[12] The Russell Sage Foundation Journal of the Social Sciences, "When All Assistants Are Women, Are All Women Assistants? Gender Inequality and the Gender Composition of Support Roles", November 2022.

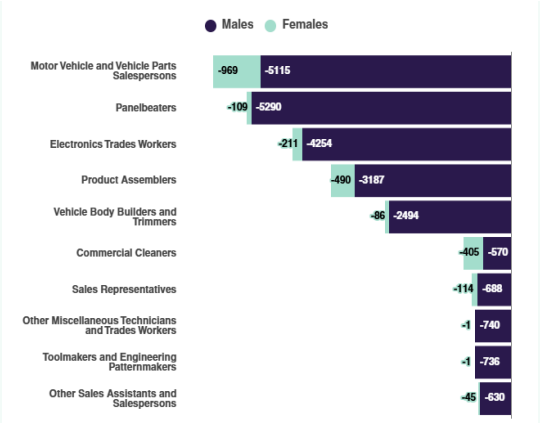
in the mining industry. The automotive industry remains overrepresented in occupational declines with an industry fill rate of just 39% and a shortage of skilled/highly skilled workers.[13] The graph represents the particularly high number of vacancies for trades and technicians in the automotive industry which also have low fill rates attributable to a low applicant rate per vacancy.

Figure 6a: Top 10 Mining Occupations Decline over 10 years



Source: Australian Bureau of Statistics, "Labour Force Estimates, Customised Table, November 2024", 2025.

Figure 6b: Top 10 Automotive Occupations Decline over 10 years



Source: Australian Bureau of Statistics, "Labour Force Estimates, Customised Table, November 2024", 2025.

Initiatives and Efforts in Mining and Automotive

Ongoing industry shifts and technological advancements are creating new opportunities for female participation and leadership, however, female participation is low. With the rise of advanced manufacturing technologies and an increasing focus on sustainability and diversification, both industries are moving away from traditional practices, and improved perceptions of the industries are opening doors for greater female involvement in technical and leadership roles.[14]

In the mining industry, partnerships between industry leaders, government bodies, and professional associations like the Australasian Institute of Mining and Metallurgy (AusIMM) can play a crucial role in boosting female employment. AusIMM is instrumental in raising awareness, organising networking events, and creating mentorship opportunities for women already in the field. Through initiatives like the Women in Mining Network, AusIMM brings together women across various sectors of mining to share experiences, build a supportive community, and foster professional growth. The network also offers tailored training and leadership development opportunities that address the unique challenges women face in the industry.[15]

[13] MTAA. Skills Shortages in the Australian Automotive Industry, 2024.
[14] Improved perception as a result of the drive to decarbonise and the importance of mining (critical minerals) to net zero. Other changes in automotive, like the renaming of the motor mechanic occupation to automotive technician under the OSCA system, are also likely to increase female participation.
[15] AusIMM, "Women in Mining", 2025.

In addition to these industry-wide efforts, companies themselves also play a critical role in advancing gender balance, with their success largely determined by the leadership's commitment to transforming workplace culture. Companies like BHP, for example, have taken proactive steps to promote gender balance. Since 2016, BHP has implemented flexible working options and leadership programs specifically designed for women, contributing to a more inclusive work culture. As a result of these initiatives, the representation of women in BHP's workforce has increased to 37.1% as of 2024, demonstrating the positive impact of such targeted efforts.[16]

Similarly, as Australia shifts focus toward growth in advanced manufacturing, renewables, and batteries, there is a growing demand for specialised skills in areas like lightweight materials, battery systems, and autonomous vehicle development in the automotive industry. Companies like Toyota Australia, one of the leading manufacturers of electric vehicles, are creating opportunities for women by offering targeted career development initiatives. The company prioritises coaching and mentorship to support women's professional growth. Programs like 'Women on the Verge of Brilliance' focus on building women's confidence, resilience, and leadership skills, empowering them to take control of their careers.[17]

With the rise of advanced manufacturing technologies and an increasing focus on sustainability and diversification, the mining and automotive industries are adapting to conventional disruptors and becoming the workforce of the future.

[16] BHP, "Inclusion and diversity", 2025.
[17] Unleash, "Toyota: Diversity accelerates innovation", 21 November 2022.

Mining and Automotive Skills Alliance

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